



DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

University of Chittagong

Course Name : Software Engineering and Information System Lab

Course Code : CSE 516

Report 05

Design Document

Submitted to:

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Report-05

Design Document

SchoolHub

1.Introduction:

SchoolHub is a computerized system that is implemented to provide the guardians and the students with all the information of each students such as daily activities, exam results, notices and all other information of students and teachers, in order to reduce the workload of teachers and school authorities, also this system is developed to let guardian know about updates of their child's performance more efficiently and let them focus on improving their child's performance at ease. The purpose of this document is to illustrate the whole design details of School App in details. This document includes the architectural design of the whole system along with the system models from external, structural, interactional & behavioral perspectives.

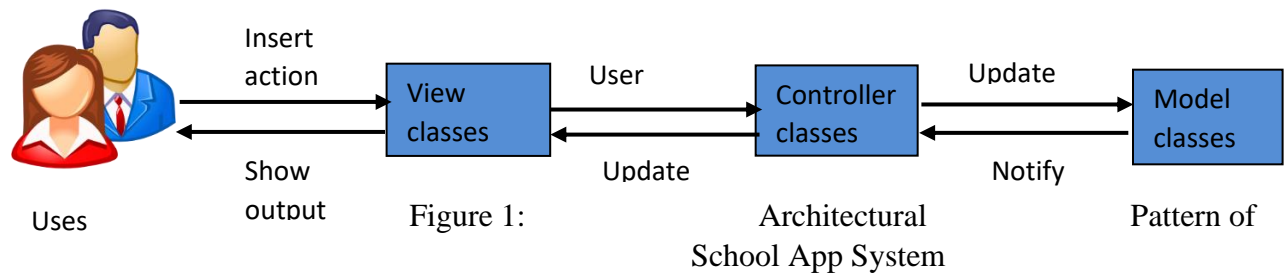
This document consists of seven sections in total. Architectural design is described in section 2, section 3 holds the activity diagrams of the system, the class diagrams of the system is shown in section 4, section 5 provides the representation of the system's sequence diagrams, state machine diagrams are illustrated in the section 6, and finally section 7 holds the conclusion of the document.

2.Architectural Pattern:

An architectural pattern is one of the most effective and reusable solutions to common problems of object oriented software developments within a given context. An architectural pattern interprets the total system considering the structural organizations, components, connectors, constraints, and illustrates the total combination of them. This pattern also meets various issues of object-oriented software engineering like the performance of a system along with reliability, reusability, maintainability and security of that system.

The School App is designed with a MVC architecture pattern. Each of the use cases of the School App is classified into three major category known as model, view & controller. The view layers hold the interactive part between the users and the system or the user interface, the controller layers control the system functionalities by conducting the performance of detailed processing, and the model layers holds the classes that are passed from one interface to another.

The MVC architectural pattern of the School App is described in the figure no.1 given below:



3. Activity Diagram:

Activity diagrams are the graphical user representation of the whole workflows of step by step activities that appear while using the system with the support of choice and iteration. It describes the external interface that illustrates the process view of the system. All the activity diagrams are represented in figure 2 through 9.

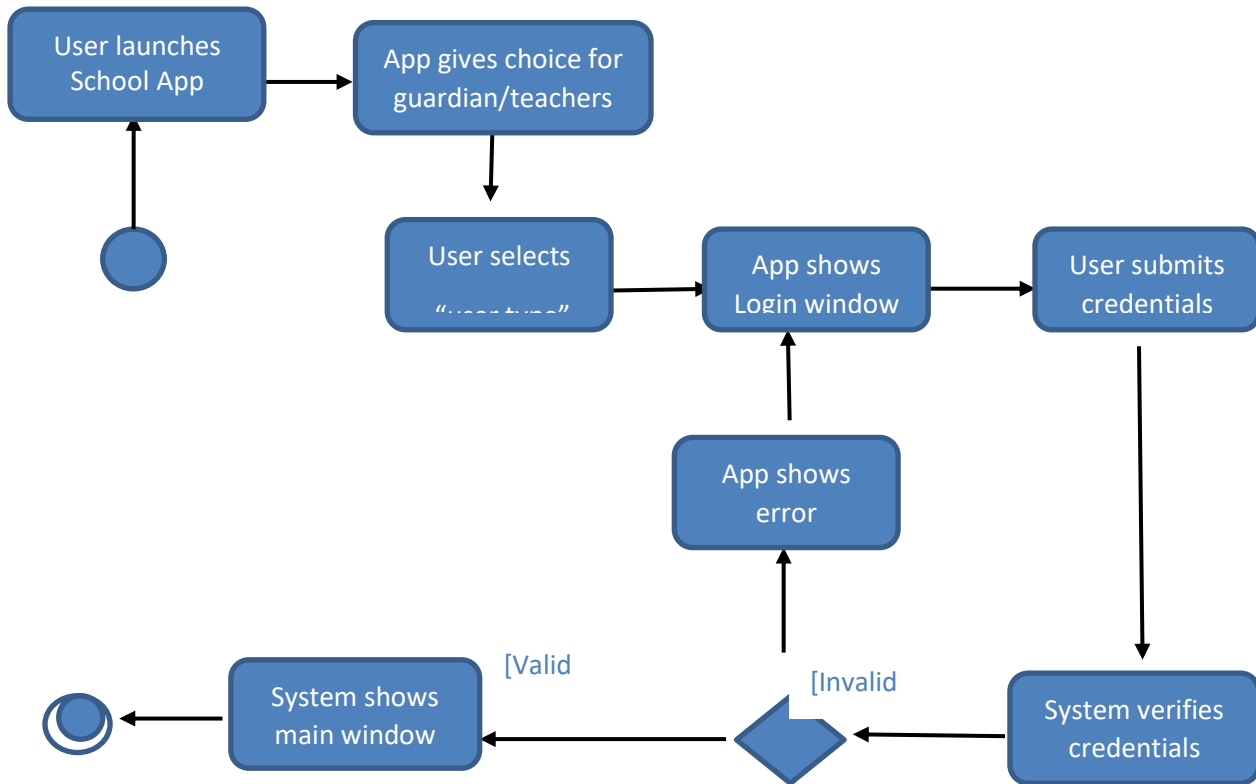


Figure 2: Activity diagram for UC1: Login in to the system.

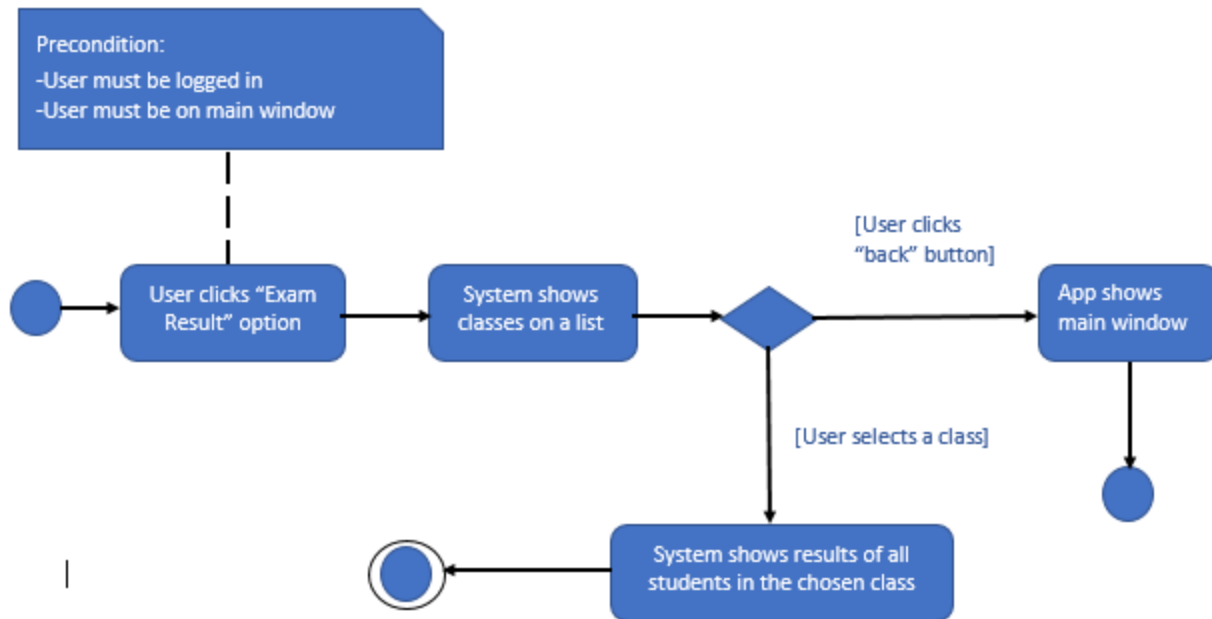


Figure 3: Activity diagram for UC2: View Exam Results.

