Web and Android Programming Course Information System

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Web and Android Programming Course Information System

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Abstract. The purpose of this study is to plan and to create Information System of Web and Android programming Courses to facilitate the students to learn Web and Android Programming. This system allows students to register and gain knowledge about programming and the Certification process has been computerized so that the process can run quickly. The method used in this research was a descriptive method and Waterfall System Development Method. Programming Science is widely used to create applications that simplify the company and consumers. Nowadays, the majority of the community is interested in Web and Android Programming, therefore Many Companies providean online courses about it that both registration and exams were conducted online. This information system relies on Internet connectivity, so though it has Real Time feature if the Internet Connectivity is problematic the information system will be hard to do a business process. The result of this research is developing web and android programming language program that has been integrated with the internet. In addition as Practical Usefulness, Students can easily download the material and easily perform the Certification exam.

1. Introduction

Course Learning Services Programming is one of the Facilities that interested people who want to Learn Programming such as Website, Android and Network. This is driven by several factors, one of which is proposed by Lee and Salman, Mobile devices are fast becoming devices powerful enough to run personal computers with the advancement of wireless and mobile technology. Learning by means of mobile phones is becoming a new approach towards education, and it is unique in its own way and offers learning opportunities anywhere and anytime. Mobile Collaborative Learning (MCL) has been getting more importance in educational environment as one type of mobile learning application. This paper introduces the theoretical and technical foundations for designing and developing MCL environment as well as exploring a new approach for building a learning application towards mobile technology. Finally the proposed prototype will be designed and constructed using the Android operating system with a suggestive infrastructure for this type of system. [1] Then another benefit that can be provided will find in Android a rich platform on which a variety of concepts, techniques, and resources can be provided to produce useful and marketable applications [2] Then with the exponential growth of online courses in higher education, retention is an area of great concern [3].

Many companies provide courses for programming such as Politan, Refactory and HACTIV8 codes, these companies provide materials that are often used in the world of Work Specifically the Information Technology section, providing certification of national and international level. As a result, this can provide students with self-sufficiency which reduces their reliance on the teaching staff. [4] According to Nauman et al. The adoption level of emerging web technologies is on the rise in academic settings.

However, a major obstacle in the practice of web-based instruction is the limited understanding of learners' characteristics and perceptions about technology use. Thus there is a need to understand the relationship between students' learning styles and their preferences for instructional strategies, including the use of emerging web technologies. Since learning styles provide information about individual preferences in learning preferences. In this paper, a research framework has been proposed to incorporate emerging web technologies into higher education based on students' learning styles and technology preferences and a case study has been carried out to validate the proposed framework. An action research methodology has been adopted to carry out the study, which comprises of conducting a survey about students' learning styles and technology preferences; incorporating a combination of emerging web technologies based on the survey findings; and analyzing key achievements and shortcomings of the study to redefine research objectives. The study provides support for the students' learning styles and technology preferences and their impact on academic performance. [5]

As in the Course Learning Course Programming online, the material is also the process of certification is done online and International level such as Udacity, Udemy and Cisco. People in this modern era chose the Service Learning Course Programming based online because it is very easy to register can also learn online anywhere. Systems that automatically assess student programming assignments have been designed [6] This study assesses the online interaction of four distance education course designs. The Study Process Questionnaire was used to measure the shift in students' approach to learning from the beginning to the end of the courses. Design has a significant impact on the nature of the interaction and whether the students are approaching in a deep and meaningful manner. Structure and leadership were found to be a learning and learning approach to learning [7]. Although the benefits can be obtained easily but still have to deal with the course curriculum of science and technology [8]

One of the researchers who focused the study on designing an online orientation course, Bozart et al. explains, The paper describes the analysis undertaken to design a 1-credit-hour online orientation course for students new to online learning. An instructional design team, as a part of an advanced instructional design course, worked with a university-based client. The client identifies the problem areas encountered by the novice students of online courses and the team designed a comprehensive program to meet those needs. Analysis of the data revealed surprising differences in expectations between instructors of online courses and their students of what an orientation to online learning should include. The team is also assisted by the team. Findings indicated that there is a need for online learning and possess or develop strong time management skills. Because of small sample size, the results cannot be generalized beyond the respondents. The authors found a mismatch in the perception of the technical skills instructor versus student technical skills. Based on their findings, the paper provides recommendations on the appropriate design, development and implementation of an orientation to online learning. [9]

From the development of time to time, people prefer Android Programming and Website Programming, because it is very popular in the present day. The need for rehearsal, elaboration, metacognitive self-regulation, and time and study environments were positively correlated with levels of satisfaction. [10] In addition, Website-based and Android-based apps are easy to install, unlike Desktop Applications that are sometimes difficult to install, now Desktop Apps have been replaced by offline Web Applications created by Framework or Javascript. Here is a Graph of Language Programming Interest coming from A Website (Figure 1).

