

**MAPPING HIGHER EDUCATION IN BALI  
WITH GIS**

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## **1. INTRODUCTION**

Higher education is a continuation of secondary education held to prepare learners to become members of the community who have academic and professional skills that can apply, develop and create science, technology and art. At this time the development of universities in Bali is very rapid, along with the increasing needs in the world of work that requires experts in their respective fields.

The community in general and the students who graduated from high school / vocational school / equivalent in particular, desperately need effective and efficient information in obtaining information about the university on the island of Bali and no doubt to place his choice in accordance with the interests and abilities in a particular field of knowledge. Therefore it is necessary to build an application of geographic information system of the spread of this college that can help the community or graduate high school students / vocational / equivalent who just completed their

education and want to continue education to a higher level again.

Geographic Information System (GIS) can provide information effectively in determining universities based on the areas of knowledge that are in demand by the community. During this time the public difficulty in obtaining information because of the possibility of too many universities in Bali are scattered in some areas and the possible lack of socialization of each college about the program offered. Therefore, this system can be a decision-making system for the community in general and graduates of high school / vocational school / equivalent in particular, to determine the choice of universities in accordance with their interests.

## **2. LITERATURE REVIEW**

### **A. The Concept of GIS**

Geographic information system consists of three terms, namely system, information and geography. The system is a set of components or elements that are interconnected between components / elements to achieve goals. The concept of information is the result of data processing and geography is the study of the Earth's surface. The concept of geographic information system is a collection of components consisting of interacting with each other in data processing so as to produce geographical information that implementation in the form of digital maps. Geographic information systems can also be defined as an information system that can analyze, store, update, integrate and display all forms of information related to the earth's surface. The existence of an efficient geographic information system capable of managing data with complex and large-scale structures can assist in the decision-making process.

There are several reasons why the concepts of geographic information systems and their applications are attractive to use in various disciplines as follows

- GIS is very effective in assisting the process of forming, developing or improving the map and always coexist with the real-world physical environment filled with visual impressions
- GIS can be used as an interactive, interesting and challenging tool or tutorial in efforts to improve understanding, understanding, learning and education about ideas or concepts of location, space, population, and elements geographical elements present on the surface of the earth and attribute data attached to them.
- GIS uses spatial data and non-spatial data (attributes) in an integrated manner so that the system can answer spatial and non spatial questions
- GIS has the ability to decipher elements on the surface of the earth into layers that can model real shapes on earth
- GIS applications can be customized by using scripting language commands owned by the relevant GIS software so as to meet user needs



automatically, quickly, more attractively, informatively and user friendly.

## **B. Spatial Data and Non Spatial Data**

Spatial data is data that has georeference references where various attribute data are located in various spatial units. Currently spatial data is becoming an important medium for sustainable natural resource development and management planning on continental, national, regional and local coverage. The utilization of spatial data is increasing after the existence of digital mapping technology and its utilization in Geographic Information System (GIS). Spatial data formats can be either vector (polygon, line, points) or raster. In this study using the vector format because the map is a thematic map.

Spatial data is data that has georeference reference where various data Non spatial data or attribute data is data type representing descriptive aspects of phenomenon that modeled, this descriptive aspect includes items or properties of phenomenon concerned to the time dimension.

### **C. The Concept of Arcview Software**

ArcView is one of the desktop Geographic Information System (GIS) software and mapping developed by ESRI (Environmental System Research Institute). With ArcView, users can have the ability to visualize, explore, answer queries (spatial and non spatial databases), analyze data geographically and so on.

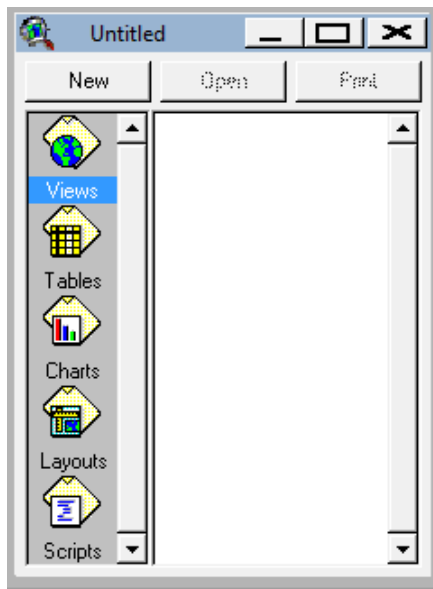
The capabilities of these ArcView Geographic Information System (GIS) devices can generally be described below:

- ✓ Data exchange: reading and writing from and into other GIS software formats.
- ✓ Perform statistical analysis and mathematical operations
- ✓ Displays spatial data and attributes
- ✓ Answering spatial queries as well as attributes
- ✓ Perform basic GIS functions
- ✓ Creating thematic maps
- ✓ Customize applications using scripting languages
- ✓ Performs other specialized GIS functions

ArcView organizes the software system, so it can be grouped into several main components as follows

1. Project

Project is the highest organizational unit within ArcView. Projects within ArcView are almost similar to projects owned by other computer programming languages.



**Figure 1. Project Window**

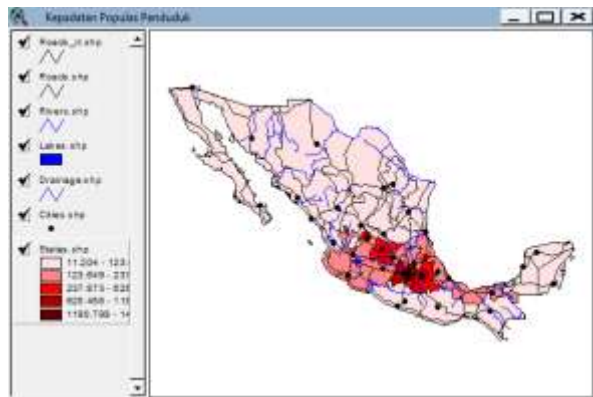
2. Theme

Theme is a basic building of the ArcView system and a collection of several ArcView

layers that form a particular theme. Data sources that can be represented as themes are shapefile, coverage (ArcInfo) and raster images.

### 3. View

View organizes themes. A view is a representation of a spatial information line and can accommodate multiple layers or themes of spatial information (dots, lines, polygons and raster images). For example, city positions (points), rivers (lines) and provincial boundaries (polygons) can form a theme in a view.



**Figure 2. View of some Themes**

#### 4. Table

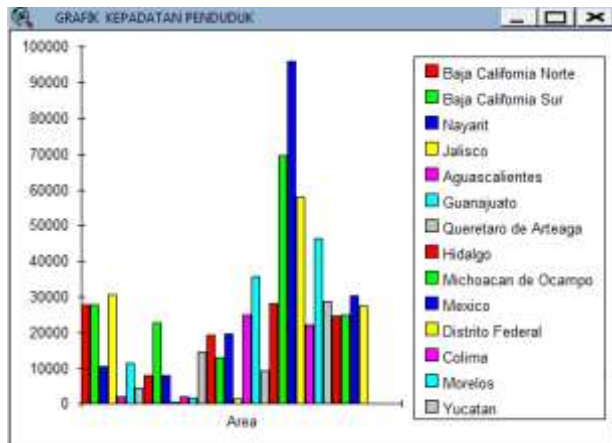
The table is a representation of ArcView data in the form of a table. A table will contain descriptive information about a particular layer. Each data line defines a data entry, whereas each field defines the attribute or characteristics of the corresponding entry.

Shape	Area	Code	Name	Water	Pop7880	Pop90	Pop90_ages
Polygon	26002.325	MX00	Baja California Norte	1660825	51.537050	90.904520	
Polygon	27898.191	MX02	Baja California Sur	317764	11.204120	78.254620	
Polygon	10547.762	MX10	Nayarit	624643	79.186940	62.054850	
Polygon	30736.386	MX14	Jalisco	5302699	169.943300	81.853420	
Polygon	2110.761	MX01	Aguascalientes	719659	340.778900	76.521930	
Polygon	11715.793	MX11	Guanajuato	3982593	338.381600	63.414290	
Polygon	4645.565	MX02	Queretaro de Arzobispo	1051235	237.872900	59.723950	
Polygon	8190.684	MX11	Hidalgo	1888366	235.052100	44.785700	
Polygon	22961.831	MX14	Michoacán de Ocampo	3548199	153.387800	61.618700	
Polygon	8291.708	MX14	Mexico	9615795	1150.799000	84.406890	
Polygon	512.050	MX01	Distrito Federal	8235744	14426.050000	99.734060	
Polygon	2211.033	MX08	Colima	428510	213.856600	83.319880	
Polygon	1951.676	MX12	Morelos	1195059	625.456100	65.621540	

Figure 3. Table View inside ArcView

#### 5. Chart

Charts are graphical representations of resumes of data tables and can display query results against a data table. The forms of charts supported by arcView are line, bar, column, xy, scatter, area, and pie.



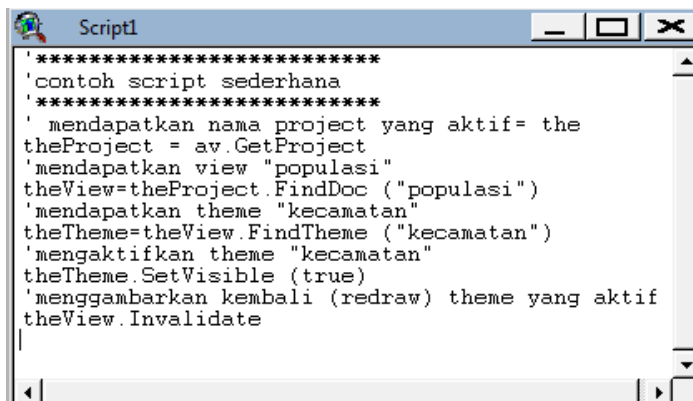
**Figure 4. Chart View**

6. Layout

Layout is used to combine all documents (view, table, and chart) into a document that is ready to print

7. Script

Scripts are simple (semi) programming languages (macros) used to automate ArcView work. ArcView provides this simple language with Avenue. With Avenue, users can modify ArcView's user interface, create programs, simplify complex tasks and communicate with other applications.

A screenshot of a window titled "Script1" in ArcView. The window contains a simple script in Indonesian. The script starts with a comment "contoh script sederhana" (simple script example) and then performs several actions: it gets a project named "theProject", finds a view named "populasi", finds a theme named "kecamatan", sets the theme to be visible, and finally redraws the view.

```
'*****  
'contoh script sederhana  
'*****  
' mendapatkan nama project yang aktif= the  
theProject = av.GetProject  
'mendapatkan view "populasi"  
theView=theProject.FindDoc ("populasi")  
'mendapatkan theme "kecamatan"  
theTheme=theView.FindTheme ("kecamatan")  
'mengaktifkan theme "kecamatan"  
theTheme.SetVisible (true)  
'menggambarkan kembali (redraw) theme yang aktif  
theView.Invalidate
```

**Figure 5. Display of Scripts Language in ArcView**

ArcView customizes the project along with the available tools into windows, menu buttons, and icons. All interactions with users are done within this area. Every document type (view, table, chart, layout and script) ArcView has a different GUI (Graphical User Interface).

ESRI has developed several versions of ArcView, used in this research is ArcView version 3.2. ArcView 3.2 software is a software that is one of the utility for editing, digitization, layout of satellite image map. This software runs under a desktop mapping system by providing a framework for spatial decision making, and

has the ability to describe, investigate, and evaluate, query and analyze spatial data. Jobs change map symbols, add image or graphic images, create map information. Arcview software can change the icons or terminology used on the interface, automate operations or create a specific interface to access the basic data. Besides this ArcView Software can also communicate with other software products where it can replace without doing the conversion and exit from ArcView.

#### **D. The Concept of Map**

Map is a depiction of the surface of the earth that is projected onto a plane with a certain scale.

Function and purpose making the map :

1. Shows the relative position or location on the face of the earth
2. Shows the size (width, distance) on the face of the earth
3. Describe the shape of the face of the earth
4. Presenting potential data of a region
5. Communication of space information
6. Save information
7. Assisting the job (road construction, navigation, planning)



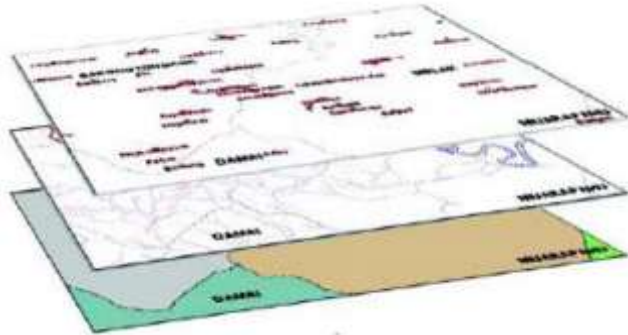
## 8. Analysis of spatial data (volume calculation)

Types of maps by Data Type are Topographic Map, Thematic Map, based on the scale is Cadast Map (1: 100 to 1: 5.000), Large Scale Map (1: 5.000 until with 250,000), Medium Scale Map 1: 250.000 up to 1: 500.000), Small Scale Map (1: 500.000 until with 1: 1.000.000), Geographic Scale Map (> 1: 1.000.000).

Map components, Map Scale, Legend, Orientation, Symbols, Source and manufacture and Projection. Map analysis is an attempt to analyze the information displayed on the map. Examples include counting slopes, calculating volumes, determining patterns and drainage densities, analyzing vegetation patterns, analyzing patterns of settlement distribution. Map Interpretation is an effort to analyze the map associated with other sources of information, for a purpose. For example, if a region on the map has a rectangular drainage pattern, it can be predicted that the ground surface of the area is flat, and composed of soft rocky surfaces. Map Projection is an attempt to move parallel lines and meridians from the curved plane to the flat plane.

