

PROJECT REPORT

ON
SKILL SWAP

*Submitted in Partial fulfilment of the Requirement for the
Award of the Degree*

BACHELOR OF COMPUTER APPLICATIONS
MAHATMA GANDHI UNIVERSITY, KOTTAYAM

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ARACKAPPADY, VENGOLA P.O,
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JAI BHARATH ARTS AND SCIENCE COLLEGE

(Affiliated to Mahatma Gandhi University, Kottayam)

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CERTIFICATE

This is to certify that the project work “**SKILL SWAP**” was done by NEETHU BAIJU with Reg No: 220021084773 under the guidance and supervision and was submitted in partial fulfilment of the requirements for the award of the degree of **BACHELOR OF COMPUTER APPLICATION** during the academic year 2022-25.

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Submitted for viva-voice held on

Internal Examiner

External Examiner

[Organization Certificate]

ABOUT ORGANIZATION

VISION AND MISSION

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DECLARATION

We hereby declare that the project report “**SKILL SWAP**” is the bonafide work done by me toward the partial fulfilment of the requirement for the award of the Degree of Bachelor of Computer Application of Mahatma Gandhi University, Kottayam, during the academic year 2022-25.

Date:

Place: Arackapady

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INTRODUCTION

INTRODUCTION

In today's fast-paced and constantly evolving world, the need for acquiring new skills and knowledge is more important than ever. People are always seeking ways to improve themselves, both professionally and personally. However, formal education or training programs can often be expensive or time-consuming. This is where **Skill Swap** comes into play.

A **Skill Swap** is a concept where individuals exchange their skills, expertise, or services with others, without the need for monetary transactions. In essence, it's a mutually beneficial arrangement where each participant offers something they are skilled in, in return for learning something new or gaining a skill they lack.

The rise of technology and digital platforms has made skill-swapping more accessible than ever. Through websites, social media, and networking events, people can find others with complementary skills to exchange and grow together. This fosters a sense of community, collaboration, and continuous learning.

Key Aspects of Skill Swap:

- **Collaboration:** It encourages individuals to work together and learn from each other's experiences and knowledge.
- **Reciprocity:** Unlike traditional transactions, skill swaps are based on mutual benefit, where both parties gain something of value.
- **Cost-effective Learning:** This method provides a cost-efficient way to acquire new skills without paying for expensive courses or training programs.
- **Community Building:** Skill swap initiatives often create a sense of belonging and strengthen community bonds

SYNOPSIS

Student Skill Exchange Overview

The Student Skill Exchange is an interactive platform built with React that enables students to share knowledge, learn new skills, and connect with peer mentors. This system facilitates peer-to-peer learning through structured skill sharing and mentorship programs.

Key Features

1. Skill Directory:

- Categorized skill listings
- Skill level indicators
- Search and filter options
- Popular skills tracking
- Skill requests

2. Mentorship Platform:

- Mentor profiles and ratings
- Session booking system
- Availability calendar
- Skill matching algorithm
- Request management

3. Session Management:

- Time slot booking
- Virtual meeting integration
- Session reminders
- Resource sharing
- Attendance tracking

4. Progress System:

- Learning path tracking
- Milestone achievements
- Progress visualization
- Skill assessments

- Learning history

5. Review Mechanism:

- Session feedback
- Rating system
- Testimonials
- Improvement suggestions
- Mentor evaluation

Implementation

Frontend:

- HTML CSS
- Calendar integration
- Form handling
- Real-time notifications
- Mobile-responsive design

Data Management:

- Session storage
- Booking history
- Progress tracking
- User preferences
- Activity logs
- sqlite

Future Enhancements:

- Group session support
- Resource library
- Achievement badges
- Skill certificates
- Learning analytics

ABOUT THE PROJECT

The **Skill Swap Initiative** aims to create a platform where individuals can exchange skills, knowledge, and expertise without the need for financial transactions. The core idea is to foster a community-driven environment where learning and teaching are reciprocal, making skill acquisition more accessible, affordable, and inclusive.

The primary goal of this project is to design and implement a system that facilitates skill swapping among individuals. By developing an easy-to-use platform, either through a website or mobile application, users can connect with others who have complementary skills, creating opportunities for personal and professional growth. This project also seeks to create awareness about the value of non-monetary exchanges in learning and building skills.

DEVELOPING TOOLS

VISUAL STUDIO

Microsoft Visual Studio is an integrated development environment (IDE) from Microsoft. It is used to develop computer programs, as well as websites, web apps, web services and mobile apps. Visual Studio uses Microsoft software development platforms such as Windows API, Windows Forms, Windows Presentation Foundation, Windows Store and Microsoft Silverlight. It can produce both native code and managed code. Visual Studio includes a code editor supporting IntelliSense (the code completion component) as well as code refactoring. The integrated debugger works both as a source-level debugger and a machine-level debugger. Other built-in tools include a code profiler, designer for building GUI applications, web designer, class designer, and database schema designer. It accepts plug-ins that expand the functionality at almost every level—including adding support for source control systems (like Subversion and Git) and adding new toolsets like editors and visual designers for domain-specific languages or toolsets for other aspects of the software development lifecycle (like the Azure DevOps client: Team Explorer). Visual Studio supports 36 different programming languages and allows the code editor and debugger to support (to varying degrees) nearly any programming language, provided a language-specific service exists. Built-in languages include C,[9] C++, C++/CLI, Visual Basic .NET, C#, F#[10] JavaScript, TypeScript, XML, XSLT, HTML, and CSS. Support for other languages such as Python,[11] Ruby, Node.js, and M among others is available via plugins. Java (and J#) were supported in the past. The most basic edition of Visual Studio, the Community edition, is available free of charge. The slogan for Visual Studio Community edition is "Free, fully-featured IDE for students, open-source and individual developers". As of 8 November 2021 the current production-ready Visual Studio version was 2022, with older versions such as 2013 and 2015 on Extended Support, and 2017 and 2019 on Mainstream Support.

SQLite

SQLite is a lightweight, serverless, and self-contained relational database management system (RDBMS) that is used in the **Skill Swap Initiative** for storing and managing data. Due to its simplicity, portability, and ease of use, SQLite is ideal for small to medium-sized applications, especially during the development phase or for applications that don't require the complexity of a traditional RDBMS like MySQL or PostgreSQL.

PYTHON

Python plays a vital role in the development and functionality of the **Skill Swap Initiative**. The project leverages Python's capabilities to manage backend operations, implement the skill-matching algorithm, facilitate real-time communication, and handle user interactions effectively. This section provides a comprehensive overview of how Python is utilized across different components of the project

HTML

HTML (Hypertext Markup Language) is the primary tool used for structuring content on the web. As a markup language, HTML organizes web page elements like headings, paragraphs, images, tables, links, and forms using a system of tags that browsers interpret to display structured content. HTML forms the backbone of every website, providing a hierarchical structure that ensures content is organized logically and consistently across different devices and screen sizes.

Each HTML element specifies a type of content or structure, like `<h1>` for main headings or `<p>` for paragraphs, allowing developers to create well-organized, readable layouts. While HTML itself handles structure, it works with CSS (for styling) and JavaScript (for interactivity) to form the modern web experience. HTML5, the latest version, also introduced new features like audio, video, and improved semantic elements, enhancing accessibility and multimedia integration. HTML remains a fundamental tool in web development for creating accessible, well-structured web pages.

JAVASCRIPT

JavaScript is a versatile, high-level programming language primarily used to add interactivity, dynamic content, and functionality to web pages. Originally developed for client-side applications, JavaScript enables interactive features like form validation, animations, sliders, and real-time updates without requiring a page reload. By directly interacting with the HTML Document Object Model (DOM), JavaScript can modify web page elements in response to user actions, providing a seamless, engaging experience.

Beyond the browser, JavaScript has expanded to server-side programming with environments like Node.js, allowing developers to create full-stack applications using one language. JavaScript's popularity has led to a wide ecosystem of libraries and frameworks, such as React, Angular, and Vue, which simplify complex development tasks. Asynchronous capabilities, like AJAX and the Fetch API, allow for smooth data fetching, enhancing web app performance. Together, these features make JavaScript an indispensable tool for modern web development, powering interactive and responsive websites and applications.

CSS

CSS (Cascading Style Sheets) is a stylesheet language used to control the visual presentation of HTML content. By defining styles like color, fonts, layout, and spacing, CSS enables developers to create attractive, consistent, and responsive designs across web pages. CSS3, the latest version, introduced features such as animations, transitions, and flexbox, enhancing the capabilities for modern web design.