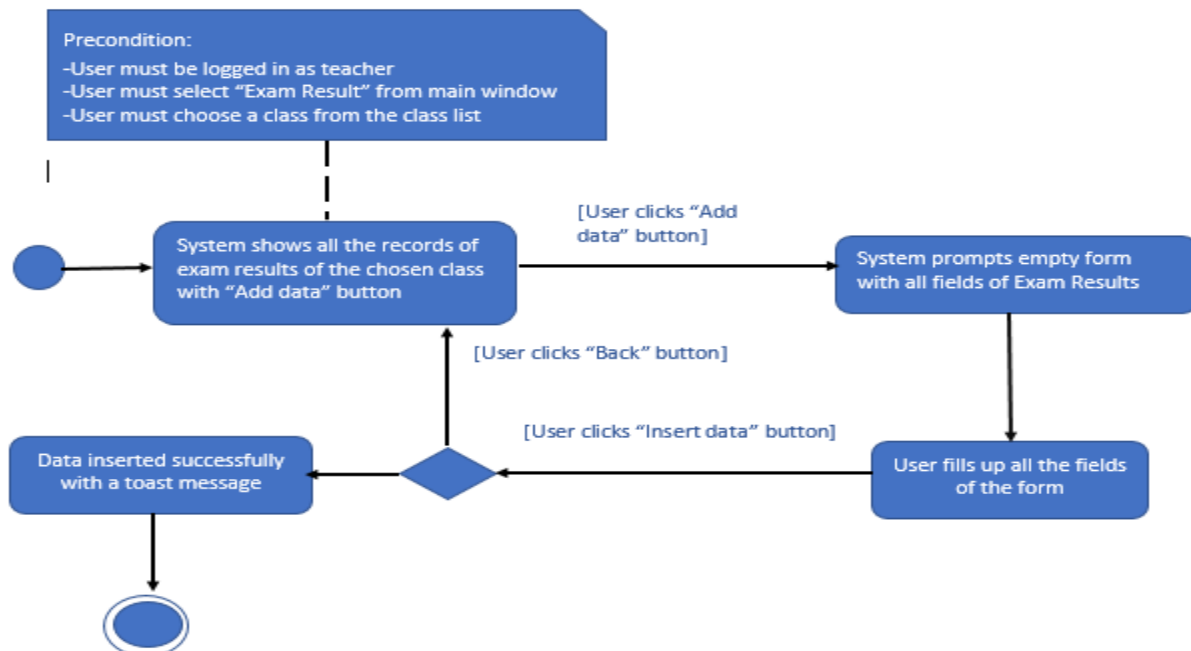


Figure 4: Activity diagram for UC3: Update Exam Results.

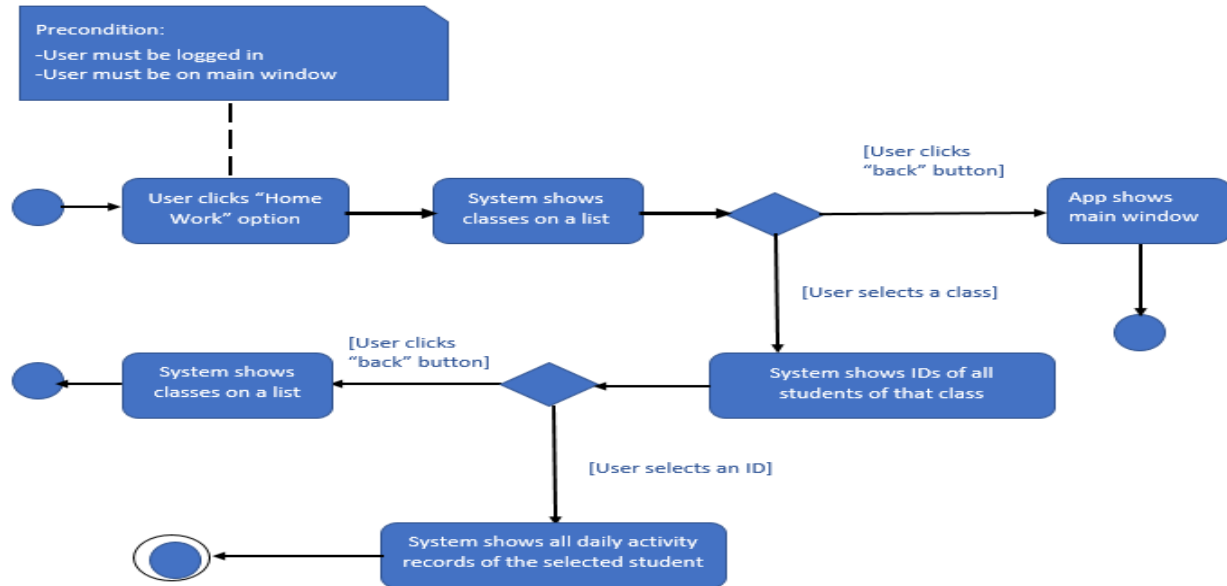


Figure 5: Activity diagram for UC4: View Daily Activities.

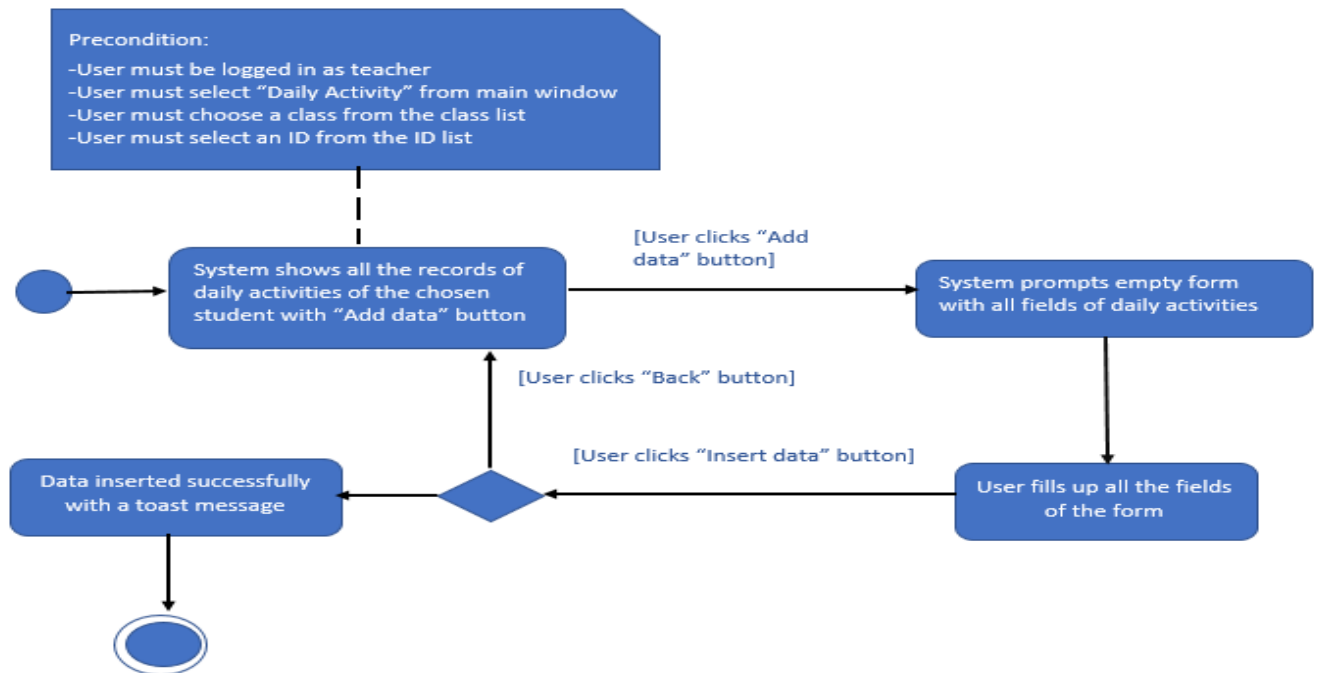


Figure 6: Activity diagram for UC5: Update Daily Activities.

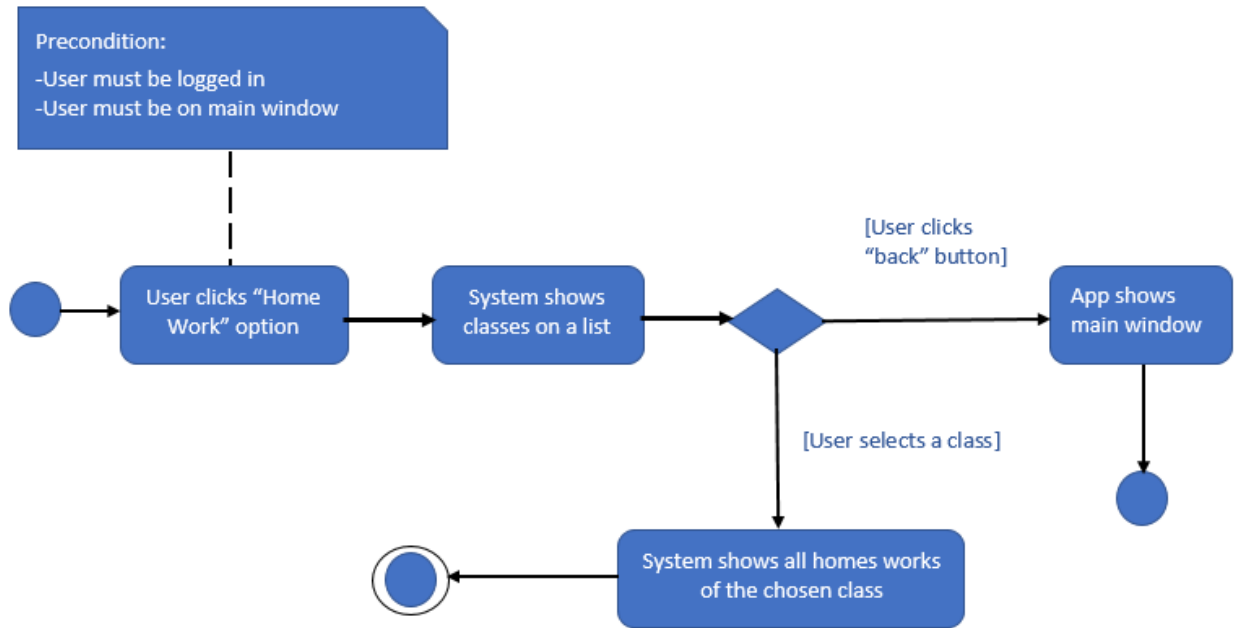


Figure 7: Activity diagram for UC6: View Home works.