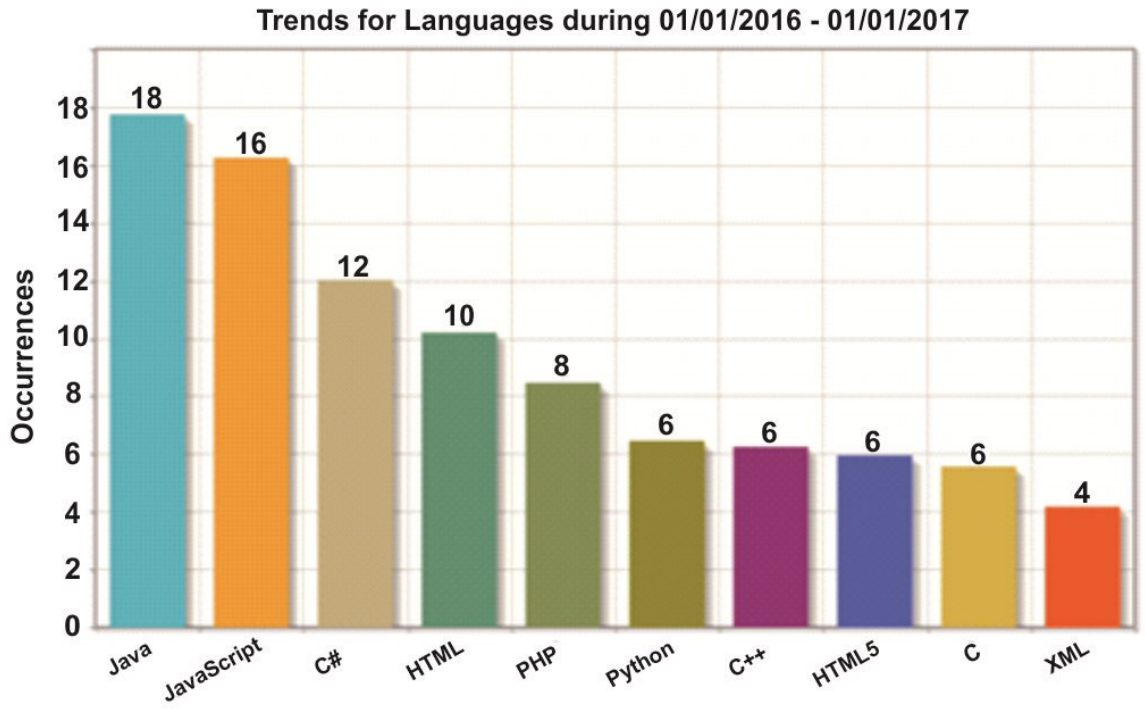

Figure 1. Graph of Language Programming Interest

From the graph, it can be concluded that the Java programming language and Javascript became the programming language most in demand by the Community because of the trend of Web-based and Android applications are very popular in the community. Both languages are often used by programmers to create Web-Based and Android Applications. Nowadays people are competing to participate in the Course Learning Course, they have a variety of purposes from wanting to become Full-Stack Developer to create a Start-Up Company. In the Course Information System Courses Web and Android Courses, This Students can choose the type of the desired course and get material online. Then even though the registration and delivery of the material are done online, the Students must still come to the course for practical programming practice and the programming certification exam. This Information System has two Business Processes namely Registration Process and Certification Process. In the registration module, the Students simply fill in the identity data, proof of payment and fill out the type of course that will be followed on the web. Then in the Certification Module, the Students fill in the questions given by the System then the results of the Problem will be selected by the mentor, if the results from the Exam pass the selection then the mentor will make the Certificate and giving it to the Student.

This Information System has limits i.e. Students must choose one course to follow. This Information System does not discuss the way of learning, but only covers registration and certification. When the Student has registered then the Student cannot perform Cancellation and Certification Examination can only be done once, therefore if the Student fails in performing the Certification Test then the Student must restart from Registration until Certification Exam. The purpose of this study is to plan and to create Information System of Web and Android programming Courses to facilitate the students to learn Web and Android Programming. This system allows students to register and gain knowledge about programming and the Certification process has been computerized so that the process can run quickly. The method used in this research was a descriptive method and Waterfall System Development Method. Programming Science is widely used to create applications that simplify the company and consumers.