Windows 11

Windows 11 is the latest operating system from Microsoft, offering a fresh, modern design with a more streamlined user interface compared to its predecessor, Windows 10. The Start menu is now centered on the taskbar, with simplified icons and rounded corners, giving the system a more refined and contemporary look. Windows 11 also includes new productivity features, such as Snap Layouts and Snap Groups, which help users manage open windows and multitask more efficiently. Additionally, virtual desktops allow for easier organization of workspaces, making it a more intuitive experience for both casual and power users. In terms of performance, Windows 11 is optimized for newer hardware, offering better speed and responsiveness. It takes advantage of technologies like TPM 2.0 and Secure Boot for enhanced security, ensuring that the system is protected against threats from the moment it starts up.

Windows 11 also includes updates to improve system stability and battery life, especially for laptops and portable devices. With improved integration of Microsoft Teams, it makes collaboration and communication easier, whether for work or personal use. Windows 11 also focuses heavily on gaming, with features like Auto HDR for improved visuals and Direct Storage for faster loading times in games. It supports the latest hardware, including high refresh rate monitors and advanced graphics cards, delivering an optimal gaming experience. Although Windows 11 introduces a more modern set of system requirements, including a compatible 64-bit processor and a secure boot system, it offers a compelling upgrade for users looking for a sleek, efficient, and feature-packed operating system

SYSTEM ANALYSIS

INTRODUCTION

System analysis is a step-by-step process used to identify and develop or acquire the software need to control the processing of specific application. System analysis is a continuing activity the stages of the systems development. System analysis is the process of gathering and interpreting facts, diagnosing problems and using the facts to improve the system. The outputs from the organization are traced through the various processing that the input phases through in the organization. This involves gathering information and using structured tools for analysis. A detailed study of this process must be made by various techniques like interviews; questionnaires etc.

It is necessary to have such a good system analysis and then by a project development cycle so that the project can be completed in a strictly manner and able to finish with the desired time. The analyst must be so careful about his responsibilities.

As the next step the current system analysis is done which identifies the real need of establishing our project in the environment, its opportunities and constraints etc... All of the steps discussed above are collectively known as the system analysis.

EXISTING SYSTEM

In the existing system most supermarkets store data as hardcopies.

The main limitation of this system is that it is a time consuming process. Transactions are recorded manually; resulting in the over use of manpower. There is no security and a great chance for loss of valuable data stored in paper files due to hazards like fire and improper storage. Error detection is very difficult. Data analysis is also difficult. So an alternative solution is needed.

LIMITATIONS OF EXISTING SYSTEM

At the present system isn't computerized in the existing system most of the functions have been done manually, that is having some drawbacks. The main problem of the existing system was recording the data manually and storing them manually is very difficult and there is a chance of loss of important data and error data can be entered as it is a manual process.

- Slow process of reservation
- Manpower will be wasted
- More time consuming
- Processing delays
- No facility for downloading of forms

FEASIBILITY ANALYSIS

A feasibility study is a test of a system proposal according to its workability, impact on the security of the organization, ability to meet user needs, and effective use of resources. The objective of a feasibility study is not to solve problem but to acquire a sense of its scope .During the study, the problem definition is crystallized and aspects of the problem to be included in the system are determined. The result of the feasibility study is a formal document detailing the nature and scope of the proposed system.

One of the important outcomes of the preliminary investigation is the determination of the feasibility of the system. These are different aspects of the feasibility study in the investigation phase. After reviewing the documents by selected personnel and investigating the various resources, the following are the three feasibilities. Three key combinations are involved in the feasibility study. They are:

- Economic feasibility
- Technical feasibility
- Operational feasibility

Economic Feasibility

Economic analysis is the most frequently used method for evaluating the effectiveness of a candidate system. More commonly known as cost/benefit analysis, the procedure is to Determine the benefit and saving that are expected from a candidate system and compare them with the term of time by automating the process of report generation. The system can be developed technically and if installed would still be good for the organization. The cost is found to be lesser compared to the benefits of the proposed system. The workload of a user will decrease to half of the current workload. Hence the proposed system is found to be economic feasible.

Technical Feasibility

Technical study is a study of hardware and software requirements. All the technical issues related to the proposed system is dealt during feasibility stage of preliminary investigation produced the following results.

Operational Feasibility

The developed system is completely driven and user friendly. Also the system is developed in Visual Basic, which is GUI. There is little need skill for new user to operate the software. Reports will be exactly as per the requirement. At the beginning of preliminary investigation work all the personnel approached responded positively this reduces the chance of resistance to the proposed system. Considering all the issue stated above makes the proposed system feasible.

PROPOSED SYSTEM

The primary objective of the proposed system design is to overcome the drawbacks of the existing system and reduce the manual work. We can achieve this objective by computerizing the whole activities that are carried out manually. Computerization will reduce manual work and produce desired information efficiently and quickly. Proposed system is a computerized system. It is very user friendly.

ADVANTAGES OF PROPOSED SYSTEM

In the computerized system following features are included,

- Easy to record
- Reduced manpower
- Highly secure in data storing
- Can avoid intermediate persons & institutions
- Less time consuming
- Faster access information
- Efficient Traceability

SYSTEM SPECIFICATION

SYSTEMCONFIGURATION

The system environment with regard to an application project is the environment which shaped the flesh and bones of the concepts and ideas to a real working model. It is so critical in selecting the various environments for the system since they play a vital role in determining the properties and behaviour of the system. The overall project development is associated with the system environment should be selected such that the project development become smooth and easy, so a selected study is conducted a proper system environment should be selected. The selection of hardware and software is very important in the existence and proper working of any software, when selecting hardware, the size and capacity requirements are also important. And the software must provide a good environment for the software to run, basically the system environment should be selected. Basically, the system configuration is divided into software configuration and hardware configuration.

HARDWARE CONFIGURATION

- Processor: Intel Pentium
- RAM: 4GB
- Hard Disk: 1000 GB

SOFTWARE CONFIGURATION

- Operating System: windows 10
- Language: Python,Android
- Front End: Python
- Back End: MySQL

DATA FLOW DIAGRAM

Data Flow Diagram (DFD)

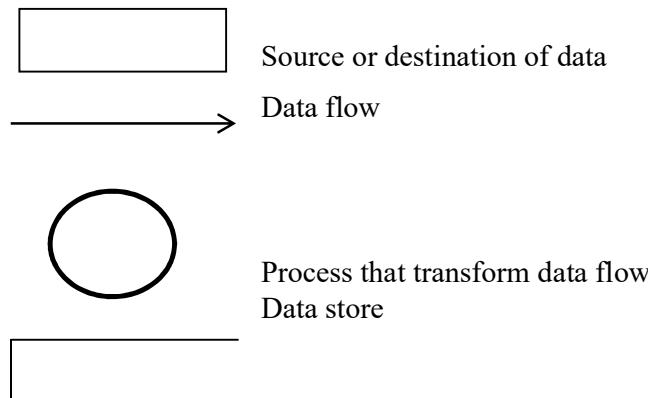
To start the system design, something analogue to the architecture blue print as a starting point to design is required. It is a way to focus on functions rather than physical implementation. One such tool is a DFD.

Structured analysis is a set of techniques and graphical tools that help the analyst to develop a new kind of system specification that are easily understandable to the user. DFD's show the major decompositions of the system functions and their interfaces. The DFD is graphic and presents a picture of what is being specified and is conceptually easy to understand presentation of the application.

One important feature of DFD's is that it is logical rather than physical. The elements of the system do not depend on vendor or hardware. They specify in precise, concise manner the working of the system and how it hangs together.

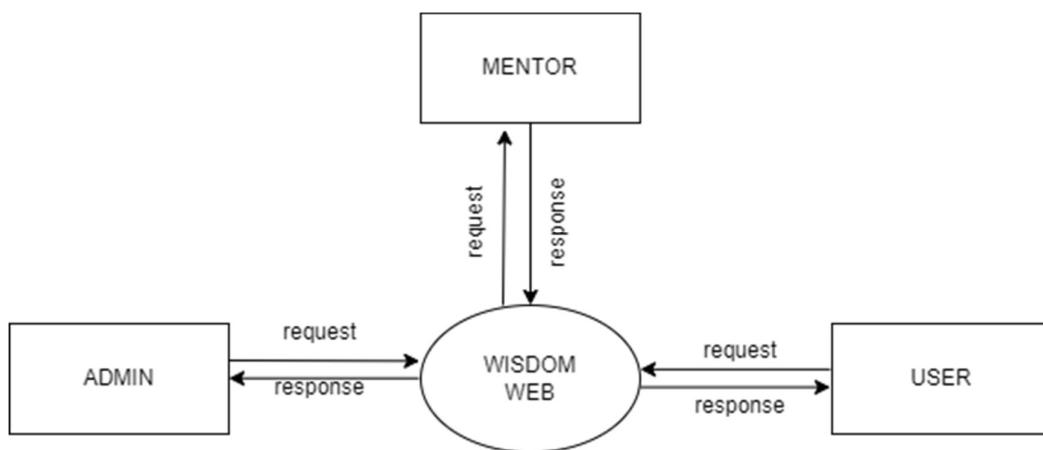
DFD is the graphic representation of data movement process, and files used in support of an information system. There are several rules of thumb used in drawing DFDs.

