

FACULTY INFORMATION AUTOMATION

A Project report submitted in partial fulfilment of requirements for the award of the Degree of

BACHELOR OF TECHNOLOGY

IN

INFORMATION TECHNOLOGY

Submitted by

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DECLARATION

I hereby declare that the dissertation entitled **Faculty Information Automation** submitted for the B. Tech Degree is my original work and the dissertation has not formed the basis for the award of any degree, associate ship, fellowship or any other similar titles.

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ABSTRACT

Faculty Information Automation is a website that is helpful for faculty as well as institute authorities. The system deals with the various activities related to the faculty. Using this website, a faculty or any institute authority can view the details of the faculty like Name, Age, Qualification, Experience, Attended Workshops, Seminars, Conferences and Published papers from past 3 years, Subjects dealt by them, Feedback obtained, Workload (time table) and Number of leaves. As for the administrator, one can create, delete and modify the details of faculty. Admin can use this website to provide the details of particular faculty.

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INTRODUCTION

In India there are many academic institutions. But very few institutions are modernized and use software to manage the day-to-day work of faculty. Most of the academic institutions still relay on traditional way of management which mainly involves paper work, much human effort.

The faculty who belongs to those institutions are dependent on traditional way of managing things, have to struggle a lot to update their information like certifications, workshops, conferences, personal details, previously taught subjects, feedback , pass percentage etc. Also, the administrator face difficulty in maintaining all the records, tracking the records and fetching records in time.

To overcome this problem, we are implementing this digitally. We are designing a website where faculty can view and update their details. Admin can view the details of faculty to allocate subjects and can generate the report of the faculty.

PROBLEM DEFINITION

2.1 PROBLEM STATEMENT

Nowadays, we are using traditional way of using files to keep record of the faculty information. So, there is a need of a systematic way of keeping records as well as providing information as per the need.

2.2 EXISTING SYSTEM

In Traditional Faculty Information Management, all the faculty details are stored in the form of physical records. While allocating subjects, Head of the faculty should check the records manually to know the professional details of the faculty. If a faculty wants to update or modify their professional details like updating newly done workshops, certificates or any certificate details, one should manually update the records and submit the hardcopy of the particular certificate to the admin office. It is time taking process to search the records and some records may miss accidentally.

2.3 PROPOSED SYSTEM

In Digital Faculty Information Automation, Faculty is provided with the Login, where one can add, delete or modify their details. Faculty can update any certificates details and can upload the relevant certificate softcopy to the database using the digital system. With this system, Faculty can view the subjects allocated to them. When it comes to admin with one click, admin can view the faculty details. It is very helpful to the admin to allocate subjects to faculty according to their professional details.

REQUIREMENT SPECIFICATIONS

3.1 FUNCTIONAL REQUIREMENTS

The functionality or services that a system is intended to deliver are described as its functional requirements. These factors vary depending on the type of software being built, the intended user of the software, and the system being developed. These are the declarations of services that the system should deliver, such as how it should respond to specific inputs and how it should behave in specific scenarios.

- Admin provide the user id to all faculties and view the entire system.
- Admin will generate the report for the details provided by the faculty.
- Admin has the ability to add or delete the faculty.
- Admin can allocate subjects to faculty according to their role.
- Faculty will be able to view, update their details.

3.2 NON-FUNCTIONAL REQUIREMENTS

Non-functional Requirements are features of the system that are not directly related to the system's functional behaviors. Nonfunctional requirements impose various limitations on the system's ability to implement functionality. Non-functional Requirements are used to describe executional characteristics and give a more efficient manner of running the system.

Usability:

It indicates how simple it is for a user to learn how to run the system, prepare the necessary input, and comprehend the system's outputs. Our system constantly defines standards that ensure an effective user interface design and that the output provided is easy to understand. The absence of necessary fields throughout the system makes the system easier to use for the user. Furthermore, our system is usable and accessible 24 hours a day, seven days a week. Our project should have a GUI that is appealing. As a result, the administrator has no problems or discomfort while using the system.

Performance:

This criterion concerned quantifiable system memory consumptions, as well as reaction time and throughput execution. PHP is the technology that is being considered. In general, it executes instructions rapidly, resulting in a shorter response time. As the throughput time is short, performance should be high. Our project's performance is excellent, and it runs asynchronously. The project's performance was greatly improved as a result of the responses generated, as well as the code that was used, which was optimized for faster execution.

Reliability:

It is the ability of the system perform required functions under conditions for specific period of Reliability requirements specify ability detect specified faults run-time eliminate them. Requirements also stand specified security attacks. The data entered is stored safely and can be restored even in the time crashes. As checking is included it is highly helpful. These all proves the system reliable. Our model will be very reliable as the data stored in database in secured manner. Addition to this there are validations in all input cases at each so that wrong data can't be entered.

Security:

In terms of security, an authentication administrator should be implemented so that he can authorize Faculty information after a successful login. The application's security level is really high.

3.3 SYSTEM REQUIREMENTS

System requirements are the configuration that a system must have in order for a hardware or software application to run smoothly and efficiently. Failure to meet these requirements can result in installation problems or performance problems.

SOFTWARE REQUIREMENTS

Software requirements are used for designing the system and to manage time complexity. Requirements are as follows:

Operating System : Windows 8 or later

Technology : Web Development

Tool : Sublime Editor

HARDWARE REQUIREMENTS

Hardware requirements are used to provide efficiency, install instructions and certify the authentication server side.

Requirements are as follows:

RAM : 4GB

Hard Disk : 160GB

Processor : intel i3 or later

ANALYSIS

4.1 MODULES

- **Faculty**
- **Administrator**

Admin:

Admin can login to the admin account after authentication and authorization. He can add faculty and allocate the subjects and can view the list of faculties. He can also update and delete faculty information.

Faculty:

Faculty has to enter the username and password to login into the website. After the login the faculty can add their information like certifications, workshops, conferences, personal details and can view the previously taught subjects and their taken leaves.