2. Method

The research method used is descriptive research method to get the picture obtained from Research Object precisely and based on fact in the field. In addition, this method is also used to identify problem problems that occur during the research took place. Furthermore, the design of research design to build the Information System is done with Literature and Observation Studies, describing the running System, Designing Database, Creating the Proposed System and Testing the feasibility of the proposed System. Here is a Designed Research Picture that has been designed. (Figure 2)

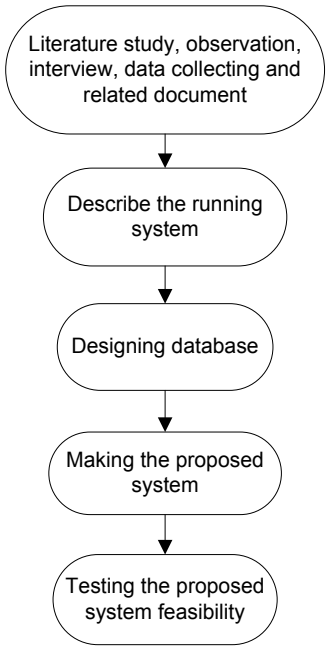

Figure 2. Research design.

There are two sources of data in this study namely Primary Data and Secondary Data. Primary data is done by Observation on Service Company Programming Courses such as Hacktiv8 and Refactory.

- Object-Oriented Approach Method Approach.

The author uses the Object-Oriented Approach Method Approach because of the Approach Method This system describes the Information System as a collection of Objects that have Attributes and functions that interact with each other so that it can be known Which entities are involved, the entity's Right to Access, the data flow, and procedures in the Business Process. This approach method also helps us to build Applications quickly.

- Systems Development Method

The author uses the Waterfall System Development Method because in this method the System is done in stages and in sequence, if the first stage succeeds then the second stage can be continued and if the second stage fails then the third stage cannot be continued so that if we are in a stage then we do not need correcting the previous stages. There are 5 stages of Waterfall System Development Method such as Analyzing Needs, Designing System to be Created, Creating Applications (Coding Stage) Perform Testing of Applications that we make, Implementation of Application and Application maintenance. Here is a Waterfall Chart: (Figure 3)

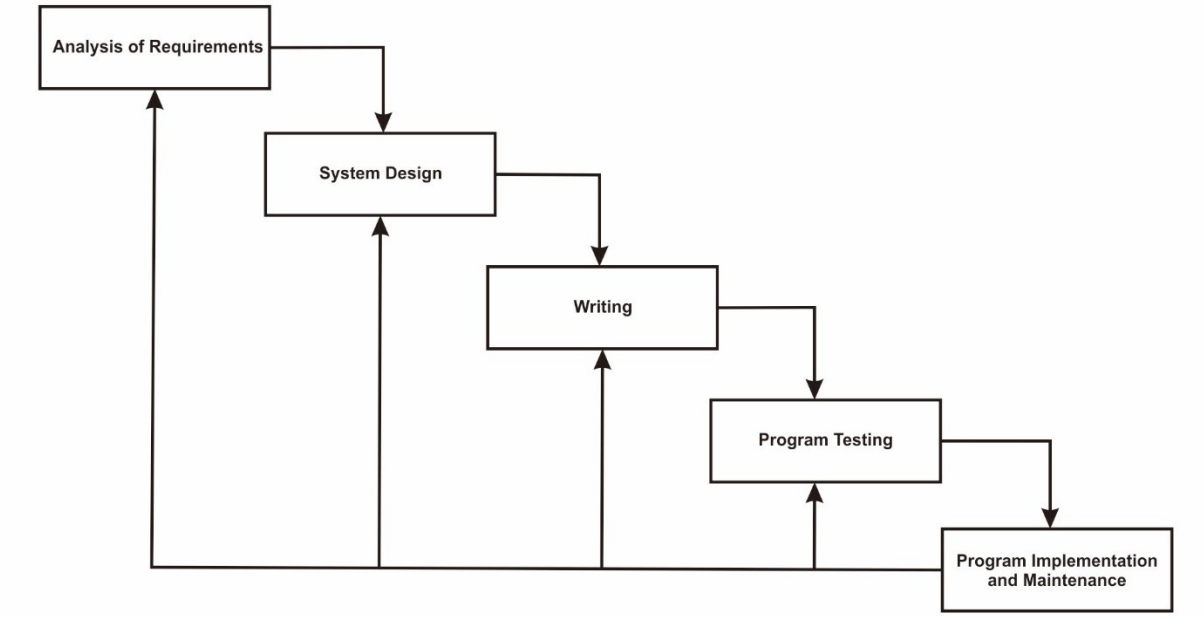

Figure 3. Waterfall Chart

Description of the Waterfall chart:

(1) Requirement Analysis: Is the stage of collecting documents and data related to Information System that will be designed during Field research.
(2) System Design: The data and documents in the can be analyzed and then determined what business processes are in the Information System.
(3) Coding / Writing Program Code: After System is designed, then System designed before will be made reference to make Application.
(4) Program Testing: Once the Application is created, the Application will be tested to determine whether the application that has been made is feasible to apply or not and find the error in the Application.
(5) Program Implementation and Maintenance: Once the Application is tested, the Application will be implemented and maintained so that the Application can survive for a long period of time.

