VIT-AP UNIVERSITY

SWE2004

Software Design and Architecture

Title of Project:

KNOW YOUR SITE PROJECT

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Software Requirements Specification

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1. INTRODUCTION

1.1 PURPOSE

The purpose of this project is to create a bridge between users and the best e-learning websites, YouTube channels and other social media platforms to ease the learning process by creating a website.

1.2 PROJECT SCOPE

The purpose of this e-learning system is to ease the learning process and to create a convenient and easy-to-use application for users trying to learn new things related to their field. Our main scope of this project is to provide the links of the best e-learning platforms like websites, YouTube channels, discord channels and many more. Above all, we hope to provide a comfortable user experience with joy able user interface along with the best e-learning websites available.

1.3 REFERENCES

a) https://krazytech.com/projects

b) Coursera

2. OVERALL DESCRIPTION

2.1 PRODUCT PERSPECTIVE

A e-learning system stores the following information.

- Site Details:
  It consists of select bar to select branches which redirects to webpages of selected branch with the list of courses which gets redirected to different websites on selection.
- User Description:
  It includes username, password. This information may be used for keeping the records of the user to download books, login and update the profile.

2.2 HOME PAGE CLASS AND CHARACTERISTICS

Users of the system should be able to retrieve course information from selected branch through different given websites. A selected course from certain branch

will be able to connect from present page to targeted website. There are at least four branches with several courses. Users will have access to login, books, subscription, and the admins will have access to both maintenance and login functions. Home page consists of menu bar with two tabs.

- About us:
  - This tab consists of information like purpose of creating the site and also the guidelines to use the site along with terms and conditions.
  - Downloadable copies of service manuals, brochures, and any other service or product documentation.
  - Frequently Asked Questions page (FAQ).

- Contact us:

Users can write their queries through e-mail, helpline number.

2.3 OPERATING ENVIRONMENT

Operating environment for e-learning system is as listed below;

- client/server system.
- Operating system: Windows, MAC.
- Browser: explorer/chrome/Microsoft edge/safari
- platform: HTML5/CSS3/JAVASCRIPT

2.4 DESIGN AND IMPLEMENTATION CONSTRAINTS

- Designing Software is rarely an unconstrained Process
- Programming languages are limited to HTML and CSS.
- Implement the database to store the user's data.
- The project is developing on basis of responsive web design.

3. SYSTEM FEUTURES

3.1 DESCRIPTION AND PRIORITY

Now a days there are many e- learning websites on internet, but the content in it were not so grepping and understandable. Many users first go to a website and disappoint with the content in it, and search for good website in which they can find good information on a course. In our website we will provide some best websites which are good for respective courses, from this user can save time.

3.2 STIMULUS/RESPONSE SEQUENCES

- Select the applicable branch
- Displays a detailed list of best links and a search bar upon top of webpage to search for required concept.
- Select the link from displayed results.
- Refer to the information provided on that link.

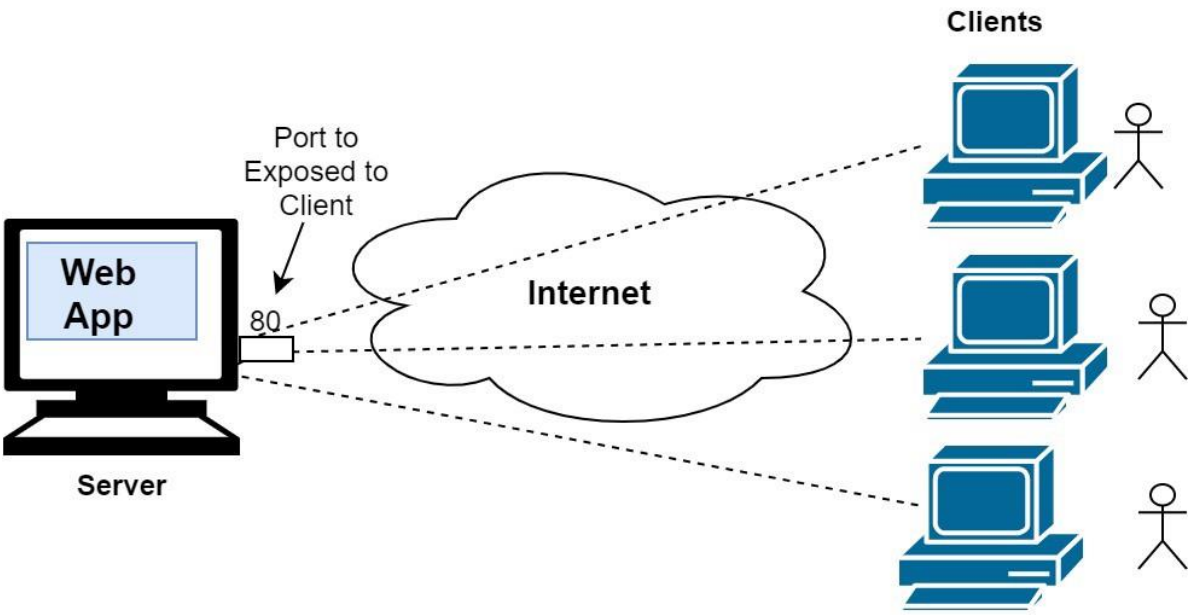
3.3 FUNCTIONAL REQUIREMENTS

Other features include:

WEBPAGES INTERACTION

The Website will display the Homepage upon loading of site. The Homepage is connected to various webpages which contain the information of that particular branch selected on home page, that branch webpages are connected to various websites where the best learning is offered.

