
Group Details

Name	Roll No
Hayden Cordeiro	05
Grejo Joby	17

LOR Process Automation System

Software Engineering Mini Project

AIM

To develop the LOR Process Automation System to simplify the process of getting a Letter of Recommendation from any faculty in the college.

PROBLEM ANALYSIS

To simplify the process of applying, drafting, approving and printing a LOR. Current scenario is that the student has to talk to the faculty if he/she would give a LOR, then the student and the faculty coordinate and draft a LOR, which is then approved. Once approved, the student has to submit a letter of request to the administration department of the institute to get the institute letterhead. Later, the student prints the drafted LOR on the letterhead and it is signed by the faculty.

This process has a lot of delays, involves repeated visits to the institute, and various other challenges that increase the difficulty to get a LOR. Therefore, by taking the process online, it would become an advantage to the faculty, the students as well as the college administration.

OBJECTIVE

Make an online based system where the student can ask a faculty in the college to give them a LOR. The system then allows the teacher to accept or reject the proposal. Once the teacher accepts the request, it allows the student and teacher to work on a draft of the LOR. Once, the draft is submitted by the student, the faculty can make changes in the draft, and once the draft is final, the faculty can approve the draft. When the draft is approved, the system would embed the draft into the letterhead of the institute and also has the option to embed the digital signature of the faculty and the final LOR can be downloaded by the student.

SOFTWARE REQUIREMENTS SPECIFICATION

INTRODUCTION

LOR Process Automation System is an interface between the student, faculty and the college administration. It aims at improving the efficiency in the Issue of LOR and reduces the complexities involved in it to the maximum possible extent.

PURPOSE

If the entire process of 'Issue of LOR' is done in a manual manner then it would take several days to the worst months for the student to get the LOR. Considering the fact that almost every student in the institute applies for an LOR, which is also very important while applying for higher studies, an Automated System becomes essential to meet the requirements. So this system uses several programming and database techniques to elucidate the work involved in this process. As this is a matter of authenticity and security, the system has been carefully verified and validated in order to satisfy it.

SCOPE

- The System provides an online interface to the user where they can apply for an LOR from a faculty.
- The faculty can accept or reject the proposal of the LOR.
- Once accepted, it allows the student and teacher to work on a draft of the LOR.
- The student can submit a draft to the faculty, who has the option to edit the draft and later approve or reject the draft.
- When the draft is approved, the system would embed the draft into the letterhead of the institute and give the final PDF for the student to download.
- It also has the option to embed the digital signature of the faculty.

TECHNOLOGIES TO BE USED

- Web Development Technologies
 - Front End
 - HTML
 - CSS
 - JavaScript
 - React JS

-
- Back End
 - Django
 - Database
 - MySQL
 - Node
 - Python

TOOLS TO BE USED

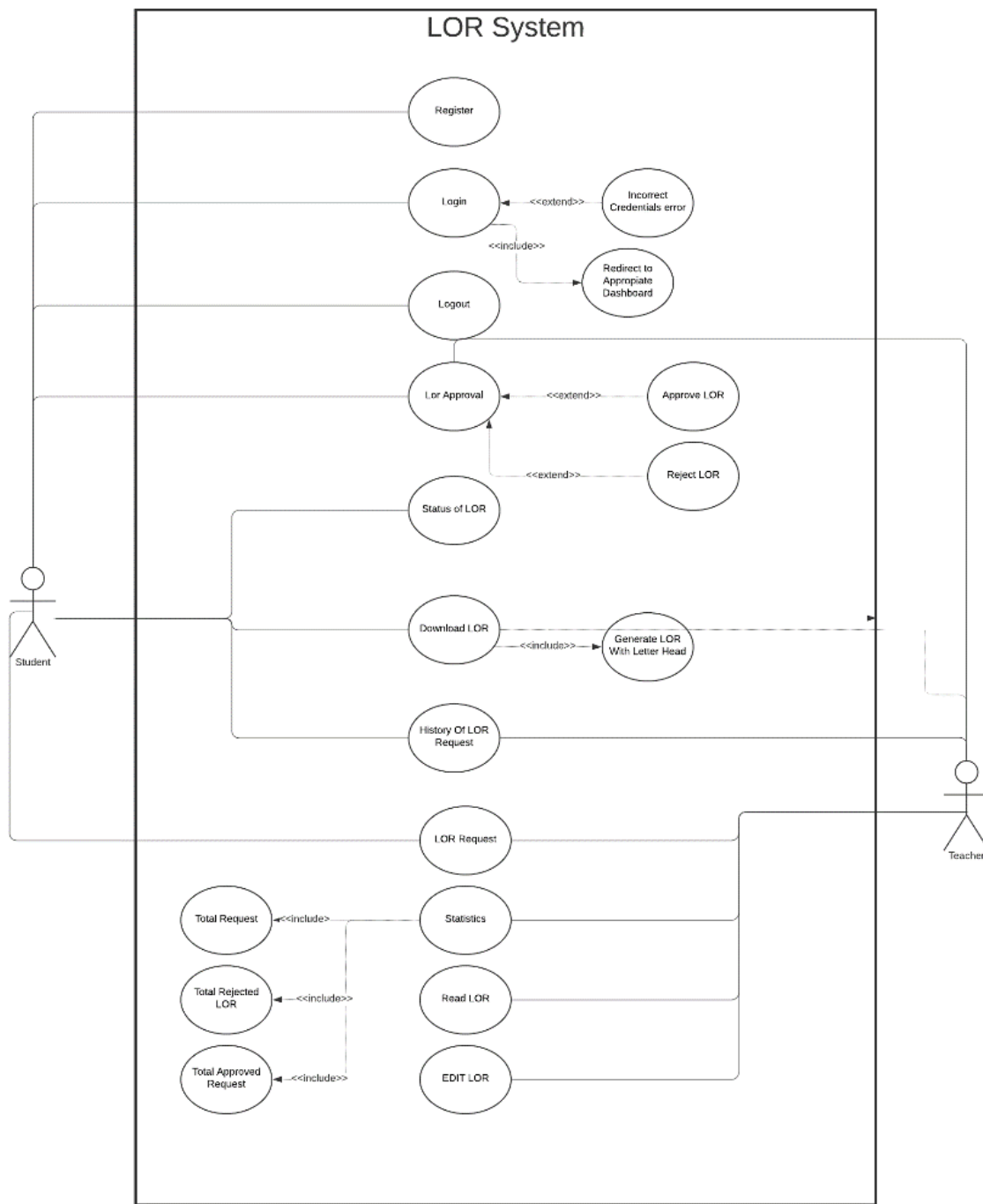
- Visual Studio Code
- MySQL Workbench
- PhpMyAdmin