- Process should be named and numbered for easy references.
- The direction of flow is from top to bottom and from left to right.
- When a process is imported in the lower levels details, they must be numbered.
- Process and data flow names have the first letter of each word must be a capital letter. The symbol used in DFD are shown below



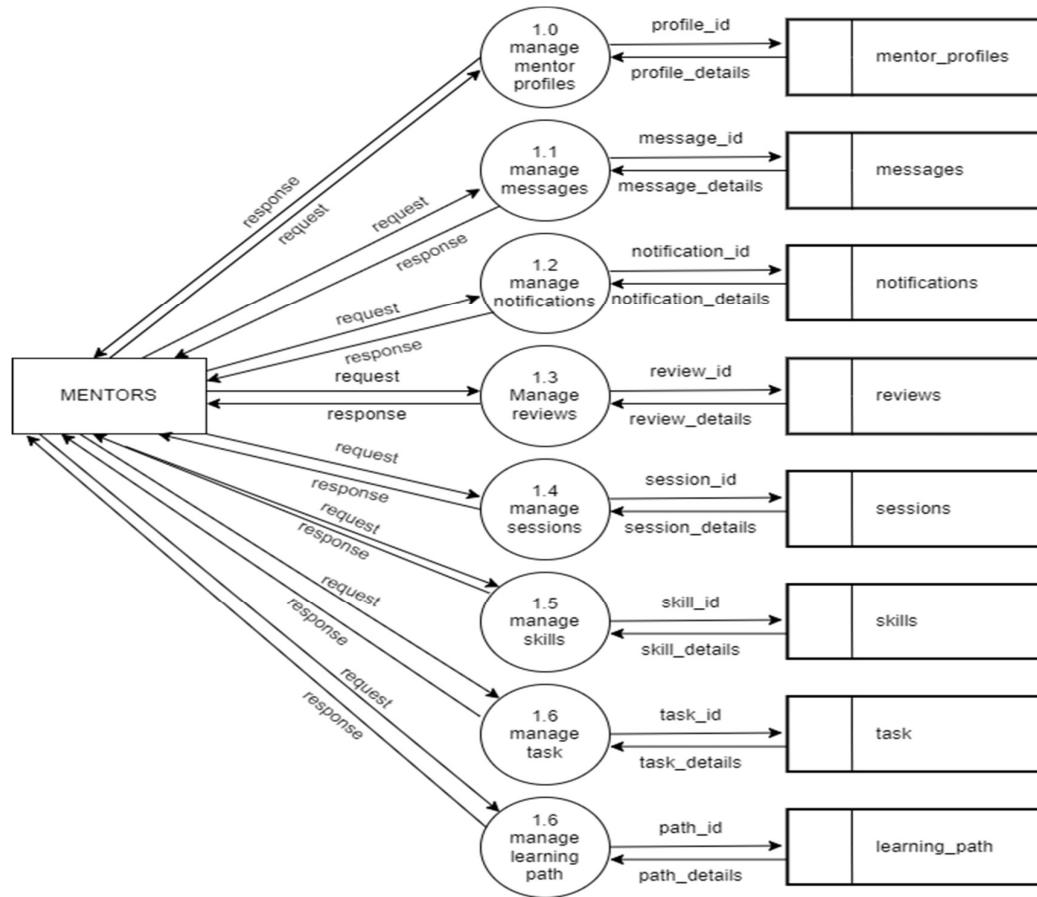
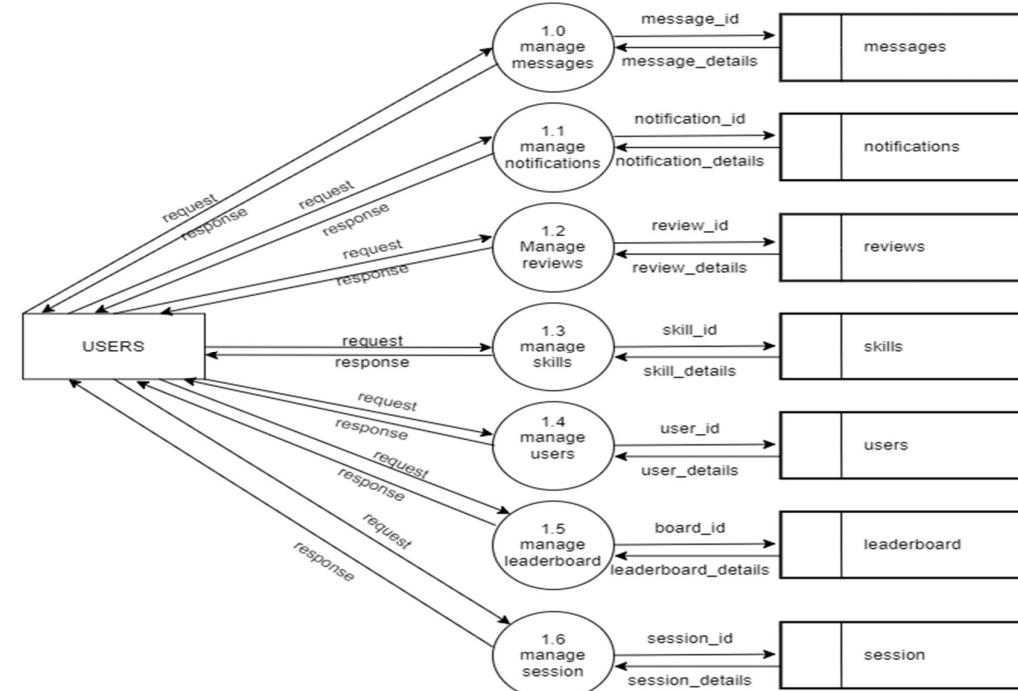
DATA FLOW DIAGRAM

Level 0 : Context Diagram



Level 1 : Admin



Level 1: Mentors**Level 1: users**

SYSTEM DESIGN

INTRODUCTION TO SYSTEM DESIGN

Design is the first step into the development phase for engineered product or system. Design is a creative process. A good design is the key to effective system. The term “design” is defined as “the process of applying various techniques and principles for the purpose of defining a process or a system in sufficient detail to permit its physical realization”. It may be defined as a process of applying various techniques and principles for the purpose of defining a device, a process or a system in sufficient detail to permit its physical realization. Software design sits at the technical kernel of the software engineering process and is applied regardless of the development paradigm that is used.

The system design develops the architectural detail required to build a system or product. As in the case of any systematic approach, this software too has undergone the best possible design phase fine tuning all efficiency, performance and accuracy levels. The design phase is a transition from a user oriented document to a document to the programmers or database personal. System design goes through two phases of development: Logical and Physical Design

LOGICAL DESIGN

The logical flow of a system and define the boundaries of a system. It include the following steps:

Reviews the current physical system- its data flow, file content, volumes, frequencies etc. Prepare output specification- that is, determines the format, content and frequency of report.

Prepares input specifications- format, content and most of the input functions.

Prepare edits, security and control specifications.

Specifies the implementation plan.

Prepare a logical design walk through of the information flow, output, input, controls and implementation plan.

Reviews benefits, costs, targets and system constraints.

PHYSICAL DESIGN

Physical system produces the working system by define specifications that tell the programmers exactly what the candidate system must do. It includes the following steps.

Design the physical system.

Specify input and output media.

Design the database and specify backup procedures.

Design physical information flow through the system and a physical design Walk through.

Plan system implementation.

Prepare a conversion schedule and target data.

Determine training procedures, courses and timetable.

Devise a test and implementation plan and specify any new hardware/software.

Update benefits, costs, conversion date and system constraints.

Design/specification activities:

Concept formulation.

Problem understanding

High level requirements proposals.

Feasibility study.

Requirements engineering.

Architectural design.

MODULE DESIGN**ADMIN**

The Administrator logs in using the admin login. In this module two operations are done.

During login the Username and password is verified with that in the database.

INPUT DESIGN

The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. The input is designed in such a way so that it provides security and ease of use with retaining the privacy.

Input design considered the following steps:

What data should be given as input?