To build the Information System is required tools to do the design. The following are the design tools used:

1. Notepad ++ is a Text Editor application for creating Programs, typically used for creating Web-based Programs. This application is used to create Web Front End and Web Back End.
2. Firebase, is a facility provided by Google for both Web-based Application Development and Desktop-based Applications [2]. There are many features owned by firebase, but the author uses only 4 Firebase features of Firebase Database, Firebase Storage, Firebase Authentification and Firebase Messaging.
3. XAMPP is a stand-alone application Server using localhost address as a place of execution of a web-based program.
4. Hypertext Preprocessor PHP is aprogramming language that works to build Web-based applications that are dynamic, PHP can only be executed by XAMPP or similar applications on localhost, PHP is developed into a PHP Framework such as Code Igniter, Laravel, Zen Framework, Slim and many more.
5. Javascript is a client-based programming language. This application serves to make the website look more interactive and more dynamic. Javascript supports the sync process. Synch is the process of changing the data without updating the page. But now Javascript has been developed into Framework like PHP is also not only based on Client-Side but also Server-Side, for example, Javascript Framework like NodeJs, ExpressJs, and Angular Js.

3. Results and Discussion

3.1. Procedure

There are three procedures in this Information System, namely Registration Procedure, Material Download Procedure and Certification Procedure

- Registration Procedure
  (1) The student must transfer the course fee to the Company's account first.
  (2) The student then fills the identity and proof of payment on the form on the Company's Web.
  (3) The Registration Section will see the Registrant's data on the Back End Website and will confirm the Registration.(1) The student will then receive Notification in the form of username and Password in the Website Page.
- Procedure Download the Material
  (1) Student Must Login to download course material first
  (2) Students choose the materials to be downloaded
  (3) The system will download the material selected by the Student
- Certification Procedures
  (1) Students fill the Certification Examination question on the Web.
  (2) After that, the System will check the answers of the Student.
  (3) The system will display the Test results to the Mentor on the Back End Website.(4) If the Exam Result exceeds or equal to the number of results determined by the Rules then Mentor will print the Certificate from the Backend Website and grant the Certificate to the Student.

3.2. System planning

From the above procedures, then the System Design can be created with the help of UML Tools consisting of Use Case, Activity Diagram and Sequence Diagram, first is Activity Diagram Registration Process (Figure 4).

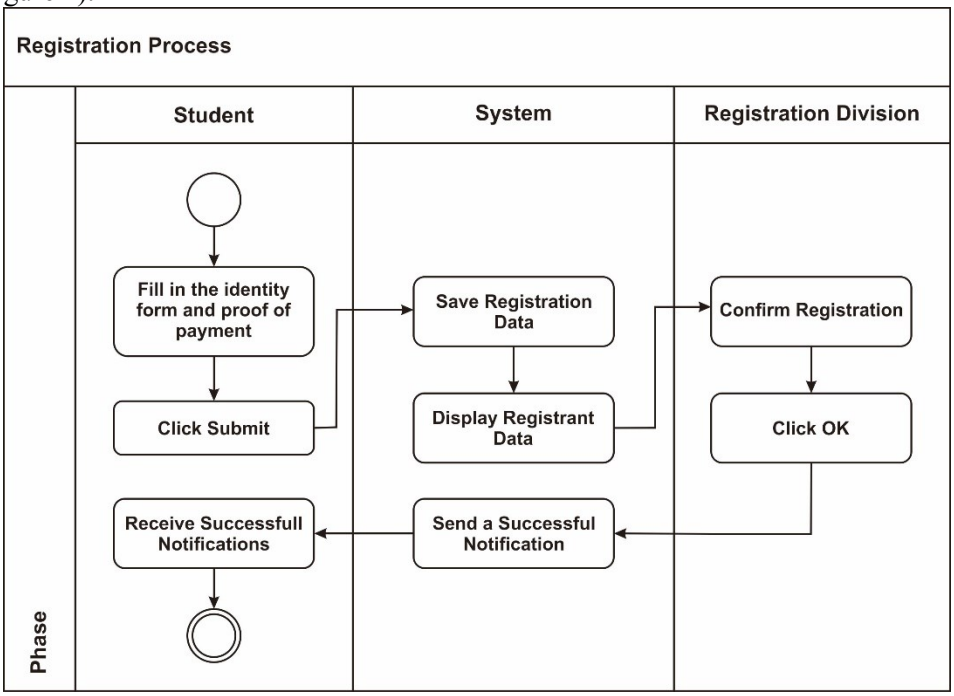

Figure 4. Activity Diagram of Registration Process

Activity Diagram of Material Download Process (Figure 5).