### **E. The Concept of Layer**

Layer is a layer in the spatial data generation, this layer aims to group the same data to facilitate the data manipulation. The types of layers in the data vector consists of 3 types: the point represents the city, the capital, the tourist object, the place of worship and so on, the line represents the river, the boundary of the territory, the railway line, the transportation route and so on while polygon represents lakes, regions and so forth. Here's an overview of the layer.



**Figure 6. Layer Image**

## **F. Definition of Higher Education in Indonesia**

Higher Education is a continuation of secondary education held to prepare learners to become members of the community who have academic and professional ability who can apply, develop and create science, technology and art

Higher Education are educational units of higher education providers. Students are called college students, while college educators are called lecturers. By type, colleges are divided into two:

- State higher education are universities organized by the government.
- Private higher education are private universities. These education are managed by Private Legal Entities & under the coordination of Kopertis of each region.

According to the level of his position, private higher education are divided into 3 statuses, namely:

1. Higher education with registered status are valid for a period of 5 years.
2. Higher education with a recognized status is valid for a period of 4 years.

3. Higher education with equal status shall be valid for a period of 3 years

Higher education is education at a higher level than middle school education in education.

Higher education objectives are:

1. Preparing learners to become members of the community who have academic and professional skills who can apply, develop and create science, technology and art.
2. Develop and disseminate science, technology and art as well as optimize its use to improve people's living standards and enrich national culture

In Indonesia, higher education can take the form of academy, institute, polytechnic, college, and university. Higher education can provide academic, professional, and vocational education with diploma education programs (D1, D2, D3, D4), undergraduate (S1), master (S2), doctoral (S3), and specialist degrees. Universities, institutes, and colleges with doctoral programs are entitled to award honorary doctorates to honorable individuals with respect to outstanding services in the fields of science, technology, society, religion, culture

or art. The name of a professor only used during the relevant work is still active as educators in college.

Management and regulation of higher education in Indonesia conducted by the Ministry of National Education. Rector of State higher education is an echelon official under the Minister of National Education. In addition, there are also higher education run by ministries or non-ministerial government institutions which are generally official colleges, such as State higher education of Accountancy run by the Ministry of Finance. Furthermore, under applicable law, every higher education in Indonesia must have an Education Legal Entity that serves to provide fair and quality services to students, principled nonprofit, and can manage funds independently to advance national education.

Here is an explanation of the type of higher education in Indonesian Country :

➤ Academic

The Academy (Greek language) is an institution of higher education, research, or honorary membership. The name is derived from Plato's philosophical school founded

around circa 385 BC at Akademia, an Athenian sanctuary, goddess of wisdom and ability, north of Athens, Greece. Academy in education in Indonesia is one form of college other than polytechnics, high schools, institutes, and universities. Academy is a college that organizes vocational education in one branch or part of a particular branch of science, technology, and / or art Institut menyelenggarakan program pendidikan akademik dan/atau profesional dalam sekelompok disiplin ilmu pengetahuan, teknologi dan/atau kesenian yang sejenis. Memberikan pendidikan dan pengajaran tinggi serta melakukan penelitian dalam beberapa cabang ilmu pengetahuan sejenis. Institut dipimpin oleh seorang rektor

➤ Polytechnic

The type of higher education that conducts vocational education in the number of specialized knowledge areas. In its position as a higher education, the Polytechnic is part of the national education system which means

students become members of the community who have the ability that can be used, develop and develop science and technology and strive for the use to improve the living standards of healthy people and humans enrich national culture. Polytechnics are professional education that calls for the readiness to apply certain skills. In addition, the Polytechnic is a college that conducts applied education in various fields. To achieve this goal, the Polytechnic provides the perfect learning and training experience for camping in science and technology with 70% practice and 30% practical theory. His graduates hold an Associate degree (A.Md) earned a degree of Expert Madya (A.Md) who is ready to work thanks to training and practical theory during education.

➤ College

College provides high education and teaching and conducts research in one branch of science. College is led by the Head of College.

➤ Universitas

Universitas adalah lembaga pendidikan tinggi dan penelitian, yang memberikan gelar akademis dalam berbagai mata pelajaran. Universitas adalah perusahaan yang menyediakan pendidikan sarjana dan pendidikan pascasarjana. Kata universitas berasal dari bahasa Latin universitas magistrorum et scholarium, kira-kira berarti "komunitas guru dan peneliti.

Universitas yang dipimpin oleh seorang rektor terdiri dari beberapa fakultas dan masing-masing fakultas terdiri dari beberapa jurusan dari berbagai bidang ilmu.



### **3. IMPLEMENTATION**

In this section discusses the identification of spatial data consisting of the result of digitized map of Bali Island in Arcview GIS and digitized results of each district or municipality. The second discussion is the identification of non spatial data and the integration of spatial data and non spatial data and in this chapter also described the results of the analysis of this study.

#### **A. Identification of spatial data**

Spatial data consists of data of all districts / municipalities in Bali Island, data of college location in each regency / municipality in Bali Island, data of capital of each regency / municipality. Here is the result of digitized map of Bali island.

#### **Result of Digitasi Peta Bali Island use ArcView GIS**

Digitization is the process of drawing maps from manual to digital. Digitization process is by identifying the layer to be created. Layers are layers with the aim of grouping the same data so that it is easily manipulated. The first layer is a layer with polygon type feature to store spatial data of the islands of Bali (\* shp). The second layer is the district / municipality layer and is

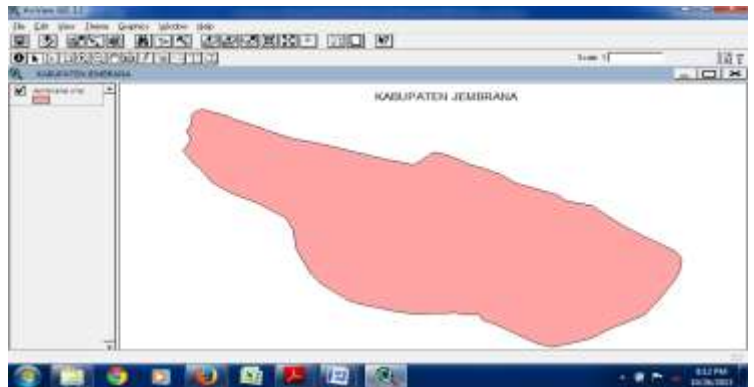


In figure 9 is the layout of the map of Bali Island is a general picture of the overall digitasi results from the island of Bali before printing to the output tool.

### **Digitasi Regency / Municipality of Bali Province**

The spatial data of Bali Island are grouped into 8 districts and 1 municipality. Here is a picture of the results of digitasi 8 kabupaten and 1 municipality in Bali Island

### **Result of Digitation of Jembrana Regency**

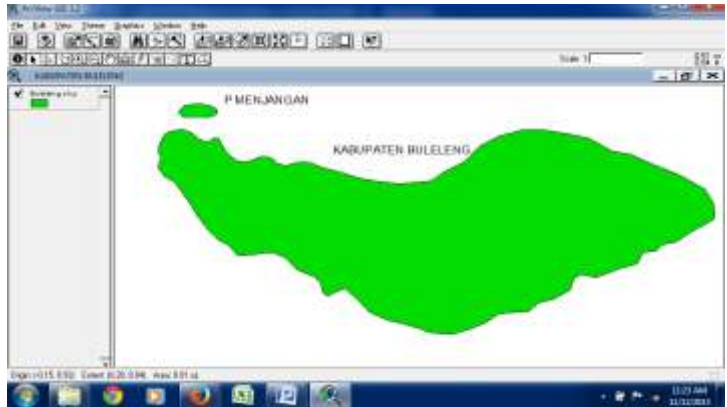


**Figure 9. Result of Digitation of Jembrana Regency**

### **Result of Digitation of Buleleng Regency**

In figure 10 is the result of digitized map from Buleleng Regency which consists of 1 layer whose feature type is polygon. At the time of digitasi formed 2 records of

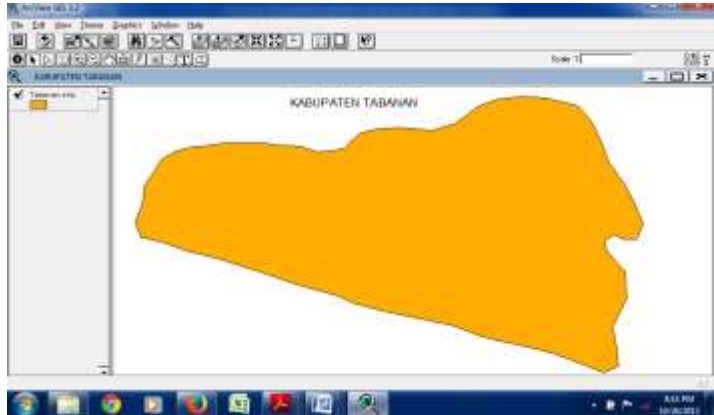
spatial data islands and spatial data buleleng. The island is a land area including Buleleng district.



**Figure 10. Result of Digitation of Buleleng Regency**

### **Result of Digitation of Tabanan Regency**

Figure 11 is the result of digitized map of Tabanan Regency which consists of 1 layer whose feature type is polygon.



**Figure 11. Result of Digitation of Tabanan Regency**

### **Result of Digitation of Badung Regency**

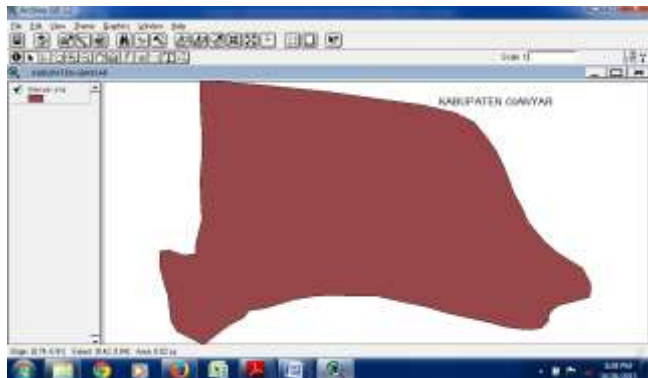
Figure 12 is the result of digitized map of Badung regency consisting of 1 layer whose feature type is polygon. At the time of digitization formed 3 records of spatial data of two islands (2 records) and spatial data of Badung. Nusa Dua Island is an area including Badung regency.



**Figure 12. Result of Digitation of Badung Regency**

### **Result of Digitation of Gianyar Regency**

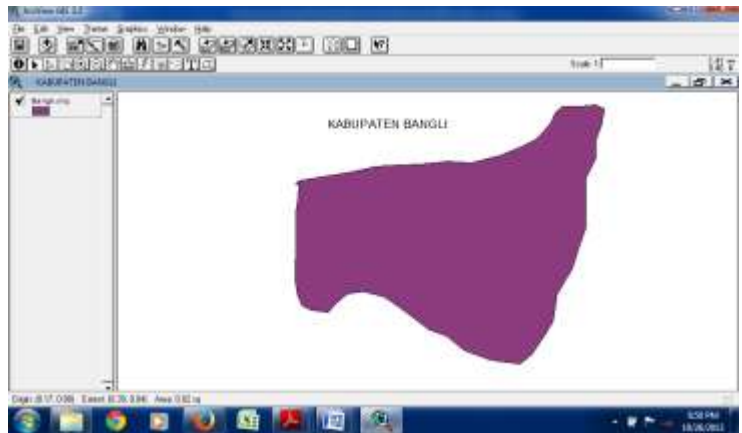
Figure 13 is the result of digitized map of Gianyar Regency which consists of 1 layer whose feature type is polygon.



**Figure 13. Result of Digitation of Gianyar Regency**

### **Result of Digitation of Bangli Regency**

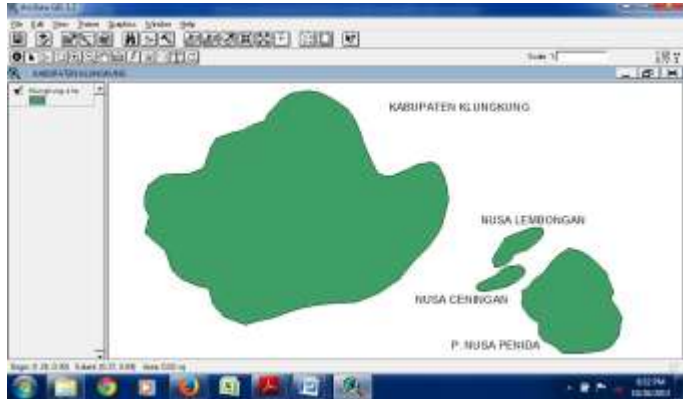
Figure 14 is the result of digitized map of Bangli Regency which consists of 1 layer whose feature type is polygon.



**Figure 14. Result of Digitation of Bangli Regency**

### **Result of Digitation of Klungkung Regency**

Figure 15 is the result of digitized map of Klungkung regency consisting of several islands namely nusa penida, nusa ceningan, nusa lembongan and nusa penida. feature type layer is polygon.