How the data should be arranged or coded?

The dialog to guide the operating personal in providing input.

Methods for preparing input validations and steps to follow when error occur.

OBJECTIVES

Input design is the process of converting a user-oriented description of the input into a computer-based system. This design is important to avoid errors in the data input process and show the correct direction to the management for getting correct information from the computerized system.

When the data is entered it will check for its validity. Data can be entered with the help of screens. Appropriate messages are provided as when needed so that the user will not be in a maize of instant. Thus the objectives of input design is to create an input layout that is easy to follow.

OUTPUT DESIGN

A quality output is one, which meets the requirements of the end user and presents the information clearly. In output design it is determined how the information is to be displaced for immediate need also the hard copy output. It is the most important and direct sources information to the user. Efficient and intelligent output improves the system's relationship to help user decision-making.

Design computer output should proceed in an organized, well thought out manner, the right output must be developed while ensuring that each output elements is designed so that people will find the system can use easily and effectively.

When analysis design computer output, they should:

Identify the specific output that is needed to meet the requirements.

Select methods for presenting information.

Create document, report, or other formats that contain information produced by the system.

DATABASE DESIGN

A database design is an organized mechanism that has the capability of storing information through which a user can retrieve stored information in an effective and efficient manner. The data is the purpose of any database and must be protected. The database design is a two level process. In the first step, user requirements are gathered together and a database is designed which will meet these requirements as clearly as possible. This step is called Information Level Design and it is taken independent of any individual DBMS.

In the second step, this information level design is transferred into a design for the specific DBMS that will be used to implement the system in question. This step is called Physical Level Design, concerned with the characteristics of the specific DBMS that will be used. A database design runs parallel with the system design. The organization of the data in the database is aimed to achieve the following two major objectives.

Data Independence

Normalization is the process of decomposing the attributes in an application, which results in a set of tables with very simple structure. The purpose of normalization is to make tables as simple as possible. Normalization is carried out in this system for the following reason.

To structure the data so that there is no repetition of data, this helps in saving.

To permit simple retrieval pf data in response to query and report request.

To simplify the maintenance of data through updates, insertions, deletions.

To reduce the need to restructure or reorganize data which new application requirements arise.

RELATIONAL DATABASE MANAGEMENT SYSTEM (RDBMS)

A relational model represents the database as a collection of relations. Each relation resembles a table of values or file of records. In formal relational model terminology, a row is called a tuple, a column header is called an attribute and the table is called a relation. A relational database consist of a collection of tables, each of which is assigned RELATIONS,

DOMAINS&ATTRIBUTES:

RELATIONSHIPS

Table relationships are established using key. The two main key of prime importance are primary key & Foreign key. Entity Integrity and Referential Integrity Relationships can be established with these keys. Entity Integrity enforces that no Primary key can have null values.

Referential Integrity Foreign key value, there must exist a matching Primary key value in the same domain. Other key are Super key and Candidate Keys. Relationships have been set between every table in the database. This ensures both Referential and Entity Relationship Integrity.

NORMALIZATION

As the name implies, it denoted putting things in the normal form. The application developer via normalization tries to achieve a sensible organization of data into proper tables and columns and where names can be easily correlated to the data by the user. Normalization eliminates repeating groups at data and thereby avoids data redundancy which proves to be a great burden on the computer resources.

These includes:

- Normalize the data
- Choose proper names for the tables and columns.
- Choose the proper names for the data.

First Normal Form:

The First Normal Form states that the domain of an attribute must include only atomic values and that the value of any attribute in a tuple must be a single values from the domain of that attribute. In other words INF disallows “relations within relations: or “relations as attribute values with tuples”. The only attribute values permitted by INF are single atomic or indivisible value.

The first step is to put the data into First Normal Form. This can be done by moving data into separate tables where the data is of similar type in each table. Each table is given a Primary Key or Foreign Key as per requirements of the project . In this we form new relations for each non atomic attribute or nested relation. This eliminates repeating groups of data. A relation is said to be in first normal form if only if it satisfies the constraints that contains the primary key only.

Second Normal Form:

According to Second Normal Form, For relations where primary key contains multiple attributes, no non key attributes should be functionally dependent on a part of the primary key.

In this we decompose and setup a new relation for each partial key with its dependent attributes. Make sure to keep a relation with the original primary key and any attributes that are fully functionally dependent on it. This step helps in taking out data that is only dependent on a part of the key.

A relation is said to be in second normal form if and only if it satisfies all the first normal form conditions for the primary key and every non-primary key attributes of the relation is fully dependent on its primary key alone.

Third Normal Form:

According to Third Normal Form, Relation should not have a non-key attribute functionally determined by another non-key attribute or by a set of non-key attribute. This is, there should be no transitive dependency on the primary key. In this we decompose and set up relation that include the non key attributes that functionally determines other non-key attributes. This step is taken to get rid of anything that does not depend entirely on the primary key.

A relation is said to be in third normal form if only if it is in second normal form and more over the non-key attributes of the relation should not be depend on other non-key attribute.

TABLE DESIGN**Users**

Sl.no	Name	Data Type	Constraint	Description
1	Id	Int	Primary key	Stores login id
2	Username	Varchar	Not null	Stores username
3	Email	Varchar	Not null	Stores email
4	Password_hash	varchar	Not null	Stores hashed password
5	Skills	Varchar	Not null	Stores skills
6	Availability	Varchar	Not null	Stores user availability
7	Profile_pic	Varchar	Not null	Stores profile picture
8	Role	Varchar	Not null	Role of user
8	Points	Integer	Not null	Points gained
9	Interests	Varchar	Not null	Interests
10	Education	Varchar	Not null	Education
11	Year	Varchar	Not null	Year of users

Task

Sl.no	Name	Data Type	Constraint	Description
1	Id	Int	Primary key	Stores login id
2	Title	Varchar	Not null	Title of task
3	Description	Varchar	Not null	Description of task
4	Mentor_id	Integer	Foreign key	Mentor id
5	Mentee_id	Integer	Foreign key	Mentee id
6	Due_date	Datetime	Not null	Date due to task
7	Status	Varchar	Not null	Status of task

Skill Assesment

Sl.no	Name	Data Type	Constraint	Description
1	Id	Int	Primary key	Stores login id
2	Title	Varchar	Not null	Title of skill
3	Skill_category	Varchar	Not null	Skill category
4	Questions	Varchar	Not null	questions

review

Sl.no	Name	Data Type	Constraint	Description
1	Id	Int	Primary key	Stores login id
2	Reviewer_id	Int	Foreign key	Stores reviewer id
3	Reviewee_id	Int	Foreign key	Stores reviewee id
4	Session_id	Int	Foreign key	Stores session id
5	Rating	Int	Not null	Rating of review
6	Comment	Varchar	Not null	Comment in the review

notification

Sl.no	Name	Data Type	Constraint	Description
1	Id	Int	Primary key	Stores login id
2	User_id	Int	Foreign key	Stores user id
3	Type	Varchar	Not null	Notification type
4	Content	Varchar	Not null	Content of notification
5	Link	Varchar	Not null	Link in the notifications

message

Sl.no	Name	Data Type	Constraint	Description
1	Id	Int	Primary key	Stores login id
2	Sender_id	Int	Foreign key	Stores sender id
3	Recipient_id	Int	Foreign key	Stores recipient id
4	Body	Varchar	Not null	Stores message body

Learning_path

Sl.no	Name	Data Type	Constraint	Description
1	Id	Int	Primary key	Stores login id
2	Title	Varchar	Not null	Stores title
3	Description	Varchar	Not null	Stores description
4	Creator_id	Integer	Foreign key	Stores creator id
5	Skills	Varchar	Not null	Stores skill

Session

Sl.no	Name	Data Type	Constraint	Description
1	Id	Int	Primary key	Stores login id
2	Mentor_id	Int	Foreign key	Stores mentor id
3	Student_id	Int	Foreign key	Stores student id
4	Skill_id	Int	Foreign key	Stores skill id
5	Title	Varchar	Not null	Stores title
6	Description	Varchar	Not null	Stores description
7	Start_time	Timestamp	Not null	Stores start time
8	Duration	Int	Not null	Stores total duration
9	Status	Varchar	Not null	Stores status of sessions

resource

Sl.no	Name	Data Type	Constraint	Description
1	Id	Int	Primary key	Stores login id
2	Library_id	Int	Foreign key	Stores library id
3	Title	Varchar	Not null	Stores title
4	Description	varchar	Not null	Stores description
5	Title	Varchar	Not null	Stores title
6	Description	Varchar	Not null	Stores description
7	Resource_type	Varchar	Not null	Stores resource type
8	Content	Varchar	Not null	Stores content
9	File_path	Varchar	Not null	Stores file path
10	Creator_id	Int	Foreign key	Stores creator id