UML DIAGRAMS

1. USE CASE DIAGRAM

Use case is shown as an ellipse containing the name of the use case. An actor is shown as a stick figure with the name below it. Use case diagram is a graph of actors.

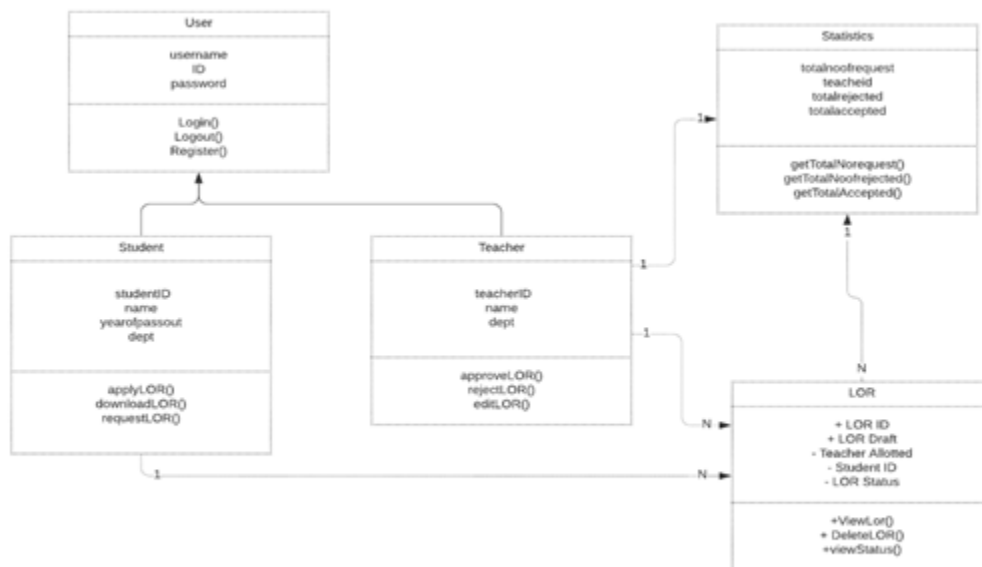
- The actors in the use case diagram are Student and Teacher.
- The use cases are Register, Login, Logout, LOR approval, Status of LOR, Download LOR, History of LOR requests, Statistics, LOR Request, Read LOR, Edit LOR.
- The actors using the use case are denoted by the arrow.



2. CLASS DIAGRAM

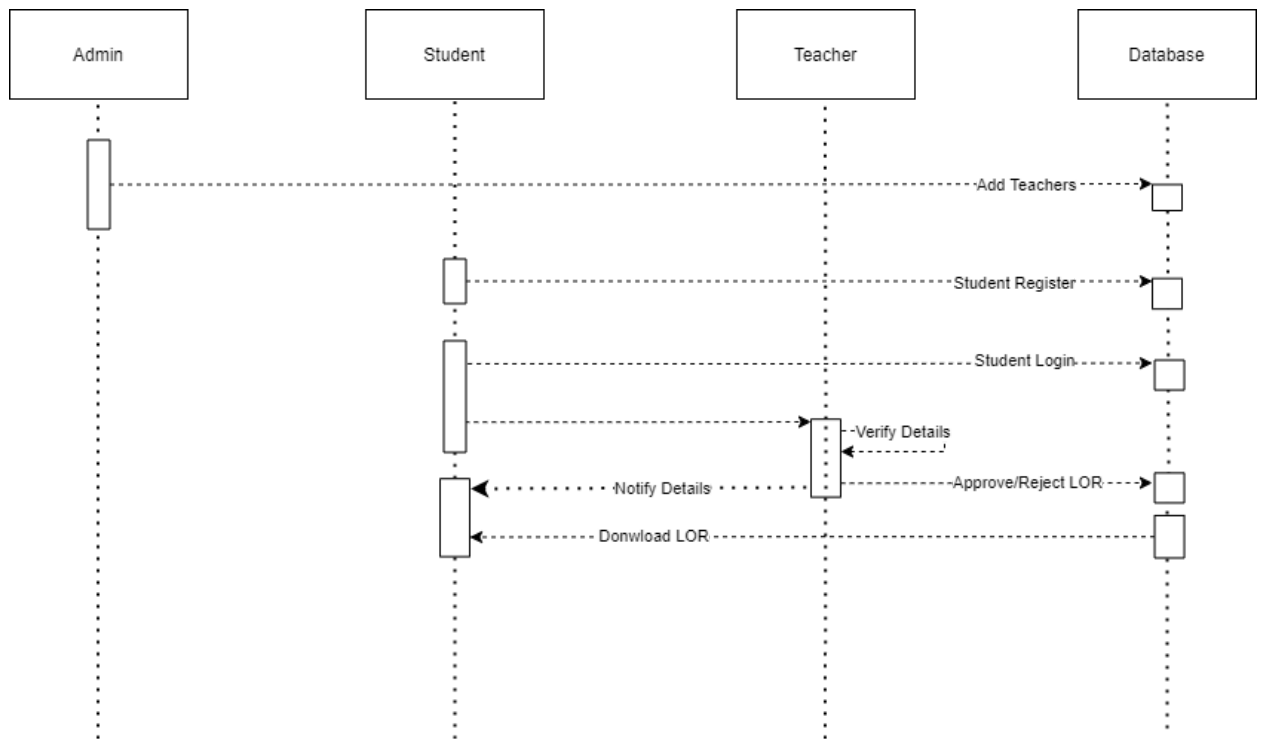
A class is drawn as a rectangle box with three compartments or components separated by horizontal lines. The top compartment holds the class name and middle compartment holds the attribute and bottom compartment holds list of operations.