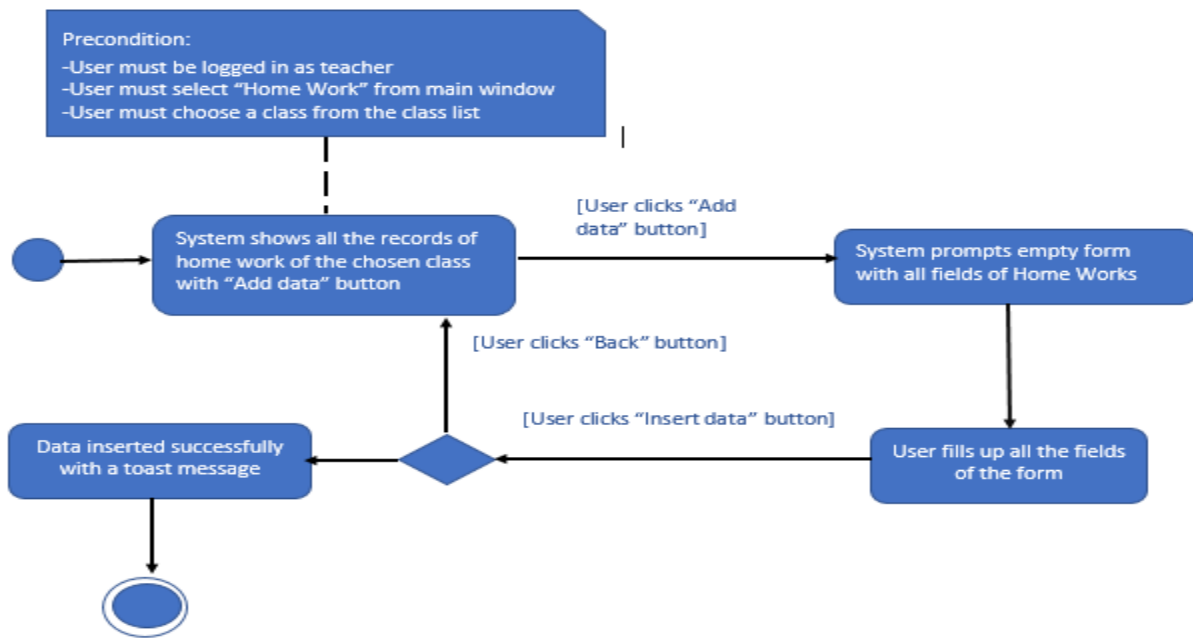


Figure 8: Activity diagram for UC7: Update Home works.

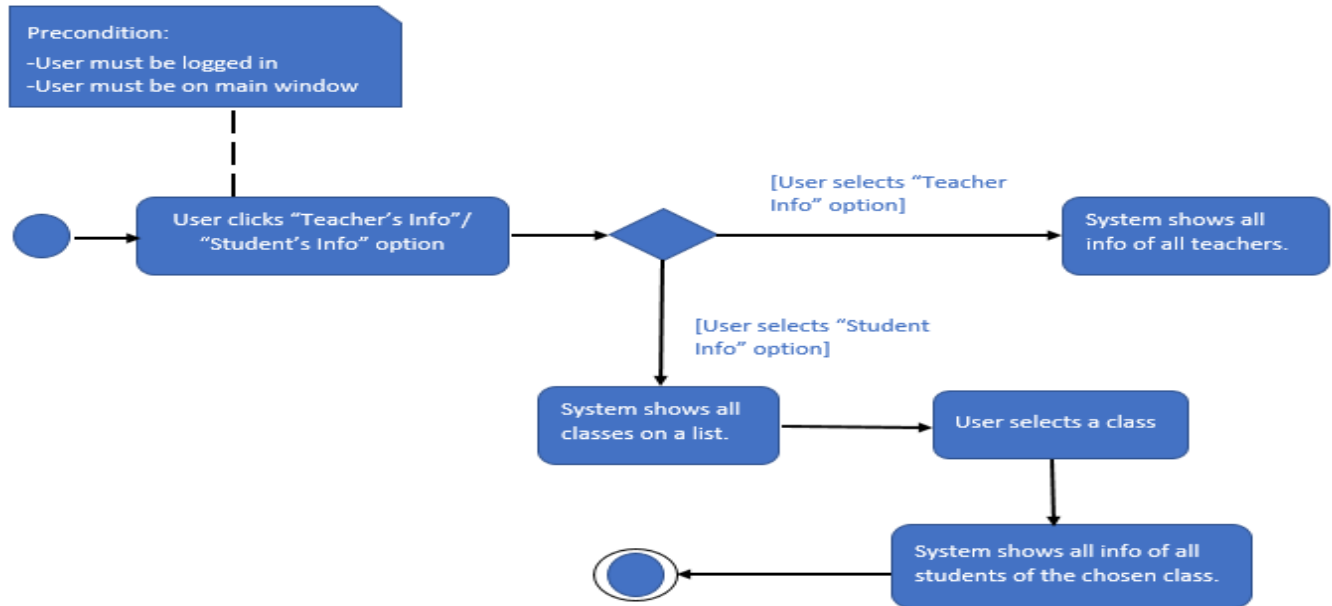


Figure 9: Activity diagram for UC8:View Teachers'/Student's Info.

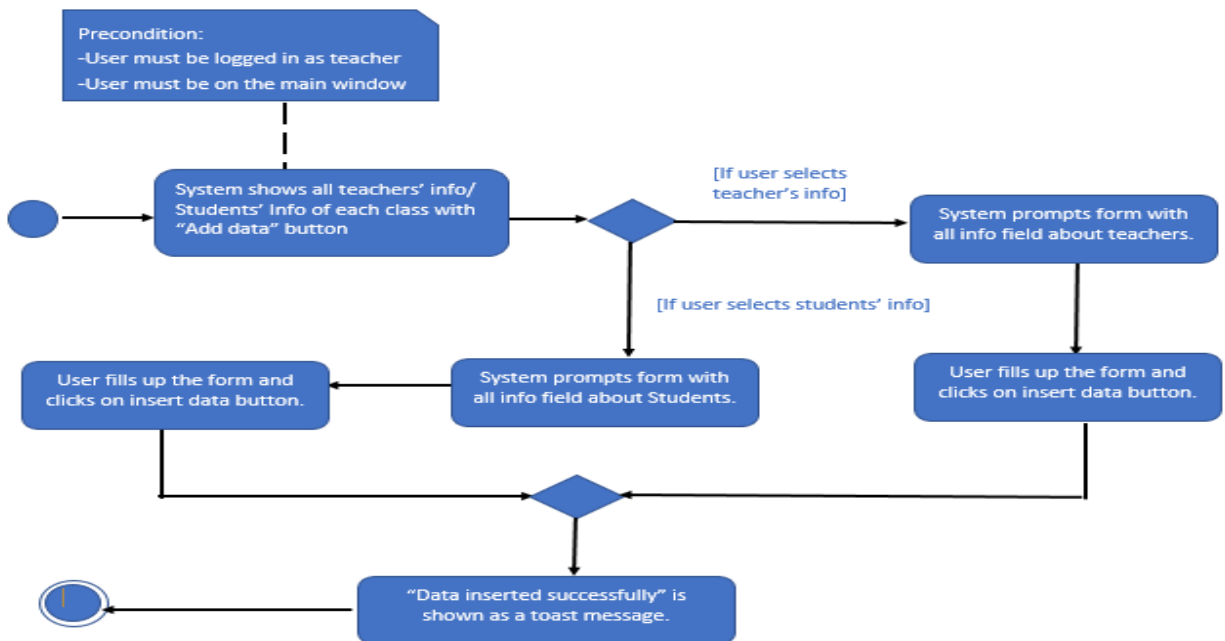


Figure 10: Activity diagram for UC9: Update Teachers'/Students' Info.

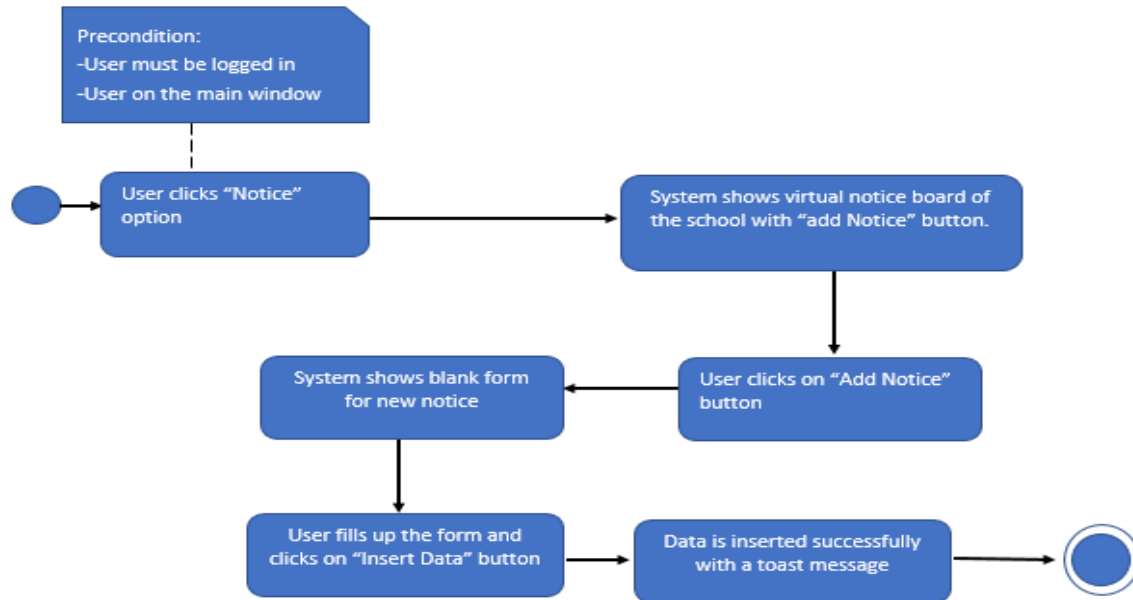


Figure 11: Activity diagram for UC10: Update and View Notices.