4.2 FEASIBILITY STUDY

The main aim of feasibility study is to know our project is satisfying the requirements.

4.2.1 TECHNICAL FEASIBILITY

In Technical Feasibility study, one has to test whether the proposed system can be developed using existing technology or not. It is planned to implement the proposed system using WEB technology. It is evident that the necessary hardware and software are available for development and implementation of the proposed system. Hence, the solution is technically feasible.

4.2.2 ECONOMICAL FEASIBILITY

As part of this, the costs and benefits associated with the proposed system are compared, and the project is economically feasible since all the tools use are free of cost. The development costs will be significant. So the proposed system is economically feasible.

4.2.3 OPERATIONAL FEASIBILITY

It is a standard that ensures interoperability without difficult competition and innovation among users, to the benefit of users both in terms of cost and service quality. The proposed system is acceptable to users. So the proposed system is operationally feasible.

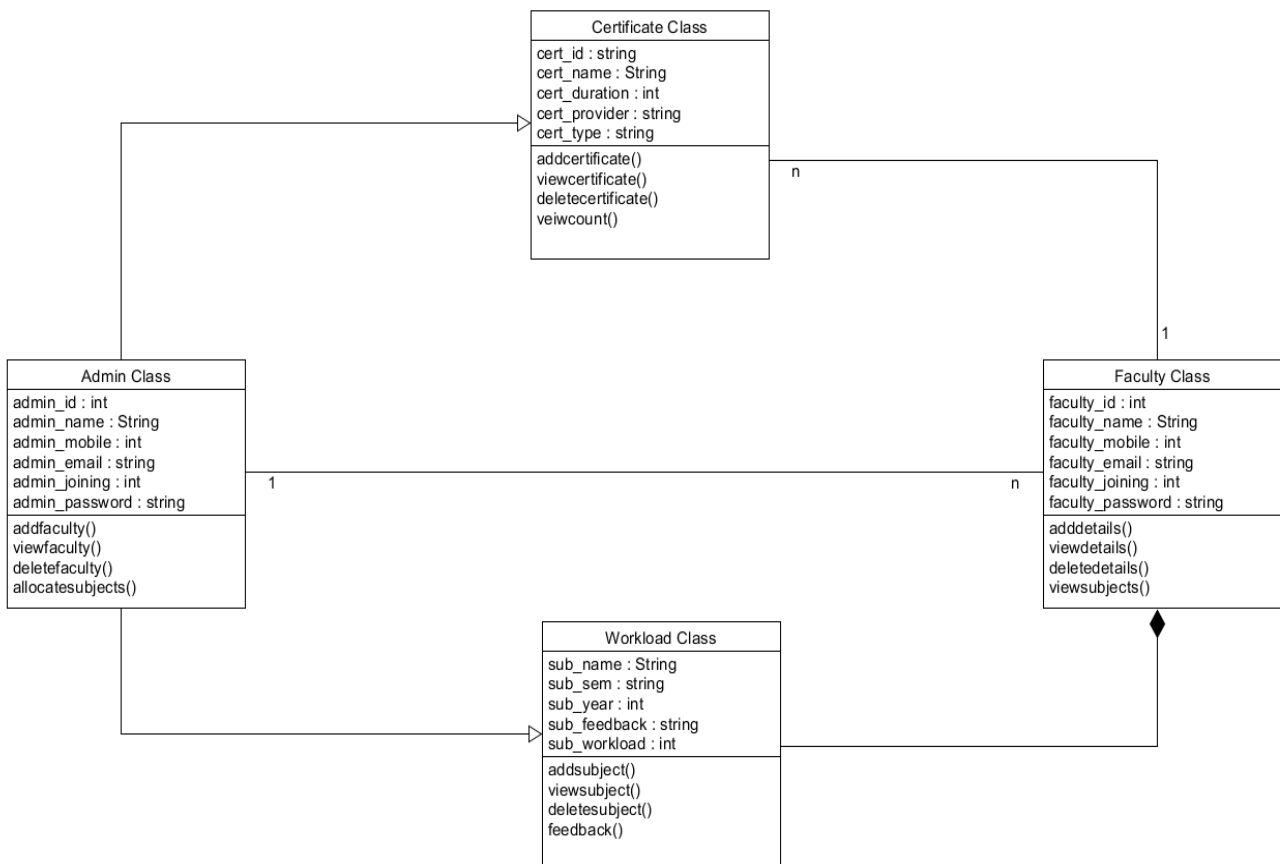
DESIGN

In system designing phase, the system is designed in accordance with the requirements report. Software design sits at the technical kernel of the software engineering process and is applied regardless of the development paradigm and area of application. Design is the first step in the development phase for any engineered product or system.

5.1 UML DIAGRAMS

5.1.1 CLASS DIAGRAM

Class diagrams are the main building block of any object-oriented solution. It shows the classes in a system, attributes, and operations of each class and the relationship between each class. A class has three parts. Name at the top, attributes in the middle and operations or methods at the bottom. In a large system with many related classes, classes are grouped together to create class diagrams. Different relationships between classes are shown by different types of arrows.



5.1.2 USE CASE DIAGRAM

As the most known diagram type of the behavioural UML types, Use case diagrams give a graphic overview of the actors involved in a system, different functions needed by those actors and how these different functions interact.

It's a great starting point for any project discussion because you can easily identify the main actors involved and the main processes of the system.