- User: Every user has a username and password to login to the system. The user has the functionalities of login, logout and also a new user can be added to the system using register functionality.
- Student: Every student has a student ID, name, year of passout, department. The student has the functionalities to apply for LOR, Download LOR and Request LOR.
- Teacher: Every teacher has a teacherID, name and department. The teacher has the functionalities to approve LOR, reject LOR and edit LOR.
- Statistics: The statistics stores the details of the teacher's activity like the number of requests received, total approved and total rejected.
- LOR: Each LOR will have an ID, the LOR draft, i.e. the content of the LOR, Teacher allotted, Student ID of which student the LOR belongs to and the status of the LOR if it is approved, pending or rejected.



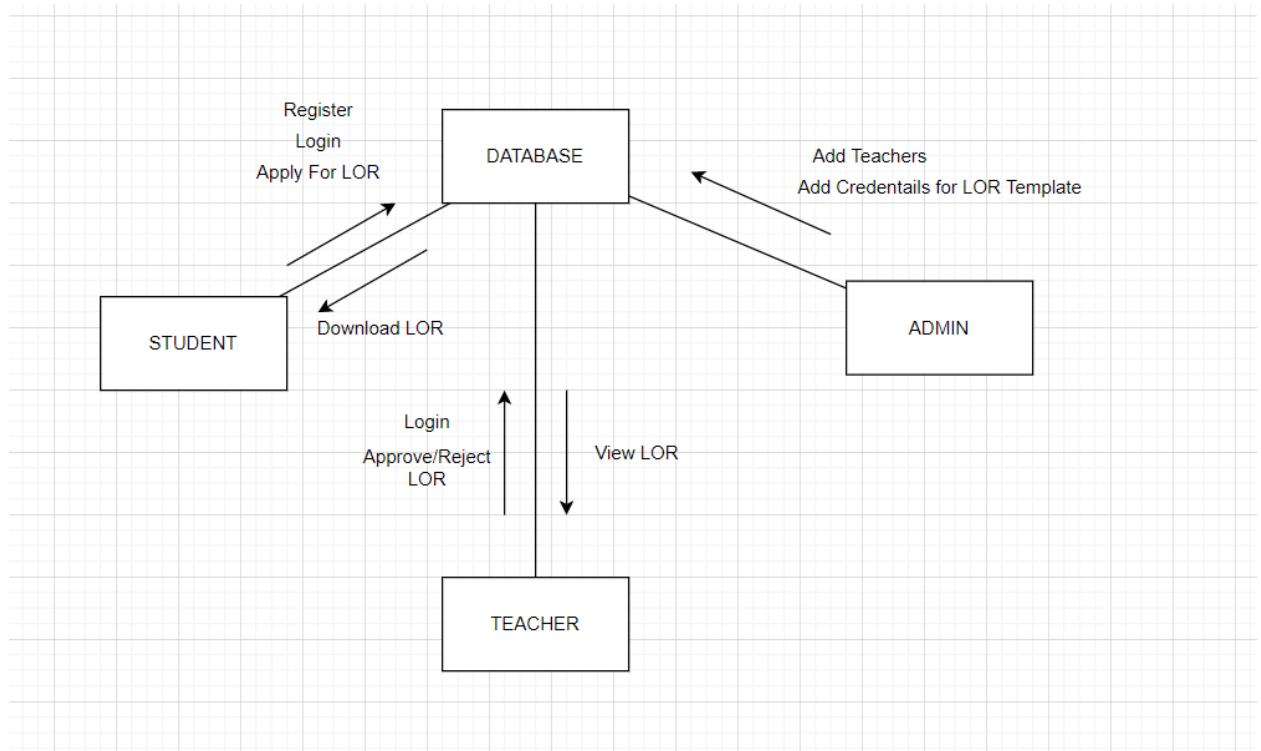
3. SEQUENCE DIAGRAM

A sequence diagram shows an interaction arranged in time sequence, It shows objects participating in interaction by their lifeline by the message they exchange arranged in time sequence. Vertical dimensions represent time and horizontal dimensions represent objects.