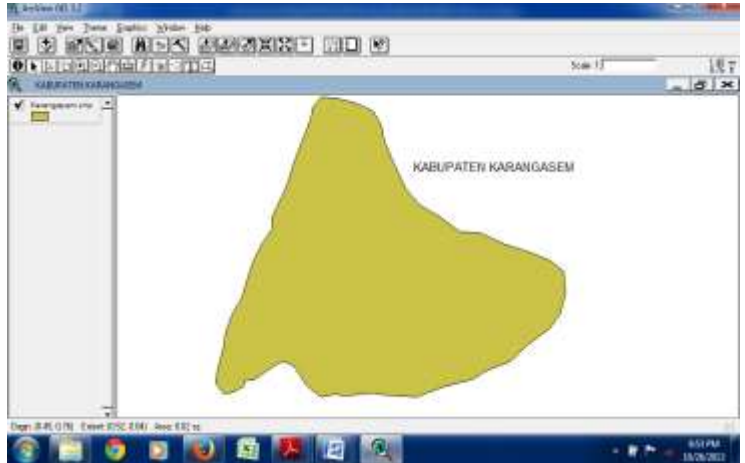


**Figure 15. Result of Digitation of Klungkung Regency**

### **Result of Digitation of Karangasem Regency**

Figure 16 is the result of digitized map of Karangasem Regency which consists of 1 layer whose feature type is polygon

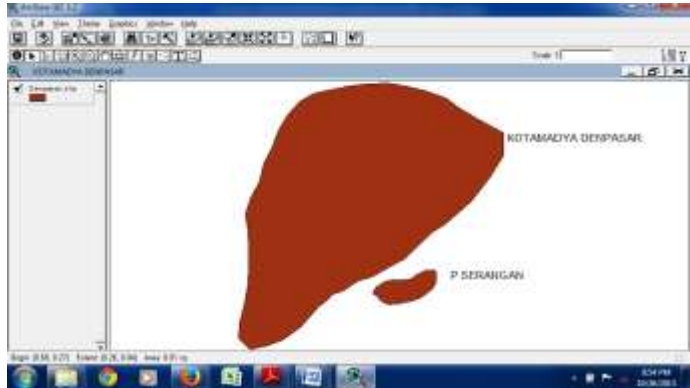




**Figure 16. Result of Digitation of Karangasem Regency**

### **Result of Digitation of Denpasar Municipality**

Figure 17 is the result of digitized map of Denpasar Municipality which consists of 1 layer whose feature type is polygon. At the time terbitasi terbetu 2 records of attack island and the area of Denpasar



**Figure 17. Result of Digitation of Denpasar Municipality**

## **B. Identification of Non Spatial Data**

Here is a picture of the data described by using ERD (Entity Relationship Diagram). In making this diagram, the first step is to identify the entity (object), the second step is the identification of each attribute and the third step is the identification of relations between objects. Entity (object) in this research is as follows:

**Table 1. Entity and Attribute**

Name Entity	Attribute	Data Type	Character width
wilayah	Id_wly	string	5
	Nm_wly	string	16
	Nm_kab	string	16
	Ibu_kota	string	20
	Luas_wly	Number	10
	Jml_kec	Number	5
Sekolah Tinggi	Id_ST	string	5
	Nm_ST	string	16
	Bid_ilmu	string	30
	Jml_jurusa n	number	5
	status	string	10
	lokasi	string	50
	Nm_Kab	string	20
	Telp	string	15
	website	string	50
	NoId_JST	string	5

Jurusan ST	Nama_jurusan	number	16
	jenjang	string	5
	Status_jurusan	string	10
	Nm_ST	string	16
Universitas	Id_Uni	string	7
	Nama_Uni	string	30
	Status	string	10
	Jml_F	number	5
	Jml_jurusan	number	5
	lokasi	string	50
	Nm_Kab	string	20
	website	string	50
	No_telp	string	15
Fakultas	Id_F	string	7
	Nama_fakultas	string	20
	Nama_Uni	string	30
Jurusan_ Fakultas	Id_jrs	string	7
	Nama_jurusan	string	30

	Status_jurusan	string	5
	Nama_Fakultas	string	10
	Nama_University	string	30
Politeknik	Id_pol	string	7
	Nm_pol	string	30
	status	string	7
	Jml_jurs	number	5
	Telp	string	15
	lokasi	string	50
	Nm_Kab	string	20
	website	string	50
Jurusan_politeknik	Id_JPol	string	7
	Nm_jurusan	string	30
	Status_jurusan	string	10
	Nm_Pol	string	30
Institut	Id_Inst	string	7
	Nama_institut	string	30
	status	string	10

	Jml_jurs	number	5
	lokasi	string	50
	Telp	string	10
	website	string	50
	Nm_Kab	string	20
Fakultas_ Institut	Id_fakultas	string	7
	Nama_fakultas	string	30
	Nama_institut	string	30
Jurusan_ Institut	Id_JI	string	7
	Nama_jurusan	string	30
	jenjang	string	5
	Status_jurusan	string	10
	Nama_institut	string	30
Akademi	No_akdm	string	7
	Nm_akdm	string	30
	status	string	10
	Jml_jur	number	5
	lokasi	string	50
	Telp	string	10

	website	string	50
	Nm_Kab	string	30
Jurusan_a kademi	Id_jur_akd m	string	7
	Nama_juru san	string	30
	jenjang	string	5
	Status_juru san	string	10
	Nm_akdm	string	30

wilayah : area

sekolah tinggi : college

universitas : university

institute : institute

akademi : academy

politeknik : polytechnic

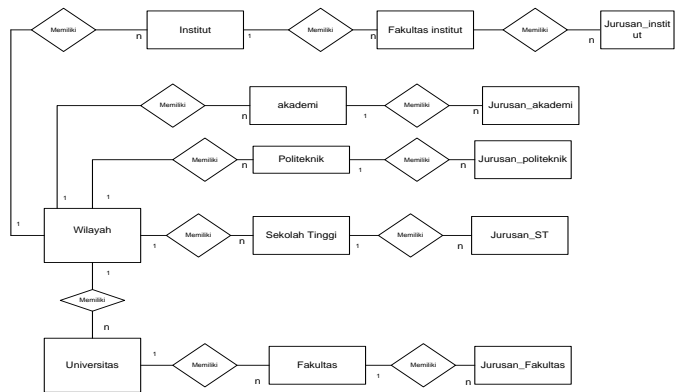
Fakultas\_institute : Faculty\_Institute

Jurusan\_institut : Majoring\_Institute

Jurusan\_akademi : Majoring\_academy

Jurusan\_politeknik : Majoring\_polytechnic

Jurusan\_ST : Majoring\_college



**Figure 18. Entity Relationship Diagram**

In this study, 13 entities were identified: university entity, entity area, high school entity, institute entity, polytechnic entity, academic entity, faculty entity, entity faculty entity, high school entity, entity majoring in polytechnic, entity majoring in academy and entity majoring in institute. The relationship between entities is one to many

**Tabel 2. List of Regencies / Municipalities in Bali Island**

Id_wly	Nm_wly	Nm_kab	Ibu_kota
1	Jembrana	Jembrana	Negara
2	Buleleng	Buleleng	Singaraja



3	Tabanan	Tabanan	Tabanan
4	Denpasar	Denpasar	Denpasar
5	Badung	Badung	Mangupura
6	P. Menjangan	Buleleng	Singaraja
7	Nusa dua	Badung	Mangupura
8	Nusa dua	Badung	Mangupura
9	P.serangan	Badung	Mangupura
10	Nusa penida	Klungkung	Smarapura
11	Nusa Ceningan	Klungkung	Smarapura
12	Nusa Lembongan	Klungkung	Smarapura
13	Gianyar	Gianyar	Gianyar
14	Bangli	Bangli	Bangli
15	Klungkung	Klungkung	Smarapura
16	Karangasem	Karangasem	Amlapura

Higher education data are grouped into 5 : university, institute, polytechnic, academy and college. Here is an explanation of each college.

### **Grouping of College on the Island of Bali**

College data on the island of Bali are grouped by regency in Bali Island, can be seen in appendix. Appendix 1 lists the existing high schools throughout

the island of Bali consisting of the names of high schools, disciplines, the number of majors, the status of the public or private college, the location of the college. Appendix 2 contains about majors from each complete with majors and majors status. The grouping of college by district is found in appendices 31 through 39. The results of high school groupings in each district are listed in the following table:

**Table 3. Results Grouping of College on the Island of Bali**

No	Name Regencies/ Municipalities	Amount College
1	Buleleng	1
2	Jembrana	1
3	Tabanan	1
4	Badung	3
5	Denpasar	8
6	Bangli	1
7	Gianyar	0
8	Klungkung	0
9	Karangasem	0

In table 3, the most dominant location is the college is Denpasar, still centered in the capital. The spread of college has not been evenly distributed to other districts and there are districts that do not have college.

### **Grouping of Universities on the Island of Bali**

The data on the classification of the name of the university are contained in appendix 3. The groupings of the faculties of each university are contained in appendix 4 and the grouping of departments of each faculty is found in appendix 5. The grouping of universities by district is in appendix 13-21. Here is a table of observations of the number of universities in each district

**Table 4. Results of Grouping of Universities on the Island of Bali**

No	Name Regencies / Municipalities	Amount universities
1	Buleleng	2
2	Jembrana	0
3	Tabanan	1
4	Badung	2
5	Denpasar	7

6	Bangli	0
7	Gianyar	0
8	Klungkung	0
9	Karangasem	0

In table 4, the most dominant location of the university is Denpasar Municipalities as well as 7 private universities are still concentrated in the capital. The distribution of universities has not been evenly distributed to other districts and there are districts that do not have universities.

### **Grouping of Institutes on the Island of Bali**

Data on grouping of institute type names of colleges are on appendix 8. Grouping of faculty of each institute is found in appendix 9 and classification of departments of each faculty is found in appendix 10. Grouping of institutes by district is in appendix 22-30. Here is a table of observations of the number of institutes of each district.

**Table 5. Results Grouping Institute on the Island of Bali**

No	Name Regencies / Municipalities	Amount institute
1	Buleleng	0
2	Jembrana	0
3	Tabanan	1
4	Badung	0
5	Denpasar	3
6	Bangli	0
7	Gianyar	0
8	Klungkung	0
9	Karangasem	0

Based on the observations in table 5, the most attended location is the institute is Denpasar municipalities as much as 3 institutes, still concentrated in the capital. The spread of the institute has not been evenly distributed to the districts.

### **Grouping of Polytechnic on the Island of Bali**

Data on the classification of tertiary-level polytechnics are listed in annex 6. Grouping of majors are listed in appendix 7. Grouping of institutes by district is in

appendix 49-57. Here is a table of observations on the number of polytechnics of each district.

**Table 6. Results Grouping Polytechnic on the Island of Bali**

No	Name Regencies / Municipalities	Amount Polytechnic
1	Buleleng	1
2	Jembrana	0
3	Tabanan	1
4	Badung	1
5	Denpasar	2
6	Bangli	0
7	Gianyar	0
8	Klungkung	0
9	Karangasem	0

Based on the observation in table 6, the most polytechnic location is Denpasar : 2 private polytechnic, still centered in the capital city. The spread of the institute has not been evenly distributed to the districts.

### **Grouping of Academic on the Island of Bali**

The data on the categorization of higher education of various academies are found in appendix 11. The grouping of majors is listed in appendix 12. The grouping of academies by district is contained in appendix 40-48. Here is a table of observations on the number of academies of each district.

**Table 7. Results Grouping Academic on the Island of Bali**

No	Name Regencies / Municipalities	Amount academic
1	Buleleng	0
2	Jembrana	0
3	Tabanan	0
4	Badung	1
5	Denpasar	9
6	Bangli	1
7	Gianyar	0
8	Klungkung	0
9	Karangasem	0

Based on the observations in table 7, the most dominant location of the academy is Denpasar municipalities : 9

private academies, still centered in the capital. The distribution of the academy has not been evenly distributed to the districts.

### **C. Integration Data Spatial with Data Non Spatial**

In the section explained on the integration of spatial data and spatial data in each regencies / municipalities on the island of Bali

#### **Integration Data of Higher Education in Buleleng Regency**

Spatial data and non spatial data that have been identified in Buleleng district can be implemented in arcview. Spatial data consists of 4 layers namely Layer singaraja city to store data atribu / non spatial description of singaraja city, layer of college used to store non spatial data of college spreading in Buleleng Regency. The street layers are used to store data about the roads associated with the college location. Here is the view of college map in Buleleng District that has been integrated between spatial data with non spatial data.





**Figure 19. The Map of Distribution of Higher Education in Buleleng Regency**

The non-spatial data will be stored in the table in ArcView. The picture of the table is as follows

The screenshot shows the 'Attributes of PT Buleleng.lyr' table. The table contains four rows of data, each representing a higher education institution. The columns are: 'Point ID', 'Nama PT', 'STATUS', 'JML\_KAKUS', 'JML\_EKSPDAS', 'LONGITUD', 'LATITUD', 'WEBSITE', and 'FOTO DA'.

Point ID	Nama PT	STATUS	JML_KAKUS	JML_EKSPDAS	LONGITUD	LATITUD	WEBSITE	FOTO DA
Point 1	UNDIKSA	MESERI	7	35	8.166666666666667	115.83333333333333	www.uni-dia.ac.id	F123
Point 2	STIK PANGMAN KIBOU SAVA	SWASTA	0	4	8.166666666666667	115.83333333333333	www.stp.pangsava.ac.id	
Point 3	UN PAMU SAKTI	SWASTA	5	5	8.166666666666667	115.83333333333333	http://www.unpas.ac.id/FBI_Pangan	
Point 4	IPOLITEK SENGARAJA	SWASTA	0	3	8.166666666666667	115.83333333333333		

**Figure 20. Non spatial data on Higher Education Layer in Buleleng**

In figure 20. Shows the integration between spatial data of location / location of higher education with non spatial data containing attributes of each higher education.

### **Integration Data of Higher Education in Jembrana Regency**

The integration of spatial and non spatial data on the map of higher education in Jembrana regency is important in the concept of Geographical Information System. Here is a picture of the result of digitization and integration between spatial data and non spatial data in Jembrana Regency.



**Figure 21. The Map of Distribution of Higher Education in Jembrana Regency**

The results of identification of spatial data that have been integrated can be seen in Figure 21.