Leaderboard

Sl.no	Name	Data Type	Constraint	Description
1	Id	Int	Primary key	Stores login id
2	Name	Varchar	Not null	Stores name
3	Description	Varchar	Not null	Stores description
4	Leaderboard_type	varchar	Not null	Stores leaderboard_type
5	Metric	Varchar	Not null	Stores metric
6	Time_period	Varchar	Not null	Stores time period

CODING

Run.py

```
from app import create_app, socketio
from app.models import User, Session, Message, Review
from app import db

app = create_app()

@app.shell_context_processor
def make_shell_context():
    return {
        'db': db,
        'User': User,
        'Session': Session,
        'Message': Message,
        'Review': Review
    }

if __name__ == '__main__':
    socketio.run(app, debug=True)
```

config.py

```
import os
from dotenv import load_dotenv
from datetime import timedelta

basedir = os.path.abspath(os.path.dirname(__file__))
load_dotenv(os.path.join(basedir, '.env'))

class Config:
    SECRET_KEY = os.environ.get('SECRET_KEY') or 'you-will-never-guess'
    SQLALCHEMY_DATABASE_URI = os.environ.get('DATABASE_URL') or \
        'sqlite:///+' + os.path.join(basedir, 'app.db')
    SQLALCHEMY_TRACK_MODIFICATIONS = False

    # Upload settings
    UPLOAD_FOLDER = os.path.join(basedir, 'app/static/uploads')
    MAX_CONTENT_LENGTH = 16 * 1024 * 1024 # 16MB max file size

    # WebSocket settings
    SOCKET_IO_PING_TIMEOUT = 10
    SOCKET_IO_PING_INTERVAL = 25

    # Static file cache settings
    SEND_FILE_MAX_AGE_DEFAULT = int(timedelta(days=365).total_seconds())
    STATIC_CACHE_CONTROL = True
```

Models.py

```
from datetime import datetime, timedelta
from app import db, login
from werkzeug.security import generate_password_hash, check_password_hash
from flask_login import UserMixin
import json
import pytz
from sqlalchemy.ext.mutable import MutableDict, MutableList

@login.user_loader
def load_user(id):
    return User.query.get(int(id))

class User(UserMixin, db.Model):
    id = db.Column(db.Integer, primary_key=True)
    username = db.Column(db.String(64), index=True, unique=True)
    email = db.Column(db.String(120), index=True, unique=True)
    password_hash = db.Column(db.String(128))
    role = db.Column(db.String(20), default='mentee') # admin, mentor, mentee
    is_verified = db.Column(db.Boolean, default=False)
    verification_badges = db.Column(db.JSON) # Store badge information
    points = db.Column(db.Integer, default=0) # For gamification
    achievements = db.Column(db.JSON) # Store achievement badges
    # Profile Information
    bio = db.Column(db.Text)
    skills = db.Column(db.String(200))
    interests = db.Column(db.String(200))
    education = db.Column(db.JSON) # Store education history
    experience = db.Column(db.JSON) # Store work experience
    department = db.Column(db.String(100))
    year = db.Column(db.String(20))
    availability = db.Column(db.Text)
    profile_pic = db.Column(db.String(100))
    calendar_connected = db.Column(db.Boolean, default=False)
```

```

github_username = db.Column(db.String(100))
drive_connected = db.Column(db.Boolean, default=False)
timezone = db.Column(db.String(50), default='UTC')
last_seen = db.Column(db.DateTime, default=datetime.utcnow)

# Relationships
mentor_sessions = db.relationship('Session', foreign_keys='Session.mentor_id',
backref='mentor', lazy='dynamic')
mentee_sessions = db.relationship('Session', foreign_keys='Session.mentee_id',
backref='mentee', lazy='dynamic')
messages_sent = db.relationship('Message', foreign_keys='Message.sender_id',
backref='author', lazy='dynamic')
messages_received = db.relationship('Message', foreign_keys='Message.recipient_id',
backref='recipient', lazy='dynamic')
reviews_given = db.relationship('Review', foreign_keys='Review.reviewer_id',
backref='reviewer', lazy='dynamic')
reviews_received = db.relationship('Review', foreign_keys='Review.reviewee_id',
backref='reviewee', lazy='dynamic')

# Task relationships
tasks_created = db.relationship('Task', foreign_keys='Task.mentor_id',
backref='mentor', lazy='dynamic')
tasks_assigned = db.relationship('Task', foreign_keys='Task.mentee_id',
backref='mentee', lazy='dynamic')

# Learning path relationships
learning_paths_created = db.relationship('LearningPath', backref='creator',
lazy='dynamic')
assessment_results = db.relationship('AssessmentResult', backref='user',
lazy='dynamic')

@property
def is_mentor(self):
    return self.role == 'mentor'

```

```
@property
def is_mentee(self):
    return self.role == 'mentee'

@property
def is_admin(self):
    return self.role == 'admin'

# Forum relationships
forum_threads = db.relationship('ForumThread', backref='author', lazy='dynamic')
forum_replies = db.relationship('ForumReply', backref='author', lazy='dynamic')

# Notification relationship
notifications = db.relationship('Notification', backref='user', lazy='dynamic')

# Announcement relationship
announcements = db.relationship('Announcement', backref='author', lazy='dynamic')

def set_password(self, password):
    self.password_hash = generate_password_hash(password)

def check_password(self, password):
    return check_password_hash(self.password_hash, password)

class Session(db.Model):
    id = db.Column(db.Integer, primary_key=True)
    mentor_id = db.Column(db.Integer, db.ForeignKey('user.id'))
    mentee_id = db.Column(db.Integer, db.ForeignKey('user.id'))
    topic = db.Column(db.String(140))
    description = db.Column(db.Text)
    scheduled_time = db.Column(db.DateTime)
    duration = db.Column(db.Integer) # in minutes
    status = db.Column(db.String(20)) # scheduled, completed, cancelled
```

```

meeting_link = db.Column(db.String(200))
reviews = db.relationship('Review', backref='session', lazy='dynamic')

class Message(db.Model):
    id = db.Column(db.Integer, primary_key=True)
    sender_id = db.Column(db.Integer, db.ForeignKey('user.id'))
    recipient_id = db.Column(db.Integer, db.ForeignKey('user.id'))
    body = db.Column(db.Text)
    timestamp = db.Column(db.DateTime, index=True, default=datetime.utcnow)

class Review(db.Model):
    id = db.Column(db.Integer, primary_key=True)
    reviewer_id = db.Column(db.Integer, db.ForeignKey('user.id'))
    reviewee_id = db.Column(db.Integer, db.ForeignKey('user.id'))
    session_id = db.Column(db.Integer, db.ForeignKey('session.id'))
    rating = db.Column(db.Integer) # 1-5
    comment = db.Column(db.Text)
    timestamp = db.Column(db.DateTime, default=datetime.utcnow)

class Task(db.Model):
    id = db.Column(db.Integer, primary_key=True)
    title = db.Column(db.String(200))
    description = db.Column(db.Text)
    mentor_id = db.Column(db.Integer, db.ForeignKey('user.id'))
    mentee_id = db.Column(db.Integer, db.ForeignKey('user.id'))
    milestone_id = db.Column(db.Integer, db.ForeignKey('progress_milestone.id'),
                           nullable=True)
    due_date = db.Column(db.DateTime)
    status = db.Column(db.String(20)) # assigned, in_progress, completed
    attachments = db.Column(db.JSON) # Store file paths
    created_at = db.Column(db.DateTime, default=datetime.utcnow)

class LearningPath(db.Model):
    id = db.Column(db.Integer, primary_key=True)

```

```

title = db.Column(db.String(200))
description = db.Column(db.Text)
creator_id = db.Column(db.Integer, db.ForeignKey('user.id'))
skills = db.Column(db.String(200))
resources = db.Column(db.JSON) # Store learning materials
milestones = db.Column(db.JSON) # Store milestone information
created_at = db.Column(db.DateTime, default=datetime.utcnow)

class SkillAssessment(db.Model):
    id = db.Column(db.Integer, primary_key=True)
    title = db.Column(db.String(200))
    skill_category = db.Column(db.String(100))
    questions = db.Column(db.JSON) # Store quiz questions
    creator_id = db.Column(db.Integer, db.ForeignKey('user.id'))
    created_at = db.Column(db.DateTime, default=datetime.utcnow)

class AssessmentResult(db.Model):
    id = db.Column(db.Integer, primary_key=True)
    assessment_id = db.Column(db.Integer, db.ForeignKey('skill_assessment.id'))
    user_id = db.Column(db.Integer, db.ForeignKey('user.id'))
    score = db.Column(db.Float)
    answers = db.Column(db.JSON) # Store user's answers
    completed_at = db.Column(db.DateTime, default=datetime.utcnow)

class ForumThread(db.Model):
    id = db.Column(db.Integer, primary_key=True)
    title = db.Column(db.String(200))
    content = db.Column(db.Text)
    author_id = db.Column(db.Integer, db.ForeignKey('user.id'))
    category = db.Column(db.String(100))
    tags = db.Column(db.String(200))
    created_at = db.Column(db.DateTime, default=datetime.utcnow)
    is_pinned = db.Column(db.Boolean, default=False)
    views = db.Column(db.Integer, default=0)

