# E-LEARNING INFORMATION SYSTEM AT INTERNATIONAL PORGRAM

**THESIS**

**Submitted as a condition of graduation on**

**Information Systems Studies Program Bachelor (S1 level, Tier 1)**

**Faculty of Engineering and Computer Science**

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**STUDY PROGRAM INFORMATION SYSTEM**

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**UNIVERSITY COMPUTER INDONESIA**

**2015**

## ABSTRACT

E-learning is a form of learning that utilizes electronic media and Information and Communication Technology (ICT) that enables learning materials can be delivered to students without learning is limited in space. E-learning is growing very rapidly from time to time so as to make the learning activities is much easier, more effective, and efficient. The success of e-learning program that is supported by some of the concepts of information technology devices, planning, administration, management and economics adequate. In this thesis the researcher tried to make the application of E-Learning in the International Program at the University Computer Indonesia (UNIKOM) with a web-based client-server concept that as a client using a web browser and a web server using PHP server.Its purpose is to provide information to the student facilities, Lecturer in International Programme Secretariat (UNIKOM). The method used in the conduct of this scheduling system development is using a prototype model.

The process of scheduling a lecture is a process to determine the time or schedule of classes available, rooms available, the courses will be scheduled, and the lecturers will be teaching schedule. Education also would require an easy to be able to access the schedule from a school or University. Long distances sometimes create student constrained with time to find a sudden change of schedule of lectures, with the development and advancement of communication technologies such as the internet or mobile phone-based technology, it shouldn't be a problem to access the schedule from a great distance though.

In this final project researchers trying to make scheduling application courses in International Programs at the University of Indonesia (UNIKOM) Computer-based android with the concept of client-server as a client using the mobile phone and the server using a PHP web server. Benefits is to facilitate to give and get information schedule college course for college students in the class International Program (UNIKOM). Methods used writer in doing system development scheduling is use the model prototype. And in making application scheduling this requires a software for can support in making application is to android use eclipse and server uses php with database use mysql, and hopefully for users using mobile device basing android operating system can be helped to know information schedule college course presented by the application.



**Keywords:** E-Learning, Systems, Information, Information Systems, scheduling application, courses, Unikom, Android, Prototype.

# I. INTRODUCTION

## 1.1 Background.

The presence of a computer with the power process technology have enabled the development of computer-based information systems. Computer-based information system itself is a system of processing the data into a quality information and can be used as a tool to support decision making, coordination and control as well as visualization and analysis. With the use of computer technology, the benefits obtained in the form of convenience store, organize and conduct the various data retrieval. Powered by software and the right hardware configuration, the company can build a reliable information system and significantly affect the overall performance of the company.

## 1.1. Identification and Problem Formulation

The identification and formulation of the problem is as follows;

### 1.1.1. Identify the Problem

Of the background outlined above, it can be the identification of the problem as follows:

1. The difficulty in making the schedule of lecturers because of the lecturers who can teach only at certain times or days or teach more than one subject, and must adjust the time available for faculty, lecture hall, or a particular class, so often spend time quite a long time due to an existing system checks clash, not repair or arrange class schedules. As a result of the old class schedule is released, it is often times the student must do the repair form study plans and course schedule information is powerful, and lecturers are also often too late to get a schedule so that the early weeks often there are professors who do not attend.
2. Students sometimes difficulty in obtaining information about the lecture schedules, especially information about assignments, grades and announcements given by the lecturer to each student.
3. The lack of a means or medium of communication in both directions between lecturers and students in teaching and learning activities, which facilitate the learning process, especially in accessing the material, assignments, grades and announcements.

### 1.1.2. Problem Formulation.

Based on the above, the importance of the formulation of the problem, namely:

1. How to describe the design process of teaching and learning activities include making schedules, schedule information, means of information material, assignments, grades and announcements that are running in the International Program UNIKOM.
2. How to make e-learning applications that includes Web-based scheduling, schedule information, means of information material, assignments, grades and announcements that can assist the process of teaching and learning activities in the International Program UNIKOM.
3. How to test the application of e-learning applications that includes Web-based scheduling, schedule information, means of information material, assignments, grades and announcements are proposed in order to avoid error system functional.

4. How to implement e-learning into a programming language integrated with a database so that it becomes a ready-made application package in the International Program UNIKOM.

## 1.2. Research Objectives

The research Objectives are as follows:

### 1.2.1. Research Purposes

The purpose of this research is to create an e-learning applications both on the secretary of department, faculty and students.

### 1.2.2. The purpose Of This Studies

The purpose of this study is as follows:

1. To describe design process of teaching and learning activities include making schedules, schedule information, means of information material, assignments, grades and announcements that are running in the International Program UNIKOM.
2. To create an e-learning application that includes Internet-based scheduling, schedule information, means of information material, assignments, grades and announcements that can assist the process of teaching and learning activities in the International Program UNIKOM.
3. To perform testing of application scheduling android based courses proposed in order to avoid functional errors method application e-learning applications that includes Web-based scheduling, schedule information, means of information material, assignments, grades and announcements are proposed in order to avoid functional fault system.
4. To implement e-learning applications integrated into programming languages with the database so that it becomes a ready-made application package in the International Program UNIKOM.

## 1.3. Usability Research

The usefulness of research are as follows:

### 1.3.1. Practical Uses

Research carried out has limited usefulness for several parties, including the practical field is as follows:

**1. Student's side**

Facilitate students in viewing the lecture schedule information, materials, assignments, grades and announcements to be able to access them from anywhere in the International Program UNIKOM.

**2. Lecturer's side**

Facilitate in providing the materials, assignments, grades and announcements to students under the provisions of each faculty who teach courses that achieved.

**3. Secretary of the department's side**

Facilitate the creation education in the collage schedule and announcement information to be provided to faculty and students.

**1.3.2. Academic Uses**

In the academic field, this research can provide the following functionality:

1. For the Development of Science

As development of the knowledge obtained on the International Program, especially in the development of e-learning applications based on the Internet.

2. For other researchers

The results of this study are expected to contribute ideas to other researchers and can be a reference for the improvement or development for other researchers who will examine the field or the same problem.

3. For Authors

With this study, the authors hope to be able to further hone owned programming knowledge and can better understand how the process of optimization in scheduling courses.

## 1.4. Limitations

Restrictions problem used in a discussion intended to make the discussion more focused and in accordance with the objectives to be achieved. The limitations include:

1. The system is built only make e-learning applications include Internet-based scheduling, schedule information, means of information material, assignments, grades, dharmasiswa student and announcements.
2. Applications built to provide facilities to upload and download material, assignments, announcements, class manufacturing
3. Functional system only covers the process of scheduling courses for lecturers Still, Lecturer and Lecturer Extraordinary Services.

## 1.6. Location and Time Research

The location and time are the following research:

### 1.6.1. Location Research

Location which is the object of this study are as follows:

Name: Indonesian Computer University

Address: Jl. Dipatiukur No. 112-114-116

Tel: Tel. [022] 2504119, 2508412, 2506637, 2506634, 2503054, 2506553

Fax: (022) 2533754.

### 1.6.2. Time Research

In this study, the authors chose the location in Indonesia Computer University (UNIKOM) program (Prodi) International Program. As time the study was as follows:

**Table 1.1** Time research

| SCHEDULE | MONTH | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SEP 2014 | | | | OCT 2014 | | | | NOV 2014 | | | | DEC 2014 | | | | JAN 2015 | | | |
| **1.Identification of needs** | **1** | **2** | **3** | **4** | **1** | **2** | **3** | **4** | **1** | **2** | **3** | **4** | **1** | **2** | **3** | **4** | **1** | **2** | **3** | **4** |
| a. Obeserving | | | | | | | | | | | | | | | | | | | | |
| b.Interview | | | | | | | | | | | | | | | | | | | | |
| c.Data collect | | | | | | | | | | | | | | | | | | | | |
| d.Decument analysis | | | | | | | | | | | | | | | | | | | | |
| **2.Creating and fixing prototype** | | | | | | | | | | | | | | | | | | | | |
| a.The design process | | | | | | | | | | | | | | | | | | | | |
| b.Design database | | | | | | | | | | | | | | | | | | | | |
| c.Make program | | | | | | | | | | | | | | | | | | | | |
| **3.Testing the prototype** | | | | | | | | | | | | | | | | | | | | |
| a.black box testing | | | | | | | | | | | | | | | | | | | | |

## II. THEORETICAL

### 2.1. Understanding System.

Abdul Kadir (2003: 64) in a book entitled Introduction to Information Systems, is a "system is a set of interrelated elements or integrated which is intended to achieve an objective system. According Jogiyanto HM (2001: 2): "The system is a collection of elements which interact with one another to achieve the intended purpose. A system consists of parts which are interrelated that operate together to achieve some goal or purpose, goals and objectives are the same ". Based on the above definition can be concluded that the system is a set of elements or components that are interconnected to achieve a certain goal.