CLIENT/SERVER SYSTEM:



The term client/server refers primarily to an architecture or logical division of responsibilities, the client is the application (also known as the front-end), and the server is the DBMS (also known as the back-end).

The client-server model of computing is a distributed application structure that partitions tasks or workloads between the providers of a resource or service, called servers, and service requesters called clients. Often clients and servers communicate over a computer network on separate hardware, but both client

and server may reside in the same system. A server machine is a host that is running one or more server programs which share their resources with clients.

Client-server software architecture is versatile and flexible in today's fast-changing IT landscape. It is modular in structure and relies on messaging services for communication between components. They were designed to improve flexibility, usability, scalability, and interoperability. Software flexibility implies the ability for a program to change easily according to different users and different system requirements.

A client/server system is a distributed system in which,

- Some sites are client sites and others are server sites.
- All the data resides at the server sites.
- All applications execute at the client sites.

4. EXTERNAL INTERFACE REQUIREMENTS

4.1 USER INTERFACES

- Front-end software: HTML5, CSS3.
- Back-end software: JAVASCRIPT

4.2 HARDWARE INTERFACES

- Windows.
- A browser which supports CGI, HTML & JavaScript.

4.3 COMMUNICATION INTERFACES

Following are the Browsers supported for website;

Browser	Description
Google Chrome	Chrome version 4 to 60 partially supports HTML5 form features. Chrome version 61 to 70 supports HTML5 form features.
Mozilla Firefox	Firefox version 2 and 3.6 doesn't supports HTML5 form features property. Firefox version 4 to 63 partially supports HTML5 form features property.
Microsoft Edge	Microsoft Edge browser version 12 to 15 partially supports HTML5 form features property. Microsoft Edge browser version 16 to 18 supports HTML5 form features property
Internet Explorer	IE browser version 6 to 9 doesn't support. Ie version 10 and 11 partially supports HTML5 form features property.
Safari	Safari browser version 3.1 and 3.2 doesn't supports HTML5 form features. Safari browser version 4 and 12 supports partially. Safari browser version 10.1 to 12 supports HTML5 form features.

5. NONFUNCTIONAL REQUIREMENTS

5.1 SAFETY REQUIREMENTS

If there is extensive damage to a wide portion of the database due to catastrophic failure, such as a disk crash, the recovery method restores a past copy of the database that was backed up to archival storage (typically tape) and reconstructs a more current state by reapplying or redoing the operations of committed transactions from the backed-up log, up to the time of failure.

5.2 SECURITY REQUIREMENTS

Security systems need database storage just like many other web applications.