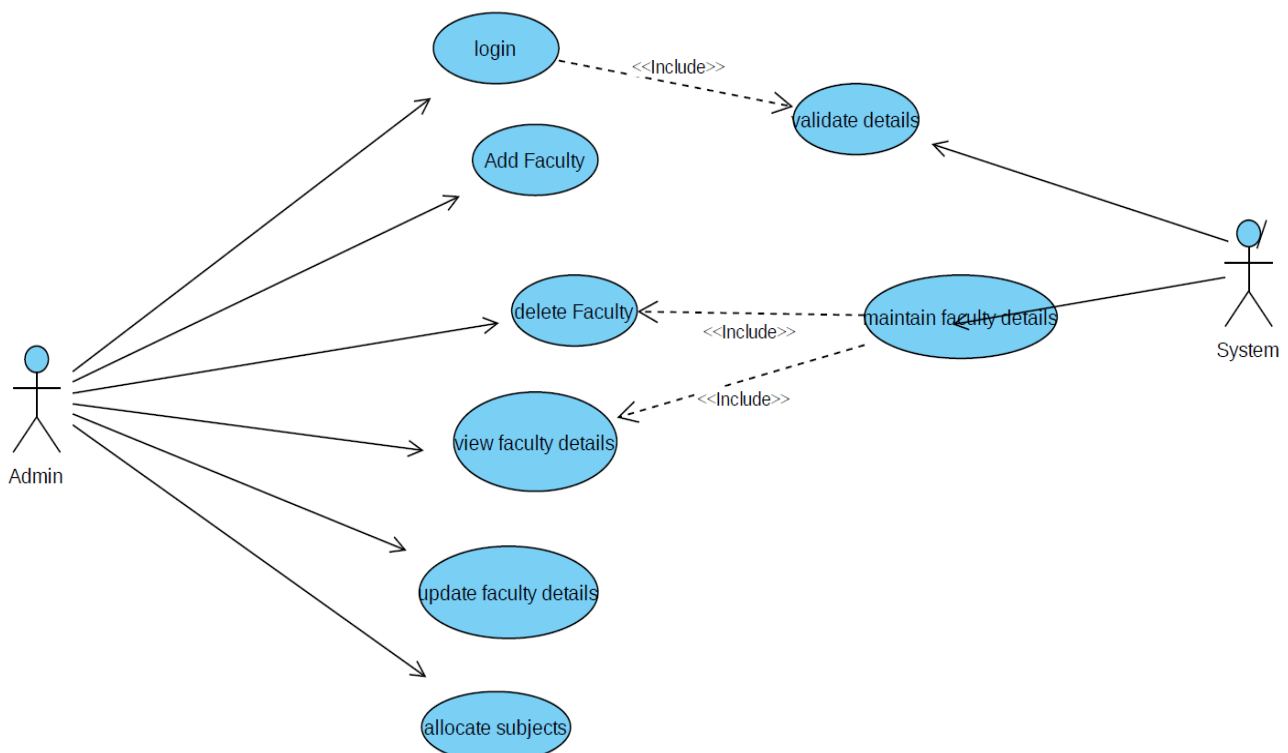
Identified Actors:

- Admin
- Faculty

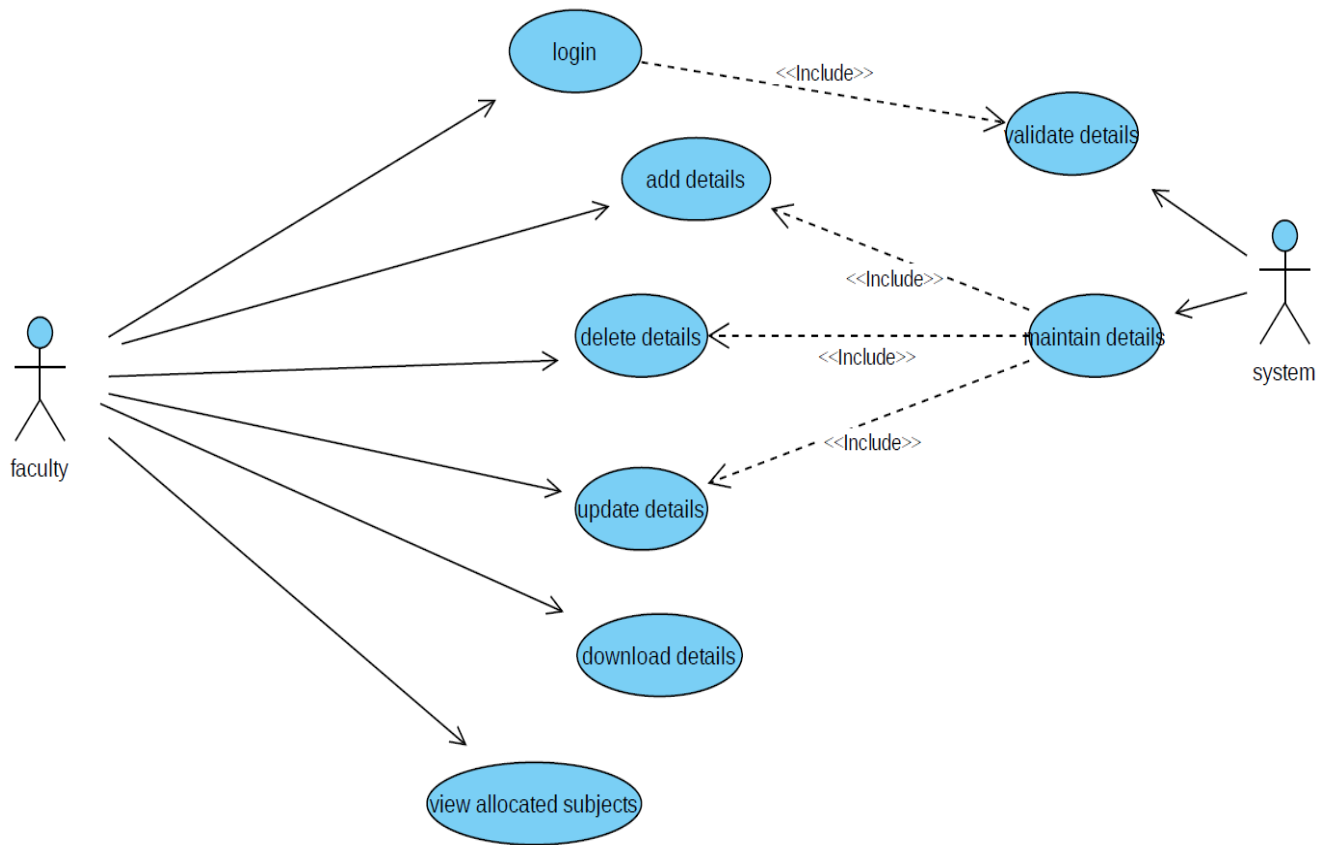
Identified Use Cases:

- Login
- Add faculty
- Delete faculty
- View details
- Update details
- Allocate subjects
- Add details
- Delete details
- Update details
- View allocated subjects

For Admin:

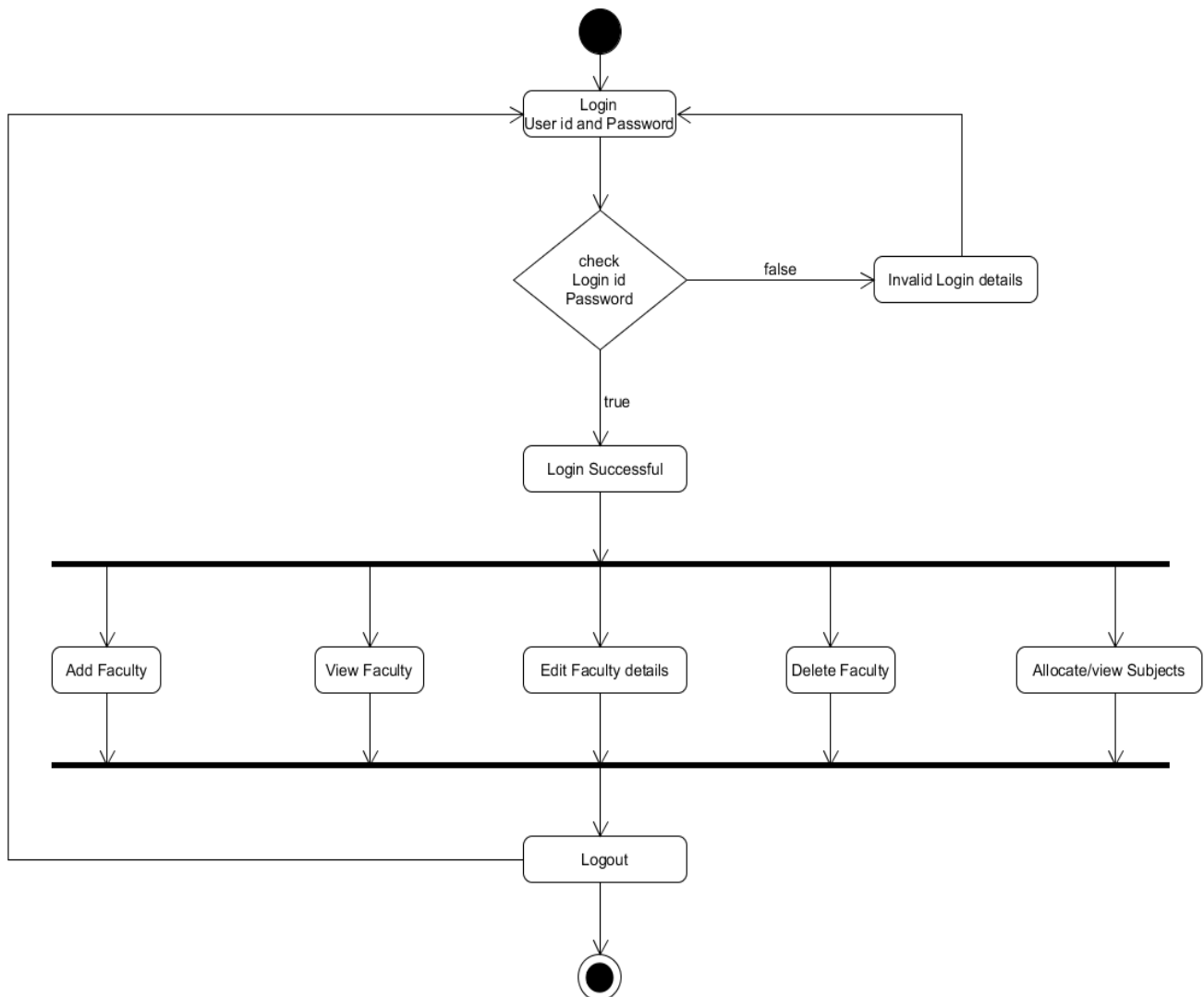


For Faculty:



5.1.3 ACTIVITY DIAGRAM

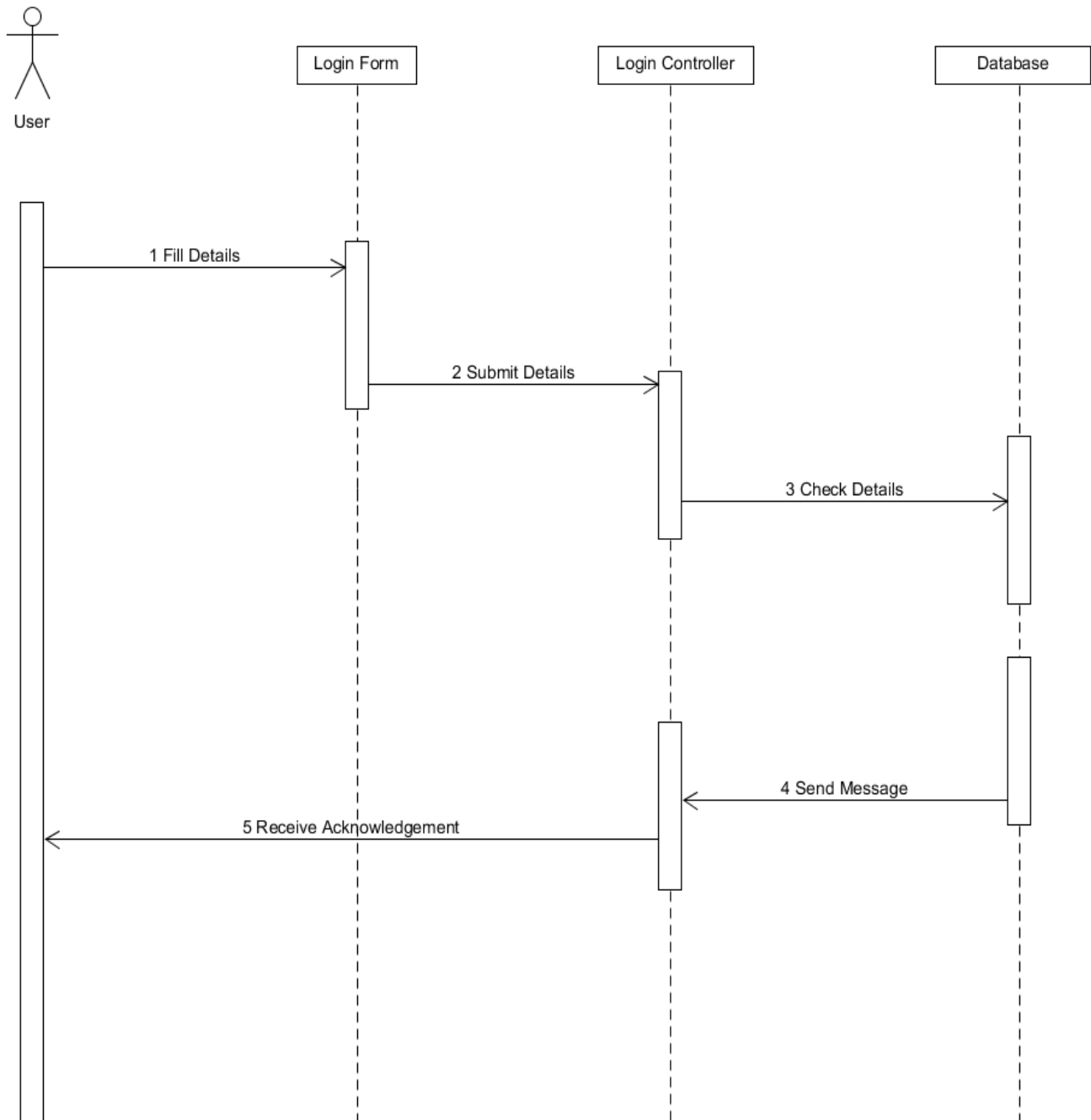
Activity diagrams represent workflows in a graphical way. They can be used to describe the business workflow or the operational workflow of any component in a system. Sometimes activity diagrams are used as an alternative to State machine Diagram.



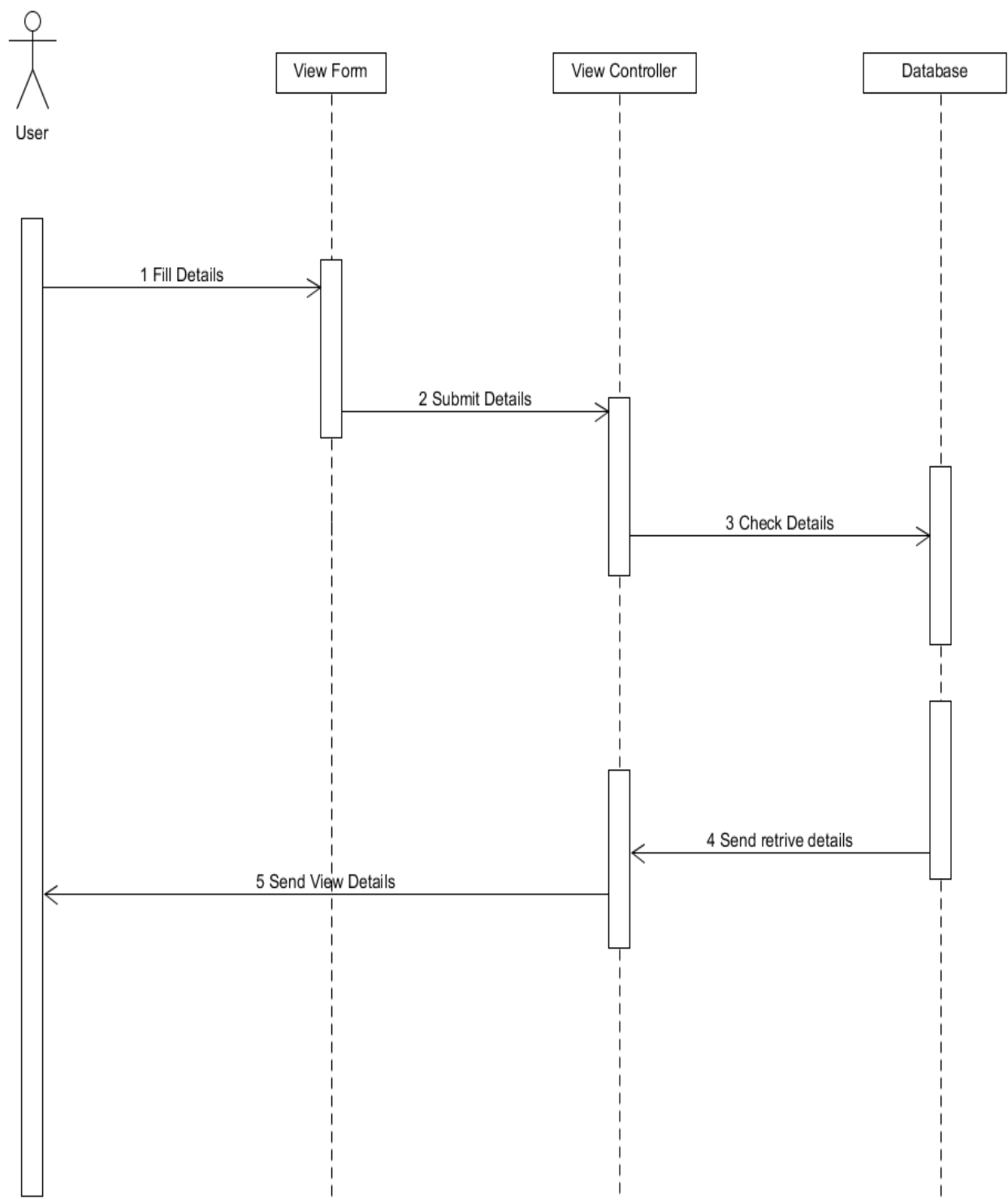
5.1.4 SEQUENCE DIAGRAM

Sequence diagrams in UML show how objects interact with each other and the order those interactions occur. It's important to note that they show the interactions for a particular scenario. The processes are represented vertically and interactions are shown as arrows.