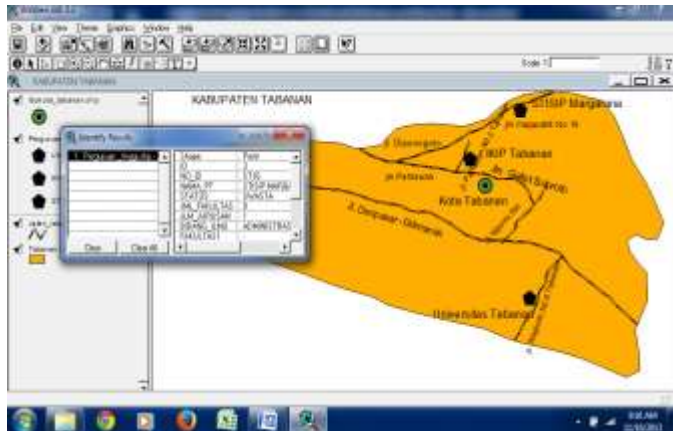
Name	ID	Address	Phone	Email	Website
1- ST ILMU TEKNIK JEMBERANA SWASTA			21-8140000		http://www.stitjemberana.ac.id

**Figure 22. Non spatial data on Higher Education Layer in Jemberana**

After doing research it turns out there is only 1 higher education found in Jemberana Regency.

### **Integration Data of Higher Education in Tabanan Regency**

Setelah diidentifikasi data spasial dan data non spasial maka data tersebut dapat diimplementasikan ke dalam ArcView dan diintegrasikan ke dalam aplikasi. Pada ArcView data spasial dikelompokkan dalam 3 layer yaitu layer perguruan tinggi di kabupaten Tabanan, layer jalan untuk menunjukkan lokasi perguruan tinggi dan layer wilayah yang menyimpan digitasi wilayah kabupaten Tabanan. Gambar Berikut adalah Data spasial Kabupaten Tabanan lengkap dengan layer.



**Figure 23. The Map of Distribution of Higher Education in Tabanan Regency**

In the higher education layer, non spatial data in Tabanan Regency there are 3 universities namely Tabanan University, Saraswati Tabanan IKIP and STISIP Margarana Tabanan. The road layer contains location attribute data from each college. Below is the non-spatial data that exists in the table in ArcView.

Attributes of Perguruan Tinggi									
Point	ID	NIS_ID	NAMA_PT	STATUS	JML_KAMPUS	JML_DOKTERAN	BIDANG_KEM	KAMPUS_TASY	KAMPUS_TASD
Point	1	06	UNIVERSITAS TABANAN	SWASTA	3	3	-	PELEKONOMI	PELEKONOMI
Point	2	11	IKIP SARASWATI	SWASTA	0	5	-	-	-
Point	3	ST36	STISIP MARGARANA	SWASTA	0	1	ADMINISTRASI NEGARA	-	-
Point	4	3	KOTA TABANAN	-	0	0	-	-	-

**Figure 24. Non spatial data on Higher Education Layer in Tabanan**

In Figure 25, the non-spatial attribute / data consists of several fields, namely no\_ID, higher education name, status, number of majors, field of science, some faculties.

no_ID	nama	status	jumlah_jurusan	bidang_sains	beberapa_fakultas
1	JL. PAHLAWAN NO 1	1	1	1	1
2	JL. PAHLAWAN NO 2	1	1	1	1
3	JL. PAHLAWAN NO 3	1	1	1	1
4	JL. PAHLAWAN NO 4	1	1	1	1
5	JL. PAHLAWAN NO 5	1	1	1	1
6	JL. PAHLAWAN NO 6	1	1	1	1
7	JL. PAHLAWAN NO 7	1	1	1	1
8	JL. PAHLAWAN NO 8	1	1	1	1
9	JL. PAHLAWAN NO 9	1	1	1	1
10	JL. PAHLAWAN NO 10	1	1	1	1

**Figure 25. Non Spatial Layer Data of Tabanan Higher Education in Complete**

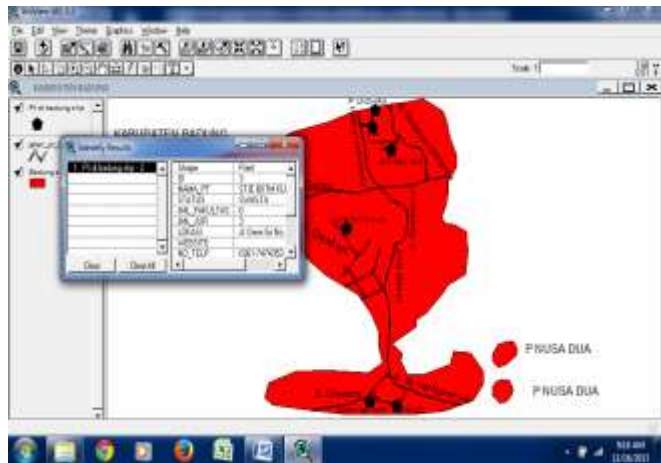
In picture 26 is a continuation of the picture 25 attributes are majors, locations, websites and phone no. Next is table on non-spatial data for the path layer consisting of the shape field and the default field ID of the road name field fund

Shape	ID	NAMA_JALAN
PolyLine	1	JLN DENPASAR-GILIMANUK
PolyLine	2	JL. WARINGIN
PolyLine	3	JL NGURAH RAI
PolyLine	6	JLN PAHLAWAN NO 2
PolyLine	0	JL. GATOT SUBROTO
PolyLine	0	JL PAHLAWAN
PolyLine	0	JL DIPONEGORO
PolyLine	0	JL MAJAPAHIT

**Figure 26. Non Spatial Data Layer of Tabanan Regency Road**

Figure 26 shows the table in ArcView used to store non spatial data of roads associated with the college road in Tabanan District

### **Integration Data of Higher Education in Badung Regency**



**Figure 27. The Map of Distribution of Higher Education in Badung Regency**

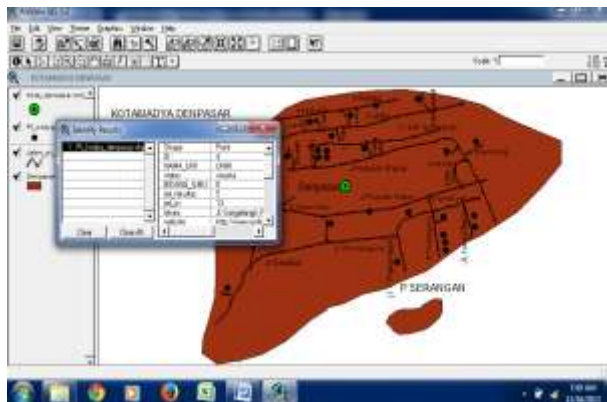
In Figure 28 is a picture of spatial data spread of universities in Badung regency. The integration of spatial data to non spatial data can be seen in figure 28.

Kode	NAMA	ALAMAT	NO. TLP	JANG. JUKUR. JAS	JANG. SWA	ALAMAT	NO. TLP
Pusat	1. UINIBD	PERUBA	033			BT. P. Kampus Baitul Anwarul Kholid	011-7550001
Pusat	2. POLI TEK NEGERI BADU	PERUBA	033			B. Bukit Semburan Catur Pradaya	0855-76101
Pusat	3. STR. BOSTA KUNTA	DWARSTA	031			S. J. D. Desa So. Ma. 20. Kuba. Pabek	0855-76101
Pusat	4. UNIDEPDA	DWARSTA	031			J. Jalan Pagar Pungkaj Lendah. Tang	011-7550001
Pusat	5. STR. TRIATAMA MELURA	DWARSTA	031			J. K. K. Desa Sumpang. Tegal. J. D.	011-7550001
Pusat	6. Akademi Kabbekatan Bahriestara	DWARSTA	031			T. J. J. K. K. Desa Lina. 1. Ma. 2. Manggal	0855-76101

**Figure 28. Non spatial data on Higher Education Layer in Badung**

In the higher education layer, non spatial data in Badung Regency there are 3 college, 2 universities, 1 polytechnic and 1 academic.

### Integration Data of Higher Education in Denpasar Municipality



**Figure 29. The Map of Distribution of Higher Education in Denpasar Municipality**

In figure 29 is the image of the digitas of spatial and non spatial data that has been integrated that is about the location of universities in the city of Denpasar. When clicked one of the college points are black then the dialog box appears in the form of tables to store non-spatial data that provides information about the college. Here is a table that is in ArcView used to store non spatial data / attribute data.

Shape	ID	NAMA_LUJ	JENIS	BENDANG_LUJ	Alamat
Point	1	MAHENDRADATA	swasta	0	4 J. Kan Aceh No 12
Point	2	BOP PGRI BALI	SWASTA	0	10 Jalan Seroja Teras
Point	3	NGURAH RAI	SWASTA	0	5 J. Padma - Feroth
Point	4	UNH	swasta	0	13 J. Sangalang, Pa
Point	5	IS DENPASAR	NEGERE	0	11 Jln Nusa Indah Da
Point	6	POLITEKNIK NASIONAL	SWASTA	0	3 Jln. Pado no 9, De
Point	7	WIRMADEWA	SWASTA	0	14 J. Teongong No ;
Point	8	STHEK STRKOM Bali	SWASTA	KOMPUTER	3 J. Raja Purnama H
Point	9	ARTEK Radiodiagnostik dan H	SWASTA	KESEHATAN	1 Jln. Tukad Batang
Point	10	AMK NITEL MEDIA	SWASTA	KOMPUTER	2 J. Tukad Batang
Point	11	ST DESAIN BALI	SWASTA	DESAIN	2 J. Tukad Batang
Point	12	AKADEMI BAHASA ASING NE	SWASTA	BAHASA ASING	1 J. Tukad Batang
Point	13	AKADEMI PERWISATA	SWASTA	PERWISATA	1 Jalan Tukad Batan
Point	14	ET ILMU ADMINISTRASI DEN	SWASTA	ILMU ADMINISTRASI	2 J. Tukad Batan No
Point	15	STIKES	SWASTA	KESEHATAN	0 3 J. Tukad Panyice
Point	16	AKADEMI KOPERASIAN KARSAN	SWASTA	KESEHATAN	0 1 E. Taman Karsa 4
Point	17	AKADEMI KEBIDANAN KARTI	SWASTA	KESEHATAN	0 1 Jalan Panyaha No 3
Point	18	POLITEKNIK GANESHA GURI	SWASTA	0	2 E. Teuku Umar Ba
Point	19	SI ILMU SOSIAL DAN POLITI	SWASTA	SOSIAL DAN POLITI	0 2 J. Melati No 6, De
Point	20	AKADEMI FARMASI SARASW	SWASTA	FARMASI	0 1 Jalan Kambica No.

**Figure 30. Non spatial data on Higher Education Layer in Denpasar Municipality**

In Figure 30 is a non-spatial data image containing the attributes that store the college data after being processed will menghasilkan information that is the number of universities in Denpasar, the name of colleges are scattered and so forth.



## Integration Data of Higher Education in Bangli Regency

Figure 31 is a map of the distribution of universities in Bangli Regency.



**Figure 31. The Map of Distribution of Higher Education in Bangli**

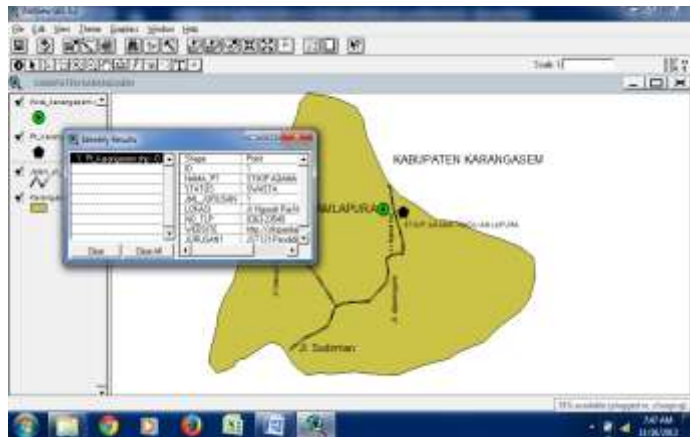
In figure 31 the map has been equipped with data integration between spasual data and non spatial data. When clicked on the college point, a dialiog box appears containing information about the college. Non spatial data can be implemented in ArcView GIS table consisting of several attributes that contain figure 32.

NO	NAMA_PT	STATUS	LOMAS	ADR_TELP	WEBSITE
1	ST BIP SUAR BANGLI	SWASTA	Jln. Rajan Pigezah Harne 55 Bg. 8366-93002	http://stbip.suarban...	

**Figure 32. Non spatial data on Higher Education Layer in Bangli Regency**

Based on figure 32, in Bangli Regency there is 1 college with private status named STIKIP Suar Bangli.

### **Integration Data of Higher Education in Karangasem Regency**



**Figure 33. The Map of Distribution of Higher Education in Karangasem**

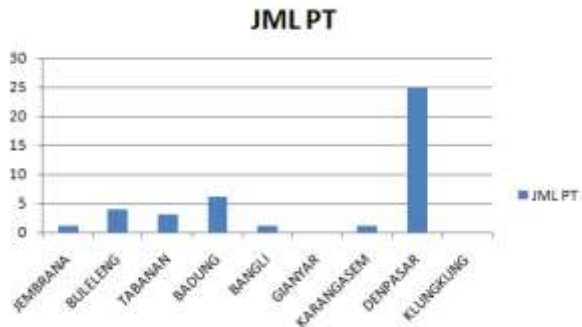
Figure 33 is a map of spatial data integration and non spatial distribution of higher education in Karangasem Regency. When clicked point then appears dialog box containing information about the higher education.

#### 4. DISCUSSION

After the research on the spread of universities in the island of Bali it can be described the results of research discussion as follows :

1. Pada proses pengelompokkan perguruan tinggi (PT) berdasarkan kabupaten di Pulau Bali maka Kabupaten Buleleng terdapat 4 perguruan tinggi, kabupaten Jembrana terdapat 1 perguruan tinggi, Tabanan terapat 3 perguruan tinggi, Badung terdapat 6 PT, Bangli terdapat 1 PT, Gianyar tidak ada PT, Karangasem terdapat 1 PT, Denpasar terdapat 25 dan klungkung tidak ada PT yang dibangun. Berikut adalah grafik jumlah perguruan tinggi berdasarkan kabupaten yang ada di Pulau Bali  
In the process of grouping colleges (PT) based on the districts in the island of Bali Buleleng regency there are 4 higher education, Jembrana regency there is 1 higher education, Tabanan terapat 3 higher education, Badung there are 6 higher education, Bangli there is 1 higher education, Gianyar no there are higher education , Karangasem there are 1 higher education , Denpasar there are 25 higher education and klungkung no there are higher education built.