### 2.1.1. Basic shapes System.

According Jogiyanto (2005: 4): The general form of a system consisting of input, process and output. In this system there is a common form of or more input will be processed and will produce something out.

**2.1.2. Characteristics System.**

A system has the characteristics or specific traits, which have components, limit environmental systems outside the system, input, output, processing and target or goal.

**1. System Components.**

A system consists of a number of interacting components, which means working together to form a unity. Component-component systems or system elements can be either a subsystem or the parts of the system.

**2. Restrictions System.**

Boundary is an area that limits the system between a system with other systems or with the environment outer. Boundary this system allows a system is seen as a unity and demonstrate the scope of the system.

**3. External environment system.**

External environment of a system is anything beyond the limits of the system that affect system operation. Outside the system environment can be beneficial as well as favorable external detrimental. Environment is the energy of the system and thus must be maintained and maintained. Whereas adverse external environment must be retained and controlled, otherwise it will interfere with the viability of the system.

**4. Liaison system.**

Liaison is a medium that combines the subsystem with other subsystems. Through this link the possibility of resources flow from one subsystem to subsystem other. Exodus from one Subsystem will be the input for the other subsystems through liaison. By connecting one Subsystem can be integrated with other subsystems to form a unity.

**5. Input System.**

Enter the system is the energy put into system. Feedback can be input signal energy care and maintenance that is energy input is entered so that the system can run. The input signal is processed to obtain the energy output of the system.

**6. Output System.**

Energy system output is processed and classified into useful output. Output can be an input for another subsystem.

**7. Processing System.**

A system has a processing section or the system itself as assessment. Processors that will change the input to output.

**8. Target System.**

A system has goals and objectives, if the system does not have a target then the system would not exist. A system is successful when on target or goal. Target is very influential on the input and the output produced. According to Al-Bahra Ladjmudin (2013: 3).

**2.1.3. Classification System.**

The system is a form of integration between the components with other components. Because the system has a different target for each case that is in the system. Therefore, the system can be classified into several viewpoints. As an example of a system that is abstract, natural systems, the nature of which is

deterministic and systems that are open and closed. The more detailed and detailed explanation will be presented below:

1. Abstract system is a system in the form of thoughts or ideas that do not appear physically.
2. Natural systems are systems that occur due to natural processes are not created by humans (determined and subject to the will of the creator of nature).
3. Specific system (deterministic system) and indeterminate system (probabilistic system). Particular system operates with a predictable behavior. Particular system is relatively stable in the long term. Indeterminate system is a system which conditions the future is unpredictable because it contains probability.
4. The system is closed and open systems

Closed system is a system that is not related and not affected by the external environment. This system works automatically without any intervening from the outside. An open system is a system that is associated with and affected by the external environment? This system Receives input and produces output to the outside environment or other subsystems. According to Al-Bahra Ladjmudin (2013:

**2.2. Understanding Information**

According Jogiyanto HM (2001: 8) Information is data that has been processed into a form that is meaningful to the recipient and useful in making decisions today or next. According to Abdul Kadir (2003: 32) in a book entitled Introduction to Information Systems, "Information contains" meaning "which is very important, because it is based papers the recipient can understand this information and further can use it to draw a conclusion or even taking a decision. “Based on the above definition can be concluded that the information is a result of the processing of data that is useful and is used to make decisions.

**2.2.1. The basic concept of information**

For information derived from the processing of data must have a different quality. According Jogianto (2005: 10) the quality of information consists of three things: accurate, relevant and timely.

**1. Accurate**

Accurate means that information should be free of errors, not biased or misleading. Accurate also means that information must clearly reflect the intent. Information must. Be accurate because of the resources to receiver information likely that many disturbances that may alter or destroy such information. Some things that can affect the accuracy of an information include:

a. Completeness Information

The resulting information consists of a single unit of information that is comprehensive and covers various matters related thereto. Because if the information generated partial course will affect the decisions or determine the action as a whole, so that will affect the ability to control or solve a problem with either.

b. Truth (correctness) Information

The information generated by the data processing, must be strictly in accordance with existing calculations in the process.

c. Security Information

An information should be safe, in the sense that only accessed by those who are interested only in accordance with the nature and purpose of the information.

**2. Relevant**

Means that information has benefits for the wearer. The relevance of the information for each person different from one another, then the information can be useful say if it really useful and in need of the wearer.

**3. Just in time**

Some of the information that comes at the receiver should not be too late. Obsolete information will not have value anymore because the information constitute grounding in taking decisions.

**2.3. Understanding Information Systems**

According to Abdul Kadir (2003: 10) Information Systems is the number of components (human, computer, information technology, and working procedures), there is something that is processed (data into information), and is intended to achieve a goal or purpose.

According to Robert A. Leitch and K. Roscoe Davis (Jogiyanto, 2005: 11) Information System is a system within an organization that brings the needs of daily transaction processing, support the operation, managerial and strategic activities of an organization and provide certain outsiders with reports - reports required.

Having elaborated on the definition of the system and the information it can be concluded general information system is defined as a collection of sub - sub-systems, both physical and non-physical correspond each other and work together harmony to achieve a goal of process data into useful information.

**2.3.1. Component Information System**

According Jogiyanto (2005: 12) the term in the information system components are the building blocks that can be divided into six blocks, namely:

1. Block input

Block input is the data entered into the information system, which can be either basic documents that can be processed into a certain information.

2. Block model

This block consists of a combination of procedures, logic and mathematical models which will process the input data to generate a required information.

3. Block output

Is information that generates a set of data that will be stored in the form of print data reports?

4. Block technology

Block technology is a major support system ongoing information. Which has several components, namely the tools to enter data (input device), a tool for storing and accessing data (storage device), a tool to generate and send the output (output device) and tools to make a total help control system (control device). Consists of information technology

Of three (3) main parts, namely technician (human ware or brainier), software, and hardware.

5. Block the database

The database is a collection of data related to each other, are stored in the computer hardware and software used to manipulate it. The data needs to be stored and the need in the organization in such a way that the resulting quality information.

6. Block of control

Some controls need to be designed and implemented to ensure that the things that can damage the system can be prevented if already occurred mistakes in the use of system damage.

## 2.4. Scheduling

The notion of scheduling are as follows:

### 2.4.1. Understanding Scheduling

Scheduling is a collection of policies and mechanisms in the operating system relating to the sequence of work done computer system. Scheduling in charge of deciding:

- The process should be run
- When and for how long the process was running.

Main Target Optimization Process Scheduling work to meet particular criteria.

### 2.4.2. Criteria Scheduling

According to (Tan: 92 and MIL: 92) the criteria for measuring the performance of scheduling and optimization:

1. Fair (fairness)
2. Efficiency
3. Response time
4. Turnaround Time
5. Throughput

**1. Fair (Fairness).**

Fair are the same processes are required to get the same amount of time in processing and no one who did not get the service process so experienced start vision processors. Scheduling target should ensure each process gets the service of fair processing.

**2. Efficiency.**

Efficiency or processor utilization is calculated by comparison (ratio) is busy processing time. Scheduling target is to keep the processor busy that remain in a state of achieving maximum efficiency. Busy is not idle processors, including the time spent to execute user programs and the operating system.