4.Class Diagram:

Class diagram is the descriptive structure of the whole system that holds classes, attributes, overall process of the system and the relations among objects in a system. It is the main building block of an object-oriented modelling because we can obtain the conceptual model of the system that we are going to implement and also render the models into programming codes. Class diagrams for School App system is presented in figure 12 through 21.

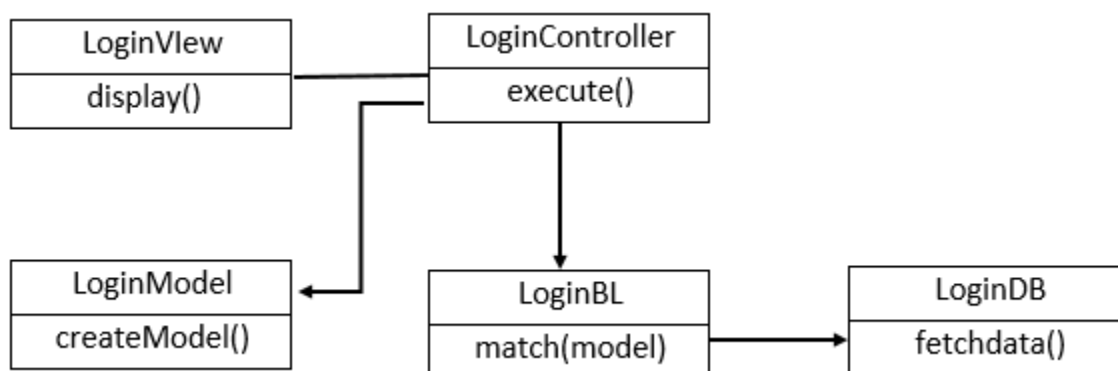


Figure 12: Class Diagram for UC1: Login Into the System.

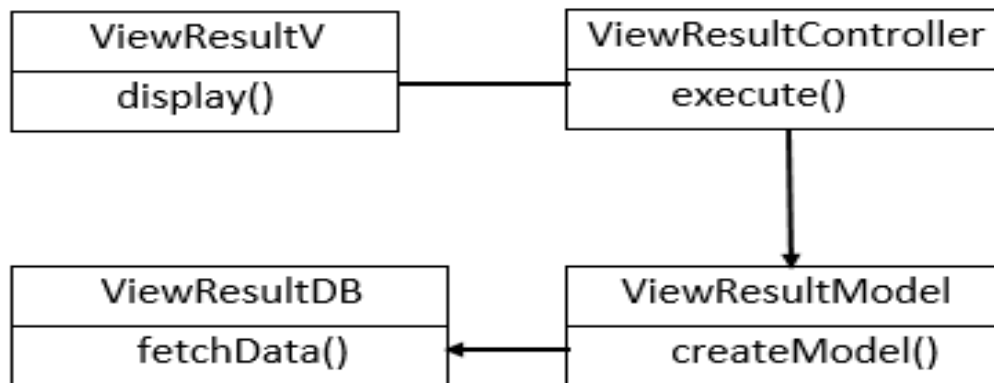


Figure 13: Class Diagram for UC2: View Exam Results.

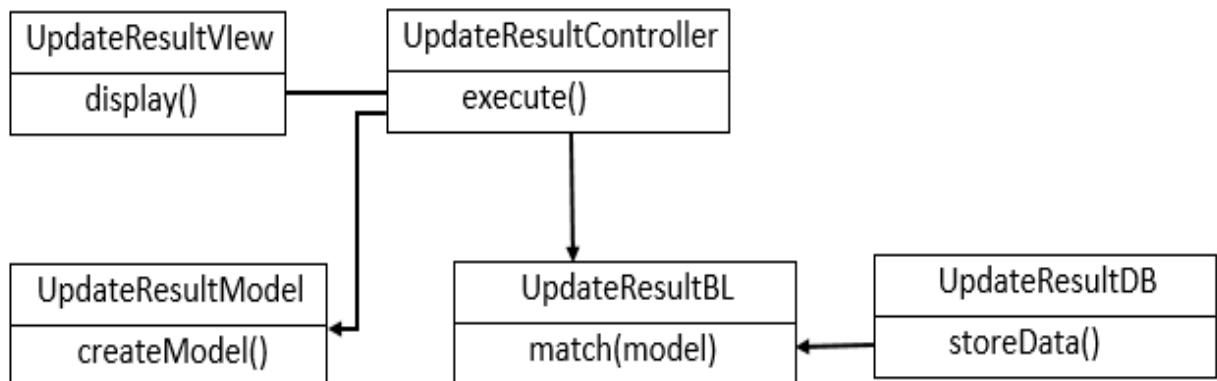


Figure 14: Class Diagram for UC3: Update Exam Results.

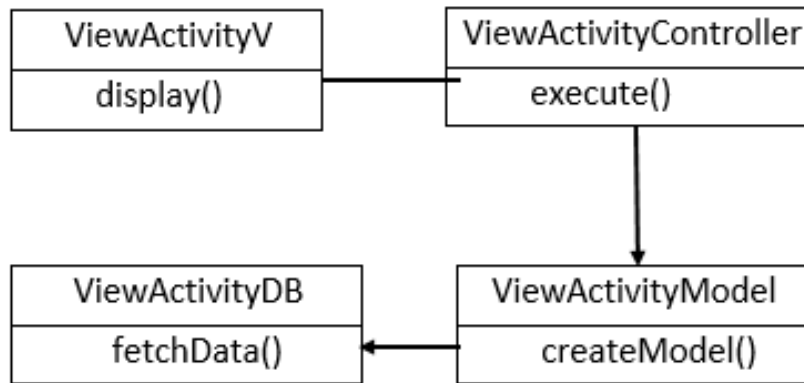


Figure 15: Class Diagram for UC4: View Daily Activity.

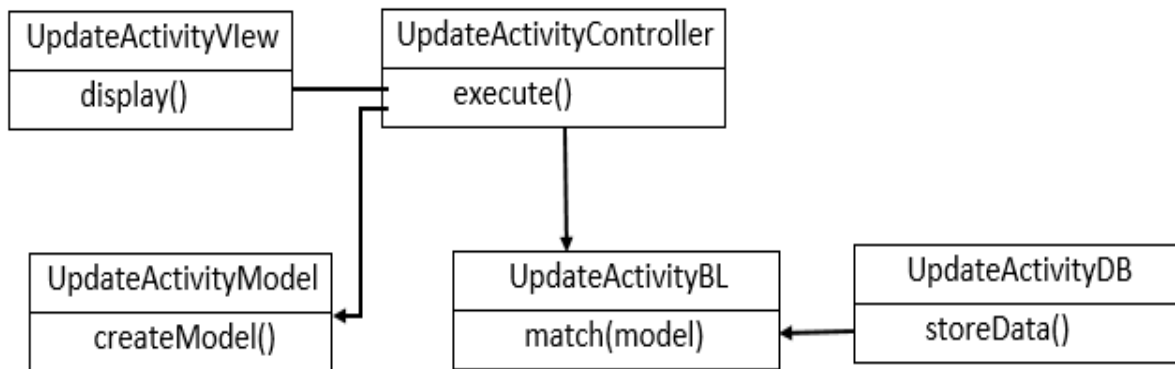


Figure 16: Class Diagram for UC5: Update Daily Activity.

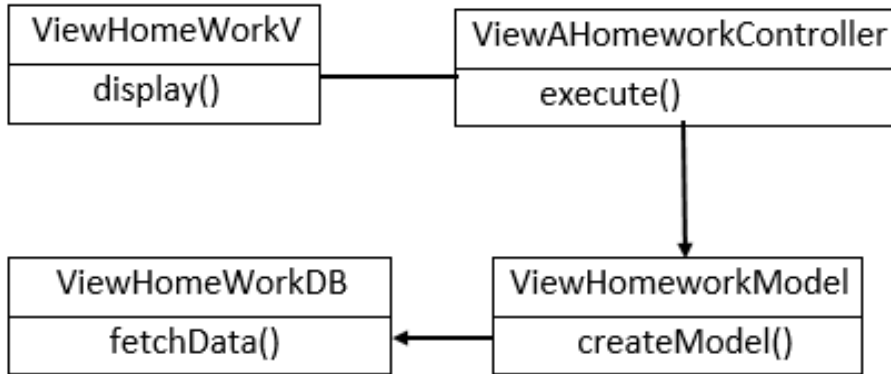


Figure 17: Class Diagram for UC6: View Home Work.