Here is a graph of the number of higher education based on the existing regency on the island of Bali



**Figure 34. Graphic Number of Higher Education on the Island of Bali**

Based on the graph of drawing 34 it can be concluded that in the city of Denpasar the most built public higher education that private or the state and there are other regency that have not yet built higher education such as Klungkung and Gianyar regency resulting in educational gap.

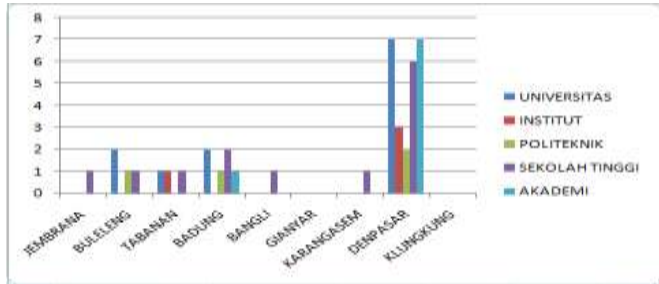
2. Subsequent groupings by type of higher education in each regency complete with faculty, department and accreditation. The types of higher education are grouped into 5 : universities, institutes,

polytechnics, colleges and academic. Here is a table of the number of types of higher education in each regency.

**Table 8. Number of Higher Education by Their Type**

Regency	Amount of Higher Education				
	Universities	Institute	Polytechnic	College	Academic
Jembrana	0	0	0	1	0
Buleleng	2	0	1	1	0
Tabanan	1	1	0	1	0
Badung	2	0	1	2	1
Bangli	0	0	0	1	0
Gianyar	0	0	0	0	0
Karangasem	0	0	0	1	0
Denpasar	7	3	2	6	7
Klungkung	0	0	0	0	0

From the results of these observations, then the analysis of the number of higher education in each regency by type. Here is a graph of the number of types of higher education in each regency.



**Figure 35. Graph Amount of Higher Education by Type**

Based on the graph of figure 35 it can be concluded that the highest number of universities, institutes, polytechnics, college and academies are in the Denpasar regency / municipality. The capital of Bali still dominates the highest number of types of higher education. At the university which has the most number of faculty is Udayana University with state status. In the type of polytechnic that has many majors is the polytechnic of Bali, for the academy is the tourism academy of Denpasar and for the institute is ISI Denpasar and for high school is ST Foreign Language Saraswati.

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## **APPENDIX**

### Appendix 1. List of Higher Education in Bali Island

Id_ST	Nm_ST	Bid_ilmu	Jml_jurusan	status	lokasi	Nm_kab	telp	website
ST1	Sekolah Tinggi Ilmu Manajemen Dhyana Pura	manajemen	1	swasta	Jl. Kubu Gunung Tegal Jaya Kuta Utara Dalung, Badung 80351	Badung	0361 426450	<a href="http://www.dhyanapura.ac.id">http://www.dhyanapura.ac.id</a>

ST2	STIE BIITM Kuta Badung	Ekonomi dan pariwisata	3	swasta	Jl. Dewi Sri No 99 Kuta, Badung 80361	Badung	0361- 747435 3	
ST3	Sekolah Tinggi Bahasa Asing Saraswati	Bahasa asing	6	swasta	Jl. Kamboja 11-A , Denpasar 80223	Kodya Denpasar	0361- 228043	
ST4	Sekolah Tinggi Ilmu	Ilmu admini	2	swasta	Jl. Tukad Balian No 15 ,	Kodya Denpasar	0361- 249785 1	

	Adminis trasi Denpasa r	nistra si			Denpasar 80266			
ST5	Sekolah Tinggi Ilmu Ekonom i Triatma Mulya	Mana jemen dan akunt ansi	2	swasta	Jl. Kubu Gunung Tegal Jaya Dalung - Kuta Utara, Badung,	Badung	0361- 412971	<a href="http://www.triatma-mapindi.ac.id">http://www.triatma-mapindi.ac.id</a>

ST6	Sekolah Tinggi Ilmu Kesehatan Bali	kesehatan	3	swasta	Jl. Tukad Pakerisan No 90 , Denpasar 80225	Kodya Denpasar	0361 221795	<a href="http://www.stikes-bali.ac.id">http://www.stikes-bali.ac.id</a>
ST7	Sekolah Tinggi Ilmu Manajemen Handayani	manajemen	3	swasta	Jl. Tukad Banyusari No 17/B , Denpasar 80225	Kodya Denpasar	036122 2291	<a href="http://www.stimidps.ac.id">http://www.stimidps.ac.id</a>
ST8	Sekolah Tinggi	Ilmu social	2	swasta	Jl. Melati No 6 ,		0361- 235778	

	Ilmu Sosial Politik Wira Bhakti	dan politik			Denpasar 80233			
ST9	STIMIK - Stikom Bali	komputer	3	swasta	Jl. Raya Puputan Renon no 86 Renon Denpasar	Kodya Denpasar	0361-244445	<a href="http://www.stikom-bali.ac.id">http://www.stikom-bali.ac.id</a>
ST10	STMik Denpasar	Komputer	2	swasta	Jl. Tukad Balian No 15	Kodya Denpasar	0361-249781	<a href="http://stmik-denpasar.blogspot.com/">http://stmik-denpasar.blogspot.com/</a>

					Renon Denpasar			
ST11	Sekolah Tinggi Desain Bali	Desain	2	swasta	Jl. Tukad Batanghari no. 29, Panjer Denpasar - Bali	Kodya Denpasar	0361- 895564 9	<a href="http://www.newmed.ac.id/">http://www.newmed.ac.id/</a>
ST12	STKIP Agama Hindu Amplapura	Agama Hindu	1	swasta	Jl. Ngurah Rai No 35 Amlapura	Karang asem	0363- 23549	<a href="http://stkipamlapura.blogspot.com">http://stkipamlapura.blogspot.com</a>



ST13	Sekolah Tinggi Teknik Jemberana	Teknik	2	swasta	Jl.Jenderal Sudirman-Negara, Jemberana-8111 Jemberana	Jemberana	036541316	
ST14	STKIP Agama Hindu Singarajana	Agama Hindu	4	swasta	Jalan Pulau Timor No 23 Singaraja Buleleng	Buleleng	(0362) 21275	<a href="http://www.stkipahsingaraja.ac.id/">www.stkipahsingaraja.ac.id/</a>

ST15	STKIP Suar Bangli Keguru n dan pendidi kan	Kegu ruan dan pendi dikan	2	swasta	Jln Brijen Ngurah Rai no 55 Bangli	Bangli	0366- 93022	<a href="http://stkipsuarbangli.blogspot.com">http://stkipsuarbangli.blogspot.com</a>
ST16	STISIP Margara na Tabanan	Admi nistra si negar a	1	swasta	Jl. Majapahi t No 16 A Tabanan	Tabana n	036181 2035	<a href="http://www.stisip-margarana.ac.id">http://www.stisip-margarana.ac.id</a>

**Appendix 2. List of Majors of Each Higher Education**

Noid_JST	Nama_jurusan	jenjang	Status_jurusan	Nama_sekolahTinggi
JST11	Manajemen	S1	Akreditasi B	Sekolah Tinggi Ilmu Manajemen Dyana Pura
JST21	Manajemen Pemasaran	D3	-	STIE BIITM Kuta Badung
JST22	Usaha Perjalanan Wisata	D3	-	STIE BIITM Kuta Badung
JST23	Manajemen Perhotelan	D3	-	STIE BIITM Kuta Badung
JST24	Pariwisata	S1	-	STIE BIITM Kuta Badung

JST31	Bahasa Inggris	D3	Akreditasi B	Sekolah Tinggi Bahasa Asing Saraswati
JST32	Bahasa Jepang	D3	Akreditasi C	Sekolah Tinggi Bahasa Asing Saraswati
JST33	Bahasa Prancis	D3	-	Sekolah Tinggi Bahasa Asing Saraswati
JST34	Bahasa Jerman	D3	-	Sekolah Tinggi Bahasa Asing Saraswati
JST35	Sastra Inggris	S1	-	Sekolah Tinggi Bahasa Asing Saraswati
JST36	Sastra Jepang	S1	-	Sekolah Tinggi Bahasa Asing Saraswati
JST41	Ilmu administrasi negara	S1	Akreditasi C	Sekolah Tinggi Ilmu Administrasi Denpasar

JST42	Ilmu administrasi Niaga	S1	-	Sekolah Tinggi Ilmu Administrasi Denpasar
JST51	Manajemen	S1	Akreditasi C	Sekolah Tinggi Ilmu Ekonomi Triatma Mulya
JST52	Akuntansi	S1	-	Sekolah Tinggi Ilmu Ekonomi Triatma Mulya
JST61	Keperawatan	D3	Akreditasi B	Sekolah Tinggi Ilmu Kesehatan Bali
JST62	Kebidanan	D3	Akreditasi C	Sekolah Tinggi Ilmu Kesehatan Bali
JST63	Ilmu Keperawatan	S1	Akreditasi C	Sekolah Tinggi Ilmu Kesehatan Bali
JST71	Manajemen perusahaan	D3	-	Sekolah Tinggi Ilmu Manajemen Handayani

JST72	Kesekretariatan	D3	Akreditasi C	Sekolah Tinggi Ilmu Manajemen Handayani
JST73	Manajemen	S1	Akreditasi C	Sekolah Tinggi Ilmu Manajemen Handayani
JST81	Ilmu administrasi negara	S1	-	Sekolah Tinggi Ilmu Sosial Politik Wira Bhakti
JST82	Ilmu administrasi niaga	S1	Akreditasi C	Sekolah Tinggi Ilmu Sosial Politik Wira Bhakti
JST91	Manajemen Informatika	D3	Akreditasi B	STIMIK - Stikom Bali
JST92	Sistem Komputer	S1	Akreditasi B	STIMIK - Stikom Bali
JST93	Sistem Informasi	S1	Akreditasi B	STIMIK - Stikom Bali
JST101	Manajemen Informatika	D3	Akreditasi B	STMIK Denpasar

JST102	Teknik Informatika	S1	Akreditasi B	STMIK Denpasar
JST111	Desain Komunikas Visual	D1,D2,D3 dan S1	Akreditasi A	Sekolah Tinggi Desain Bali
JST112	Desain Interior	D1, D2 dan D3	Akreditasi A	Sekolah Tinggi Desain Bali
JST121	Pendidikan Agama Hindu	S1	Akreditasi B	STKIP Agama Hindu Amlapura
JST131	Teknik Informatika	S1	Akreditasi B	Sekolah Tinggi Ilmu Teknik Jembrana
JST132	Teknik Elektro	S1	Akreditasi B	Sekolah Tinggi Ilmu Teknik Jembrana
JST141	Agama Hindu	S1	Akreditasi C	STKIP Agama Hindu Singaraja

JST142	Bahasa Inggris	S1	Akreditasi C	STKIP Agama Hindu Singaraja
JST143	Bahasa Bali	S1	Akreditasi C	STKIP Agama Hindu Singaraja
JST144	Penjaskesrek	S1	Akreditasi C	STKIP Agama Hindu Singaraja
JST151	Pendidikan Bahasa Indonesia	S1	Akreditasi B	STKIP Suar Bangli
JST152	Pendidikan Bahasa Inggris	S1	Akreditasi B	STKIP Suar Bangli
JST161	Ilmu Administrasi Negara	S1	Akreditasi B	STISIP Margarana Tabanan



### Appendix 3. List of Universities in Bali Island

Id_ uni	Nama_uni	status	Jum_F	Jml_juru san	lokasi	Nm_kab	website	No_telp
01	Universitas Mahendradatta	swasta	4	4	Jl. Ken Arok No 12, Denpasar 80236	Kodya Denpasar	<a href="http://www.mahendradattauiversuty.org">http://www.mahendradattauiversuty.org</a>	0361-434827
02	Universitas Ngurah Rai	swasta	4	6	Jl. Padma - Penatih, Denpasar 80238	Kodya Denpasar	<a href="http://www.universitas-ngurahrai.ac.id">http://www.universitas-ngurahrai.ac.id</a>	0361-462617

03	Universitas Pendidikan Nasional	swasta	4	7	Jl. Tukad Yeh Aya, Panjer , Denpasar 80225	Kodya Denpasar	<a href="http://www.undiknas.ac.id">http://www.undiknas.ac.id</a>	0361-235203
04	Universitas Warmadewa	swasta	7	14	Jl. Terompong No 24 Tanjung Bungkak, Denpasar 80235	Kodya Denpasar	<a href="http://www.warmadewa.ac.id/">http://www.warmadewa.ac.id/</a>	0361223858

05	Universitas Panji Sakti Singaraja	swasta	5	5	Jl. Bisma No 22 , Singaraja 81116	Buleleng	<a href="http://www.unipas.ac.id">http://www.unipas.ac.id</a>	0362-23588
06	Universitas Tabanan	Swasta	3	3	Jl. Wagimin No 8, Kediri , Tabanan 82121	Tabanan		(0361)811605
07	Universitas Dwijendra	swasta	5	6	Jl. Kamboja , Denpasar 80233	Kodya Denpasar	<a href="http://www.dwijendra.com">http://www.dwijendra.com</a>	0361-233974

08	Universitas Hindu Indonesia	swasta	5	13	Jl. Sangalangi t, Penatih , Denpasar 80238	Kodya Denpasar	<a href="http://www.unhi.ac.id/">http://www.unhi.ac.id/</a>	0361-464700
09	Universitas Mahasarawati Denpasar	Swasta	6	9	Jl. Kamboja No 11-A , Denpasar 80233	Kodya Denpasar	<a href="http://unmas.ac.id">http://unmas.ac.id</a>	0361-227019
10	Universitas Udayana	Negeri	13	41	Kampus Bukit Jimbaran	Badung	<a href="http://www.unud.ac.id">http://www.unud.ac.id</a>	(0361) 701954,