4. COLLABORATION DIAGRAM

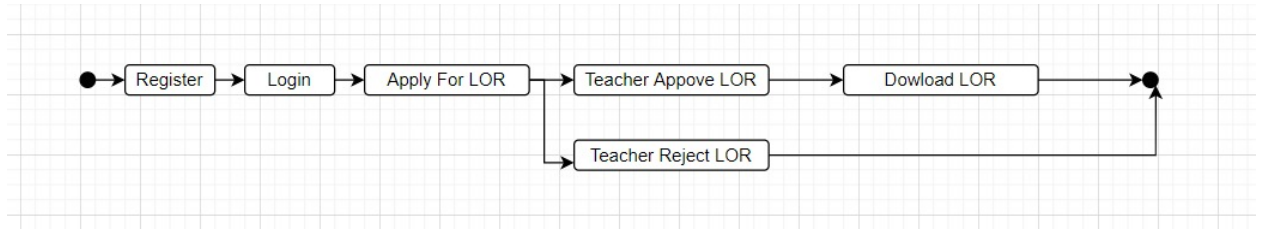
A collaboration diagram is similar to a sequence diagram but the message in number format. In a collaboration diagram sequence diagram is indicated by the numbering the message. A collaboration diagram, also called a communication diagram or interaction diagram, A sophisticated modeling tool can easily convert a collaboration diagram into a sequence diagram and the vice versa. A collaboration diagram resembles a flowchart that portrays the roles, functionality and behavior of individual objects as well as the overall operation of the system in real time.



5. STATE CHART DIAGRAM

The state chart diagram contains the states in the rectangle boxes and starts in indicated by the dot and finish is indicated by dot encircled. The purpose of a state chart diagram is to understand the algorithm in the performing method.

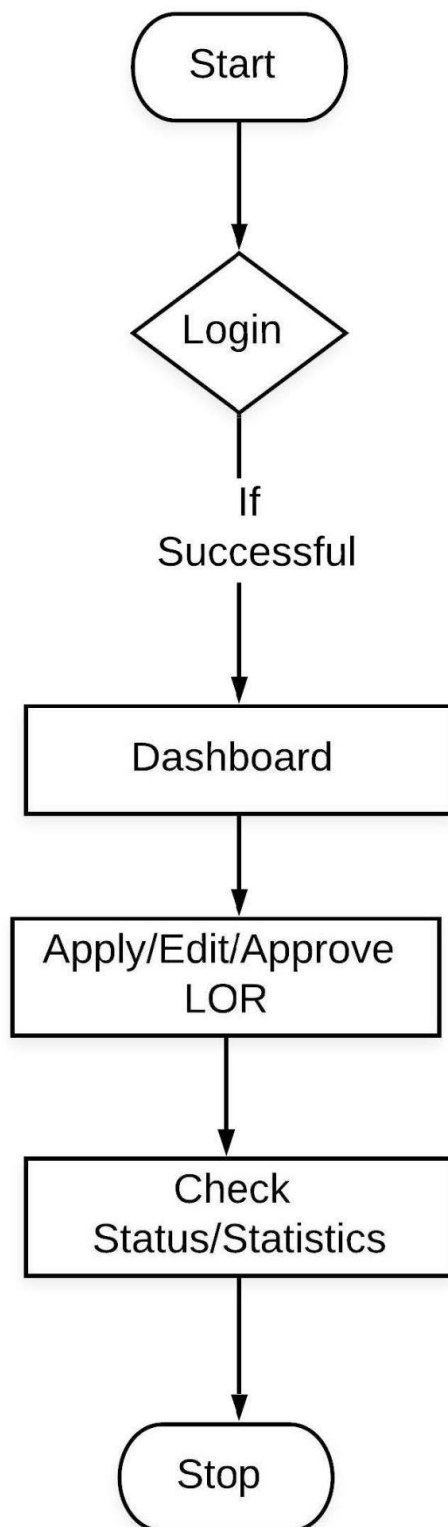
- The states of the LOR Process Automation system are denoted in the state chart diagram.
- Register state represents adding a new user to the system.
- Login state represents authentication for login to the system. In this state, it checks whether the user has provided all the details that are required.
- Apply LOR state allows the student to apply for a LOR from a faculty. Once the LOR is applied it is sent to the teacher.
- Teachers can either approve it or reject it or even do changes in it using the edit option and then approve it.
- Download LOR enables the approved LOR to be downloaded by the student.