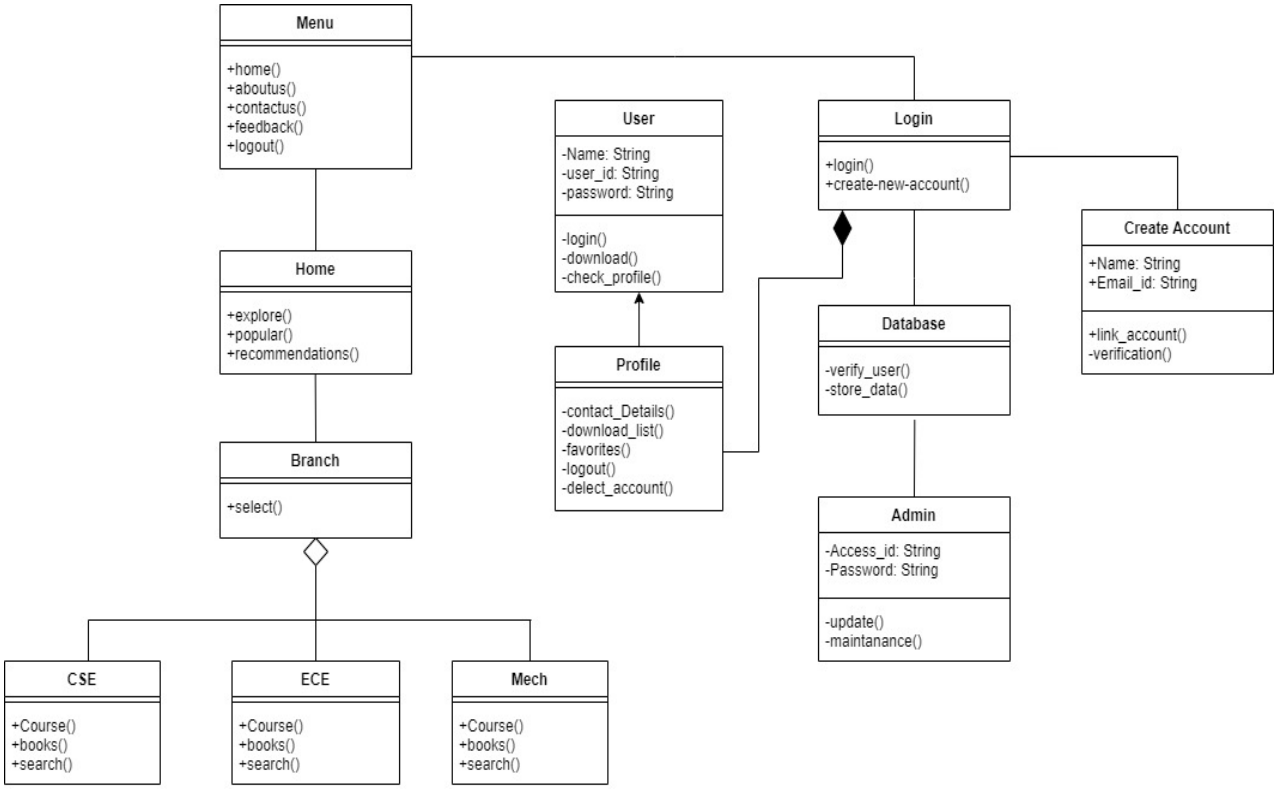
5.3 SOFTWARE QUALITY ATTRIBUTES

- **AVAILABILITY:** Links available in our websites are accessible to every user with free of cost and users with membership can download the books.
- **MAINTAINABILITY:** The administrators will maintain and update the website time to time.
- **USABILITY:** The site should satisfy a maximum number of user's needs.
- **PORTABILITY:** The site will be supported by wide number of browsers.

6. DESIGNING:

6.1 STRUCTURE DIAGRAM:

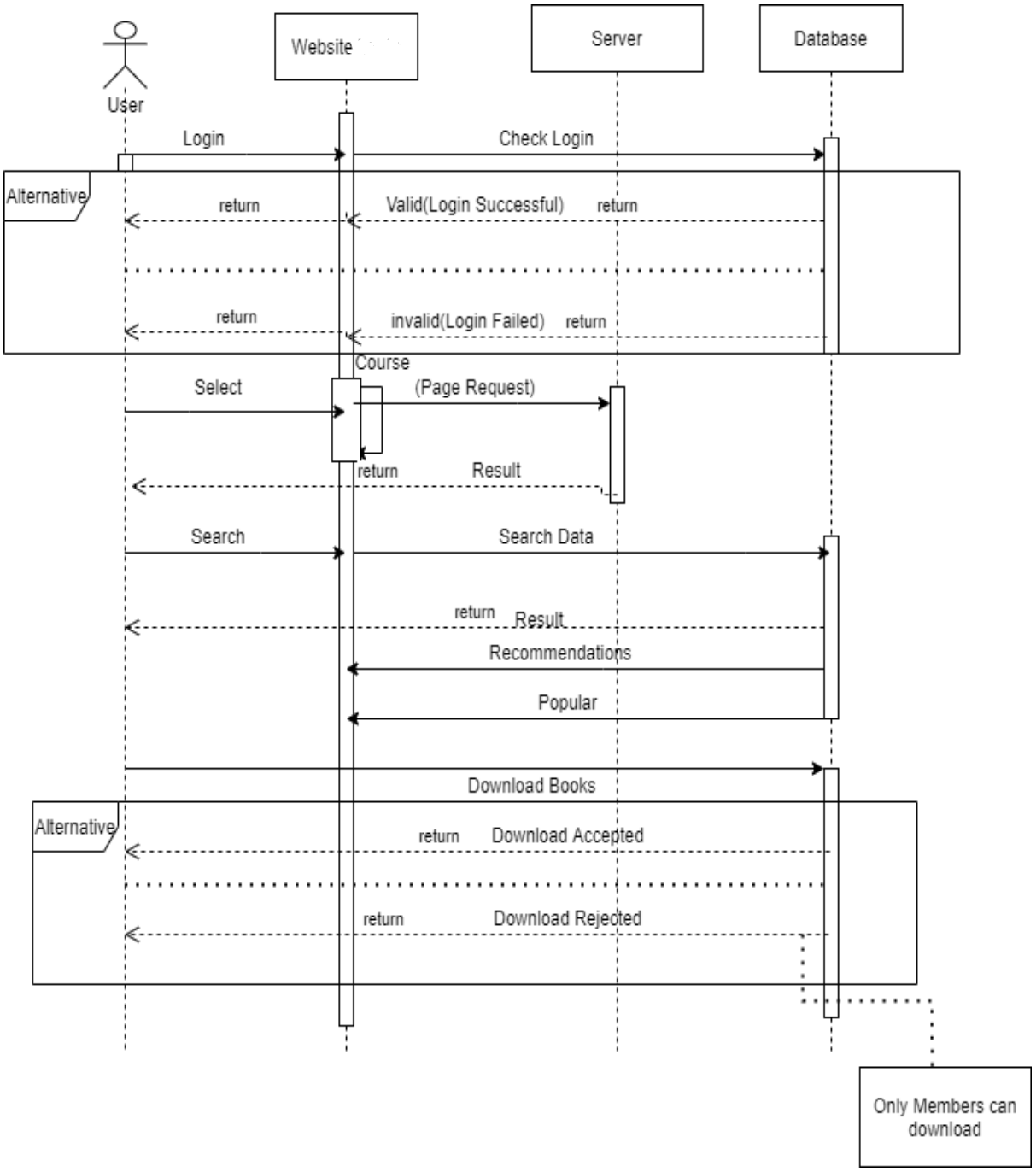
Class Diagram:



Class diagram has a model of Constructional view. Interactions between classes and objects. In this we will be able to know what are the things that possess in that all particular classes which are important in the system. It uses relationships between elements, interfaces and dependencies.