**3. Response time**

Different response times for:

- Interactive Systems
- Real-time Systems
- Response time in interactive systems

Response time in interactive system is defined as the time spent from the time of the last character of the command or transaction entered until the first result appears on the screen (terminal). This response time is called the terminal response time.

- Response time to the real time system

In real-time systems, response time is defined as the time from the time of the incident (internal or external) until the first instruction of the service routine is executed, called event response time. Target scheduling is to minimize response time.

**4. Turnaround Time.**

Turnaround time is the time spent on the current program or job started to get into the system until the process is completed the system. The time in question is the time spent in the system, expressed as the amount of execution time (service time job) and waiting time, namely: Turnaround Time = time + waiting time execution, scheduling Goal is to minimize the turnaround time.

**5. Throughput**

Throughput is the amount of work that can be completed in one unit of time. How to express the throughput is the number of jobs that users can executed in one unit / interval. Scheduling target is to maximize the number of jobs that are processed at a time interval. Higher throughput figures, more work done system. These criteria can also join together and so it is not possible conflicting optimization criteria simultaneously. Example: To give a small response time requires scheduling processes are often switched between it. This method increases the system overhead and reducing throughput. Wisdom scheduling scheme involves a compromise between the needs of the conflicting. This compromise relies nature and use of computer systems.

**2.5. International Program**

The notion of the International Program are as follows:

**2.5.1. Definition of International Programs**

International Program is a class that is programmed for students who have more capabilities in its International language that will be expected of the students had the opportunity to get scholarships abroad. Teaching and learning in college emphasizes the development of creativity, innovation, and experimentation to spur new ideas that have never been there with reinforcement, enrichment, development, expansion, deepening, through adaptation. Or adoption to a good standard of education in the country and abroad who are believed to have established a reputation internationally recognized quality.

Learning models such as this is not in accordance with the expectations of the government to develop human resources, because the program does not seem to be preceded by

N-depth research and a weak concept, also the planning and details that are less obvious.

**2.6. Understanding Database**

According to John (2001: 8), database is defined as the set of groups of data (files) that are interconnected in such a way that is organized so that later can be recovered quickly and easily stored in electronic storage media. According to the above understanding can be concluded that the database is a group of centralized data organization. The database is generally analogous to a filing cabinet or cupboard set of documents.

## 2.7. Software Support

Below is a description of each software:

### 2.7.1. Eclipse

According to the Vienna Noviani (2011: 10), Eclipse is an IDE (Integrated Development Environment) to develop the software and can be run on all platforms (platform independent).

Here is the nature of Eclipse:

1. Multi-platform

Eclipse Target operating system is Microsoft Windows, Linux, Solaris, AIX, HP-UX and Mac OS X.

2. Multi-language

Eclipse was developed with the Java programming language, but Eclipse-based application development support other programming languages such as: C / C ++, Cobol, Python, Perl, PHP, and so forth.

3. Multi-role.

Besides as an IDE for application development. Eclipse can be used for activities in the software development cycle such as documentation, software testing, web development, and so forth.

At this time, the Eclipse IDE is one of the favorites for a free and open source. Open source means that everyone should see this software programming code. In addition, the advantages of Eclipse that makes it popular is its ability to be developed by the user to create a component called plugins.

Eclipse was originally developed by IBM to replace the software development of the IBM Visual Age for Java 4.0. Eclipse product was launched by IBM on November 5, 2001. IBM is investing US $ 40 million for development. Since 5 November 2001, the consortium Eclipse Eclipse Foundation took over further development.

### 2.7.2. Eclipse Architecture

According to the Vienna Noviani (2011: 10), since version 3.0, Eclipse is essentially a kernel. What can be used in the Eclipse is actually a function of the plug-ins that are already installed. This is called the base of the Eclipse Rich Client Platform (RCP).

The following are the components that make up the RCP:

1. Core platform
2. OSGi
3. SWT (Standard Widget Toolkit)
4. Jface
5. Eclipse Workbench

By default Eclipse is always equipped with JDT (Java Development Tools), plug-ins that make compatible Eclipse to develop Java programs, and PDE (Plug-in Development Environment) to develop new plug-ins. Eclipse plug-ins as well as its implementation in the Java programming language.

Eclipse is an IDE concept is

1. Open
2. Easily expandable for anything, and
3. Not for something specific.

Eclipse is not only to develop Java programs, but also for a variety of purposes. Any extensions simply by installing plug-ins are required. If you want to develop a program of C / C ++ then there has been a plug-in CDT (C / C ++ Development Tools) that can be installed in Eclipse to be a tool for developing Eclipse C / C ++. Visual development is not thing that is not possible by the Eclipse UML2 plug-ins available to create UML diagrams. By using PDE every person can make a plug-in accordance with his wishes. One site that offers free plug-ins that are Eclipse downloads by project.

### 2.7.3. Java programming

Java is a programming language that can run on a variety of computers including mobile phones. This language was originally created by James Gosling while still joined Sun Microsystems is now a part of Oracle and released in 1995. These languages are adopting syntactic contained in C and C ++ but with syntax simpler object model and support top-down routines minimal.

Java based applications are generally compiled into p-code (byte code) and can run on different Java Virtual Machine (JVM). Java is a programming language that is general / non-specific (general purpose), and is specifically designed to utilize minimal implementation dependencies as possible. Because the functionality that allows Java applications can run on several different operating system platforms. Currently Java is a programming language used most popular and widely used in the development of various types of software applications or web-based applications.

According Noviyanto (2009) Characteristics of Java, among others:

- Simple
- Object Oriented
- Distributed
- Interpreted
- Robust
- Secure
- Neutral Architecture
- Portable
- Performance
- Multithreaded
- Dynamic

Various Java 2 Software Developers Kit (J2SDK), among others:

- J2SE (Java 2 Standard Edition)
- J2EE (Java 2 Enterprise Edition)
- J2ME (Java 2 Micro Edition)

Java has a platform that is:

- Java Virtual Machine (Java VM)
- Java Application Programming Interface (Java API)

Java applications, among others:

- Stand alone
- Applets
- Windows-based Applications (GUI)
- Java Servlet

- Java Server Pages (JSP)
- Java Beans and Enterprise Java Beans
- Java Micro Edition

### 2.7.4. Java Architecture

In architecture, Java has not changed at all since the beginning of the language was released. Java compiler (called by java or Java Compiler) will transform the code in the Java language into a byte code. What's byte code? Byte code compilation result is a set of commands that can then be executed by a computer abstract machine, called the JVM (Java Virtual Machine). JVM is also often called as an interpreter, because it is always translate the codes stored in the byte code by way line by line.

### 2.7.5. Unified Modeling Language (UML)

According to Adi Nugroho (2005). "Unified Modeling Language (UML) is a tool of analysis and design of object-based software". Unified Modeling Language (UML) is a standard modeling language consisting of clusters diagram, developed to help developers and software systems in order to accomplish tasks such as: Specifications, Visualization, Architectural Design, Construction, Simulation and testing and documentation ".

Based on some of the opinions expressed above can be concluded that the "Unified Modeling Language (UML) is a language that is based on the graphic or picture to visualize, specify, build and documentation of a software development system based OO (Object Oriented)". UML is a collection of the best techniques that have proven successful in modeling large and complex systems. UML is not only used in process modeling software, but almost in all the fields that require modeling. The main parts of the UML is View, Diagram, a model element, and general mechanism.

1. View

View used to see the system being modeled from several different aspects. View not see the graph, but is an abstraction that contains a number of diagrams. Several types View in UML, among others: Use Case View, Logical View, Component View, concurrency View, and Deployment View.

2. Use Case View

Use Case View describe the functionality of the system is supposed to do according to the desired external actors. Actors that interact with the system can be either a user or system is described in other. View Use Case Diagrams and sometimes with Activity Diagrams. This view is used primarily for the customer, the designer, developers, and system testers.