6. ACTIVITY DIAGRAM

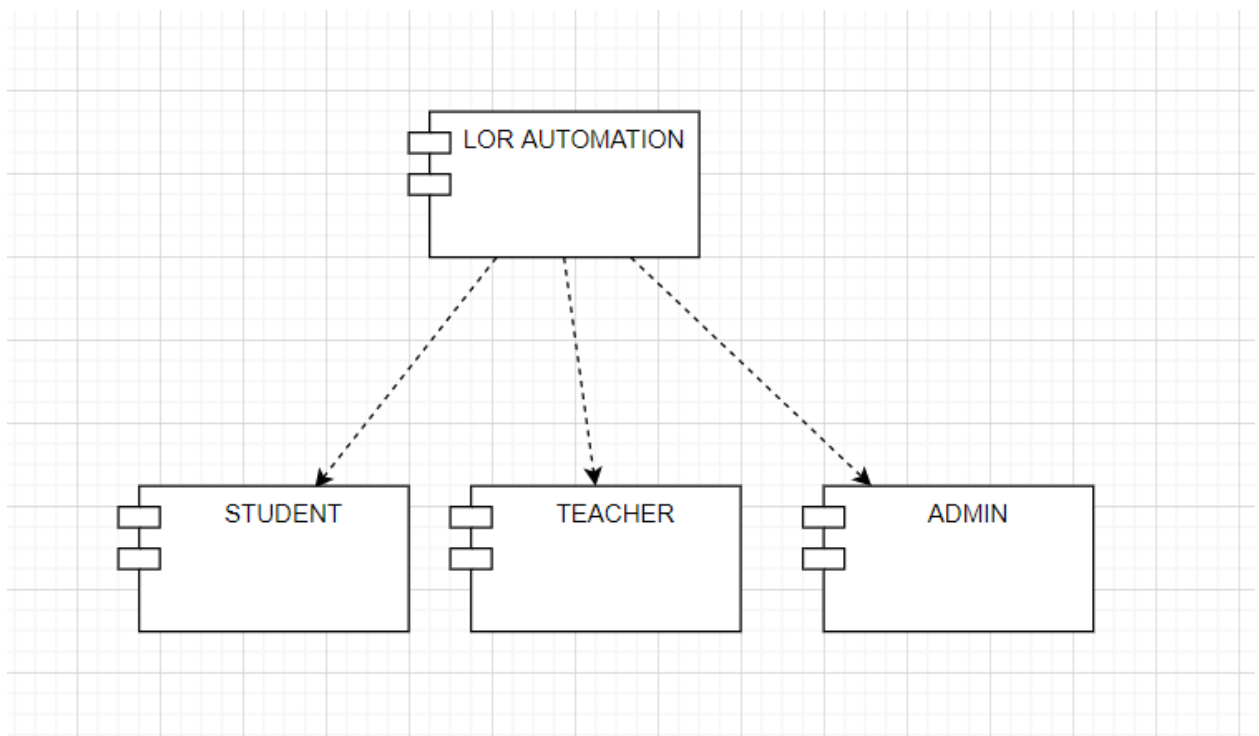
An activity diagram is a variation or special case of a state machine in which the states or activity representing the performance of operation and transitions are triggered by the completion of operation. The purpose is to provide a view of close and what is going on inside a use case or among several classes. An activity is shown as a rounded box containing the name of the operation.

- The activities in the system are login, register, dashboard, apply LOR, approve/edit/reject LOR, check status of LOR and download LOR.
- In login, the user enters their details and enters the system.
- While applying for LOR, the student enters the details, then selects the teacher they are applying to and then also puts a draft of the LOR and sends it for approval.
- The teacher can then approve, edit or reject the LOR and once approved the student can download the final LOR embedded on the letterhead.



7. COMPONENT DIAGRAM

The component diagram is represented by figure dependency and it is a graph of design of figure dependency. The component diagram's main purpose is to show the structural relationships between the components of a system. It is represented by a boxed figure. Dependencies are represented by the communication association.

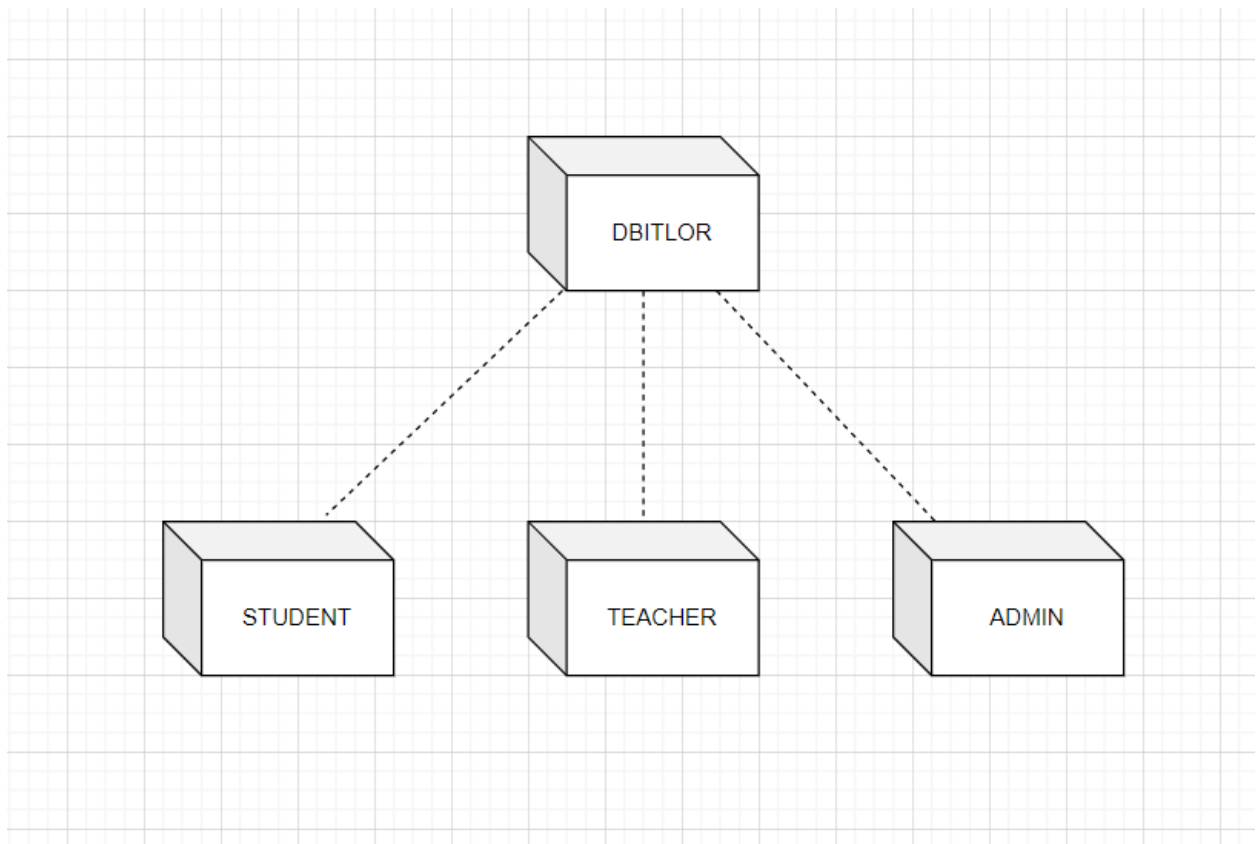


8. DEPLOYMENT DIAGRAM

It is a graph of nodes connected by communication association. It is represented by a three dimensional box. A deployment diagram in the unified modeling language serves to model the physical deployment of artifacts on deployment targets. Deployment diagrams show "the allocation of artifacts to nodes according to the Deployments defined between them. It is represented by a 3-dimensional box. Dependencies are represented by the communication association. The basic element of a deployment diagram is a node of two types:

- **DEVICE NODE** – A physical computing resource with processing and memory service to execute software, such as a typical computer or a mobile phone.

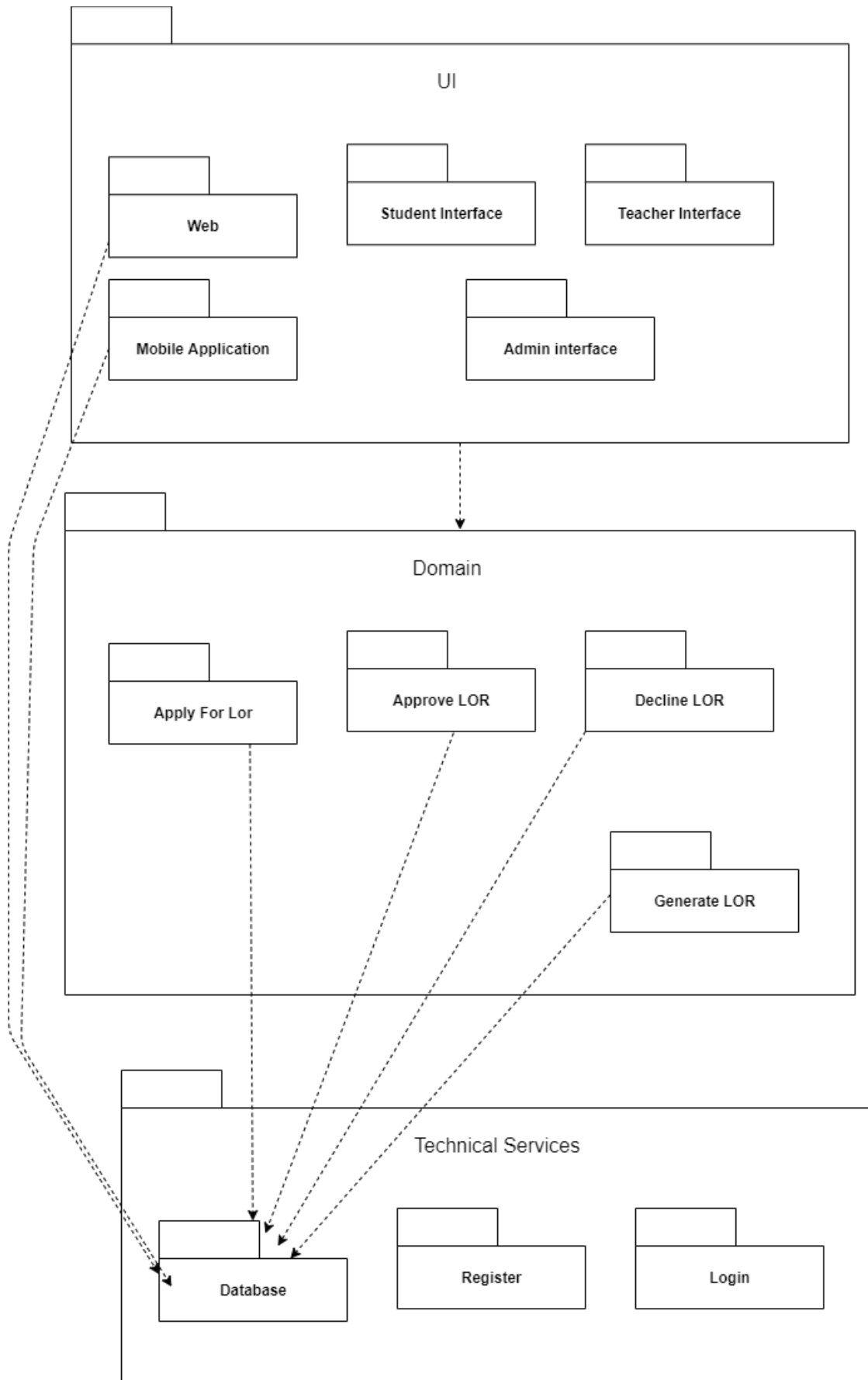
- **EXECUTION ENVIRONMENT NODE**-- This is a software computing resource that runs within an outer node and which itself provides a service to host and execute another executable software element.