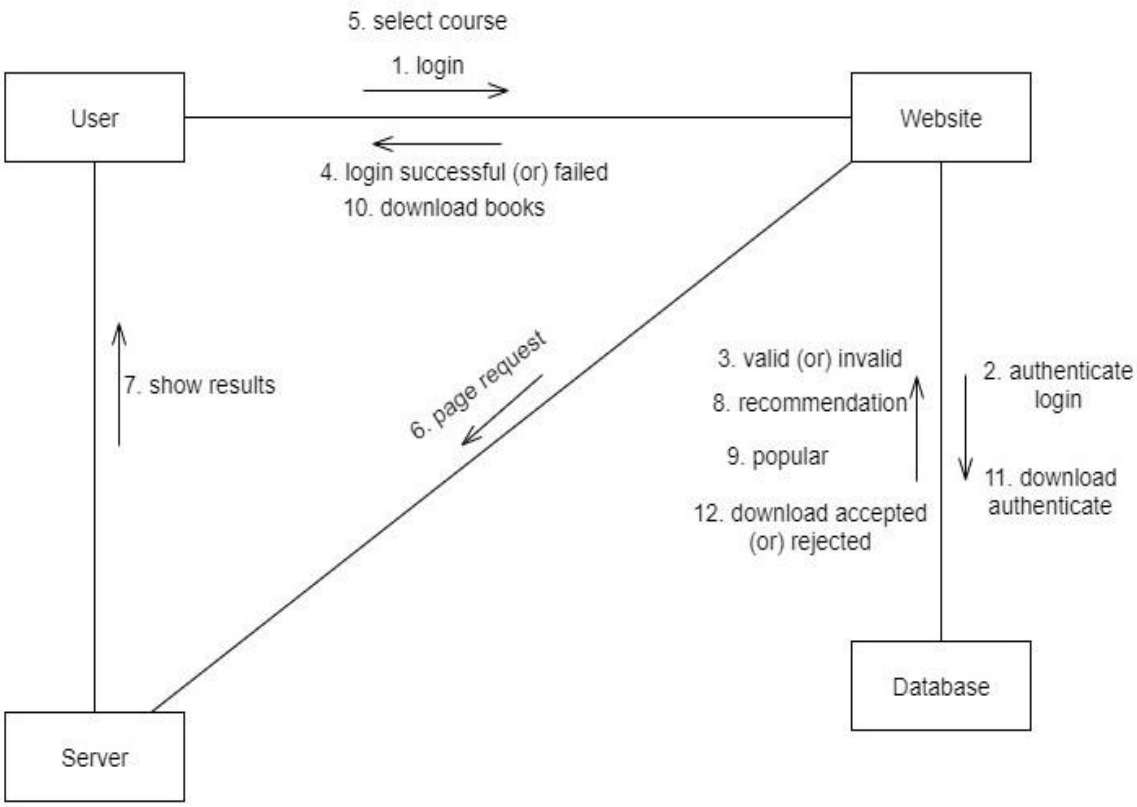
6.2 INTERACTION DIAGRAM

Sequence Diagram:



Sequence diagram has a model of behavioral view. Message passing sequences, interaction protocols. By the name we can say all the details in this will be in a sequential manner and in this we can see the user of our link system as the main actor and all the remaining are the lifelines which will also be there in the class diagram and the relationships between the actor.

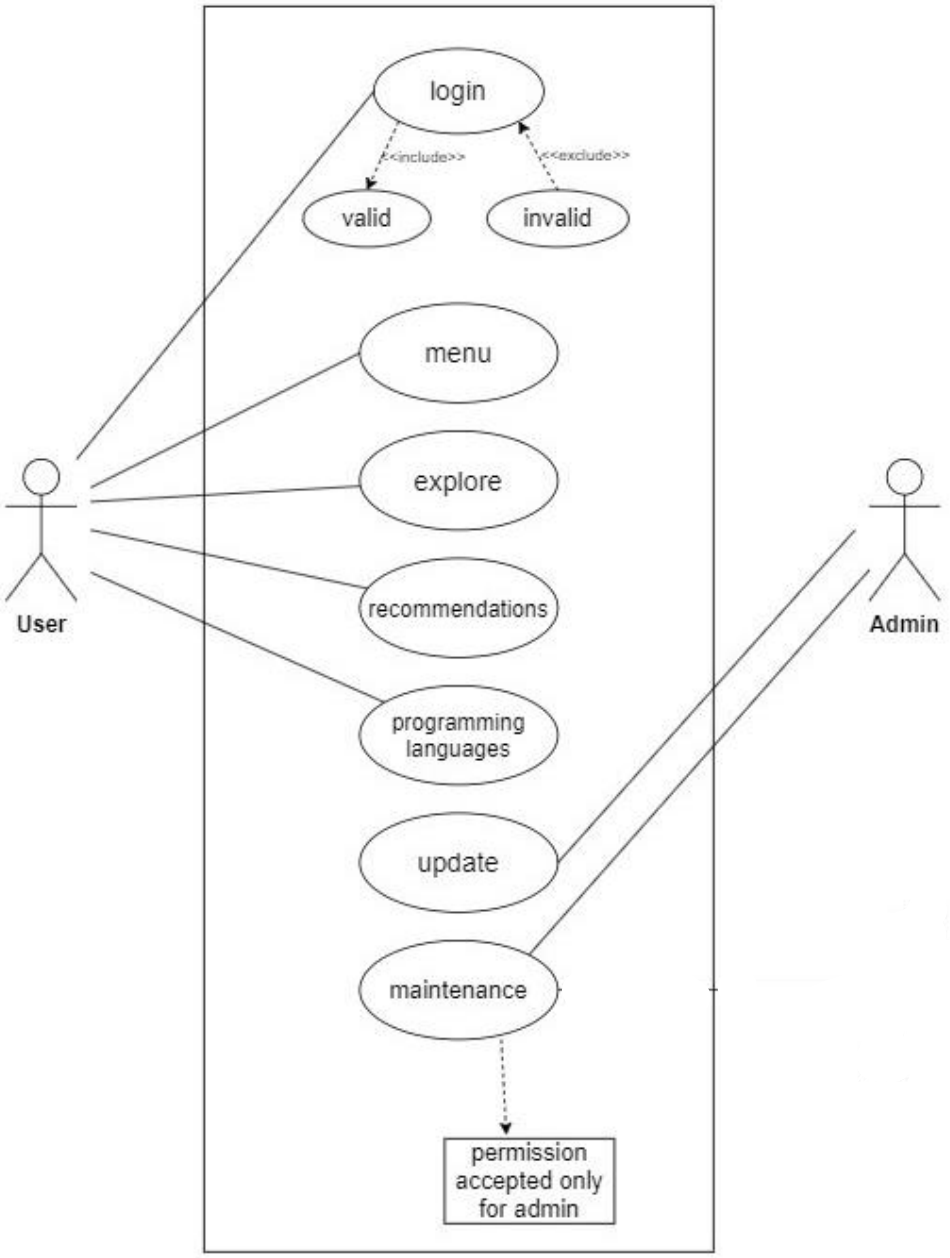
Communication Diagram:



A collaboration diagram, also known as a communication diagram, is an illustration of the relationships and interactions among software objects. We can just show all the relations between user, server, website, database in some steps and their inter links which connect them from one instance to another.

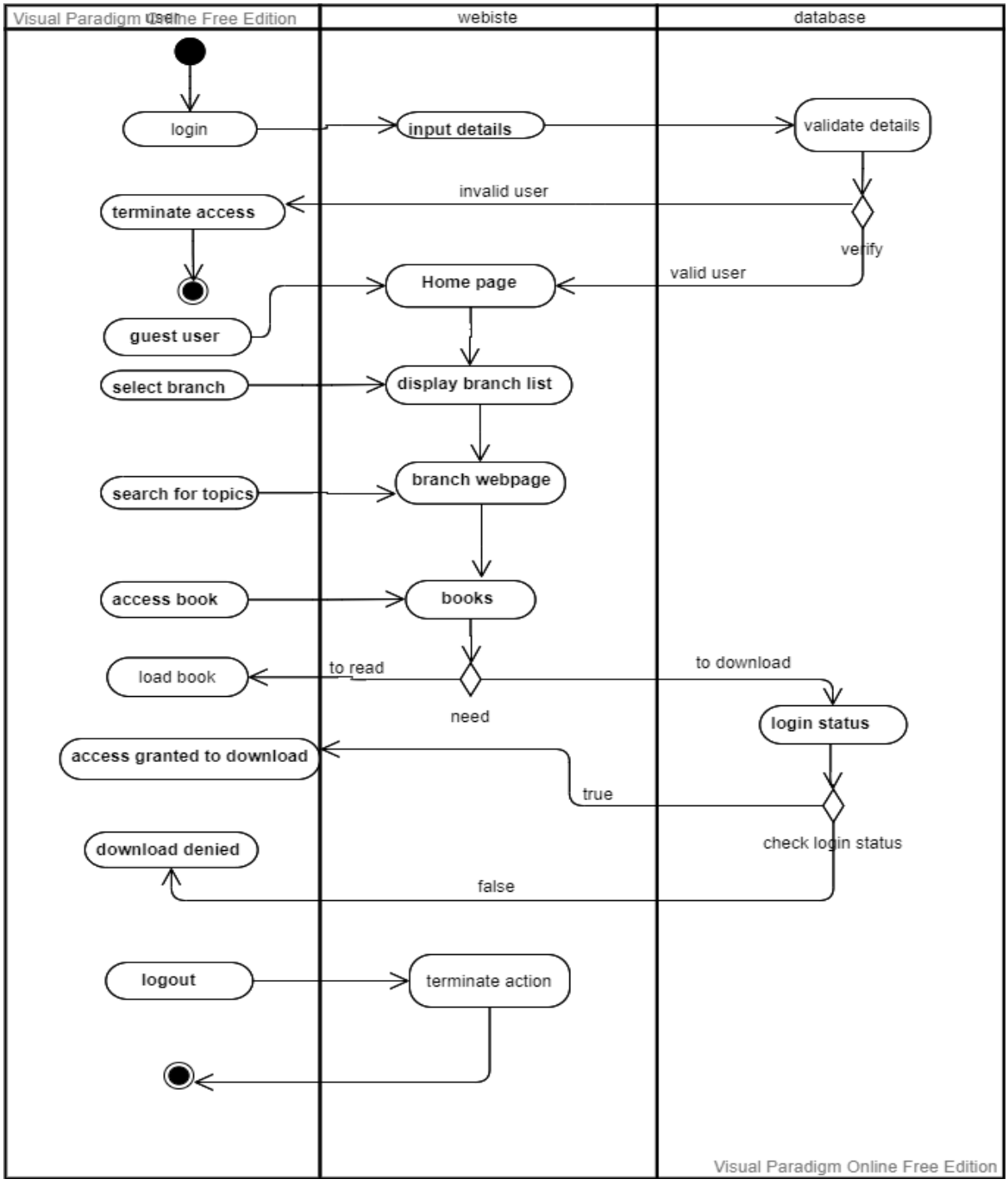
6.3 BEHAVIORAL DIAGRAM

Usecase Digram:



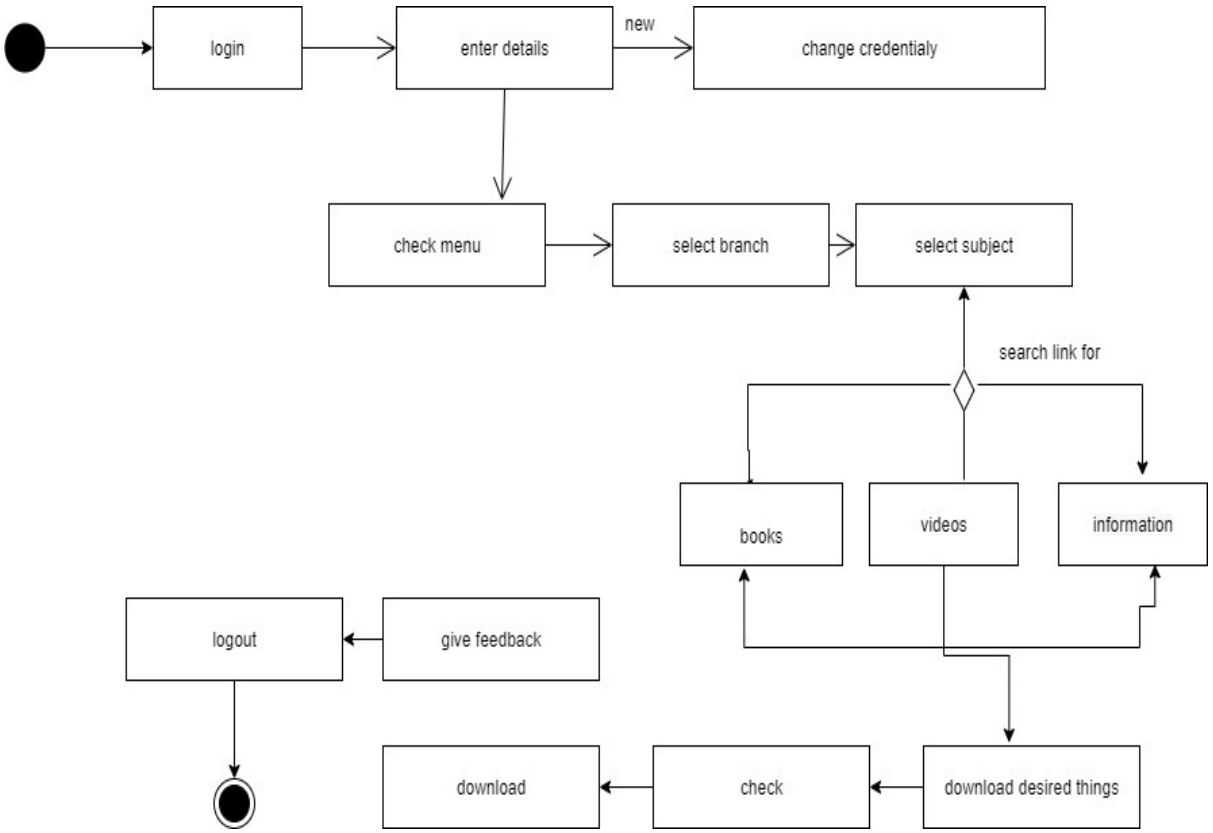
Use case diagram has a model of behavioral, Functional views. Interactions between a system and other actors. We have user, admin, database as 3 actors and we discuss what are the tasks that will be done by them in the whole software process.

Activity Diagram:



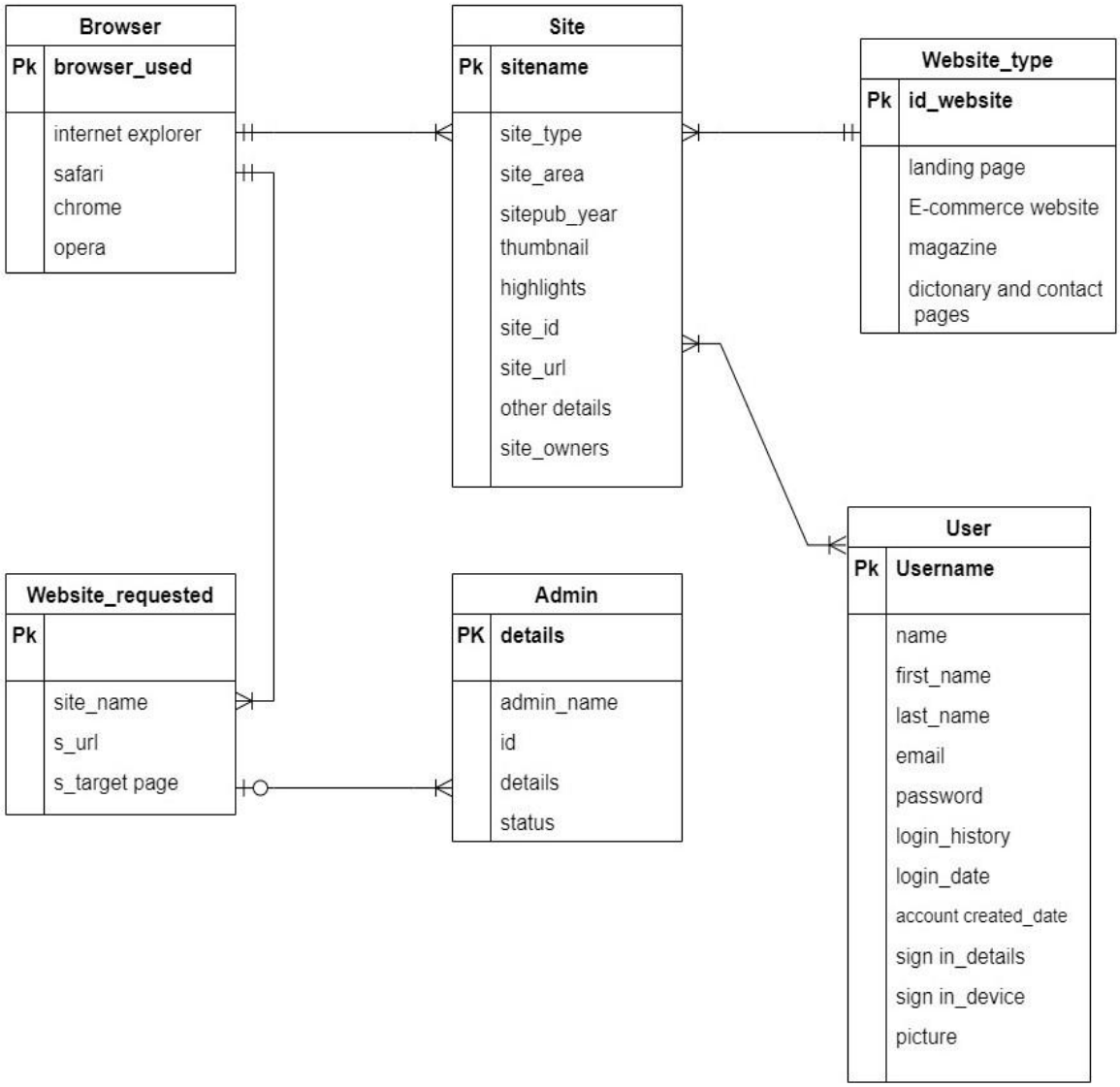
Activity diagram has a model of behavioral, Functional views. Synchronization and coordination of system activities. In this we have different types of branches for all the particular advance classes and what are the important requirements they have and how are they connected with the others also.

State Chart Diagram:



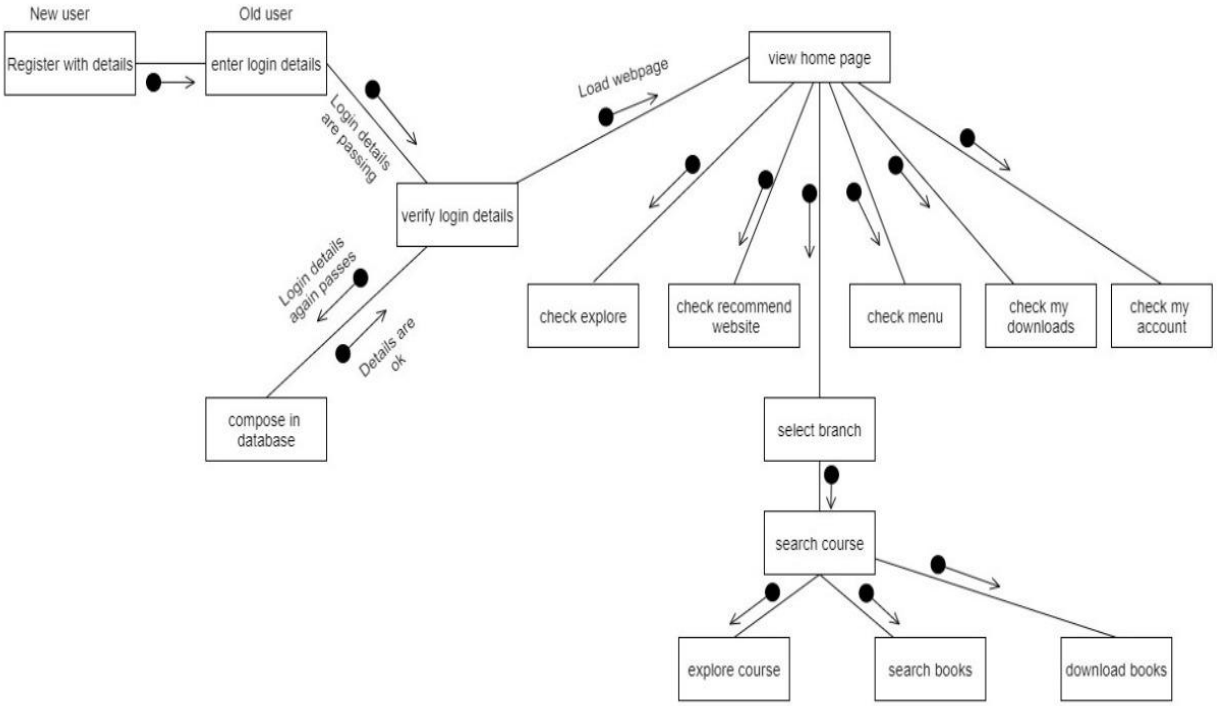
State chart has a model of behavioral view. System -wide state model, including parallelism, hierarchy and abstraction and it is state machine model of an entity. In this we can see what all are the things that will be done in a process in the order like a chart and also the associations will be there here like searching links for books, videos, websites and we can see what are the things to after log-in and how to check menu and details till log-out.