					Badung- BALI			7018 12, 7048 45
11	Universitas Dhyana Pura	Swasta	2	12	Jalan Raya Padang Luwih Tegaljaya Dalung Kuta Utara, Bali (80361)	Badung	<a href="http://un-dhirabali.ac.id/">http://un- dhirabali. ac.id/</a>	0361- 4264 50

12	Universitas Pendidikan Ganesha	negeri	7	23	Jl. Ahmad Yani 87 Singaraja		www.un diksha.ac .id	
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#### Appendix 4. List of Faculties of each University

Id_F	Nama_Fakultas	Nama_univ
F11	ekonomi	mahendradatta
F12	hukum	mahendradatta
F13	Ilmu sosial dan politik	mahendradatta
F14	teknik	mahendradatta
F21	Teknik	Ngurah Rai
F22	Hukum	Ngurah Rai
F23	Ekonomi	Ngurah Rai

F24	Fisipol (Fakultas Ilmu Sosial dan Politik)	Ngurah Rai
F31	Ekonomi dan Bisnis	Universitas Pendidikan Nasional
F32	Hukum	Universitas Pendidikan Nasional
F33	FISIP	Universitas Pendidikan Nasional
F34	Teknik dan Informatika	Universitas Pendidikan Nasional
F41	Teknik	Universitas Warmadewa
F42	Kedokteran dan Ilmu Kesehatan	Universitas Warmadewa
F43	Hukum	Universitas Warmadewa
F44	Ekonomi	Universitas Warmadewa
F45	FISIPOL	Universitas Warmadewa
F46	Sastra	Universitas Warmadewa
F47	Pertanian	Universitas Warmadewa
F51	Pertanian	Universitas Panji Sakti

F52	Ekonomi	Universitas Panji Sakti
F53	Hukum	Universitas Panji Sakti
F54	Ilmu Sosial dan Ilmu Politik	Universitas Panji Sakti
F55	Keguruan dan Ilmu Pendidikan	Universitas Panji Sakti
F61	Pertanian	Universitas Tabanan
F62	Ekonomi	Universitas Tabanan
F63	Hukum	Universitas Tabanan
F71	Teknik	Universitas Dwijendra
F72	Pertanian	Universitas Dwijendra
F73	Ilmu Komunikasi	Universitas Dwijendra
F74	Keguruan Ilmu Pendidikan	Universitas Dwijendra
F75	Hukum	Universitas Dwijendra
F81	Ilmu Agama dan Kebudayaan	Universitas Hindu Indonesia (UNHI)
F82	Ekonomi	Universitas Hindu Indonesia (UNHI)



F83	MIPA	Universitas Hindu Indonesia (UNHI)
F84	Teknik	Universitas Hindu Indonesia (UNHI)
F85	Pendidikan Agama dan Seni	Universitas Hindu Indonesia (UNHI)
F91	Keguruan dan Ilmu Pendidikan	Universitas Mahasaraswati Denpasar
F92	Pertanian	Universitas Mahasaraswati Denpasar
F93	Ekonomi	Universitas Mahasaraswati Denpasar
F94	Hukum	Universitas Mahasaraswati Denpasar
F95	Teknik	Universitas Mahasaraswati Denpasar
F96	Kedokteran Gigi	Universitas Mahasaraswati Denpasar
F101	Kedokteran	Universitas Udayana
F102	Ekonomi	Universitas Udayana
F103	Kedokteran Hewan	Universitas Udayana
F104	MIPA	Universitas Udayana
F105	Sastra	Universitas Udayana

F106	Teknik	Universitas Udayana
F107	Teknologi Pertanian	Universitas Udayana
F108	Pariwisata	Universitas Udayana
F109	Fisip	Universitas Udayana
F1010	Pertanian	Universitas Udayana
F1011	Peternakan	Universitas Udayana
F1012	Perikanan dan Kelautan	Universitas Udayana
F1013	Hukum	Universitas Udayana
F111	Ekonomi dan Humaniora	Universitas Dhyana Pura
F112	Kesehatan, Sains dan Teknologi	Universitas Dhyana Pura
F121	Bahasa dan seni	Universitas Pendidikan Ganesha
F122	Ilmu Pendidikan	Universitas Pendidikan Ganesha
F123	Ilmu Sosial	Universitas Pendidikan Ganesha
F124	Matematika dan IPA	Universitas Pendidikan Ganesha

F125	Olahraga dan Kesehatan	Universitas Pendidikan Ganesha
F126	Teknik dan Kejuruan	Universitas Pendidikan Ganesha
F127	Ekonomi dan Bisnis	Universitas Pendidikan Ganesha

**Appendix 5. List of Departments Each Faculty at the University**

Id_jrs	Nama_jurusan	Status_jurusan	Nama_fakultas	Nama_univ
JF111	Manajemen	Akreditasi C	ekonomi	Universitas mahendradatta
JF121	Ilmu hokum	Akreditasi B	hukum	Universitas mahendradatta
JF131	Ilmu administrasi negara	Akreditasi C	Ilmu sosial dan politik	Universitas mahendradatta
JF141	Teknik industri	Akreditasi C	teknik	Universitas mahendradatta
JF211	Teknik Sipil	Akreditasi C	Teknik	Universitas Ngurah Rai

JF212	Teknik Arsitektur	Akreditasi C	Teknik	Universitas Ngurah Rai
JF221	Ilmu Hukum	Akreditasi C	Hukum	Universitas Ngurah Rai
JF231	Manajemen	Akreditasi C	Ekonomi	Universitas Ngurah Rai
JF232	Ilmu Ekonomi	Akreditasi C	Ekonomi	Universitas Ngurah Rai
JF241	Ilmu Administrasi Negara	Diakui	Fisipol	Universitas Ngurah Rai
JF311	Manajemen	Akreditasi A	Ekonomi dan Bisnis	Universitas Pendidikan Nasional
JF312	Akuntansi	Akreditasi B	Ekonomi dan Bisnis	Universitas Pendidikan Nasional
JF321	Ilmu Hukum	Akreditasi B	Hukum	Universitas Pendidikan Nasional
JF331	Ilmu Administrasi Negara	Akreditasi B	FISIP	Universitas Pendidikan Nasional

JF332	Ilmu Komunikasi	Terakreditasi	FISIP	Universitas Pendidikan Nasional
JF341	Teknik Sipil	Akreditasi B	Teknik dan Informatika	Universitas Pendidikan Nasional
JF342	Teknik Elektro	Terakreditasi	Teknik dan Informatika	Universitas Pendidikan Nasional
JF411	Teknik Arsitektur	Terakreditasi	Teknik	Universitas Warmadewa
JF412	Teknik Sipil	Akreditasi B	Teknik	Universitas Warmadewa
JF431	Ilmu Hukum	Terakreditasi	Hukum	Universitas Warmadewa
JF441	Manajemen	Akreditasi B	Ekonomi	Universitas Warmadewa
JF442	Akuntansi	Akreditasi B	Ekonomi	Universitas Warmadewa
JF443	IESP (Ilmu Ekonomi dan	Akreditasi B	Ekonomi	Universitas Warmadewa

	Studi Pembangunan)			
JF421	Pendidikan dokter	Akreditasi C	Kedokteran dan Ilmu Kesehatan	Universitas Warmadewa
JF451	Ilmu Pemerintahan	Akreditasi B	FISIPOL	Universitas Warmadewa
JF452	Ilmu Administrasi	Terakreditasi	FISIPOL	Universitas Warmadewa
JF471	Budi daya Pertanian	Terakreditasi	Pertanian	Universitas Warmadewa
JF472	Teknologi Pertanian	Terakreditasi	Pertanian	Universitas Warmadewa
JF473	Peternakan	Terakreditasi	Pertanian	Universitas Warmadewa
JF474	Perikanan dan Ilmu Kelautan	Terakreditasi	Pertanian	Universitas Warmadewa

JF461	Sastra Inggris	Akreditasi B	Sastra	Universitas Warmadewa
JF531	Ilmu Hukum	Akreditasi C	Hukum	Universitas Panji Sakti
JF521	Manajemen	Terakreditasi	Ekonomi	Universitas Panji Sakti
JF511	Agroteknologi	Terakreditasi	Pertanian	Universitas Panji Sakti
JF541	Ilmu Administrasi Negara	Terakreditasi	Ilmu Sosial dan Ilmu Politik	Universitas Panji Sakti
JF551	Bimbingan dan konseling	Terakreditasi	Keguruan dan Ilmu Pendidikan	Universitas Panji Sakti
JF611	Agroteknologi	Akreditasi C	Pertanian	Universitas Tabanan
JF621	Ekonomi Pembangunan	Akreditasi C	Ekonomi	Universitas Tabanan
JF631	Hukum	Akreditasi C	Hukum	Universitas Tabanan
JF711	Teknik Arsitektur	Akreditasi C	Teknik	Universitas Dwijendra

JF721	Sosial Ekonomi Pertanian/Agrobis nis	Akreditasi B	Pertanian	Universitas Dwijendra
JF751	Ilmu Hukum	Akreditasi A	Hukum	Universitas Dwijendra
JF731	Ilmu hubungan Masyarakat	Akreditasi B	Ilmu Komunikasi	Universitas Dwijendra
JF741	Pendidikan Bahasa Sastra Indonesia	terakreditasi C.	Keguruan Ilmu Pendidikan	Universitas Dwijendra
JF742	Pendidikan Pancasila dan Kewarganegaraan	terakreditasi B.	Keguruan Ilmu Pendidikan	Universitas Dwijendra
JF811	Filsafat Agama Hindu	terakreditasi A	Ilmu Agama dan Kebudayaan	Universitas Hindu Indonesia (UNHI)



JF812	Hukum Agama Hindu	terakreditasi A	Ilmu Agama dan Kebudayaan	Universitas Hindu Indonesia (UNHI)
JF813	Pendidikan Ilmu Agama	terakreditasi A	Ilmu Agama dan Kebudayaan	Universitas Hindu Indonesia (UNHI)
JF814	Kesehatan Ayur Weda	terakreditasi A	Ilmu Agama dan Kebudayaan	Universitas Hindu Indonesia (UNHI)
JF821	Akuntansi	terakreditasi B	Ekonomi	Universitas Hindu Indonesia (UNHI)
JF822	Manajemen	terakreditasi B	Ekonomi	Universitas Hindu Indonesia (UNHI)
JF831	Biologi	terakreditasi B	MIPA	Universitas Hindu Indonesia (UNHI)
JF841	Teknik Sipil	terakreditasi B	Teknik	Universitas Hindu Indonesia (UNHI)

JF842	Teknik Planologi	terakreditasi B	Teknik	Universitas Hindu Indonesia (UNHI)
JF851	Pendidikan Agama Hindu	terakreditasi A	Pendidikan Agama dan seni	Universitas Hindu Indonesia (UNHI)
JF852	Pend. Seni Tari Keagamaan Hindu	terakreditasi A	Pendidikan Agama dan seni	Universitas Hindu Indonesia (UNHI)
JF853	Pend. Seni Rupa dan ornamen Keagamaan Hindu	terakreditasi A	Pendidikan Agama dan seni	Universitas Hindu Indonesia (UNHI)
JF854	Pend Seni Karawitan	terakreditasi A	Pendidikan Agama dan seni	Universitas Hindu Indonesia (UNHI)

	Keagamaan Hindu			
JF911	Sejarah Anthropologi	Terakreditasi B	Keguruan dan Ilmu Pendidikan	Universitas Mahasaraswati Denpasar
JF912	Bahasa Inggris	Terakreditasi B	Keguruan dan Ilmu Pendidikan	Universitas Mahasaraswati Denpasar
JF921	Agroekoteknologi	Terakreditasi B	Pertanian	Universitas Mahasaraswati Denpasar
JF922	Agribisnis	Terakreditasi B	Pertanian	Universitas Mahasaraswati Denpasar
JF931	Ekonomi Umum	terdaftar	Ekonomi	Universitas Mahasaraswati Denpasar
JF932	Ekonomi Perusahaan	terdaftar	Ekonomi	Universitas Mahasaraswati Denpasar

JF951	Teknik sipil	Terakreditasi B	Teknik	Universitas Mahasaraswati Denpasar
JF941	Ilmu Hukum	Terakreditasi B	Hukum	Universitas Mahasaraswati Denpasar
JF961	Kedokteran gigi	Terakreditasi B	Kedokteran Gigi	Universitas Mahasaraswati Denpasar
JF101 1	Pendidikan dokter	Terakreditasi A	Kedokteran	Universitas Udayana
JF101 2	Psikologi	Belum terakreditasi	Kedokteran	Universitas Udayana
JF101 3	IKM (Ilmu Kesehatan Masyarakat)	Terakreditasi B	Kedokteran	Universitas Udayana

JF101 4	Ilmu Keperawatan	Terakreditasi C	Kedokteran	Universitas Udayana
JF101 5	Fisioterapi	Belum terakreditasi	Kedokteran	Universitas Udayana
JF102 1	Ekonomi Pembangunan	Terakreditasi A	Ekonomi	Universitas Udayana
JF102 2	Ekonomi Manajemen	Terakreditasi A	Ekonomi	Universitas Udayana
JF102 3	Ekonomi Akuntansi	Terakreditasi A	Ekonomi	Universitas Udayana
JF103 1	Kedokteran hewan	Terakreditasi B	Kedokteran Hewan	Universitas Udayana
JF104 1	Biologi	Terakreditasi B	MIPA	Universitas Udayana