3. Logical View

Logical View describes how the functionality of the system, the static structure (class, object, and relationship) and dynamic collaboration that occurs when an object sends a message to another object in a particular function. This view is described in the Class Diagram for the static structure and the State, Sequence, Collaboration, and Activity Diagrams for dynamic models. This view is used for the designer and developers.

4. Component View

Component View describe the implementation and dependency modules. Components which are other types of code modules are shown with the structure

and dependence also resource allocation component and other administrative information. This view is described in the Component View and used for the developers.

5. Concurrency View

Concurrency View divide the system into the process and processor. This view is described in the dynamic diagram (State, Sequence, Collaboration, and Activity Diagrams) and Diagrams implementation (Component and Deployment diagrams) and used for the developers, integrator, and testers.

6. Deployment View

Deployment View describe physical systems such as computers and devices (nodes) and how it relates to this other. View described in Deployment Diagrams and used for the developers, integrator, and testers.

7. Diagram

Diagram shaped graph showing symbol of model elements are arranged to illustrate certain parts or aspects of the system. A diagram is a part of a particular View and when described usually allocated for a particular View. The type of diagram, among others:

1. Use Case Diagram

According to the US Rosa, M. Shalahudin, Software Engineering, 2013: 155, Use case or use case diagram is a model for the behavior information systems will be made. Use case describes an interaction between one or more actors with information systems that will be made. Roughly speaking, the use case is used to determine what function is in an information system and who is entitled to use those functions. Terms naming the use case is defined name as simple as possible and understandable.

2. Activity Diagrams

According to the US Rosa, M. Shalahudin, Software Engineering, 2013: 161, Diagram activity or activity diagram illustrates the workflow or the activity of a system or business process or menu in the software. Noteworthy here is that the activity diagram illustrates the activity of the system is not what actors do, so activities can be carried out by the system.

3. Sequence Diagram

According to the US Rosa, M. Shalahudin, Software Engineering, 2013: 165, Diagram sequences or sequence diagram illustrates the behavior of objects in use case by describing the life time of the object and the message that is sent and received between objects. Therefore, to describe the sequence diagram objects must be known to be involved in a use case along with the methods of the class owned instant( computer operational ) become the object. Creating a sequence diagram is also needed to look at the existing scenario in the use case.

4. Collaboration Diagram

Collaboration diagrams are another form of sequence diagrams, sequence diagrams which are organized by time, while collaboration diagrams are organized according to the room / space.

5. Class Diagram

According to the US Rosa, M. Shalahudin, Software Engineering, 2013: 141, grade or class diagram is a diagram depicting the structure of the system in terms of

defining the classes that will be made to build the system. Classes have what are called attributes and methods or operations. Attributes are variables owned by a class, operations or methods are functions that are owned by the class.
The class diagram is made so that the programmer or programmer make appropriate design classes in the class diagram that between design and software documentation in sync.
6. Component Diagram
According to the US Rosa, M. Shalahudin, Software Engineering, 2013: 148, Diagram components or component diagram is made to show the organization and dependence among a collection of components in a system. Diagram component focuses on components and systems needed in the system.
7. Deployment Diagram
According to the US Rosa, M. Shalahudin, Software Engineering, 2013: 154, Diagram deployment or deployment diagram showing the configuration of the components in the process of execution of the application. Deployment diagram can also be used to model such things, additional systems (embedded systems) that portray the device design, nodes, and hardware.
The purpose of the use of UML as follows:
A. Provide modeling language that is free from various discuss programming and engineering processes.
B. Brings together the best practices contained in the modeling.
C. Provide ready-made model, expressive visual modeling language support to develop and exchange models easily and commonly understood.
D. UML can also function as a blueprint for a very complete and detailed. With this blueprint will be known bias detailed information about the coding program or even to read and interpret the program back into shape diagram (reserve engineering).
While the software that supports the creation of UML diagram, namely:
a) Star UML
Star UML is an open source project for developing Star fast, flexible, extensible, featureful, and freely-available UML / MDA platform running on a platform Win32.Tujuan of Star UML project is to build a software modeling tool and also platform that is interesting is the replacement tool commercial UML Rational Rose, Together and so on.
b) Acceleo
Acceleo is a code generator that transforms the model into code. Acceleo is easy to use and provide "off the shelf" template generator and editor for Eclipse.
c) Argo UML
Argo UML is a UML modeling tool Star open reputable source and includes support for all standard UML 1.4 diagrams. It runs on any Java platform and is available in ten languages.

### 2.7.6. SQLite

The database system used by Android are SQLite. SQLite is a SQL-based database, but it has many limitations, one of which is the provision of data types is limited and does not support the concept of normalization. Database created can only be accessed by the application itself. And for what we use SQLite? Commonly used to store data temporarily. While normally used for permanent data web service.

SQLite is an embedded SQL database engine. Unlike most other SQL databases, SQLite does not have a separate server process. SQLite reads and writes directly to ordinary disk files. A complete SQL database with multiple tables, indexes, triggers, and views, contained in a single disk file. Database file format is cross-platform - you can freely copy a database between 32-bit and 64-bit or between big-endian and little-endian architectures. These features make SQLite a popular choice as an Application File Format. Think of SQLite not as a replacement for Oracle but as a replacement for fopen ()

## III. OBJECT AND METHODS

### 3. 1 Object Research.

The object of research is a focus that is used in conducting a study, which made the object or focus of this research is on the E-Learning in the International Program UNIKOM running. Location and Campus UNIKOM way research is Dipatiukur No. 112-114-116 Bandung.

#### 3.1.1 History The Company

The development of rapid information technology, to make the world in the 21st century is becoming increasingly transparent and seamless. Developments in science and information technology as well as issues of global trade and free trade should be anticipated by the college. Universities should have competitiveness. Indonesian Computer University has a vision to become a leading university in the field of computer and information technology, global perspective and become a center of excellence in the fields of science, technology and art of information that supports national development and oriented to the interests of the community, the nation and the state. Global perspective means to dare to compete with universities around the world. To get world class university currently has established UNIKOM international affairs office called the Office of International Affairs (AIO) Digital which is expected to increase the intensity of cooperation institutions, and increase motivation and interest in the academic community UNIKOM to take part at the international level through education, research and scientific publications, an exchange student and lecture. Establishment of the Office of International Affairs (AIO) UNIKOM was established by decree Rector No. 920 / SK / RECTOR / UNIKOM / IV / 2011, April 5, 2011 on the establishment and appointment of International affairs office bearers.

#### 3.1.2. Organizational Structure of International Programs UNIKOM

Here is a structure Competitive Scholarship Organization business and Foreign Indonesian Computer University.

### 3.2 Research Methods

The method is a mechanism, technique or how to seek, obtain, collect or record data that can be used for the purposes of preparing the study. The preparation of this research uses descriptive qualitative approach, which collects data and then analyze and explain the observations in the field.

#### 3.2.1 Research Design

The study design included into the action research study nature (action research), which is the book (Gunawan, Rapoport, Associate cited 2006: 2007 Methodology action / action research), action research is an activity or

something corrective action planning, implementation, and evaluation worked systematically and thus the validity and reliability achieve levels of research.

Action research is also a process that includes a cycle of action, which is based on the reflection; feedback proof (evidence) and evaluation of the previous action and current situation.

### 3.2.2 Types and Data Collection Methods

The type and data collection methods are as follows:

#### 3.2.2.1 Primary Data Sources.

Sources of data or information of this research is based on the type of data required. Primary data is data obtained directly from the respondents collected through field surveys using a specific data collection techniques made specifically for it. Data collection techniques in order to collect information about the object of this study, namely:

1. Methods of Observation

Direct researchers visited the study site to the company that made the object of research is UNIKOM. This is done for a close look at the problems associated with the required subject in this study.

2. Interview

Is a technique of data collection by face to face between collecting data and sources in question..