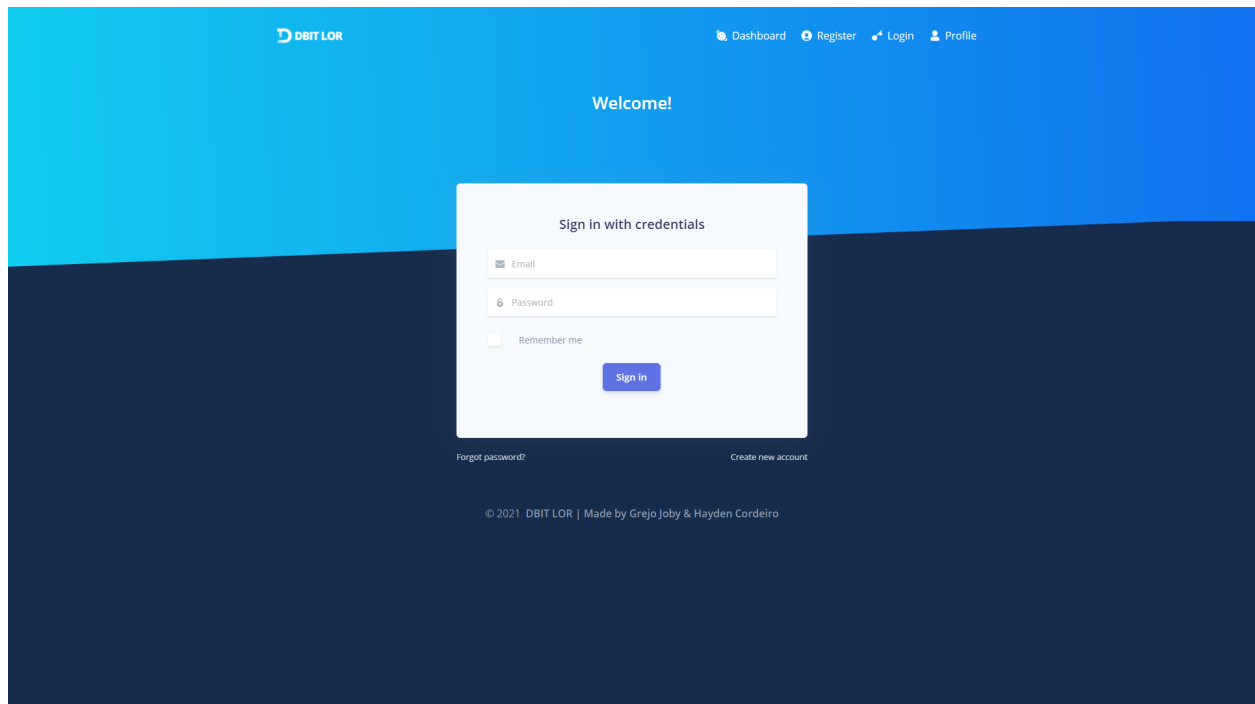
9. PACKAGE DIAGRAM

A package diagram is represented as a folder shown as a large rectangle with a top attached to its upper left corner. A package may contain both sub ordinate package and ordinary model elements. All uml models and diagrams are organized into package. A package diagram in unified modeling language that depicts the dependencies between the packages that make up a model. A Package Diagram (PD) shows a grouping of elements in the OO model, and is a Cradle extension to UML. PDs can be used to show groups of classes in Class Diagrams (CDs), groups of components or processes in Component Diagrams (CPDs), or groups of processors in Deployment Diagrams (DPDs). There are three types of layer. They are:

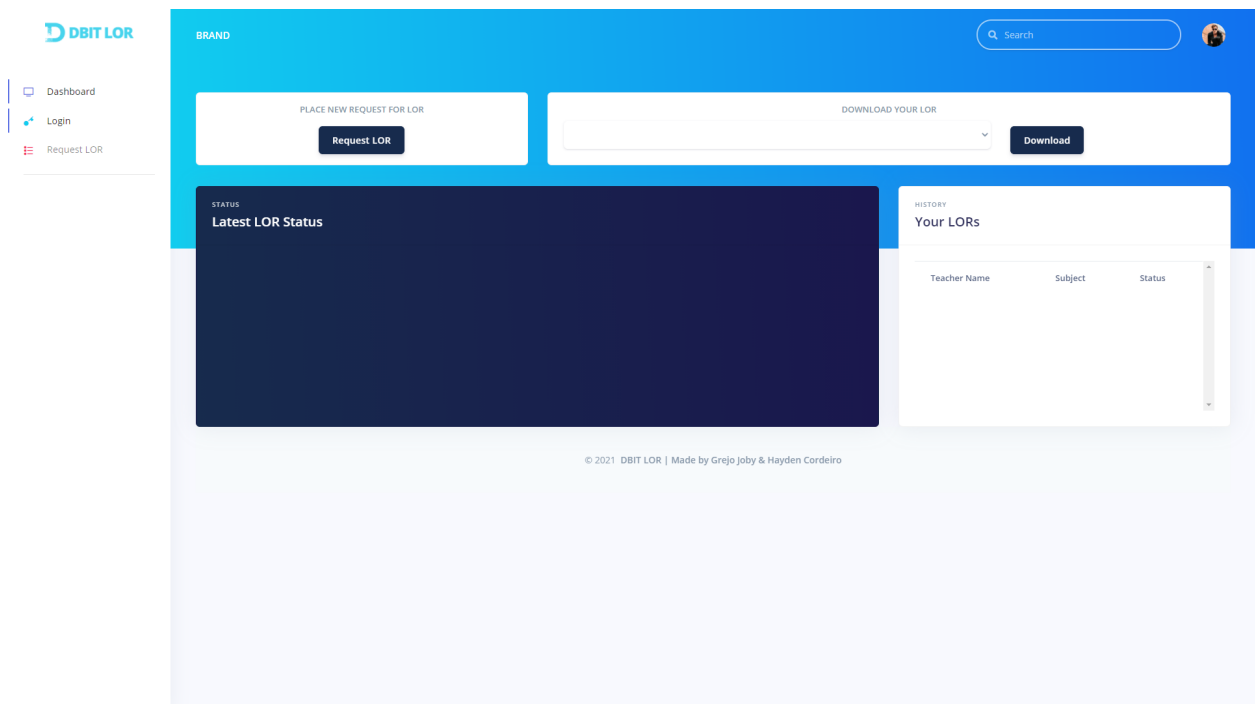
- User interface layer
- Domain layer
- Technical services layer