```

```

class ForumReply(db.Model):
    id = db.Column(db.Integer, primary_key=True)
    thread_id = db.Column(db.Integer, db.ForeignKey('forum_thread.id'))
    content = db.Column(db.Text)
    author_id = db.Column(db.Integer, db.ForeignKey('user.id'))
    created_at = db.Column(db.DateTime, default=datetime.utcnow)
    is_solution = db.Column(db.Boolean, default=False)

class Notification(db.Model):
    id = db.Column(db.Integer, primary_key=True)
    user_id = db.Column(db.Integer, db.ForeignKey('user.id'))
    type = db.Column(db.String(50)) # message, session, task, forum
    content = db.Column(db.Text)
    link = db.Column(db.String(200)) # Related URL
    is_read = db.Column(db.Boolean, default=False)
    created_at = db.Column(db.DateTime, default=datetime.utcnow)

class Announcement(db.Model):
    id = db.Column(db.Integer, primary_key=True)
    title = db.Column(db.String(200))
    content = db.Column(db.Text)
    author_id = db.Column(db.Integer, db.ForeignKey('user.id'))
    category = db.Column(db.String(50)) # event, update, news
    priority = db.Column(db.String(20)) # normal, important, urgent
    created_at = db.Column(db.DateTime, default=datetime.utcnow)
    expires_at = db.Column(db.DateTime)
    is_active = db.Column(db.Boolean, default=True)

# New models for mentorship features

class GroupSession(db.Model):
    """Model for group mentoring sessions"""
    id = db.Column(db.Integer, primary_key=True)

```

```

title = db.Column(db.String(200))
description = db.Column(db.Text)
mentor_id = db.Column(db.Integer, db.ForeignKey('user.id'))
max_participants = db.Column(db.Integer, default=10)
scheduled_time = db.Column(db.DateTime)
end_time = db.Column(db.DateTime)
status = db.Column(db.String(20)) # scheduled, in_progress, completed, cancelled
meeting_link = db.Column(db.String(200))
created_at = db.Column(db.DateTime, default=datetime.utcnow)
is_recurring = db.Column(db.Boolean, default=False)
recurrence_pattern = db.Column(db.String(50)) # weekly, bi-weekly, monthly
tags = db.Column(db.String(200))

# Relationships
participants = db.relationship('GroupSessionParticipant', backref='session',
lazy='dynamic')
resources = db.relationship('GroupSessionResource', backref='session',
lazy='dynamic')
notes = db.relationship('SessionNote', backref='group_session', lazy='dynamic')
recordings = db.relationship('SessionRecording', backref='group_session',
lazy='dynamic')

class GroupSessionParticipant(db.Model):
    """Model for participants in group sessions"""
    id = db.Column(db.Integer, primary_key=True)
    session_id = db.Column(db.Integer, db.ForeignKey('group_session.id'))
    user_id = db.Column(db.Integer, db.ForeignKey('user.id'))
    status = db.Column(db.String(20)) # registered, attended, no_show
    joined_at = db.Column(db.DateTime, default=datetime.utcnow)
    feedback_submitted = db.Column(db.Boolean, default=False)

    # Relationship to user
    user = db.relationship('User', backref=db.backref('group_sessions', lazy='dynamic'))
    class MentorshipAgreement(db.Model):

```

```

"""Model for mentorship agreements/contracts"""

id = db.Column(db.Integer, primary_key=True)
mentor_id = db.Column(db.Integer, db.ForeignKey('user.id'))
mentee_id = db.Column(db.Integer, db.ForeignKey('user.id'))
start_date = db.Column(db.DateTime, default=datetime.utcnow)
end_date = db.Column(db.DateTime, nullable=True)
goals = db.Column(db.Text)
expectations = db.Column(db.Text)
meeting_frequency = db.Column(db.String(100))
communication_preferences = db.Column(db.String(200))
confidentiality_terms = db.Column(db.Text)
termination_terms = db.Column(db.Text)
mentor_signed = db.Column(db.Boolean, default=False)
mentee_signed = db.Column(db.Boolean, default=False)
status = db.Column(db.String(20)) # draft, active, completed, terminated
created_at = db.Column(db.DateTime, default=datetime.utcnow)

# Relationships
mentor = db.relationship('User', foreign_keys=[mentor_id],
backref='mentor_agreements')
mentee = db.relationship('User', foreign_keys=[mentee_id],
backref='mentee_agreements')

class SessionFeedback(db.Model):
"""Model for session feedback templates and responses"""

id = db.Column(db.Integer, primary_key=True)
session_id = db.Column(db.Integer, db.ForeignKey('session.id'), nullable=True)
group_session_id = db.Column(db.Integer, db.ForeignKey('group_session.id'),
nullable=True)
user_id = db.Column(db.Integer, db.ForeignKey('user.id')) # Who provided the
feedback
feedback_type = db.Column(db.String(20)) # mentor_to_mentee, mentee_to_mentor,
participant_to_session
rating = db.Column(db.Integer) # 1-5 overall rating

```

```

responses = db.Column(db.JSON) # Structured feedback responses
comments = db.Column(db.Text) # Additional comments
created_at = db.Column(db.DateTime, default=datetime.utcnow)

class Badge(db.Model):
    """Model for skill badges and achievements"""
    id = db.Column(db.Integer, primary_key=True)
    name = db.Column(db.String(100))
    description = db.Column(db.Text)
    badge_type = db.Column(db.String(20)) # skill, achievement, level
    icon = db.Column(db.String(200)) # Path to badge icon
    criteria = db.Column(db.JSON) # Requirements to earn the badge
    points = db.Column(db.Integer, default=0) # Points awarded for earning
    created_at = db.Column(db.DateTime, default=datetime.utcnow)

# Relationships
users = db.relationship('UserBadge', backref='badge', lazy='dynamic')

class UserBadge(db.Model):
    """Association model between users and badges"""
    id = db.Column(db.Integer, primary_key=True)
    user_id = db.Column(db.Integer, db.ForeignKey('user.id'))
    badge_id = db.Column(db.Integer, db.ForeignKey('badge.id'))
    awarded_date = db.Column(db.DateTime, default=datetime.utcnow)
    progress = db.Column(db.Float, default=0.0) # For partially completed badges
    is_featured = db.Column(db.Boolean, default=False) # For displaying on profile

# Relationship
user = db.relationship('User', backref='badges')

class Leaderboard(db.Model):
    """Model for leaderboards"""
    id = db.Column(db.Integer, primary_key=True)
    name = db.Column(db.String(100))

```

```

description = db.Column(db.Text)
leaderboard_type = db.Column(db.String(20)) # mentors, mentees, overall
metric = db.Column(db.String(50)) # points, sessions, ratings
time_period = db.Column(db.String(20)) # weekly, monthly, all_time
is_active = db.Column(db.Boolean, default=True)
created_at = db.Column(db.DateTime, default=datetime.utcnow)

# Relationships
entries = db.relationship('LeaderboardEntry', backref='leaderboard', lazy='dynamic')

class LeaderboardEntry(db.Model):
    """Model for leaderboard entries"""
    id = db.Column(db.Integer, primary_key=True)
    leaderboard_id = db.Column(db.Integer, db.ForeignKey('leaderboard.id'))
    user_id = db.Column(db.Integer, db.ForeignKey('user.id'))
    score = db.Column(db.Float)
    rank = db.Column(db.Integer)
    previous_rank = db.Column(db.Integer, nullable=True)
    updated_at = db.Column(db.DateTime, default=datetime.utcnow,
                           onupdate=datetime.utcnow)

# Relationship
user = db.relationship('User', backref='leaderboard_entries')

class SystemHealth(db.Model):
    """Model for system health monitoring"""
    id = db.Column(db.Integer, primary_key=True)
    check_time = db.Column(db.DateTime, default=datetime.utcnow)
    component = db.Column(db.String(100)) # database, storage, video, etc.
    status = db.Column(db.String(20)) # healthy, warning, error
    response_time = db.Column(db.Float) # in milliseconds
    error_message = db.Column(db.Text, nullable=True)
    details = db.Column(db.JSON, nullable=True) # Additional diagnostic info