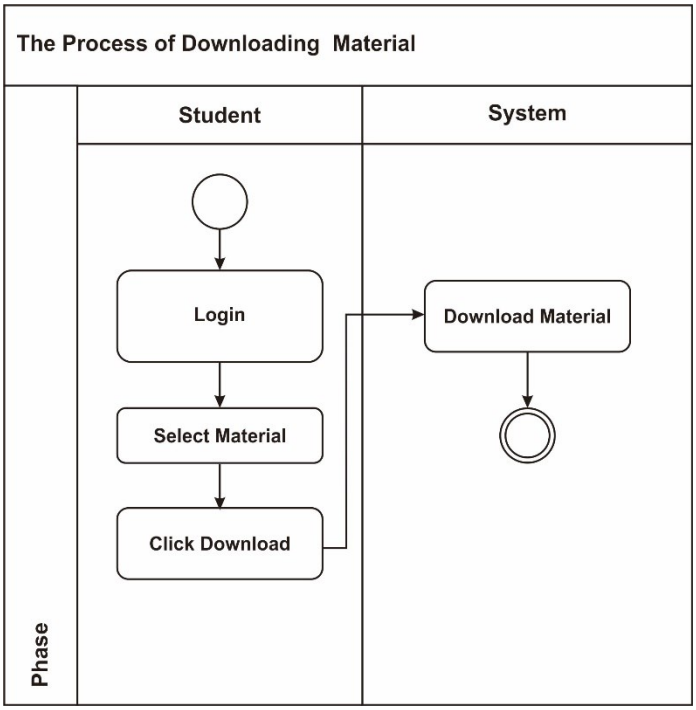

Figure 5. Download Process Diagram

Activity Diagram Certification Process (Figure 6).

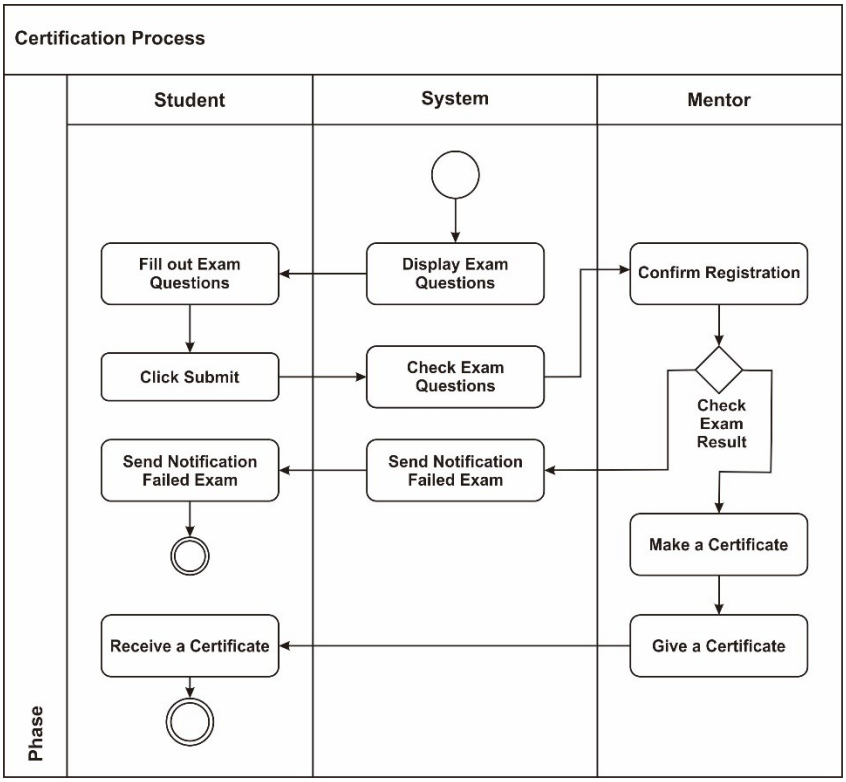

Figure 6. Activity Diagram of Certification Proses

Here is the Sequence Diagram that has been created. This Sequence diagram describes the flow of data in a business process consisting of Model, View, Control, and Actor. The Sequence Diagram also describes how actor actors interact with System [1]. Just like Activity Diagram, There are three sequences such as Sequence Diagram of Registration Process, Sequence of Material Download Process and Sequence Diagram of Certification Process.