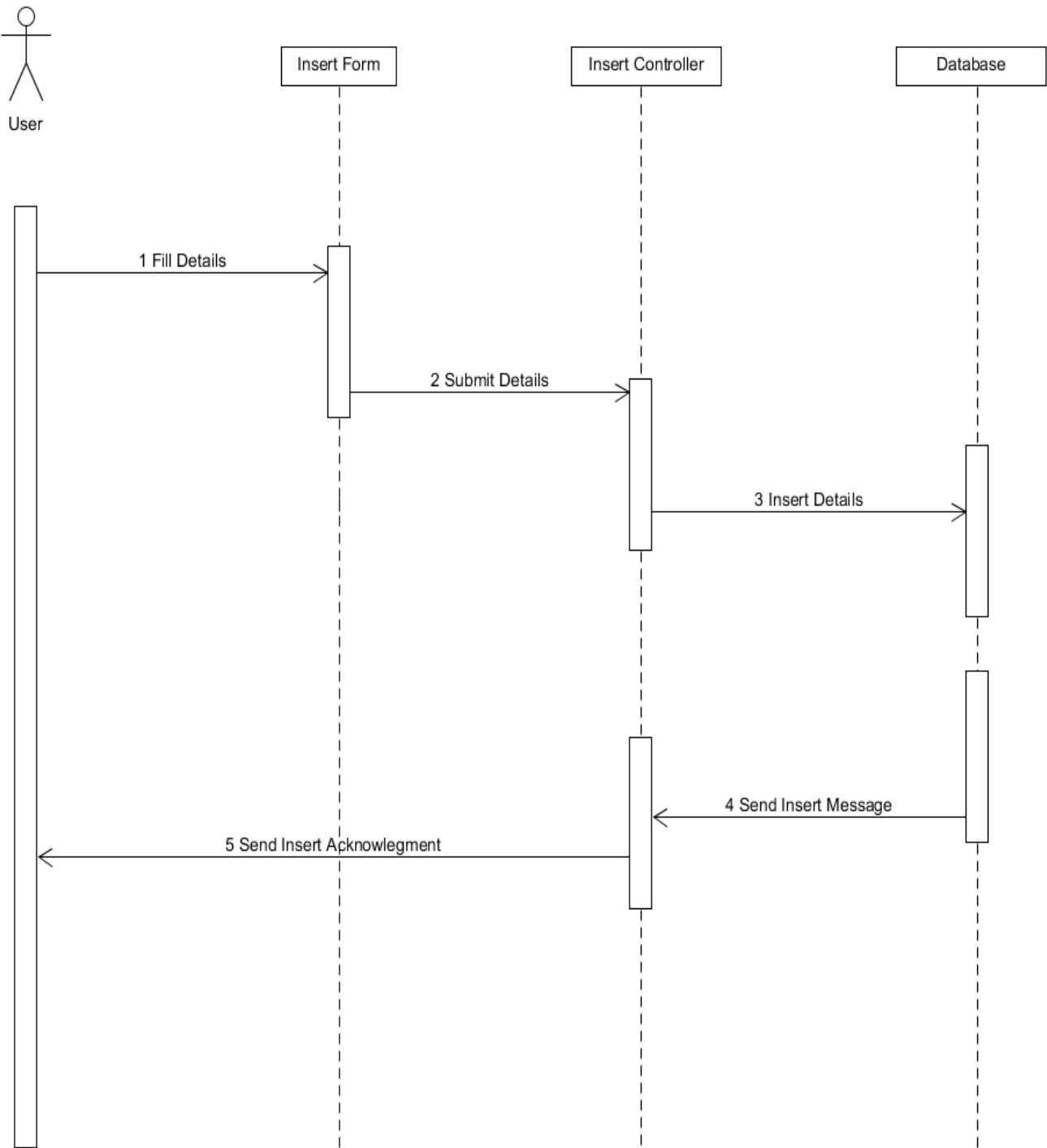
For Login Function:



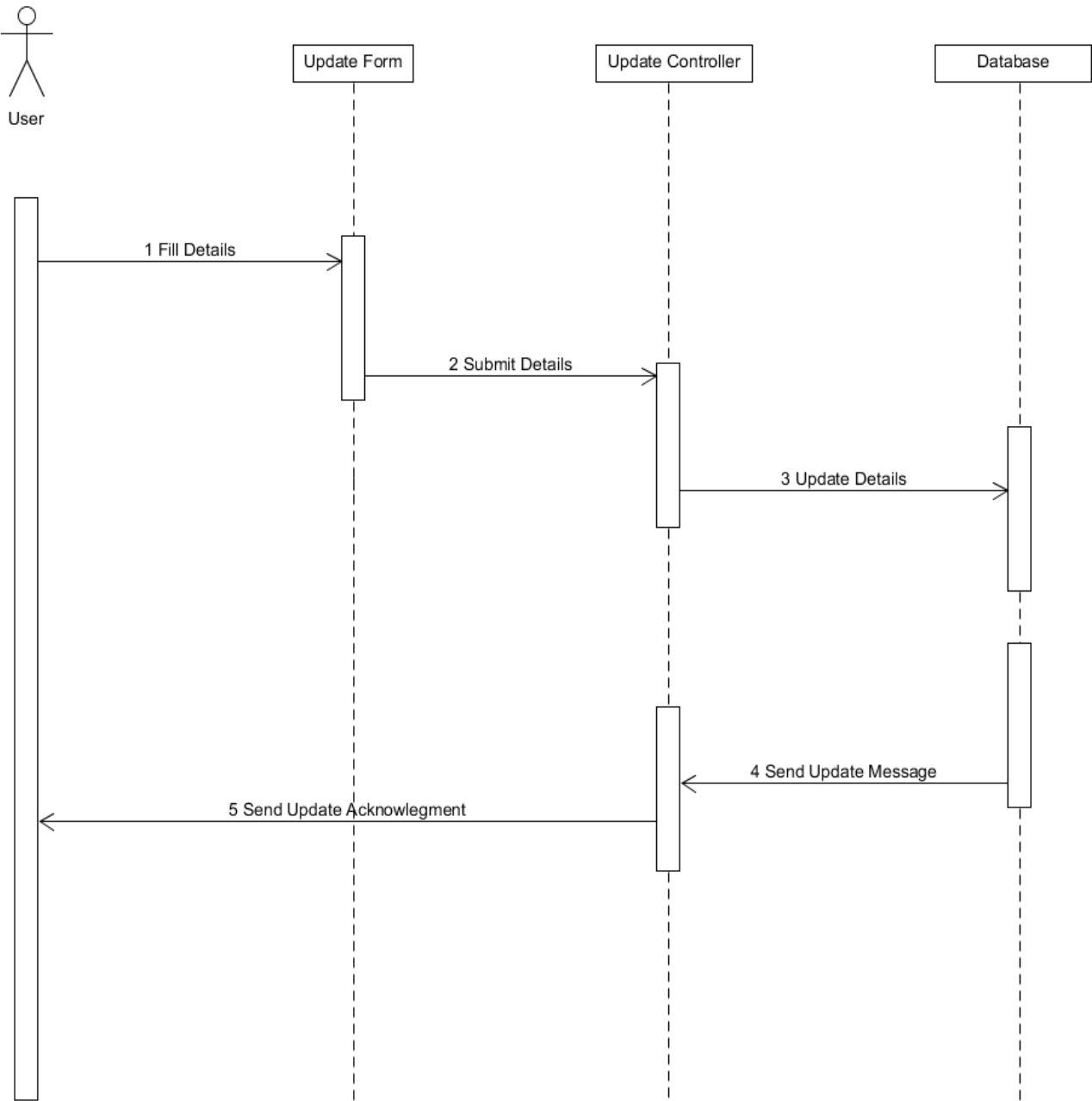
For View Function:



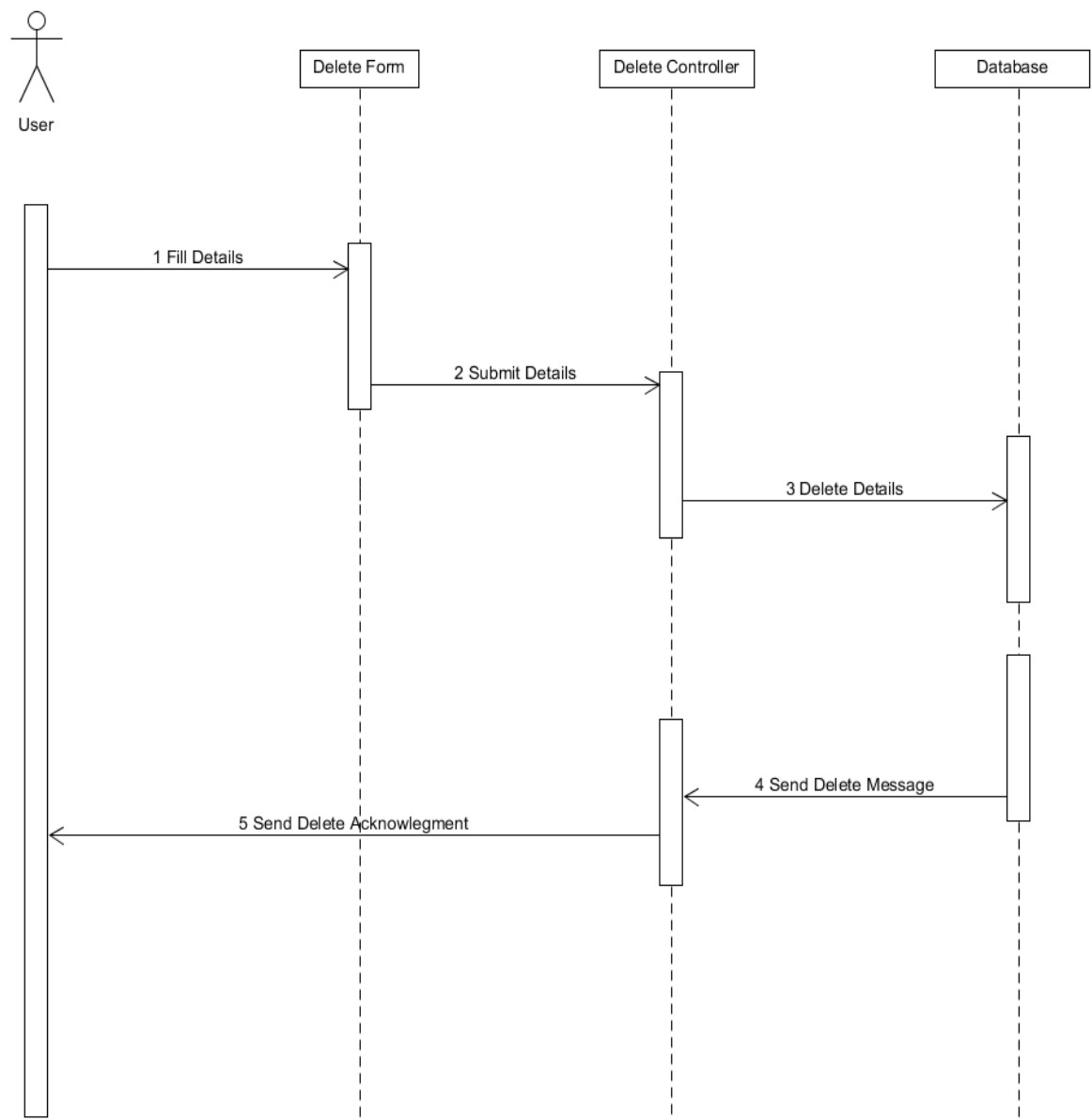
For Insert Function:



For update Function:



For Delete Function:



IMPLEMENTATION

The main advantage of any Web application is no emulators or simulator need to be used in order to execute or check the system. Any web-browser can be used to simulate the website developed.