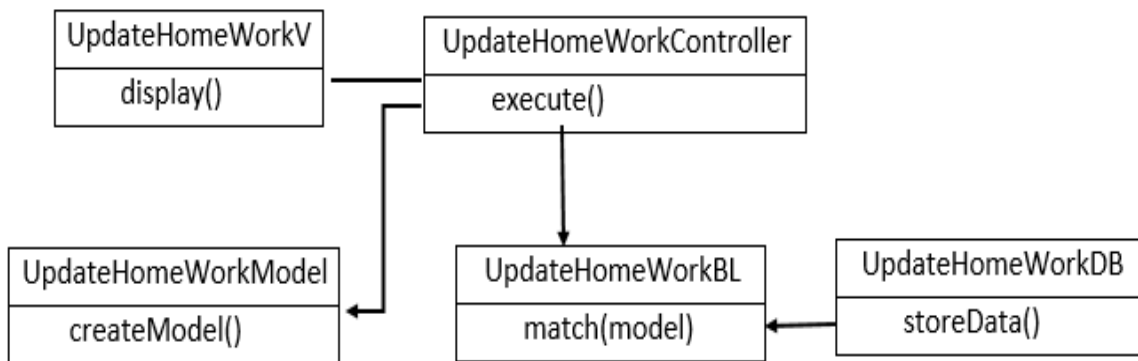


Figure 18: Class Diagram for UC7: Update Home Work.

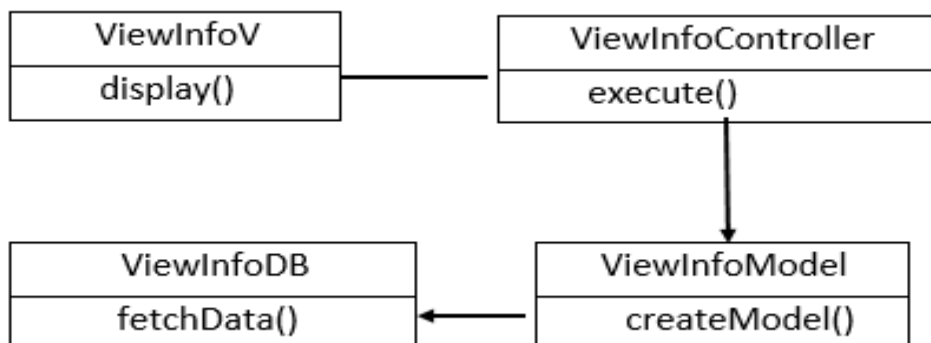


Figure 19: Class Diagram for UC8: View Teacher's/Student's Info.

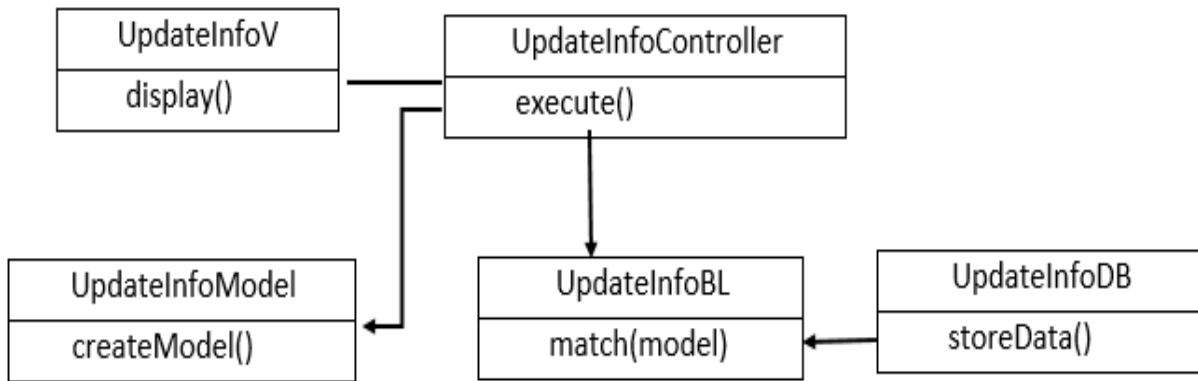


Figure 20: Class Diagram for UC9: Update Teacher's / Student's Info.

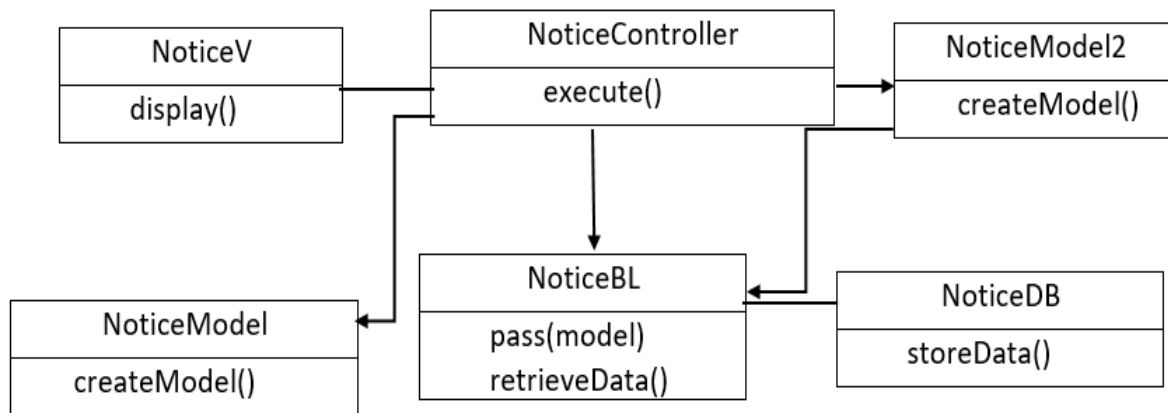


Figure 21: Class Diagram for UC10: Update & View Notices.

5.Sequence Diagram:

A sequence diagram illustrates the interactions among object that are arranged in time sequence. It holds the scenario of the classes and objects involved in the system and also represents the sequence of messages that are exchanged among the objects for carrying out the systematic function of the whole system. Sequence diagrams for the School App System is presented in figure 22 through 31.

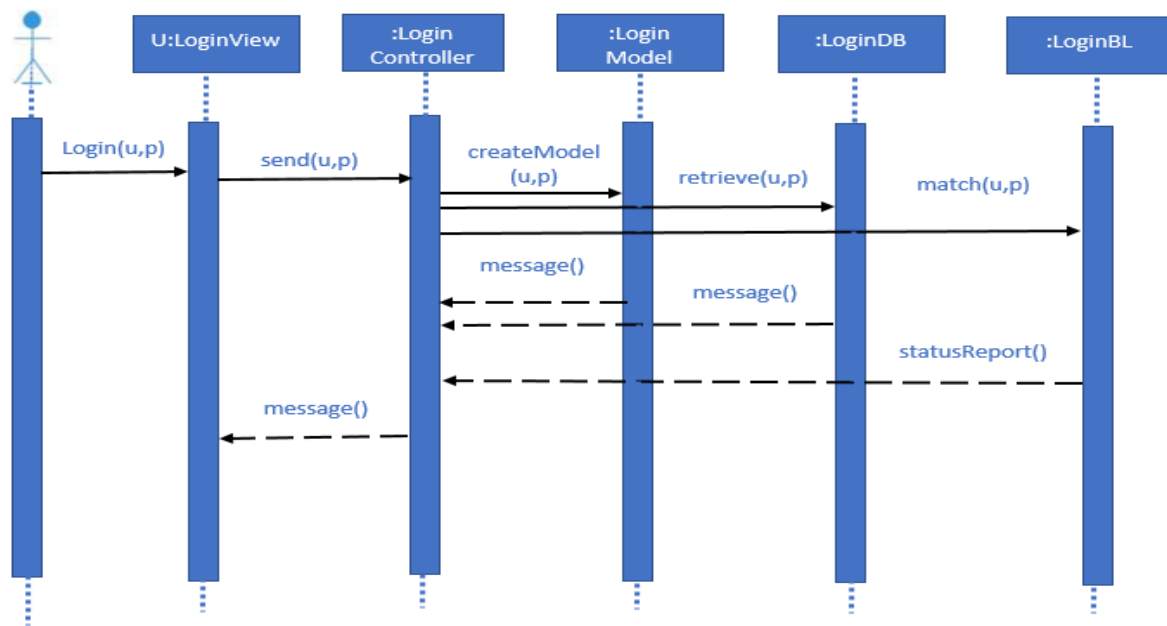


Figure 22: Sequence Diagram for UC1: Login Into System.