6.4 ENTITY REALATIONSHIP DIAGRAM



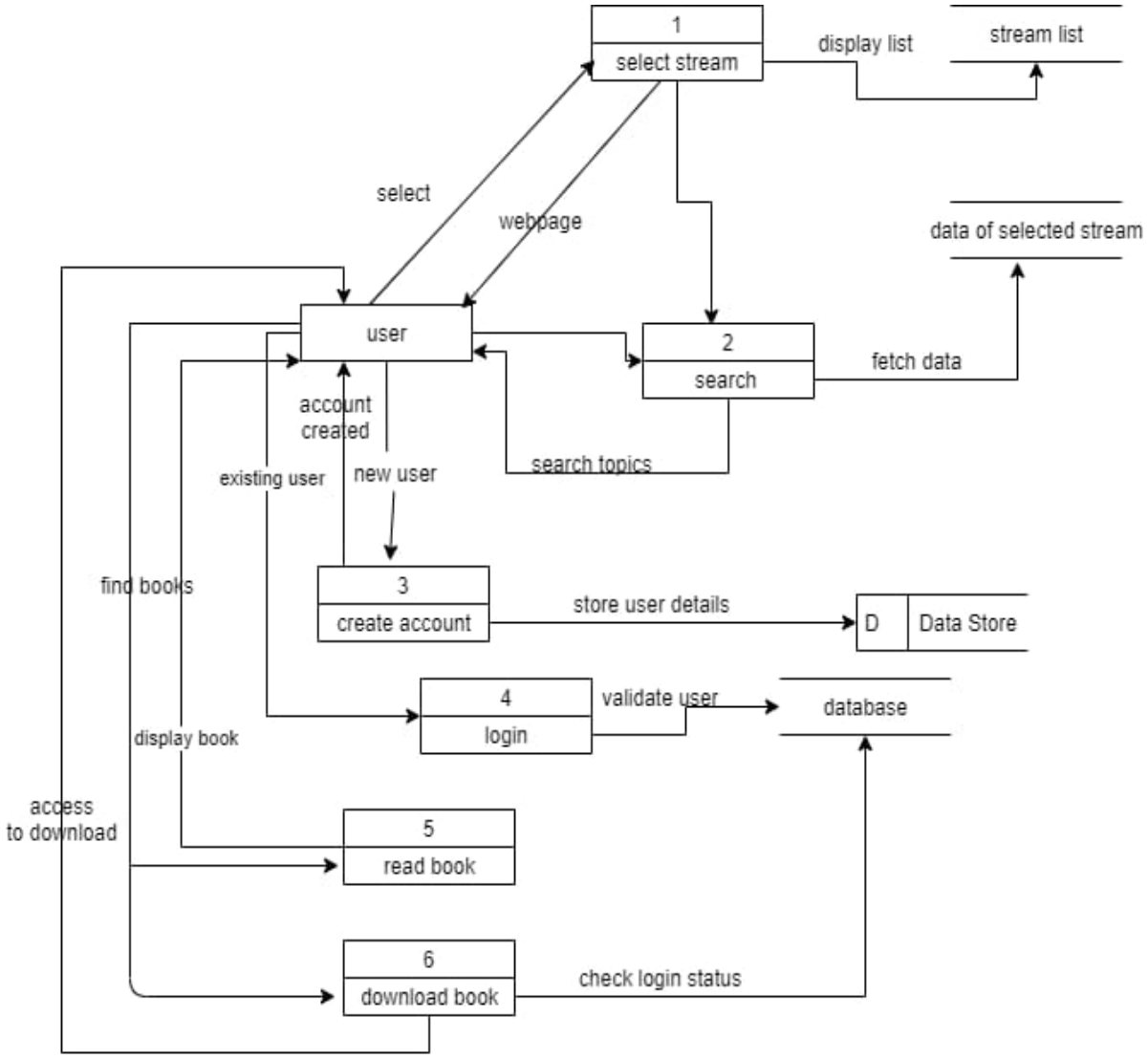
Entity – Relationship Diagram has Data Modelling. Static relationships between design entities. It somewhat resembles like class diagram and it shows the visual representation of data and how they are connected with the help of symbols and diagrams and we also write the attributes of each and every thing.

6.5 STRUCTURE CHART



Structure chart has a Jackson model with functional, data modelling, behavioral views. It is a diagram that shows the breakdown of a system to its lowest manageable levels. Which means we can see what are the sublevels under high managed thing like home page, it is divided into website links, menu, downloads, account and also the instances at some places to show its importance. Form of sequencing adopted. Invocation hierarchy between subprograms, decomposition into subprogram units.

6.6 DATA FLOW DIAGRAM



Data flow diagram has a model of Functional view. Information flow, dependency of operation on other operations, relation with data stores. A data flow diagram shows the way information flows through a process or system and with this we can also design top-down and bottom-up flows to describe the process and they are designed to show the relationship between the entities with the help of various symbols.