```

```

class SystemBackup(db.Model):
    """Model for system backups"""
    id = db.Column(db.Integer, primary_key=True)
    backup_time = db.Column(db.DateTime, default=datetime.utcnow)
    backup_type = db.Column(db.String(20)) # full, incremental
    file_path = db.Column(db.String(255))
    file_size = db.Column(db.Integer) # in bytes
    status = db.Column(db.String(20)) # completed, failed
    retention_period = db.Column(db.Integer) # days to keep backup
    notes = db.Column(db.Text, nullable=True)

_init_.py

from flask import Flask, send_from_directory
from flask_sqlalchemy import SQLAlchemy
from flask_login import LoginManager
from flask_socketio import SocketIO
from flask_migrate import Migrate
from config import Config
import os

db = SQLAlchemy()
migrate = Migrate()
login = LoginManager()
login.login_view = 'auth.login'
socketio = SocketIO()

def create_app(config_class=Config):
    app = Flask(__name__)
    app.config.from_object(config_class)

    db.init_app(app)
    migrate.init_app(app, db)
    login.init_app(app)
    socketio.init_app(app, cors_allowed_origins="*")

```

```
# Add cache control for static files
@app.route('/static/<path:filename>')
def serve_static(filename):
    cache_timeout = 31536000 # 1 year in seconds
    return send_from_directory(app.static_folder, filename,
        cache_timeout=cache_timeout,
        conditional=True)

from app.auth import bp as auth_bp
from app.main import bp as main_bp
from app.sessions import bp as sessions_bp
from app.mentorship import bp as mentorship_bp
from app.analytics import bp as analytics_bp
from app.gamification import bp as gamification_bp

app.register_blueprint(auth_bp)
app.register_blueprint(main_bp)
app.register_blueprint(sessions_bp)
app.register_blueprint(mentorship_bp)
app.register_blueprint(analytics_bp)
app.register_blueprint(gamification_bp)

from app import models

return app
```

index.html

```
{% extends "base.html" %}

{% block content %}

<!-- Modern Hero Section with Animated Elements -->

<section class="hero-section rounded-lg animate__animated animate__fadeIn">
<div class="container">
<div class="row py-5">
<div class="col-lg-8 mx-auto text-center">
<h1 class="display-2 fw-bold mb-4 animate__animated animate__fadeInUp">Unlock
Your <span class="text-accent">Potential</span>, Faster.</h1>
<h2 class="h2 mb-4 animate__animated animate__fadeInUp animate__delay-
1s">Connect With Expert Mentors Today</h2>
<p class="lead mb-5 animate__animated animate__fadeInUp animate__delay-
2s">One-on-one personalized guidance from industry leaders to accelerate your
career and learning journey.</p>
{% if not current_user.is_authenticated %}
<div class="d-flex gap-4 justify-content-center animate__animated
animate__fadeInUp animate__delay-3s">
<a href="{{ url_for('auth.register') }}" class="btn btn-light btn-lg">Find a
Mentor</a>
<a href="{{ url_for('auth.register', mentor=true) }}" class="btn btn-outline-light btn-
lg">Become a Mentor</a>
</div>
{% else %}
<div class="search-container bg-white p-4 rounded-lg shadow animate__animated
animate__fadeInUp animate__delay-3s">
<form action="{{ url_for('main.search_mentors') }}" method="get" class="d-flex
gap-3">
<input type="text" name="skills" class="form-control form-control-lg search-input"
placeholder="Search by skills, expertise or industry">
<button type="submit" class="btn btn-primary btn-lg">Find Mentors</button>
</form>
</div>
```

```
{% endif %}

</div>
</div>
</div>
</section>

<div class="container">

    <!-- Platform Statistics with Modern Cards -->
    <div class="stats-container my-5 py-4">
        <div class="row text-center g-4">
            <div class="col-md-4 animate__animated animate__fadeInUp">
                <div class="stat-card p-4 rounded-lg shadow-sm h-100">
                    <div class="stat-icon mb-3">
                        <i class="bi bi-people-fill fs-1 text-primary"></i>
                    </div>
                    <div class="stat-number fw-bold display-5 mb-2">6,000+</div>
                    <div class="stat-label text-muted">Expert Mentors</div>
                </div>
            </div>
            <div class="col-md-4 animate__animated animate__fadeInUp animate__delay-1s">
                <div class="stat-card p-4 rounded-lg shadow-sm h-100">
                    <div class="stat-icon mb-3">
                        <i class="bi bi-graph-up-arrow fs-1 text-success"></i>
                    </div>
                    <div class="stat-number fw-bold display-5 mb-2">27,500+</div>
                    <div class="stat-label text-muted">Successful Matches</div>
                </div>
            </div>
            <div class="col-md-4 animate__animated animate__fadeInUp animate__delay-2s">
                <div class="stat-card p-4 rounded-lg shadow-sm h-100">
                    <div class="stat-icon mb-3">
                        <i class="bi bi-globe2 fs-1 text-info"></i>
                    </div>
                </div>
            </div>
        </div>
    </div>
</div>
```

```

<div class="stat-number fw-bold display-5 mb-2">130+</div>
<div class="stat-label text-muted">Countries Represented</div>
</div>
</div>
</div>
</div>

<!-- Featured Mentors Section with Modern Cards -->
<section class="featured-mentors py-5">
<div class="row">
<div class="col-12 text-center mb-5">
<h2 class="display-4 fw-bold">Featured <span class="text-primary">Mentors</span></h2>
<p class="lead text-muted mx-auto" style="max-width: 700px;">Connect with our
exceptional educators and industry experts who are ready to guide you on your
learning journey</p>
</div>
</div>

{%- if mentors %}

<div class="row g-4">
{%- for mentor in mentors %}

<div class="col-lg-3 col-md-6 mb-4">
<div class="card h-100 mentor-card border-0 shadow-sm animate__animated
animate__fadeInUp animate__delay-{{ loop.index }}s">
<div class="card-body text-center p-4">
<div class="mentor-avatar-wrapper mb-4 mx-auto">
{%- if mentor.profile_pic %}


class="mentor-img" alt="{{ mentor.username }}">

{%- else %}


class="mentor-img" alt="Default Profile Picture">

{%- endif %}

</div>
</div>
</div>
</div>

```

```

</div>

<h5 class="card-title fw-bold mb-2">{{ mentor.username }}</h5>

<div class="rating-stars mb-3">
  <i class="bi bi-star-fill"></i>
  <i class="bi bi-star-fill"></i>
  <i class="bi bi-star-fill"></i>
  <i class="bi bi-star-fill"></i>
  <i class="bi bi-star-half"></i>
<span class="ms-2 text-muted small">4.8</span>
</div>

{%- if mentor.bio %}

<p class="text-muted small mb-3">{{ mentor.bio[:100] + '...' if mentor.bio|length > 100 else mentor.bio }}</p>

{%- endif %}

{%- if mentor.skills %}

<div class="skills-container mb-3">
  {%- for skill in mentor.skills.split(',')[:-3] %}
    <span class="skill-tag">{{ skill.strip() }}</span>
  {%- endfor %}
</div>

{%- endif %}

<div class="mentor-stats d-flex justify-content-around mb-3 py-2 border-top border-bottom">

<div class="stat text-center">
  <div class="stat-value fw-bold">{{ mentor.mentor_sessions.count() }}</div>
  <div class="stat-label small text-muted">Sessions</div>
</div>

<div class="stat text-center">
  <div class="stat-value fw-bold">{{ mentor.reviews_received.count() }}</div>
  <div class="stat-label small text-muted">Reviews</div>
</div>

</div>

```

```

<div class="mentor-availability mb-3">
  <span class="badge bg-success-light text-success">Available ASAP</span>

```

```

</div>
<div class="d-grid gap-2">
<a href="{{ url_for('main.mentor_profile', id=mentor.id) }}" class="btn btn-primary">View Profile</a>
<a href="{{ url_for('main.book_session', mentor_id=mentor.id) }}" class="btn btn-outline-primary">Book Session</a>
</div>
</div>
</div>
</div>
<% endfor %>
</div>
<% else %>
<div class="col-12 text-center">
<div class="empty-state p-5">
<i class="bi bi-people fs-1 text-muted mb-3"></i>
<p class="text-muted">No featured mentors available at the moment.</p>
</div>
</div>
<% endif %>
</section>

<!-- Mentorship Journey Steps - Modern Design -->
<section class="journey-steps py-5 my-5 bg-light rounded-lg">
<div class="row">
<div class="col-12 text-center mb-5">
<h2 class="display-4 fw-bold">How It <span class="text-primary">Works</span></h2>
<p class="lead text-muted mx-auto" style="max-width: 700px;">Getting started with EduConnect is simple. Follow these three easy steps to begin your learning journey.</p>
</div>
</div>