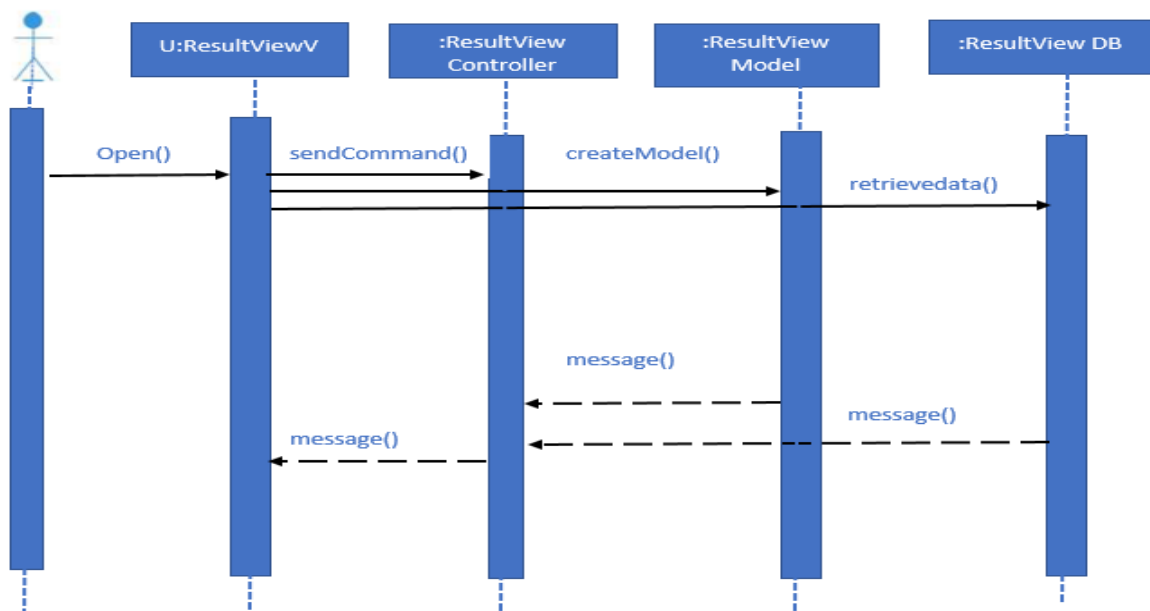


Figure 23: Sequence Diagram for UC2: View Exam Result.

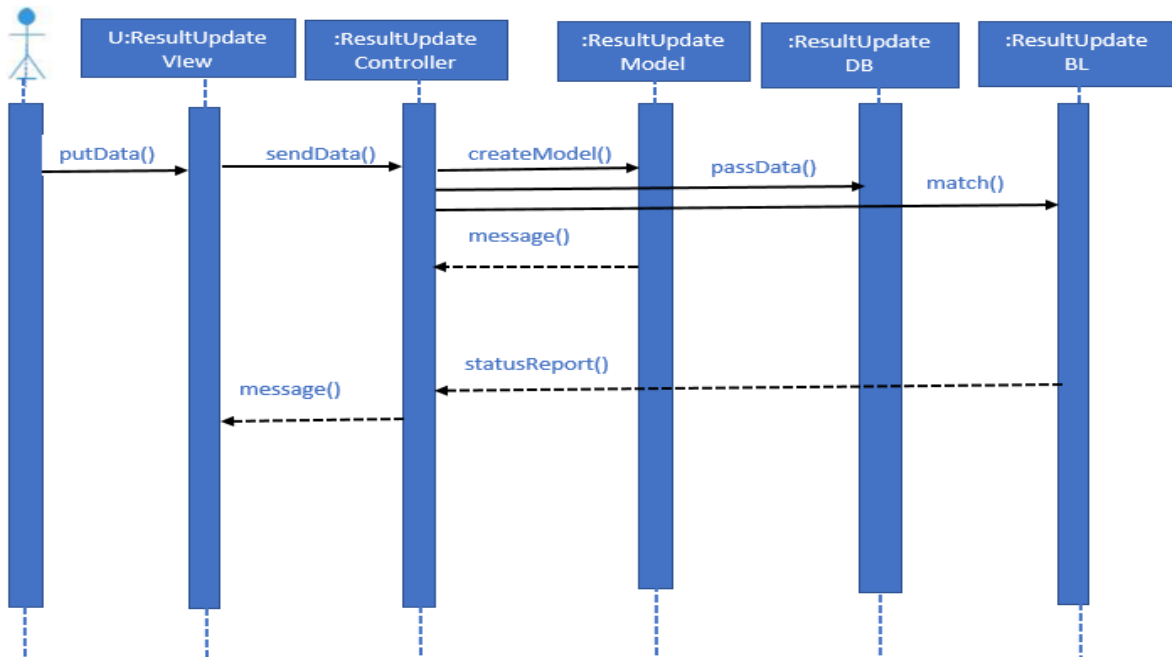


Figure 24: Sequence Diagram for UC3: Update Exam Result.

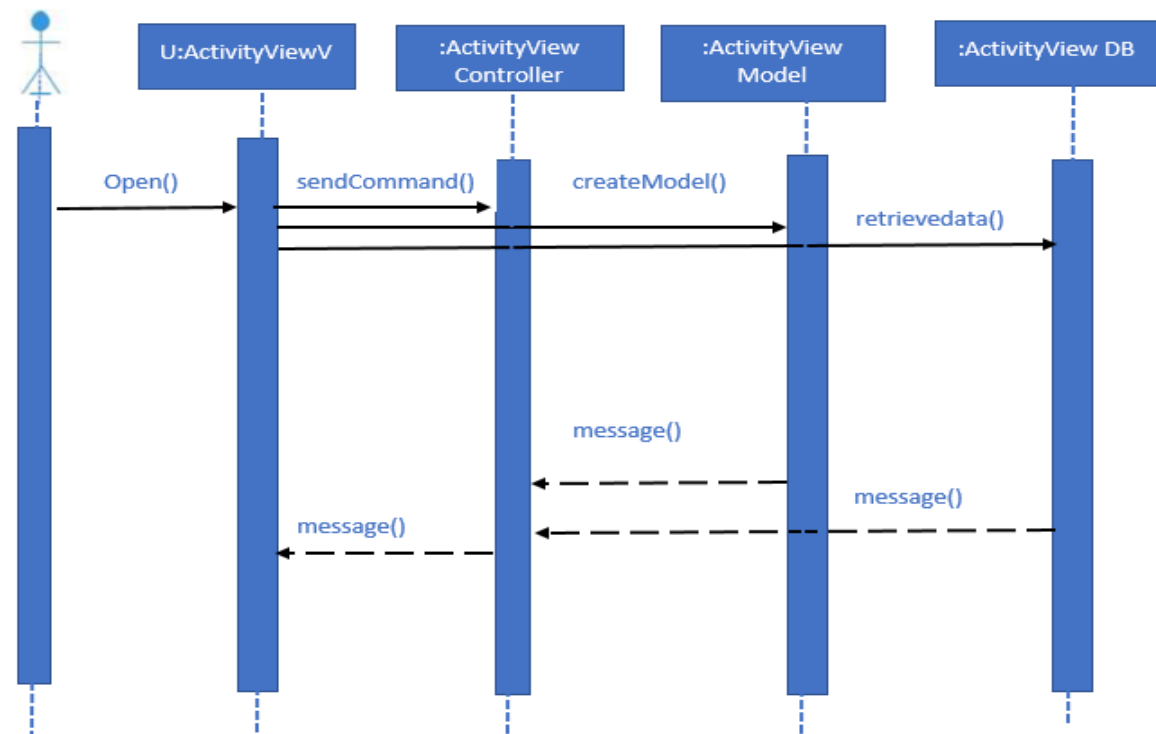


Figure 25: Sequence Diagram for UC4: View Daily Activities.

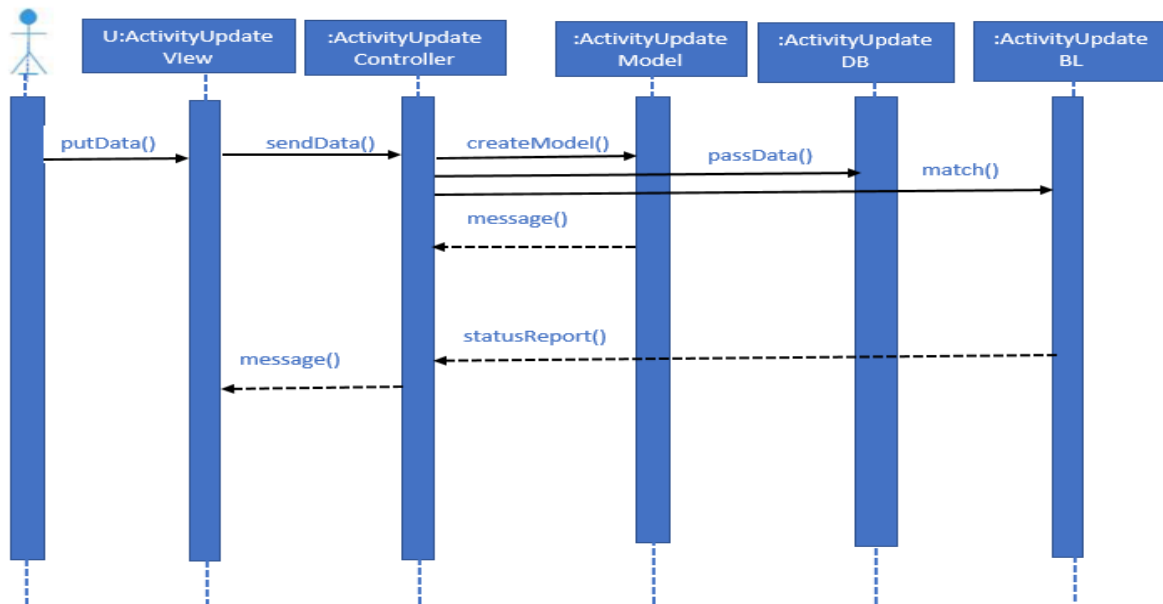


Figure 26: Sequence Diagram for UC5: Update Daily Activities.