1. Sequence Diagram Registration Process (Figure 7).

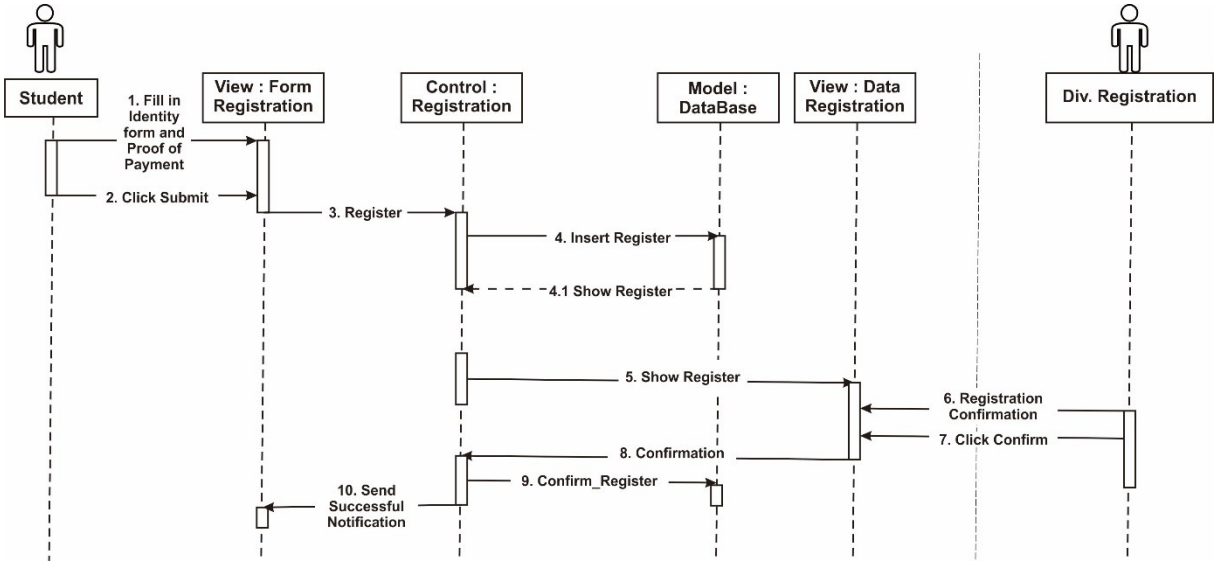

Figure 7. Sequence Diagram of Registration Process

2. Activity Diagram of Materials Download Process (Figure 8).

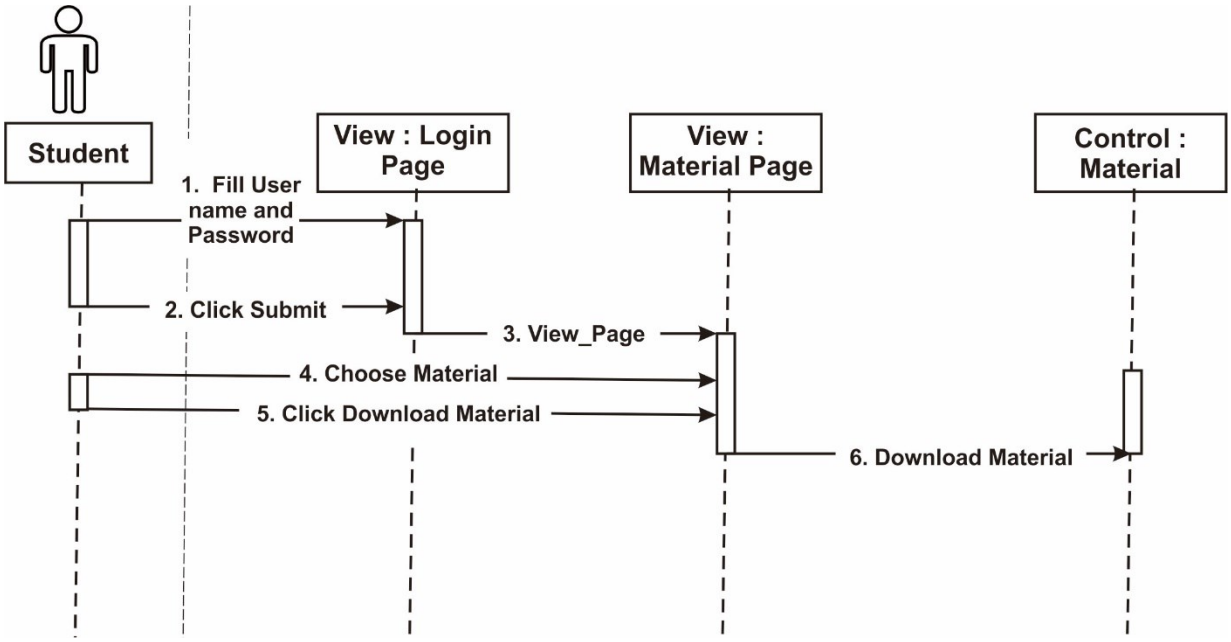

Figure 8. Sequence Diagram of Materials Download Process

3. Activity Diagram of Certification Process (Figure 9).