#### 3.2.2.2 Analysis and Design Tools

With a systems approach that is object-oriented, then the author will be a portrait of how the characteristics of the system by using a modeling called the Unified Modeling Language (UML), According to Rosa USA, M. Shalahudin, Software Engineering, 2013: 133 & 140, UML is one of the standard language which is widely used in the industry to define requirements, making the analysis and design, as well as describe the architecture of object-oriented programming.

**1. Use Case Diagram**

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**2. Activity Diagram**

According to the US Rosa, M. Shalahudin, Software Engineering, 2013: 161, Diagram activity or activity diagram illustrates the workflow or the activity of a system or business process or menu in the software. Noteworthy here is that the activity diagram illustrates the activity of the system is not what actors do, so activities can be performed by the system.

. **3. Class Diagram**

According to the US Rosa, M. Shalahudin, Software Engineering, 2013: 141, grade or class diagram is a diagram depicting the structure of the system in terms of defining the classes that will be made to build the system. Classes have what are

called attributes and methods or operations. Attributes are variables owned by a class, operations or methods are functions that are owned by the class.

The class diagram is made so that the programmer or progammer make appropriate design classes in the class diagram that the design documentation and software synchronous.

**3. Deployment Diagram**

According to the US Rosa, M. Shalahudin, Software Engineering, 2013: 154, Diagram deployment or deployment diagram showing the configuration of the components in the process of execution of the application. Deployment diagram can also be used to model such things, additional systems (embedded systems) that portray the device design, nodes, and hardware.

## IV. RESULTS AND DISCUSSION

### 4.1. System Design

System design is the process by which a system is designed and later to be the development of the system. The design of this system involves the estimation of physical needs, manpower and funds needed to support the development of the system as well as to support its operations after applied. The design of the system can be interpreted as, after the analysis phase of the system development cycle, defining on functional requirements, preparation for the design implementation, describing the system which will be established in the form of depiction of planning, sketching, the setting of several separate elements into a unified whole and function, and the software and hardware components of the system.

#### 4.1.1. Objective System Design

1. Applications E-Leaning on the International Program UNIKOM Based Website is intended to facilitate the users or students for teaching and learning activities in UNIKOM.
2. With the application of E-Learning in the International Program UNIKOM Based Website, Secretariat Prodi, lecturers, and students can often access the class schedule or if there is a change in the course schedule, even with long distances and are connected to the Internet.
3. With the application of E-Learning in the International Program UNIKOM Based Website, then Lecturer Guardians and Students can conduct online guardianship so that it becomes one of the alternative solutions to problems.

#### 4.1.2. Proposed System Overview

The proposed system for E-Learning in the International Program Website Based UNIKOM is to use the concept of client-server, to the client using the browser and the server using PHP and MySql and done online, where the user or client can access these applications using the Internet access provider or use wifi internet connection.

##### 4.1.2.1.Use Case Diagram

Use case describes an interaction between one or more actors with information systems that will be made. Roughly speaking, the use case is used to determine what function is in an information system and who is entitled to use those functions. The following is the use case diagram of the system of E-Learning in the International Program of the proposed web-based UNIKOM.

#### 4.1.2.2. Class Diagram

Class diagrams aims to describe the static structure of classes in the system. Class used to represent something that is handled by the system. Here Class

#### 4.1.2.3. Deployment Diagram

Deployment / physical diagrams describe in detail how the components be deployed in the infrastructure system, where the components will be located (on the machine, server or hardware).

**Implementation**

Applications prototype implementation on E-Learning in International Master Program Web Based performed using the programming language PHP and CodeIgniter Framework and MySQL as the database, the PHP programming language can run on various operating systems and hardware,

The purpose of implementation of this system is to explain the procedures for the use of applications to any user who will use it. So that the user is able to respond well and what has been shown to provide input to the system application developers to make improvements to the system will be made for the better again.

### 4.1.3. Implementation limits

The limit on the implementation of E-Learning in International UNIKOM program based websites, including is:

1. Implementation of the application is given only three types of access that the Secretariat Prodi, lecturers and students.
2. Implementation of an application built specifically only students International Program UNIKOM.

### 4.1.4. Software Implementation

Implementation of software is with a PC or laptop operating systems Windows, Mac, Ubuntu, Linux and connected to the Internet. The software implementation is as follows:

Implementation of software PC / Laptop:

1. Operating System Windows XP / 7 / Windows 8 ..
2. XAMPP 1.7.4 for Internet and local database storage.
3. Adobe Dreamweaver CS3, Sublime Text to write coding in PHP program.
4. CodeIgniter Framework 2.0
5. Mozilla Firefox 11 as a browser :

### 4.1.5. Hardware Implentation

To be able to run applications designed it takes hardware as a supporter. The hardware requirements are as follows:

Hardware implementation:

1. Processor: Intel (R) 2:10 GHz Core2Duo
2. Memory: 1024MB RAM
3. Hard drive: 250GB Seagate
4. VGA: Intel (R) HD Graphics
5. Monitor: 15 "Advance

## V. CONCLUSIONS AND SUGGESTIONS

### 1.1. CONCLUSIONS

The conclusion of the research thesis entitled "Information System at the International Program UNIKOM Based Website" This is as following :

1. Applications are built to deliver the course schedule information more effectively and efficiently, because it can reduce the time and distances even to access the schedule of courses that have been awarded both the lecturers and students
2. Applications made already a mediation between faculty and students for teaching and learning activities, the presence of two-way interaction between faculty and students.
3. This application makes it easy to form the media to obtain all the information needed by faculty and students.

### 5.2. SUGGESSTIONS

In the course scheduling application development based on Android is still far from perfect and there are still many shortcomings. Therefore, it is necessary to further development and refinement. As for the suggestion that this application can function optimally them:

1. Applications are made in order to better equipped with additional features such as menus to offer courses for lecturers that can be printed and given to the lecturer concerned as early scheduling of courses provided by the admin .
2. This application is a good idea can be applied in a mobile system.
3. This system can be integrated with half the payment made by the students.
4. In building the future of e-learning can be integrated with the system so that the regular students into one unified whole system.

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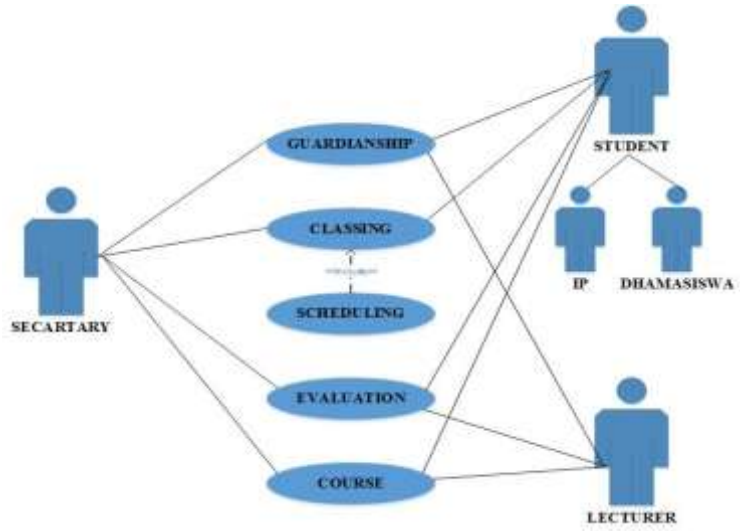