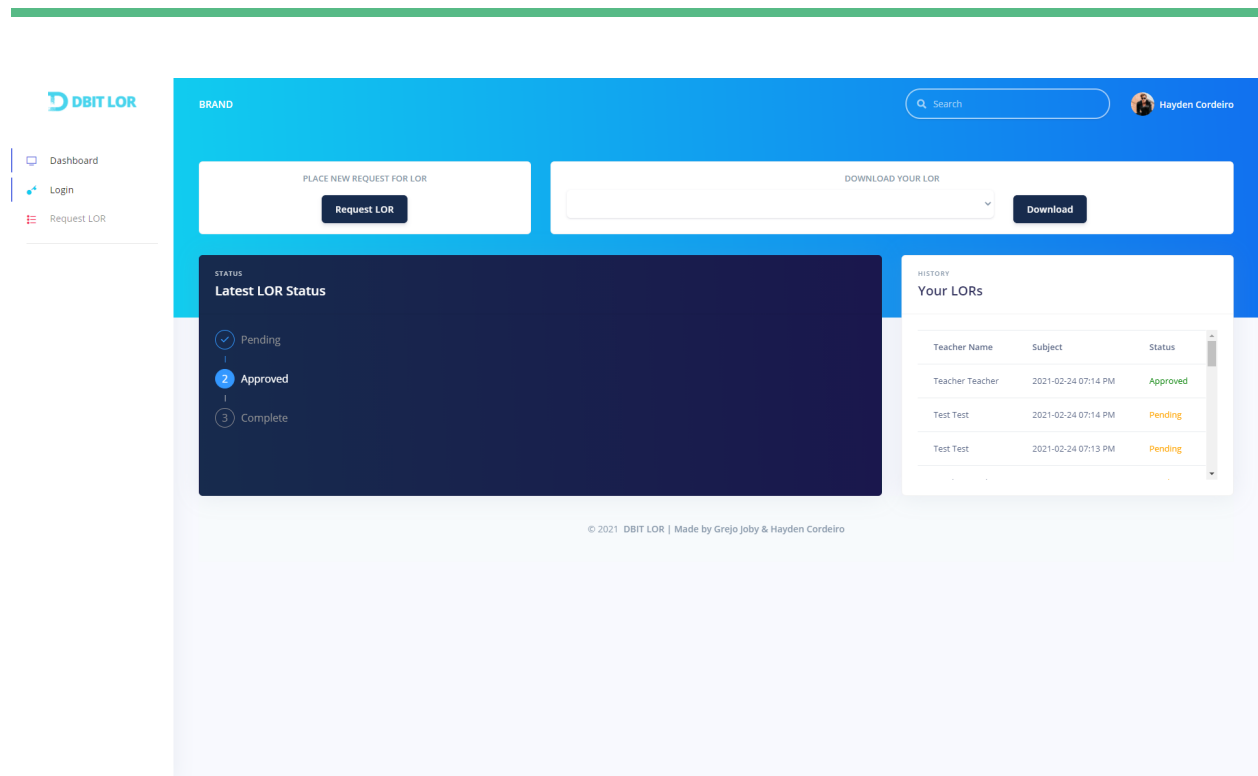
PROJECT GLIMPSE



Login Page



Student Dashboard



Apply for LOR Form Page

The screenshot shows the 'Request LOR' form page. The header is dark blue with the DBIT LOR logo, a search bar, and the user profile of Hayden Cordeiro. The sidebar on the left has links to Dashboard, Login, and Request LOR. The main content area is titled 'Request LOR' and includes a sub-header: 'Fill in the correct details to apply for approval of your LOR from the respected faculty.' Below this, the form is divided into three sections:

LOR Request Form

STUDENT INFORMATION

Student ID 2018120005	Email address cordeirohayden@gmail.com
First name Hayden	Last name Cordeiro
Branch Computer	Year of Passout 2021

FACULTY INFORMATION

Department Computer	Faculty Name
------------------------	--------------

LOR DRAFT

Enter your complete LOR Content

Teacher LOR Approval Page.

The screenshot displays the 'Request LOR Teacher' interface. The top navigation bar includes the 'DBIT LOR' logo, a 'BRAND' label, a search bar, and a user profile for 'Teacher Teacher'. A sidebar on the left contains links for 'Dashboard' and 'Login'. The main content area is titled 'Request LOR Teacher' and includes a sub-header 'LOR for Approval' with 'Approve' and 'Reject' buttons. Below this, the 'STUDENT INFORMATION' section contains a form with the following fields and values: Student ID (2018120005), Email address (cordeirohayden@gmail.com), First name (Hayden), Last name (Cordeiro), Branch (Computer), and Year of Passout (2021). The 'LOR DRAFT' section prompts the user to 'Enter your complete LOR Content' with a text area containing the placeholder 'A few words about you ...'.

DBIT LOR

BRAND

Search

Teacher Teacher

Request LOR Teacher

Fill in the correct details to apply for approval of your LOR from the respected faculty.

LOR for Approval

Approve Reject

STUDENT INFORMATION

Student ID	2018120005	Email address	cordeirohayden@gmail.com
First name	Hayden	Last name	Cordeiro
Branch	Computer	Year of Passout	2021

LOR DRAFT

Enter your complete LOR Content

A few words about you ...

RESULT

Thus the project to develop the LOR Process Automation System was successfully implemented using Web Development Tools and Database.