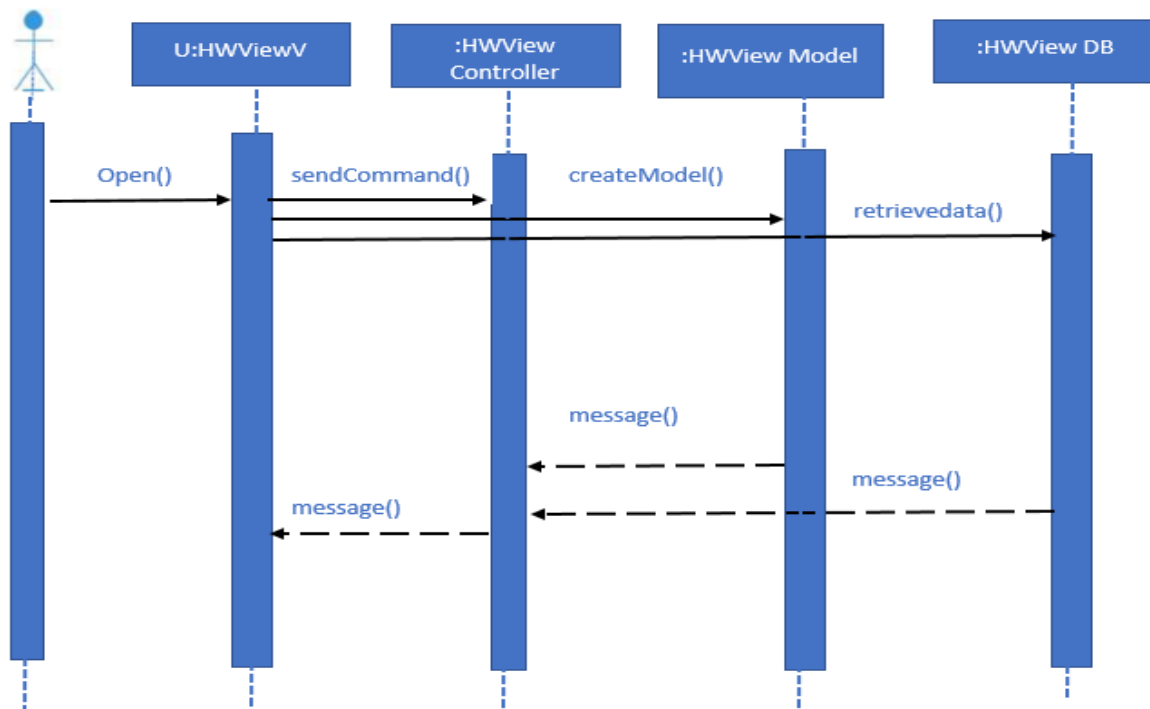


Figure 27: Sequence Diagram for UC6: View Home Work

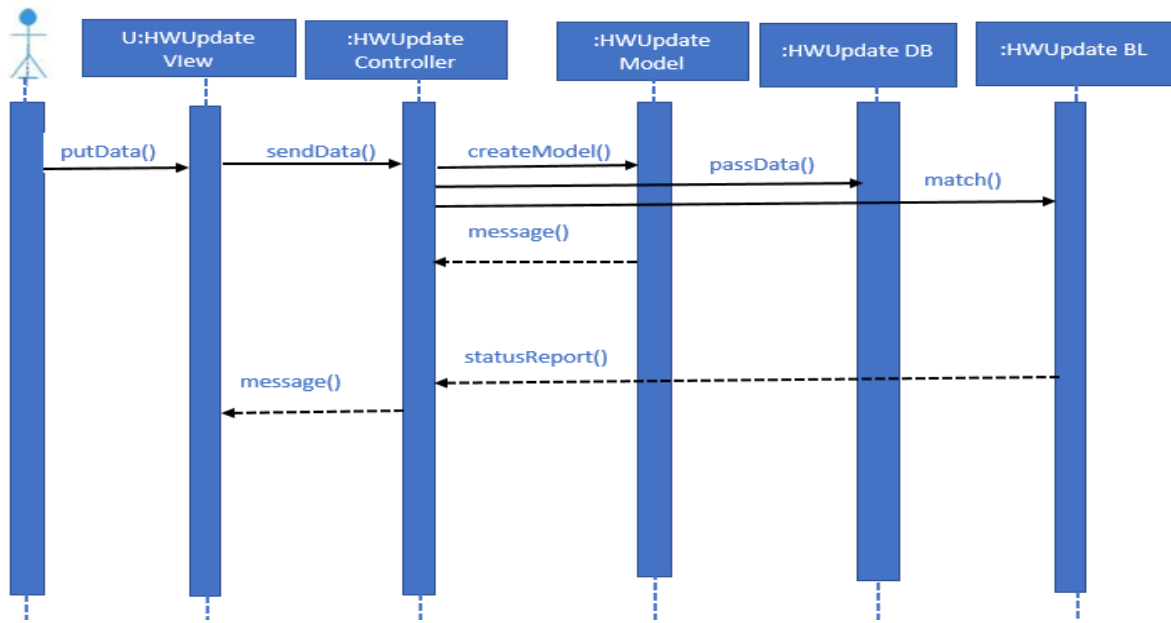


Figure 28: Sequence Diagram for UC7: Update Home Work.

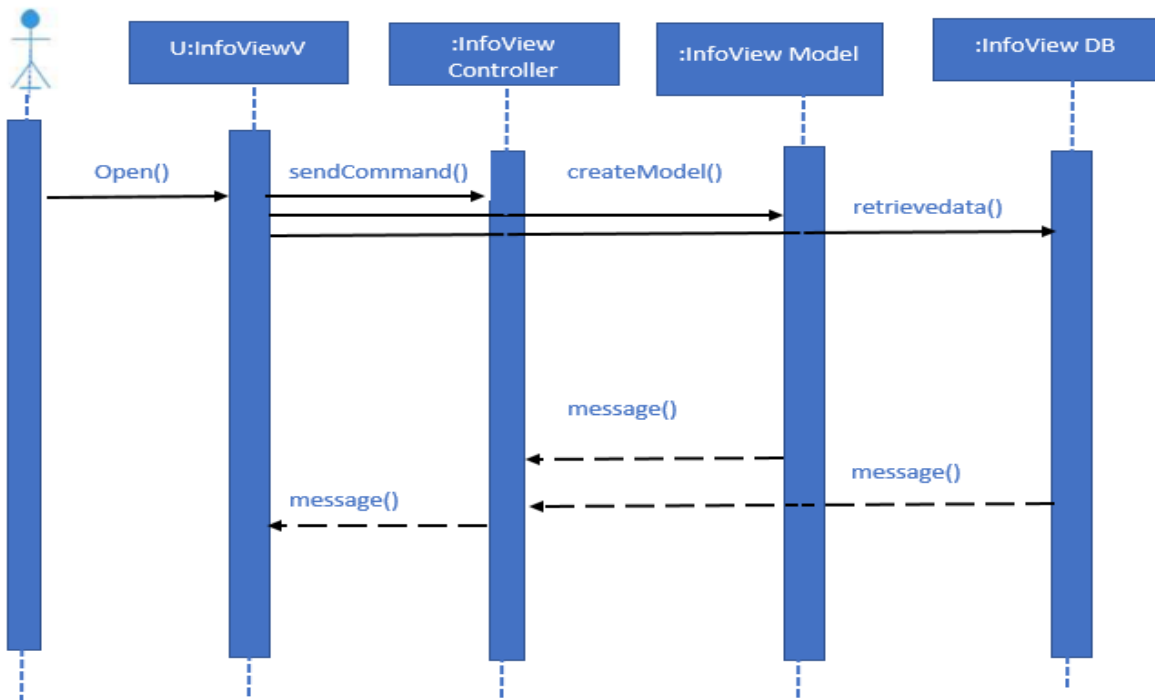


Figure 29: Sequence Diagram for UC8: View Teachers'/Students' Info.

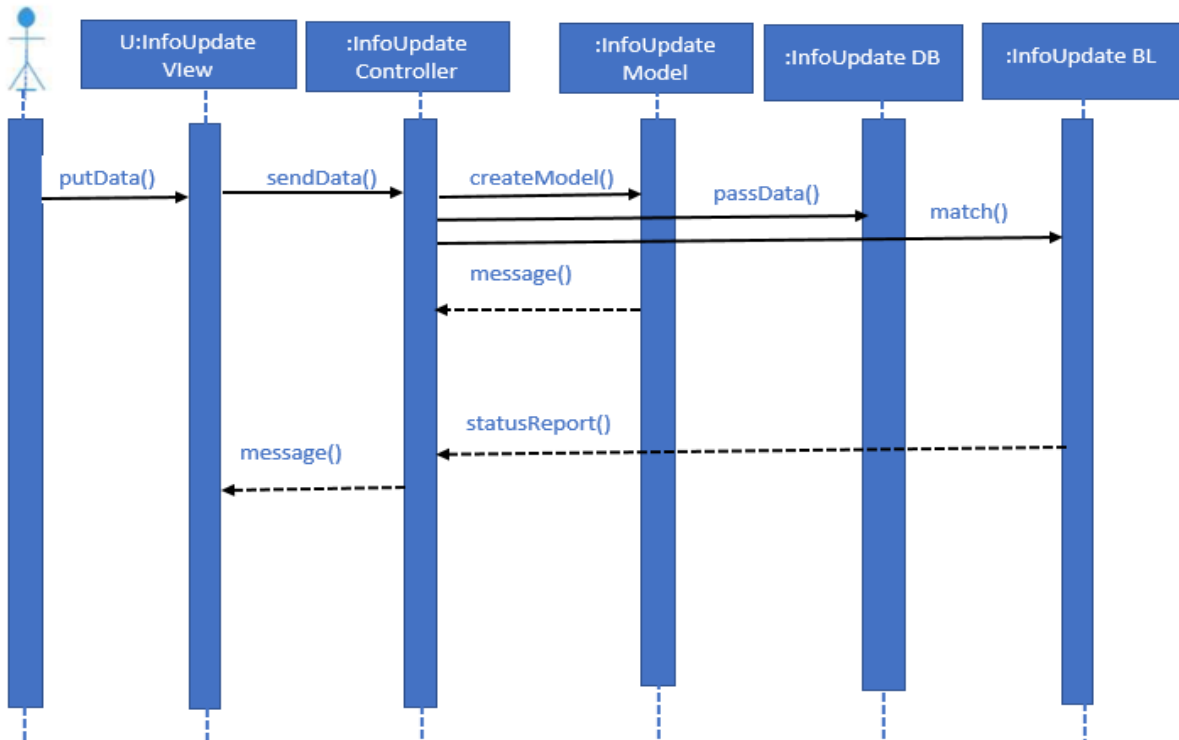


Figure 30: Sequence Diagram for UC9: Update Teachers'/Students' Info.