**Figure 4.2** Use case diagram system E-Learning based website

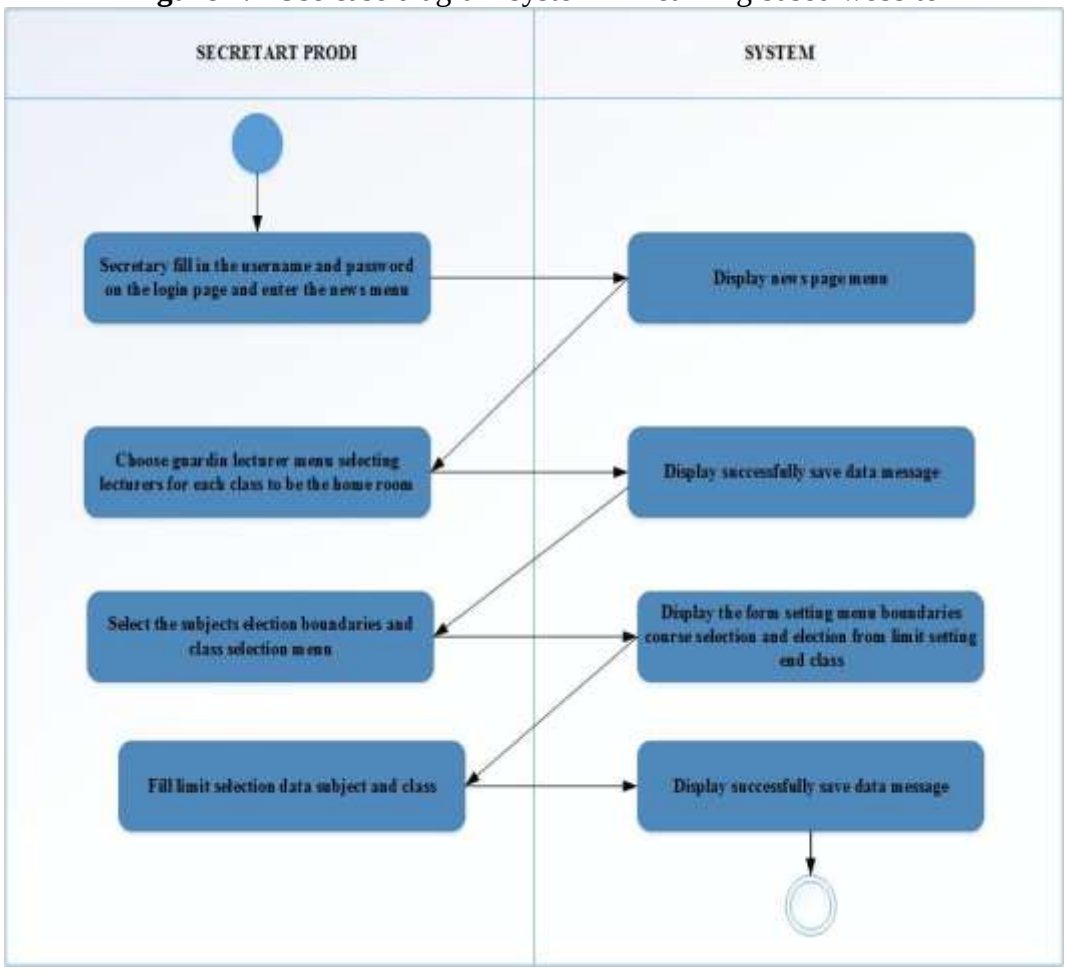



**Figure 4.3** Activity Diagram guardianship

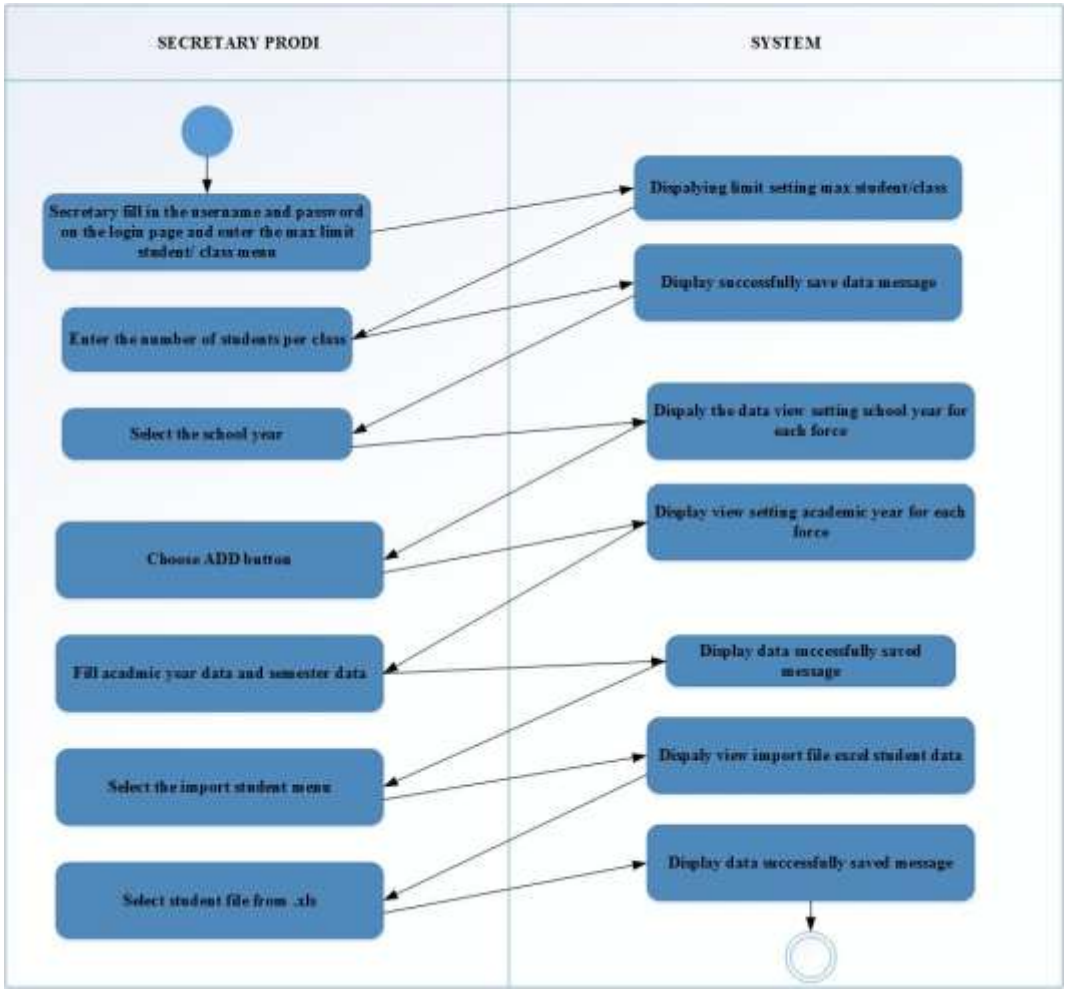



**Figure 4.4** Activity Diagrams