JF104 2	Kimia	Terakreditasi B	MIPA	Universitas Udayana
JF104 3	Matematika	Terakreditasi B	MIPA	Universitas Udayana
JF104 4	Fisika	Terakreditasi C	MIPA	Universitas Udayana
JF104 5	Farmasi	Terakreditasi B	MIPA	Universitas Udayana
JF104 6	Ilmu Komputer	Terakreditasi B	MIPA	Universitas Udayana
JF105 1	Sastra Indonesia	Terakreditasi B	Sastra	Universitas Udayana
JF105 2	Sastra Daerah	Terakreditasi B	Sastra	Universitas Udayana

JF105 3	Sastra Inggris	Terakreditasi A	Sastra	Universitas Udayana
JF105 4	Sastra Jepang	Terakreditasi B	Sastra	Universitas Udayana
JF105 5	Antropologi	Terakreditasi B	Sastra	Universitas Udayana
JF105 6	Arkeologi	Terakreditasi B	Sastra	Universitas Udayana
JF105 7	Sejarah	Terakreditasi B	Sastra	Universitas Udayana
JF106 1	Teknik Mesin	Terakreditasi A	Teknik	Universitas Udayana
JF106 2	Teknik Arsitektur	Terakreditasi B	Teknik	Universitas Udayana

JF106 3	Teknik Sipil	Terakreditasi B	Teknik	Universitas Udayana
JF106 4	Teknik Elektro dan informatika	Terakreditasi B	Teknik	Universitas Udayana
JF106 5	Teknologi Informasi	Terakreditasi C	Teknik	Universitas Udayana
JF107 1	Ilmu dan Teknologi Pangan	Belum terakreditasi	Teknologi Pertanian	Universitas Udayana
JF107 2	Teknik Industri Pertanian	Belum terakreditasi	Teknologi Pertanian	Universitas Udayana
JF107 3	Teknik Pertanian	Belum terakreditasi	Teknologi Pertanian	Universitas Udayana
JF108 1	Destinasi Periwisata	Belum terakreditasi	Pariwisata	Universitas Udayana



JF108 2	Industri Perjalanan Wisata	Belum terakreditasi	Pariwisata	Universitas Udayana
JF109 1	Sosiologi	Belum terakreditasi	FISIP	Universitas Udayana
JF109 2	Hubungan International	Belum terakreditasi	FISIP	Universitas Udayana
JF109 3	Administrasi Negara	Belum terakreditasi	FISIP	Universitas Udayana
JF101 01	Agroetknologi	Terakreditasi A	Pertanian	Universitas Udayana
JF101 02	Agribisnis	Terakreditasi A	Pertanian	Universitas Udayana
JF101 11	Peternakan	Terakreditasi B	Peternakan	Universitas Udayana

JF101 21	Marine Science	Belum terakreditasi	Perikanan dan Kelautan	Universitas Udayana
JF101 22	Aquatic Resource Manajemen	Belum terakreditasi	Perikanan dan Kelautan	Universitas Udayana
JF101 31	Ilmu Hukum	Terakreditasi A	Hukum	Universitas Udayana
JF111 1	Manajemen	Akreditasi B	Ekonomi dan Humaniora	Universitas Dhyana Pura
JF111 2	Psikologi	Proses akreditasi	Ekonomi dan Humaniora	Universitas Dhyana Pura
JF111 3	Pendidikan Anak Usia Dini	Proses akreditasi	Ekonomi dan Humaniora	Universitas Dhyana Pura

JF111 4	Pendidikan Kesejahteraan Keluarga	Proses Akreditasi	Ekonomi dan Humaniora	Universitas Dhyana Pura
JF111 5	Sastra Inggris	Proses Akreditasi	Ekonomi dan Humaniora	Universitas Dhyana Pura
JF112 1	Perekam dan Informasi Kesehatan	Proses Akreditasi	Kesehatan, Sains dan Teknologi	Universitas Dhyana Pura
JF112 2	Ilmu Kesehatan Masyarakat	Proses Akreditasi	Kesehatan, Sains dan Teknologi	Universitas Dhyana Pura
JF112 3	Ilmu Gizi	Proses Akreditasi	Kesehatan, Sains dan Teknologi	Universitas Dhyana Pura
JF112 4	Fisioterapi	Proses Akreditasi	Kesehatan, Sains dan Teknologi	Universitas Dhyana Pura

JF112 5	Biologi	Proses Akreditasi	Kesehatan, Sains dan Teknologi	Universitas Dhyana Pura
JF112 6	Sistem Informasi	Proses Akreditasi	Kesehatan, Sains dan Teknologi	Universitas Dhyana Pura
JF112 7	Teknik Informatika	Proses Akreditasi	Kesehatan, Sains dan Teknologi	Universitas Dhyana Pura
JF121 1	Pendidikan Bahasa Jepang	Terakreditasi A	Bahasa dan Seni	Universitas Pendidikan Ganesha
JF121 2	Pendidikan Bahasa Bali	Akreditasi B	Bahasa dan Seni	Universitas Pendidikan Ganesha
JF121 3	Bahasa Inggris	Akreditasi B	Bahasa dan Seni	Universitas Pendidikan Ganesha
JF122 1	Bimbingan dan Konseling	Akreditasi A	Ilmu Pendidikan	Universitas Pendidikan Ganesha

JF122 2	Teknologi Pendidikan	Akreditasi B	Ilmu Pendidikan	Universitas Ganesha	Pendidikan
JF122 3	Pendidikan Guru Sekolah Dasar (PGSD)	Akreditasi C	Ilmu Pendidikan	Universitas Ganesha	Pendidikan
JF122 4	Pendidikan Guru PAUD	Akreditasi B	Ilmu Pendidikan	Universitas Ganesha	Pendidikan
JF123 1	Pendidikan Sejarah	Akreditasi B	Ilmu sosial	Universitas Ganesha	Pendidikan
JF123 2	Pendidikan Geografi	Akreditasi B	Ilmu sosial	Universitas Ganesha	Pendidikan
JF123 3	Pancasila dan Kewarganegaraan	Akreditasi B	Ilmu sosial	Universitas Ganesha	Pendidikan

JF124 1	Pendidikan Matematika	Akreditasi B	Matematika dan IPA	Universitas Pendidikan Ganesha
JF124 2	Pendidikan Fisika	Akreditasi B	Matematika dan IPA	Universitas Pendidikan Ganesha
JF124 3	Pendidikan Biologi	Akreditasi B	Matematika dan IPA	Universitas Pendidikan Ganesha
JF124 4	Pendidikan Kimia	Akreditasi B	Matematika dan IPA	Universitas Pendidikan Ganesha
JF125 1	Pendidikan Jasmani, Kesehatan dan Rekreasi	Akreditasi B	Olahraga dan Kesehatan	Universitas Pendidikan Ganesha
JF125 2	Ilmu Keolahraagaan	Akreditasi B	Olahraga dan Kesehatan	Universitas Pendidikan Ganesha

JF125 3	Pendidikan Pelatihan Olahraga	Akreditasi B	Olahraga dan Kesehatan	Universitas Ganesha	Pendidikan
JF126 1	Pendidikan Kesejahteraan Keluarga	Akreditasi B	Teknik dan Kejuruan	Universitas Ganesha	Pendidikan
JF126 2	Pendidikan Teknik Informatika	Akreditasi B	Teknik dan Kejuruan	Universitas Ganesha	Pendidikan
JF126 3	Pendidikan Teknik Elektro	Akreditasi B	Teknik dan Kejuruan	Universitas Ganesha	Pendidikan
JF127 1	Pendidikan Ekonomi	Akreditasi B	Ekonomi dan Bisnis	Universitas Ganesha	Pendidikan

JF127 2	Akuntansi	Akreditasi B	Ekonomi dan Bisnis	Universitas Pendidikan Ganesha
JF127 3	Manajemen	Akreditasi B	Ekonomi dan Bisnis	Universitas Pendidikan Ganesha

**Appendix 6. List of Polytechnic in Bali Island**

Id_ pol	Nm_pol	status	Juml_jurs	telp	lokasi	Nm_kab	website
Pol1	Politeknik Nasional Denpasar	swasta	3	(0361) 234120	Jln. Pandu no 9, Desa Tanjung Bungkak -	Kodya Denpasar	<a href="http://polnas-denpasar.ac.id/">http://polnas - denpasar.ac.i d/</a>



					Denpasar , Bali		
Pol2	Politeknik Negeri Bali	Negeri	6	(0361) 701981.	Bukit Jimbaran Kuta selatan	Badung	<a href="http://www.pnb.ac.id">www.pnb.ac.id</a>
Pol3	Politeknik Ganesha Guru	Swasta	2	0361-490670	Jl. Teuku Umar Barat (Marlboro) 27 Denpasar	Kodya Denpasar	<a href="http://poltek-ganesha.ac.id/">http://poltek-ganesha.ac.id/</a>
Pol4	Politeknik	Swasta	3	(0362) 32084.	Jln Letkol Wisnu	Buleleng	

	Ganesha Singaraja				No.2 Gedung Plaza Telkom Lt.2 Singaraja		
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### Appendix 7. List of Polytechnic majors in Bali Island

Id_JPol	Nm_jurusan	Status_jurusan	Nm_pol
JP11	Usaha Perjalanan Wisata	-	Politeknik Nasional Denpasar
JP12	Komputerisasi Akuntansi dan Bisnis	-	Politeknik Nasional Denpasar
JP13	Teknik elektro	Akreditasi B	Politeknik Nasional Denpasar
JP21	Teknik Sipil	Akreditasi B	Politeknik Negeri Bali
JP22	Teknik Mesin	Akreditasi B	Politeknik Negeri Bali
JP23	Teknik Elektro	Akreditasi B	Politeknik Negeri Bali
JP24	Akuntansi	Akreditasi B	Politeknik Negeri Bali
JP25	Administrasi Bisnis	Akreditasi A	Politeknik Negeri Bali
JP26	Perhotelan	Akreditasi B	Politeknik Negeri Bali
JP27	Manajemen Informatika	Akreditasi C	Politeknik Negeri Bali

JP28	Teknik Listrik	Akreditasi C	Politeknik Negeri Bali
JP29	Teknik Pendingin dan tata udara	Akreditasi B	Politeknik Negeri Bali
JP30	Usaha Perjalanan Wisata	Akreditasi B	Politeknik Negeri Bali
JP31	Manajemen Informatika	-	Politeknik Ganesha Guru
JP32	Teknik Komputer	-	Politeknik Ganesha Guru
JP41	Manajemen Informatika	-	Politeknik Ganesha Singaraja
JP42	Komputer akuntansi	-	Politeknik Ganesha Singaraja
JP43	Teknik Komputer	-	Politeknik Ganesha Singaraja

**Appendix 8. List of Institute in Bali Island**

Id_inst	Nama_institut	status	Jml_jurs	lokasi	telp	website	Nm_kab
I1	IKIP Saraswati Tabanan	swasta	5	Jalan Pahlawan No 2 Tabanan	0361-811-267	<a href="http://www.ikipsaraswatitabanan.com">http://www.ikipsaraswatitabanan.com</a>	Tabanan
I2	IKIP PGRI Bali	swasta	10	Jalan Seroja Tonja Denpasar	0361-431434	<a href="http://www.ikipgribali.ac.id">http://www.ikipgribali.ac.id</a>	Kodya Denpasar

I3	ISI Denpasar	negeri	11	Jln Nusa Indah Denpas ar	(0361) 227316	<a href="http://www.isi-dps.ac.id">http://www .isi- dps.ac.id</a>	Kodya Denpasar
I4	IHDN (Institut Hindu Dharma Negeri ) denpasar	negeri	7	Jln Ratna No 51 Denpas ar	036122 6656	<a href="http://www.ihdn.ac.id">http://www .ihdn.ac.id</a>	Kodya Denpasar

### Appendix 9. List of Faculty Institute

Id_fakultas	Nama_fakultas	Nama_institut
IF31	Seni Pertunjukan	ISI Denpasar
IF32	Seni Rupa dan Design	ISI Denpasar
IF41	Dharma Acarya	IHDN Denpasar
IF42	Dharma Duta	IHDN Denpasar
IF43	Brahma Widya	IHDN Denpasar

**Appendix 10. List the majors of each Institute on the Island of Bali**

Id_JI	Nama_jurusan	jenjang	Status_jurusan	Nama_institut
IJ11	Pendidikan bahasa dan sastra Indonesia	S1	Akreditasi B	IKIP Saraswati Tabanan
IJ12	Pendidikan Biologi	S1	Akreditasi C	IKIP Saraswati Tabanan
IJ13	Pendidikan Matematika	S1	Akreditasi C	IKIP Saraswati Tabanan
IJ14	Pendidikan Pancasila dan Kewarganegaraan	S1	Akreditasi C	IKIP Saraswati Tabanan



IJ15	Pendidikan Sejarah	S1	Akreditasi C	IKIP Saraswati Tabanan
IJ21	Bimbingan dan Konseling	S1	Akreditasi B	IKIP PGRI Bali
IJ22	Pendidikan bahasa Indonesia dan daerah	S1	Akreditasi B	IKIP PGRI Bali
IJ23	Pendidikan Biologi	S1	Akreditasi B	IKIP PGRI Bali
IJ24	Pendidikan ekonomi	S1	Akreditasi B	IKIP PGRI Bali
IJ25	Pendidikan jasmani,	S1	Akreditasi B	IKIP PGRI Bali

	kesehatan dan rekreasi			
IJ26	Pendidikan kesejahteraan keluarga	S1	Akreditasi B	IKIP PGRI Bali
IJ27	Pendidikan Matematika	S1	Akreditasi B	IKIP PGRI Bali
IJ28	Pendidikan Sejarah	S1	Akreditasi B	IKIP PGRI Bali
IJ29	Pendidikan seni drama tari dan musik	S1	Akreditasi B	IKIP PGRI Bali
IJ210	Pendidikan seni rupa	S1	Akreditasi C	IKIP PGRI Bali