The website we developed is designed using HTML CSS and PHP. The database used is MySQL and server is tomcat.

6.1 Hyper Text Markup Language(HTML) :

HTML is the language for describing the structure of Web pages. HTML gives authors the means to:

Publish online documents with headings, text, tables, lists, photos, etc.

Retrieve online information via hypertext links, at the click of a button.

Design forms for conducting transactions with remote services, for use in searching for information, making reservations, ordering products, etc.

Include spread-sheets, video clips, sound clips, and other applications directly in their documents.

With HTML, authors describe the structure of pages using markup. The elements of the language label pieces of content such as “paragraph,” “list,” “table,” and so on.

6.2 Cascading Style Sheets(CSS):

CSS is the language for describing the presentation of Web pages, including colors, layout, and fonts. It allows one to adapt the presentation to different types of devices, such as large screens, small screens, or printers. CSS is independent of HTML and can be used with any XML-based markup language. The separation of HTML from CSS makes it easier to maintain sites, share style sheets across pages, and tailor pages to different environments. This is referred to as the separation of structure (or: content) from presentation.

6.3 PHP: Hypertext Preprocessor

PHP started out as a small open-source project that evolved as more and more people found out how useful it was. Rasmus Lerdorf unleashed the first version of PHP way back in 1994.

PHP is a recursive acronym for "PHP: Hypertext Preprocessor".

PHP is a server-side scripting language that is embedded in HTML. It is used to manage dynamic content, databases, session tracking, even build entire e-commerce sites.

It is integrated with a number of popular databases, including MySQL, PostgreSQL, Oracle, Sybase, Informix, and Microsoft SQL Server.

PHP is pleasingly zippy in its execution, especially when compiled as an Apache module on the Unix side. The MySQL server, once started, executes even very complex queries with huge result sets in record-setting time.

PHP supports a large number of major protocols such as POP3, IMAP, and LDAP. PHP4 added support for Java and distributed object architectures (COM and CORBA), making n-tier development a possibility for the first time.

PHP is forgiving: PHP language tries to be as forgiving as possible.

PHP Syntax is C-Like.

6.4 MySQL:

MySQL is a relational database management system (RDBMS) developed by Oracle that is based on structured query language (SQL).

A database is a structured collection of data. It may be anything from a simple shopping list to a picture gallery or a place to hold the vast amounts of information in a corporate network. In particular, a relational database is a digital store collecting data and organizing it according to the relational model. In this model, tables consist of rows and columns, and relationships between data elements all follow a strict logical structure. An RDBMS is simply the set of software tools used to actually implement, manage, and query such a database.

MySQL is integral to many of the most popular software stacks for building and maintaining everything from customer-facing web applications to powerful, data-driven B2B services. Its open-source nature, stability, and rich feature set, paired with ongoing development and support from Oracle, have meant that internet-critical organizations such as Facebook, Flickr, Twitter, Wikipedia, and YouTube all employ MySQL backends.

6.5 Tomcat:

It is an open-source Java servlet container that implements many Java Enterprise Specs such as the Websites API, Java-Server Pages and last but not least, the Java Servlet. The complete name of Tomcat is "Apache Tomcat" it was developed in an open, participatory environment and released in 1998 for the very first time. It began as the reference implementation for the very first Java-Server Pages and the Java Servlet API. However, it no longer works as the reference implementation for both of these technologies, but it is considered as the first choice among the users even after that. It is still one of the most widely used java-sever due to several capabilities such as good extensibility, proven core engine, and well-test and durable. Here we used the term "servlet" many times, so what is java servlet; it is a kind of software that enables the webserver to handle the dynamic(java-based) content using the Http protocols.

If you are a little familiar with the websites or have some basic knowledge about the websites, you must have heard about the HTTP protocol or may also know what actually are they. If you want to provide any web-services such as you want to provide a simple static content possibly by using HTML (or Hypertext Markup Language), or maybe you just want to send data from a server to point you, so you necessarily need a server and that server is HTTP(Hypertext transfer protocol). So, as we all know that if anyone wants to make a simple, static website, he definitely requires an HTTP server, but if he wants to make website dynamic, he has to use servlet. We use the HTTP server if we want to send simple data. If we want to send dynamic data or to make our website dynamic, we need to use the servlet. Hence, we need an HTTP server and what else we need is a container where we will run or servlet, so when we combine the HTTP server and the servlet (or we can say servlet container), they both combine to become a single server know as tomcat server.

In simple words, we can say that The Apache Tomcat is actually a server and a servlet container.

CONCLUSION

The main objective of the application is to help the faculties and the Institution Authorities to improve the interaction between the Institution and the faculty smartly. This application also improves the performance over the existing system by providing the all data to the faculty in digital form. This also reduces the workload as well as the less paper work for the faculties. The application provided is a platform which is easy to understand by the user and it can be easy to maintain the application in various native platform. This application can be easily used by each and every institute simply. We have created a user-friendly web application to overcome the curse of manual work. By this website Faculty can provide their profile details and manage their details regarding works simply. It can also be used to find the performance and achievements by an individual faculty.

FUTURE ENHANCEMENT

The following changes can be made to the application in future:-

- Currently, we have implemented this application that can be used by only one department at a time. It can be extended to be used by any branch.
- Currently, this system is be used only to store, view and modify only faculty information. It can be extended to student level, where student can view the attendance details and provide suitable functionalities.
- Can add more features and refine the current website in order to make it appear prettier and more interactive.

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