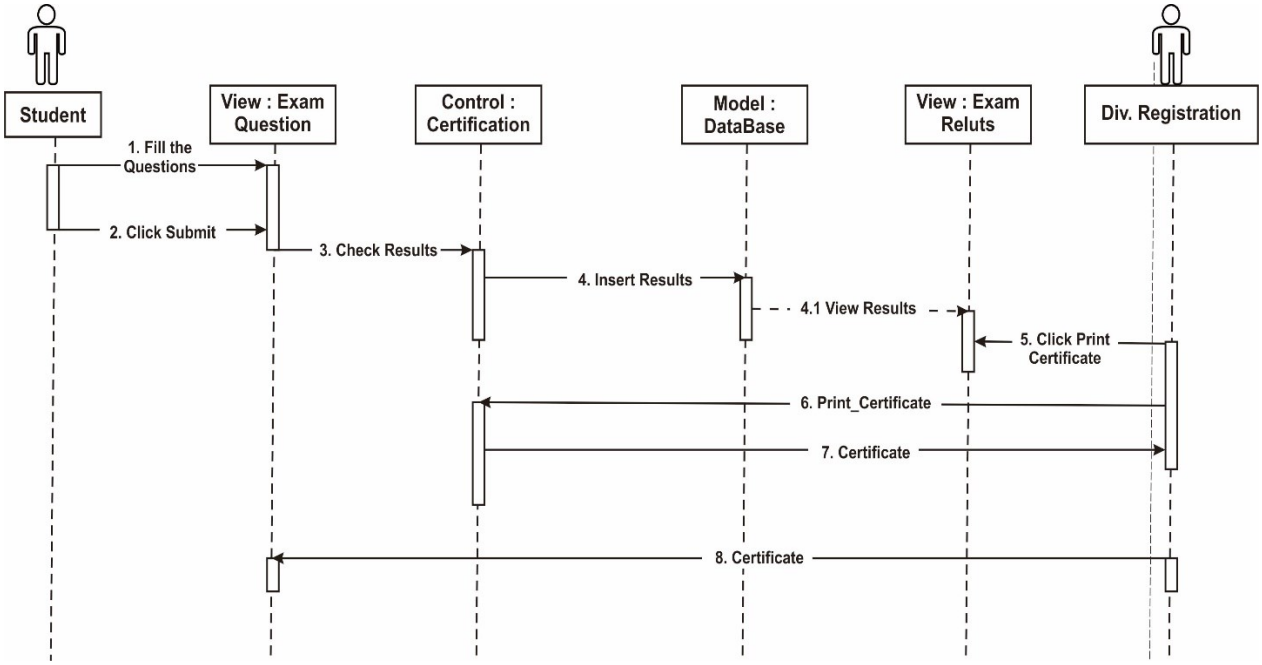

Figure 9. Sequence Diagram of Certification Process

4. Class Diagram, once created Sequence Diagram, then in this stage, we will determine the Objects involved from the Sequence Diagram that we make, Each Object has Attributes and Functions. Here is a Class Diagram that has been created (Figure 10).