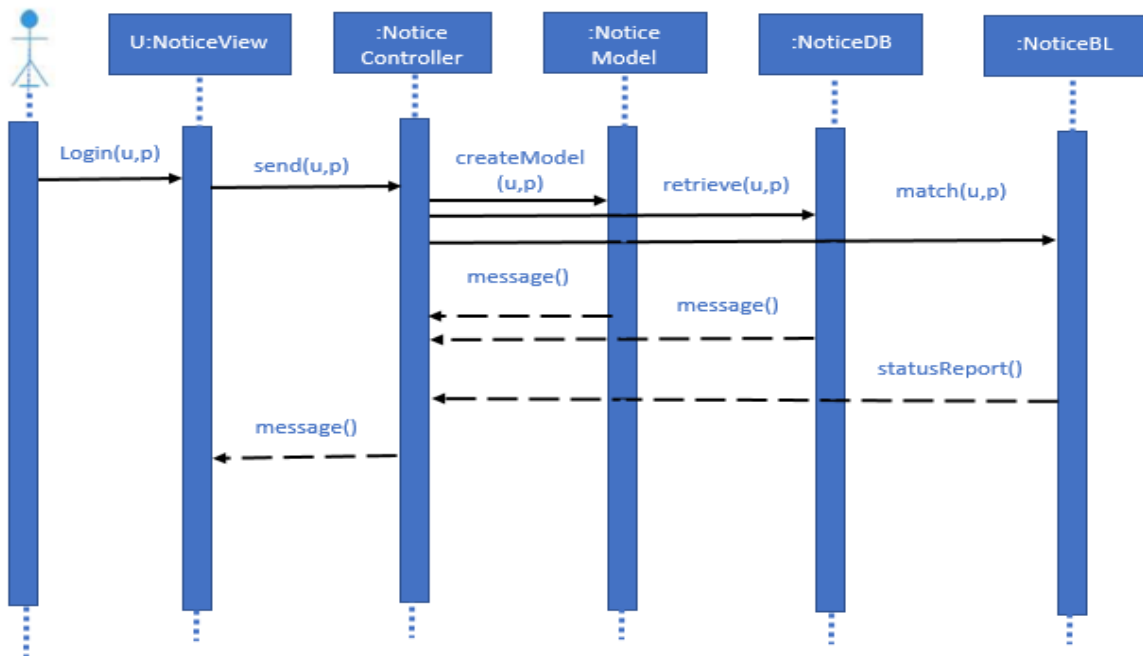


Figure 31: Sequence Diagram for UC10: Update & View Notice

6.State-Machine Diagram:

A State-Machine Diagram is the illustration of different objects within a class and represents the track of those objects in different time and state throughout the whole system to show the abstract description of the behavior of the whole system. The state-machine diagrams for School App is shown in figure 32 and 33.

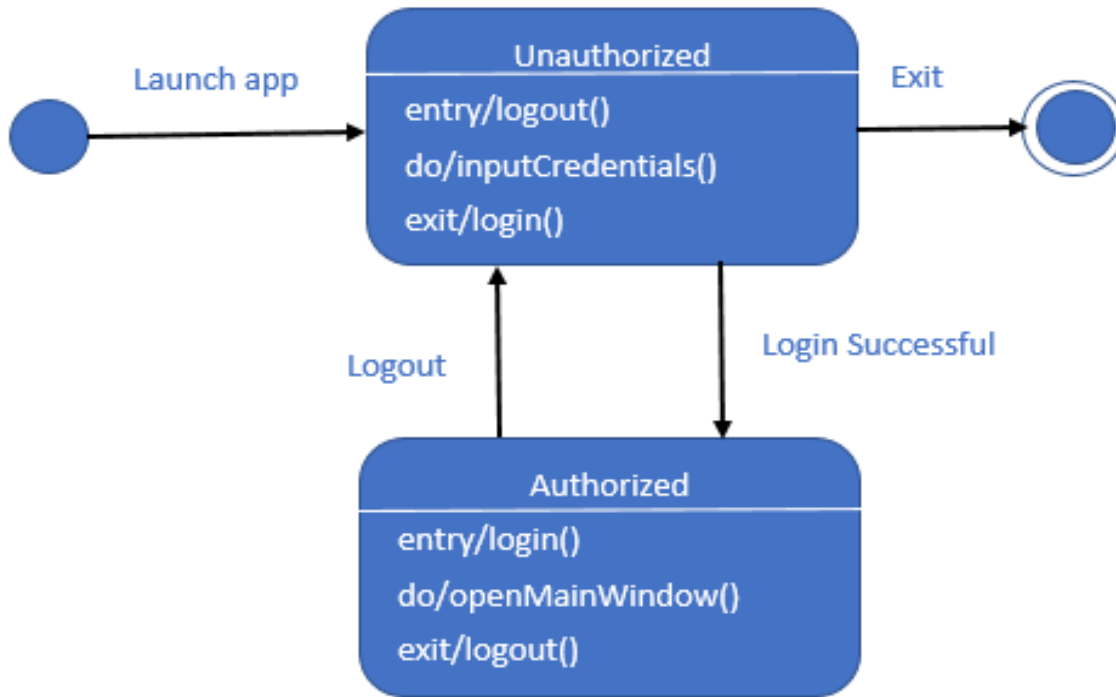


Figure 32: State-Machine Diagram for User Objects.

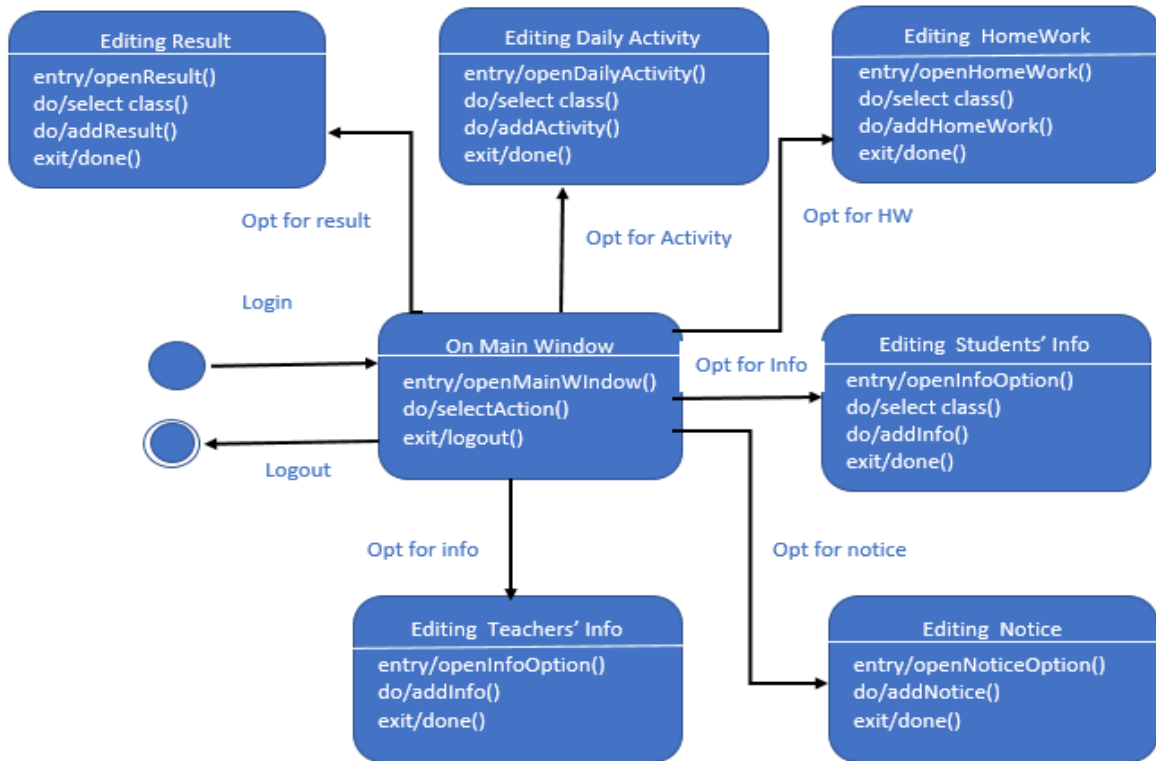


Figure 33: State-Machine Diagram for Editor Object.

7.Conclusion:

We can convert the design of a software project into executable programs so that the system can serve according to specific purpose. This design document of the School App System will help the coders to develop efficiently and also will help the tester team to test the whole system smoothly. So that the created system can meet the user requirements and fulfill the stake-holders ideas perfectly.