Classing proposed

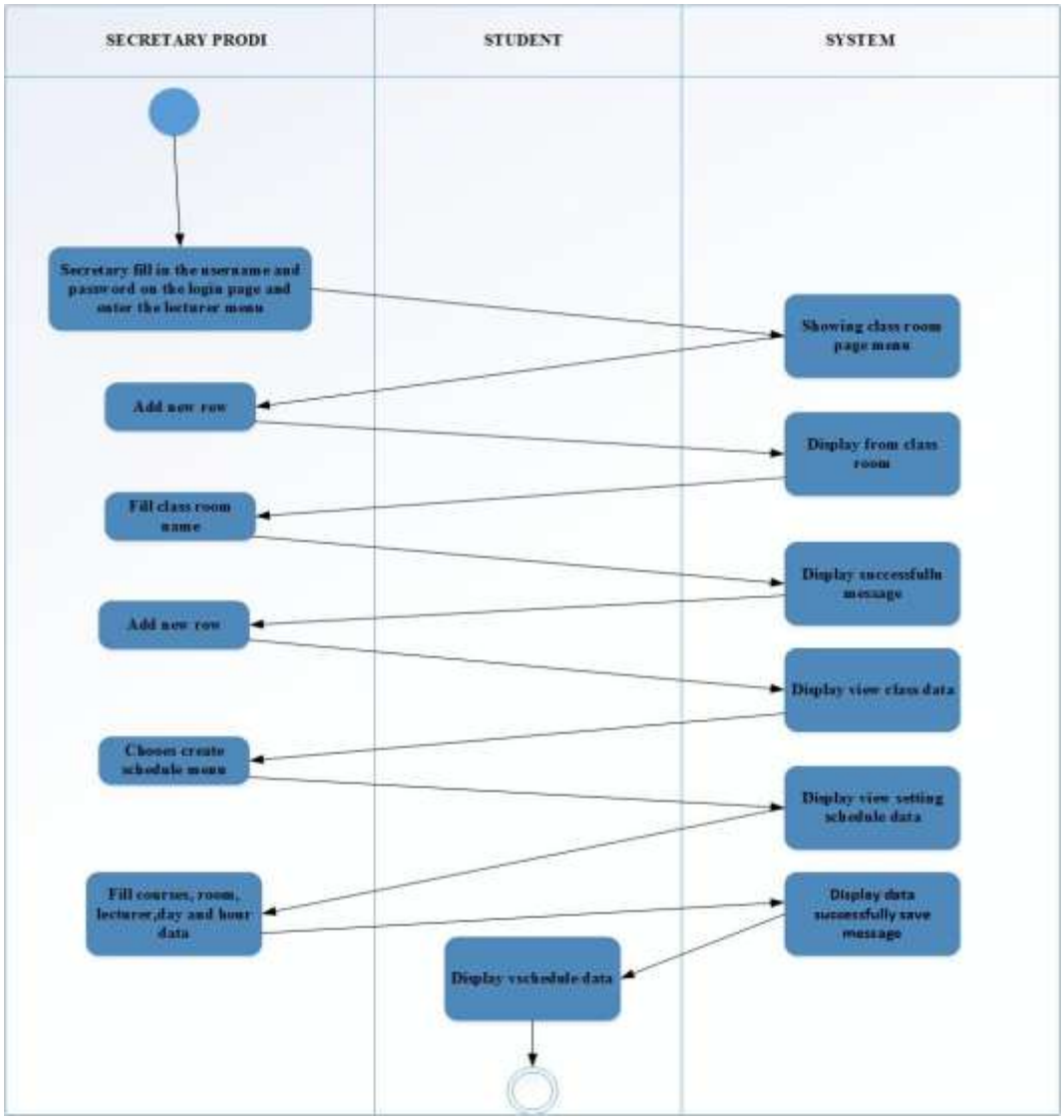



**Figure 4.5** Activity Diagrams Scheduling proposed

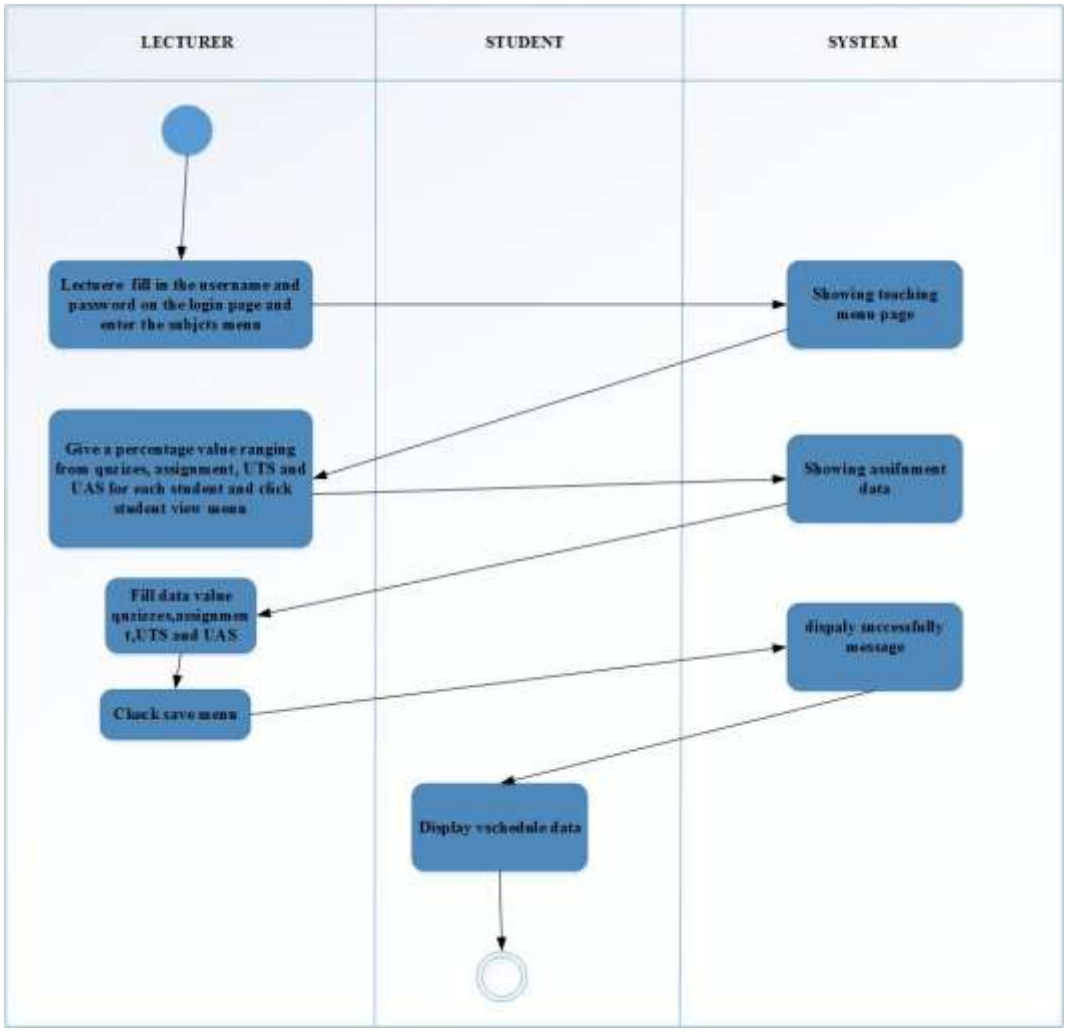



**Figure 4.6** Activity Diagram Subjects proposed Scheduling

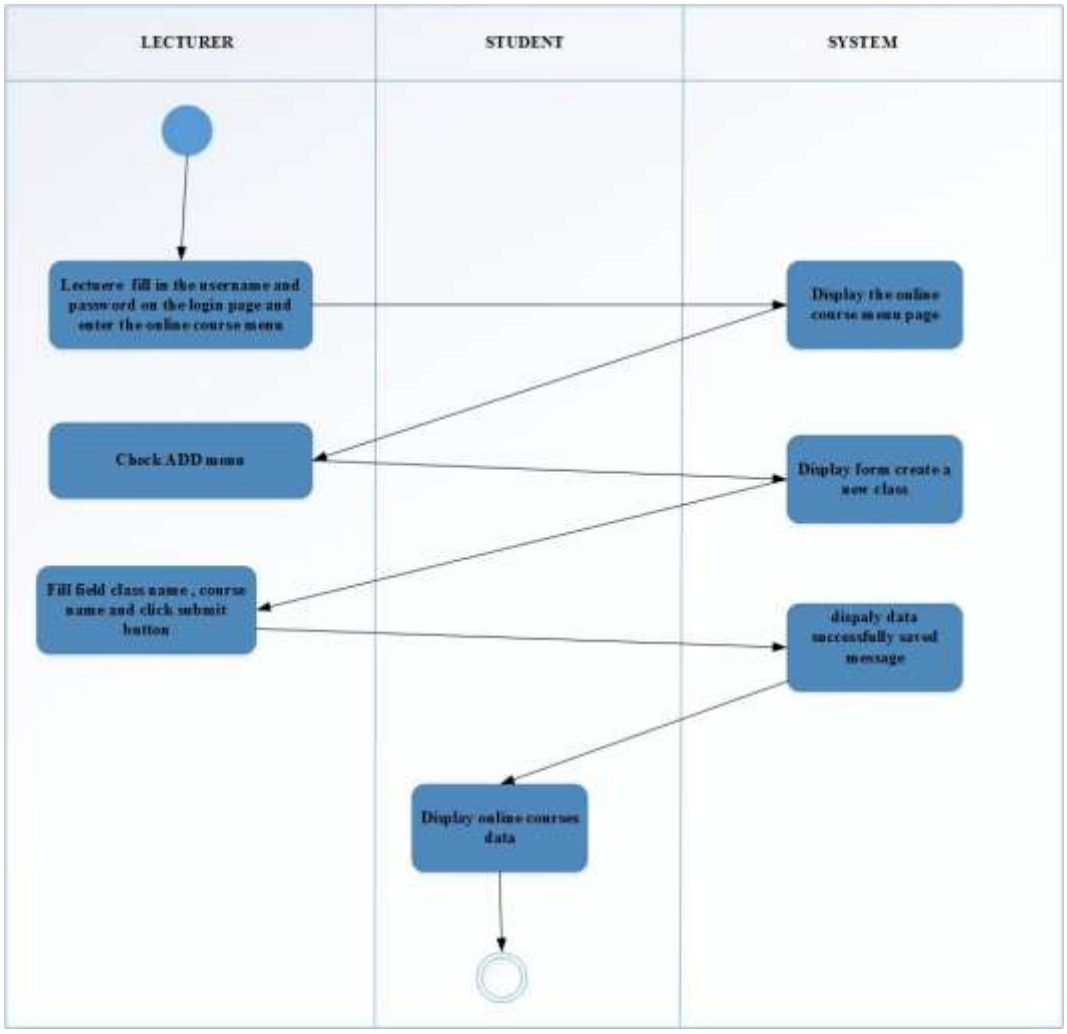