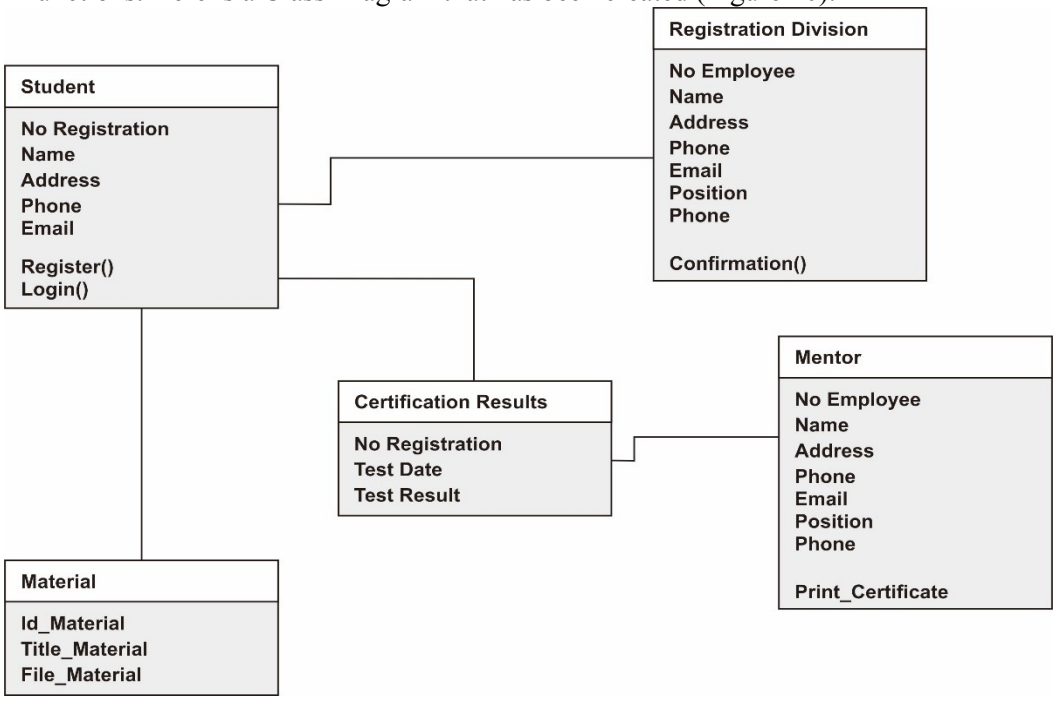

Figure 10. Class Diagram

3.3. Interface Design

Through the results of system design, the author has created an Interface that uses HTML, CSS, Javascript programming language, PHP, and the database used is Real-time Online Database called Firebase Database, and this is interface Design of Main Page (Figure 11).

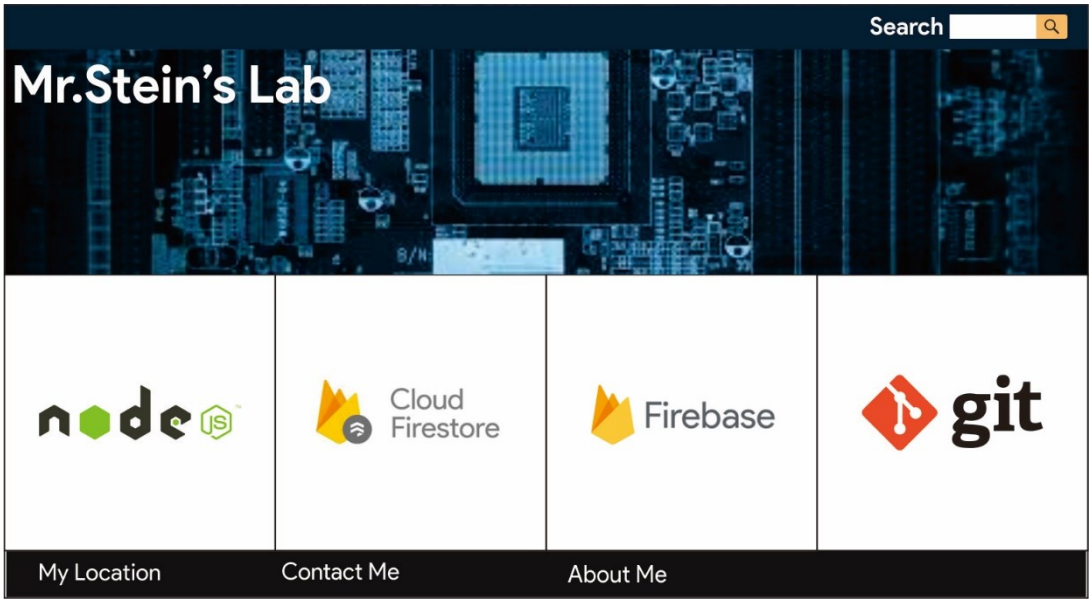

Figure 11. Homepage Interface

4. Conclusion

The conclusion is that as technology develops, everything will become simplified. Information Technology in the Service Field Course The programming program will always develop and will facilitate the activities involved with the Field. The realization of this Information System is dependent on Internet Connectivity, so although it has Real Time feature if Internet Connectivity is problematic it will be hard to do a business process that exists in this Information System. in addition, the Information System that has made this will be easier to get the science of programming and students do not need to spend for Book Purchase because the material will be obtained online and facilitate the Certification Process.

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