IFJ31 1	Seni Tari	S1	Akreditasi B	ISI Denpasar
IFJ31 2	Seni Kerawitan	S1	Akreditasi B	ISI Denpasar
IFJ31 3	Seni Pedalangan	S1	Akreditasi B	ISI Denpasar
IFJ31 4	Sendratasik	S1	Akreditasi B	ISI Denpasar
IFJ32 1	Seni rupa murni	S1	Akreditasi B	ISI Denpasar
IFJ32 2	Desain interior	S1	Akreditasi B	ISI Denpasar

IFJ32 3	Desain komunikasi visual	S1	Akreditasi B	ISI Denpasar
IFJ32 4	Karya seni	S1	Akreditasi B	ISI Denpasar
IFJ32 5	Fotografi	S1	Akreditasi B	ISI Denpasar
IFJ32 6	Desain Fashion	S1	Akreditasi B	ISI Denpasar
IFJ32 7	Televisi dan film	S1	Akreditasi B	ISI Denpasar
IFJ41 1	Pendidikan Agama	S1	Akreditasi B	IHDN Denpasar

IFJ41 2	Pendidikan Bahasa dan Sastra	S1	Akreditasi B	IHDN Denpasar
IFJ42 1	Penerangan Agama Hindu	S1	Akreditasi B	IHDN Denpasar
IFJ42 2	Pemandu Wisata	S1	Akreditasi B	IHDN Denpasar
IFJ42 3	Hukum Agama Hindu	S1	Akreditasi B	IHDN Denpasar
IFJ43 1	Filsafat Agama Hindu	S1	Akreditasi B	IHDN Denpasar
IFJ43 2	Teologi Hindu	S1	Akreditasi B	IHDN Denpasar

**Appendix 11. List of Academies on the Island of Bali**

No_akdm	Nm_akdm	status	Jml_jur	lokasi	telp	website	Nm_kab
A1	Akade mi akuntan si Denpas ar	swasta	1	Jl Sari Gading G Kalisuci No 2 Denpasar	0361- 235020		Kodya Denpasar
A2	Akade mi Pariwis ata Denpas ar	swasta	3	Jalan Tukad Balian No 15 Niti Mandala Renon Denpasar Bali	(0361)24939 6	<a href="http://www.whhttp://www.kerthawisata.ac.id">http://ww whhttp://w ww. kerthawi sata.ac.id</a>	Kodya Denpasar
A3	Akade mi keuang an dan	swasta	1	Jalan Raya Puputan No 108 Denpasar	224963		Kodya Denpasar

	perbankan Denpasar						
A4	Akademi Kebidanan Kartini	swasta	1	Jalan Piranha No 2 Sesetan	7446292,720 471	www.akbidkartini bali.ac.id	Kodya Denpasar
A5	Akademi kebidanan Bali wisnu Dharma	swasta	1	Jln. Kebo Iwa I No. 2 Mengwi- Mangupura	0361 7848446	www.akbidbwd.ac .id	Badung
A6	Akademi Keperawatan mandiri	swasta	1	Jl.Tirta Pebini Kompleks Kesubak 1 Bangli	036692147	http://www. http://www. www. Akpermandiri.co.i	Bangli

						d	
A7	AKTE K Radiodi agnosti k dan Radiote rapi Bali	swasta	1	Jln. Tukad Batanghari VII No.21 Renon Denpasar	0361315802 6	www.atr obali.ac.i d	Kodya Denpasar
A8	AMK New Media	swasta	2	Jl. Tukad Batanghari No. 29, Renon - Denpasar Bali	0361- 8955649	http://ww w.newme dia- bali.com	Kodya Denpasar
A9	Akade mi bahasa asing New Media	swasta	1	Jl. Tukad Batanghari No. 29, Renon - Denpasar Bali	0361- 8955649	http://ww w.newme dia- bali.com	Kodya Denpasar



A10	Akade mi kepera watan Kesda m IX/ Udayan a	swasta	1	Jl. Taman Kanak- Kanak Komp. PB Sudirman	0361- 263384	<a href="http://akperkesdamudayana.ac.id">http://akperkesdamudayana.ac.id</a>	Kodya Denpasar
A11	Akade mi farmasi Sarasw ati denpas ar	swasta	1	Jalan Kamboja No. 11 A Denpasar	(0361) 227992 / (0361) 9150008	<a href="http://www.farmasi-saraswati.ac.id">www.farmasi-saraswati.ac.id</a>	Kodya Denpasar

**Appendix 12. List of Departments of each Academy on the Island of Bali**

Id_jur_akdm	Name of Departement	ladder	department status	Name of Academic
A11	Akuntansi	D3	-	Akademi akuntansi Denpasar
A21	Perhotelan	D3	Akreditasi C	Akademi Pariwisata Denpasar
A22	Usaha Perjalanan wisata	D3	Akreditasi B	Akademi Pariwisata Denpasar
A23	Perhotelan	D2	-	Akademi Pariwisata Denpasar

A31	Keuangan dan perbankan	D3	-	Akademi dan keuangan dan perbankan Denpasar
A41	kebidanan	D3	Akreditasi B	Akademi Kebidanan Kartini
A51	Kebidanan	D3	Akreditasi C	Akademi kebidanan Bali wisnu Dharma
A61	Keperawatan	D3	Akreditasi C	Akademi Keperawatan mandiri
A71	Radiodiagnostik Dan Radioterapi	D3	Akreditasi B	AKTEK Radiodiagnostik dan Radioterapi Bali
A81	Manajemen Informatika	D3	Akreditasi B	AMK New Media
A82	Teknik Informatika	D3	Akreditasi B	AMK New Media
A91	Bahasa Inggris	D3	Akreditasi B	Akademi bahasa asing New Media

A101	Keperawatan	D3	Akreditasi B	Akademi keperawatan Kesdam IX/ Udayana
A111	farmasi	D3	Akreditasi B	Akademi farmasi Saraswati Denpasar

**Appendix 13. List of Universities in Buleleng Regency**

No	Name of Universities	Location
1	Universitas Pendidikan Ganesha	Jl .Ahmad Yani 87 Singaraja
2	Universitas Panji Sakti Singaraja	Jl. Bisma No 22 Singaraja

**Appendix 14. List of Universities in Tabanan Regency**

No	Name of Universities	Location
1	Universitas Tabanan	Jl. Wagimin No 8 Kediri Tabanan

**Appendix 15. List of Universities in Badung Regency**

No	Name of Universities	Location
1	Universitas Udayanan	Bukit Jimbaran Badung Bali
2	Universitas Dhyana Pura	Jl. Raya Padang Luwih, Tegal Jaya, Dalung, Kuta Utara, Bali

**Appendix 16. List of Universities in Denpasar Municipality**

No	Name of Universities	Location
1	Universitas Mahendradatta	Jl. Ken Arok No 12 Denpasar
2	Universitas Ngurah Rai	Jl. Padma Penatih Denpasar
3	Universitas Pendidikan Nasional	Jl. Tukad Yeh Aya Panjer Denpasar
4	Universitas Warmadewa	Jl. Teropong No 24 Tanjung Bungkak Denpasar
5	Universitas Dwi Jendra	Jl. Kamboja Denpasar

6	Universitas Mahasaraswati	Jln Kamboja No 11-A Denpasar
7	Universitas Hindu Indonesia	Jl.Sangalangit Penatih Denpasar

**Appendix 17. List Institute in Tabanan Regency**

No	Name of Institute	Location
1	IKIP Saraswati Tabanan	Jln.Pahlawan No 2 Tabanan

**Appendix 18. List of Institute in Denpasar Municipality**

No	Name of Institute	Location
1	IKIP PGRI Bali	Jl. Seroja Tonja denpasar
2	ISI Denpasar	Jl. Nusa Indah Denpasar
3	IHDN Denpasar	Jl. Ratna No 51 Denpasar

**Appendix 19. List College in Buleleng Regency**

No	Name of College	Location
1	STKIP Agama Hindu Singaraja	Jln. Pulau Timor no 23 Singaraja

**Appendix 20. List of College in Jembarana Regency**

No	Name of College	Location
1	Sekolah Tinggi Teknik Jembrana	Jln. Jendral Sudirman Negara

**Appendix 21. List of College in Tabanan Regency**

No	Name of College	Location
1	STISIP Margarana Tabanan	Jl. Majapahit No 16 ATabanan

**Appendix 22. List of College in Badung Regency**

No	Name of College	Location
1	STIE BIITM Kuta Badung	Jln. Dewi Sri No 9 Kuta Badung
2	Sekolah Tinggi Ilmu Ekonomi Triatma Mulya	Jl. Kubu Gunung, tegal Jaya, Kuta Utara, Dalung Badung

**Appendix 23. List of College in Denpasar Municipality**

No	Name of College	Location
1	Sekolah Tinggi Bahasa Asing Saraswati	Jl.Kamboja 11-A Denpasar
2	Sekolah Tinggi Ilmu Administrasi Denpasar	Jl. Tukad Balian No 15 Denpasar
3	Sekolah Tinggi Ilmu Kesehatan Bali	Jl. Tukad Pakerisan No 9 Denpasar
4	Sekolah Tinggi Manajemen Handayani	Jl. Tukad Banyusari No 6 Denpasar
5	Sekolah Tinggi Ilmu Sosial dan Politik Wira Bhakti	Jl. Cempaka No 6 Denpasar



6	STMIK STIKOM Bali	Jl. Raya Puputan Renon No 86 Renon Denpasar Bali
7	Sekolah Tinggi Desain Bali	Jl. Tukad Batanghari No 2 Panjer Denpasar
8	Sekolah Tinggi Bahasa Asing Saraswati	Jl. Kamboja 11-A Denpasar

**Appendix 24. List of College in Bangli Regency**

No	Name of College	Location
1	STKIP Suar Bangli	Jln. Brijen Ngurah Rai No 55 Bangli

**Appendix 25. List of College in Karangasem Regency**

No	Name of College	Location
1	STKIP Agama Hindu Amlapura	Jl. Ngurah Rai No 35 Amlapura

**Appendix 26. List of Academic in Badung Regency**

No	Name of Academic	Location
1	Akademi Kebidanan Bali wisnu Dharma	Jl. Kebo Iwa I No 2 Mengwi Mangupura Badung

**Appendix 27. List of Academic in Denpasar Municipality**

No	Name of Academic	Location
1	Akademi Akuntansi Denpasar	jl. Sari gading G Kalisuci NO 2 Denpasar
2	Akademi Pariwisata Denpasar	Jl. Tukad Balian no 15 Denpasar
3	Akademi Keuangan dan Perbankan Denpasar	Jl. Puputan No 108 Denpasar

4	Akademi kebidanan Kartini	Jl. Pianha No 2 Sesetan Denpasar
5	APTEK Radiodignostik dan Radioterapi Bali	Jl. Tukad Batanghari VII No 21 Renon Denpasar
6	AMK New Media	Jl. Tukad Batanghari No 2 Renon Denpasar
7	Akademi Bahasa Asing New Media	Jl. Tukad Batanghari No 2 Renon Denpasar
8	Akademi Keperawatan Kesdam IX/Udayana	Jl. Taman Kanak-kanak kompleks PB Sudirman
9	Akademi Farmasi Saraswati Denpasar	Jl. Kamboja No 11 A Denpasar

**Appendix 28. List of Academic in Bangli ReGENCY**

No	Name of Academic	Location
1	Akademi Keperwatan Mandiri	Jl. Tirta Pebini Kompleks Kesubak 1 Bangli

**Appendix 29. List of Polytechnic in Buleleng ReGENCY**

No	Name of Polytechnic	Location
1	Politeknik Ganesha Singaraja	Jl. Letkol Wisnu No 2 Gedung Plaza Telkom Lt 2 Singaraja

**Appendix 30. List of Polytechnic in Badung ReGENCY**

No	Name of Polytechnic	Location
1	Politeknik Negeri Bali	Bukit Jimbaran Kuta Selatan Badung

**Appendix 31. List of Polytechnic in Denpasar Municipality**

No	Name of Polytechnic	Location
1	Politeknik Nasional Denpasar	Jl. Pandu Desa Tanjung Bungkak Denpasar
2	Politeknik Ganesha Guru	Jl. Teuku Umar Barat (Marlboro) No 27 Denpasar

## Appendix 32. Data Dictionary

### Data Dictionary

No	Name of Data Attribute	Information
1	Id_wly	No id area
2	Nm_wly	Name of area
3	Nm_kab	Name of Regency
4	Ibu_kota	Attribute to store the capital city records of each regency
5	Luas_wly	Luas wilayah masing-masing kabupaten
6	Jml_kec	The number of sub-regency of each regency
7	Id_ST	No id College
8	Nm_ST	Name of Collage
9	Bid_ilmu	Knowledge field
10	Jml_jurusan	Amount of majors
11	status	The status of a higher education is either public or private

12	lokasi	Location of higher education
13	Nm_Kab	The name of the higher education regency is located
14	telp	No phone to call
15	website	Websites that can be accessed
16	NoId_JST	No identity majors of higher education
17	Nama_jurusan	Name of Majors
18	jenjang	Level of Majors
19	Status_jurusan	Accreditation status of Majors
20	Id_Uni	No identity of universities
21	Nama_Uni	Name of universities
22	Jml_F	Amount of faculty
23	Id_F	No identity of faculty
24	Nama_fakultas	Name of faculty
25	Id_jrs	No identity majors from each faculty at the university

26	Id_pol	No identity of polytechnic
27	Nm_pol	Name of polytechnic
28	Id_JPol	No identity of majors polytechnic
29	Nm_jurusan	Name of majors
30	Id_Inst	No identity of institute
31	Nama_institut	Name of institute
32	Jml_jurs	Amount of majors
33	Id_fakultas	Id of faculty
34	Nama_fakultas	Name of faculty
35	Id_JI	Identity of majors institute
36	No_akdm	No academic
37	Nm_akdm	Higher education name type academy
38	Jml_jur	Amount majors of academic
40	Id_jur_akdm	Identity of majors academic