**Figure 4.7** Activity Diagram Proposed Online Course

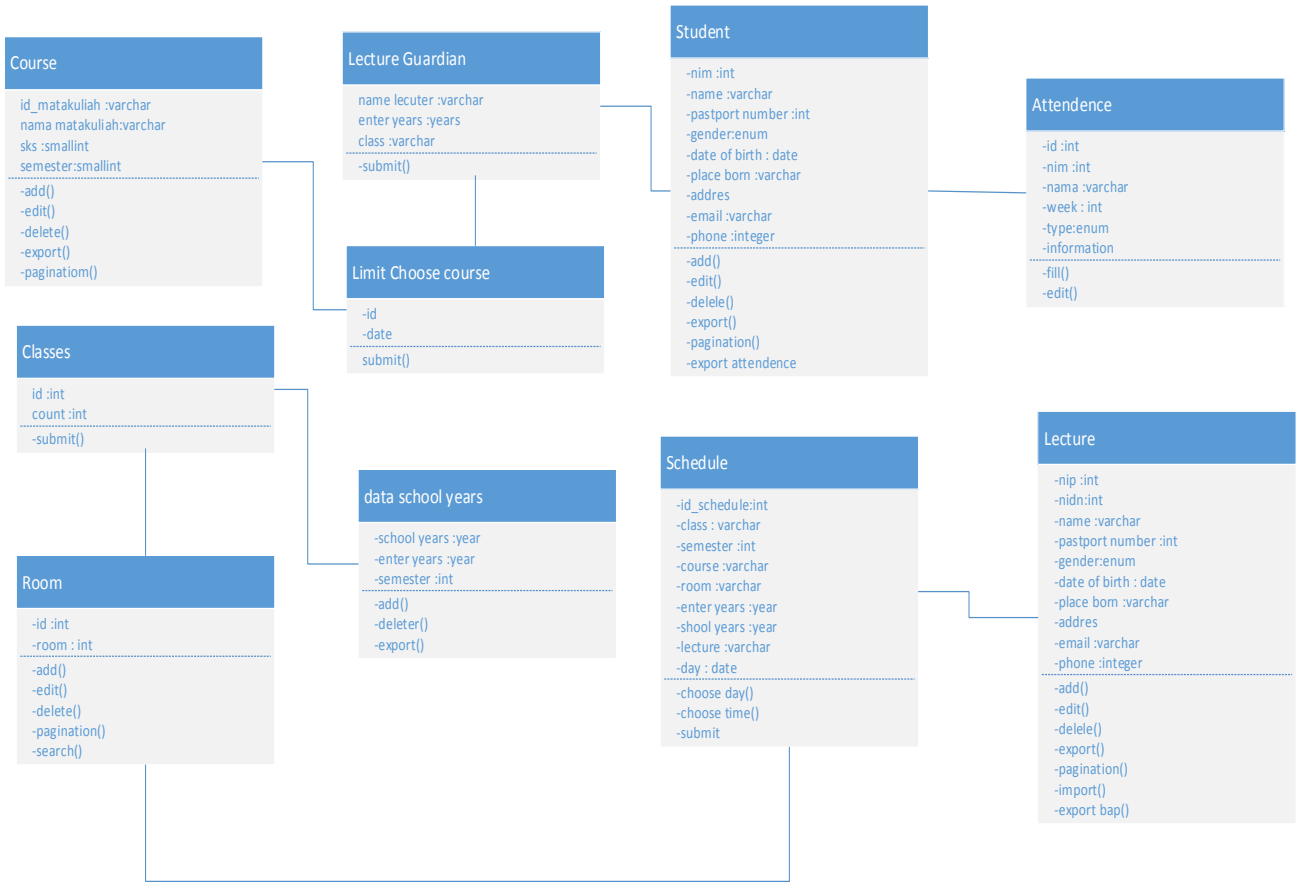



**Figure 4.8** class diagram

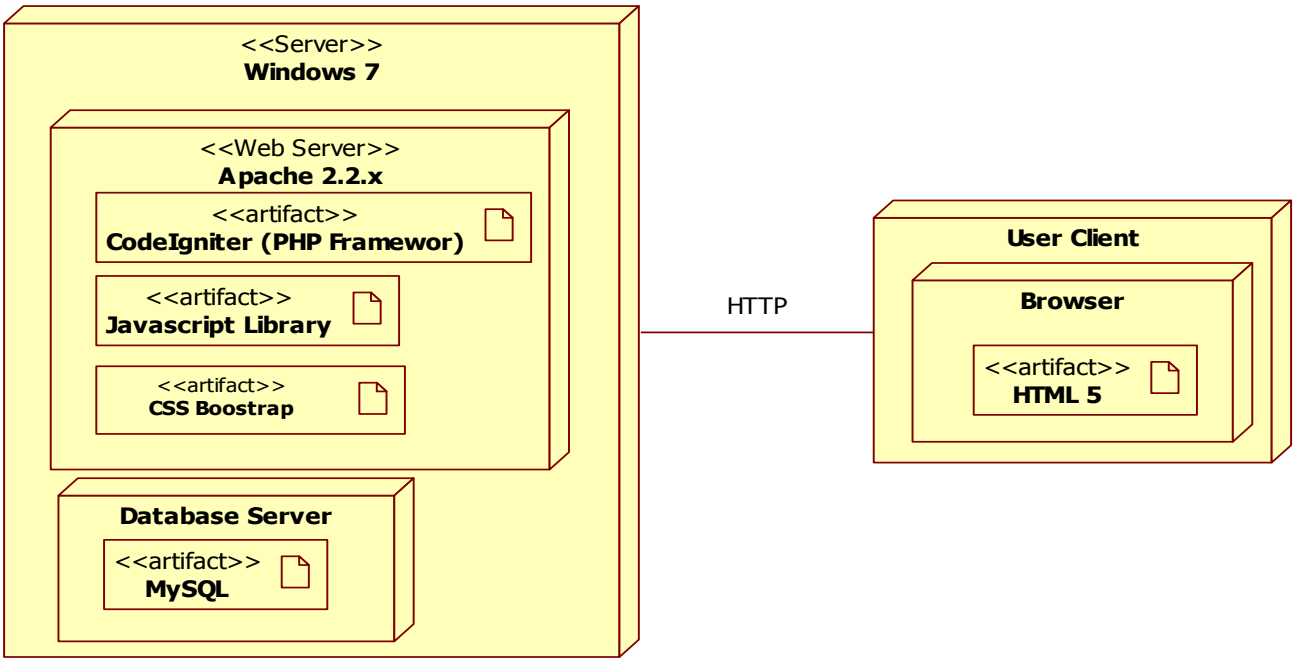



**Figure 4.9** Deployment Diagram