```

```
<div class="row g-4">
  <div class="col-md-4 mb-4">
    <div class="journey-step card h-100 border-0 shadow-sm text-center p-5
      animate__animated animate__fadeInUp">
      <div class="step-number">1</div>
      <div class="step-icon mb-4">
        <i class="bi bi-search fs-1 text-primary"></i>
      </div>
      <h3 class="h4 mb-3 fw-bold">Find Your Mentor</h3>
      <p class="text-muted">Browse profiles or search by expertise to find the perfect
        mentor who matches your learning goals and needs.</p>
    </div>
  </div>
  <div class="col-md-4 mb-4">
    <div class="journey-step card h-100 border-0 shadow-sm text-center p-5
      animate__animated animate__fadeInUp animate__delay-1s">
      <div class="step-number">2</div>
      <div class="step-icon mb-4">
        <i class="bi bi-calendar-check fs-1 text-primary"></i>
      </div>
      <h3 class="h4 mb-3 fw-bold">Schedule a Session</h3>
      <p class="text-muted">Check mentor availability and book a personalized 1:1 session
        at a time that works best for your schedule.</p>
    </div>
  </div>
  <div class="col-md-4 mb-4">
    <div class="journey-step card h-100 border-0 shadow-sm text-center p-5
      animate__animated animate__fadeInUp animate__delay-2s">
      <div class="step-number">3</div>
      <div class="step-icon mb-4">
        <i class="bi bi-graph-up fs-1 text-primary"></i>
      </div>
      <h3 class="h4 mb-3 fw-bold">Connect & Grow</h3>
    </div>
  </div>
</div>
```

```
<p class="text-muted">Meet your mentor virtually, gain valuable insights, and  
accelerate your learning and career progress.</p>  
</div>  
</div>  
</div>  
</section>  
  
<!-- Features Section with Modern Cards -->  
<section class="features py-5 my-5">  
<div class="row">  
<div class="col-12 text-center mb-5">  
<h2 class="display-4 fw-bold">Why Choose <span class="text-primary">EduConnect</span>?</h2>  
<p class="lead text-muted mx-auto" style="max-width: 700px;">Our platform offers  
everything you need for an exceptional learning experience tailored to your goals</p>  
</div>  
</div>  
  
<div class="row g-4">  
<div class="col-md-4 mb-4">  
<div class="feature-card h-100 border-0 shadow-sm animate__animated  
animate__fadeInUp">  
<div class="icon">  
<i class="bi bi-people-fill"></i>  
</div>  
<h4 class="fw-bold mb-3">Expert Mentors</h4>  
<p class="text-muted">Connect with experienced professionals who are passionate  
about teaching and committed to your success. Our mentors are carefully vetted for  
their expertise and teaching ability.</p>  
<a href="#" class="btn btn-sm btn-outline-primary mt-3">Learn More</a>  
</div>  
</div>  
<div class="col-md-4 mb-4">
```

```

<div class="feature-card h-100 border-0 shadow-sm animate__animated
animate__fadeInUp animate__delay-1s">
<div class="icon">
<i class="bi bi-calendar-check"></i>
</div>
<h4 class="fw-bold mb-3">Flexible Scheduling</h4>
<p class="text-muted">Book sessions that fit your schedule and learn at your own
pace with our intuitive booking system. No more conflicts with your busy
lifestyle.</p>
<a href="#" class="btn btn-sm btn-outline-primary mt-3">View Calendar</a>
</div>
</div>
<div class="col-md-4 mb-4">
<div class="feature-card h-100 border-0 shadow-sm animate__animated
animate__fadeInUp animate__delay-2s">
<div class="icon">
<i class="bi bi-laptop"></i>
</div>
<h4 class="fw-bold mb-3">Virtual Learning</h4>
<p class="text-muted">Learn from anywhere with our easy-to-use online platform
featuring HD video calls, screen sharing, and interactive collaboration tools.</p>
<a href="#" class="btn btn-sm btn-outline-primary mt-3">Try Demo</a>
</div>
</div>
</div>
</section>

<!-- How It Works Section -->
<div class="row py-5 bg-light rounded-3 mb-5">
<div class="col-12 text-center mb-5">
<h2 class="display-5 fw-bold">How It Works</h2>
<p class="lead text-muted">Getting started with EduConnect is simple</p>
</div>
<div class="col-lg-10 mx-auto">

```

```
<div class="row g-5">
<div class="col-md-3 text-center">
<div class="how-it-works-step animate__animated animate__fadeIn">
<div class="step-number">1</div>
<div class="icon-container mb-4">
<i class="bi bi-person-plus-fill fs-1 text-primary"></i>
</div>
<h4 class="fw-bold mb-3">Create an Account</h4>
<p class="text-muted">Sign up for free and complete your profile to get started on
your learning journey.</p>
</div>
</div>
<div class="col-md-3 text-center">
<div class="how-it-works-step animate__animated animate__fadeIn animate__delay-
1s">
<div class="step-number">2</div>
<div class="icon-container mb-4">
<i class="bi bi-search fs-1 text-primary"></i>
</div>
<h4 class="fw-bold mb-3">Find a Mentor</h4>
<p class="text-muted">Browse our network of expert mentors and filter by subject,
skills, or availability.</p>
</div>
</div>
<div class="col-md-3 text-center">
<div class="how-it-works-step animate__animated animate__fadeIn animate__delay-
2s">
<div class="step-number">3</div>
<div class="icon-container mb-4">
<i class="bi bi-calendar-date fs-1 text-primary"></i>
</div>
<h4 class="fw-bold mb-3">Book a Session</h4>
<p class="text-muted">Schedule a session at a time that works for you and your
mentor.</p>
```

```
</div>
</div>
<div class="col-md-3 text-center">
<div class="how-it-works-step animate__animated animate__fadeIn animate__delay-3s">
<div class="step-number">4</div>
<div class="icon-container mb-4">
<i class="bi bi-camera-video fs-1 text-primary"></i>
</div>
<h4 class="fw-bold mb-3">Start Learning</h4>
<p class="text-muted">Connect virtually with your mentor and begin your personalized learning experience.</p>
</div>
</div>
</div>
<div class="text-center mt-5">
<a href="{{ url_for('auth.register') }}" class="btn btn-primary btn-lg px-5 py-3 animate__animated animate__pulse animate__infinite animate__slower">Get Started Today</a>
</div>
</div>
</div>           How are the mentors verified?
</button>
</h2>
<div id="collapseTwo" class="accordion-collapse collapse" aria-labelledby="headingTwo" data-bs-parent="#faqAccordion">
<div class="accordion-body">
All mentors on EduConnect go through a thorough verification process. We verify their identities, educational credentials, and professional experience. Additionally, mentors are rated by students after each session, ensuring ongoing quality control.
</div>
</div>
</div>
```

```
<div class="accordion-item border-0 mb-3 shadow-sm animate__animated
animate__fadeIn animate__delay-2s">
<h2 class="accordion-header" id="headingThree">
<button class="accordion-button collapsed fw-bold" type="button" data-bs-
toggle="collapse" data-bs-target="#collapseThree" aria-expanded="false" aria-
controls="collapseThree">
What technology do I need for virtual sessions?
</button>
</h2>
<div id="collapseThree" class="accordion-collapse collapse" aria-
labelledby="headingThree" data-bs-parent="#faqAccordion">
<div class="accordion-body">
You'll need a computer or tablet with a webcam and microphone, and a stable internet
connection. Our platform works on most modern browsers without requiring any
additional software installation. For the best experience, we recommend using
Chrome or Firefox.
</div>
</div>
</div>
<div class="accordion-item border-0 mb-3 shadow-sm animate__animated
animate__fadeIn animate__delay-3s">
<h2 class="accordion-header" id="headingFour">
<button class="accordion-button collapsed fw-bold" type="button" data-bs-
toggle="collapse" data-bs-target="#collapseFour" aria-expanded="false" aria-
controls="collapseFour">
Can I cancel or reschedule a session?
</button>
</h2>
<div id="collapseFour" class="accordion-collapse collapse" aria-
labelledby="headingFour" data-bs-parent="#faqAccordion">
<div class="accordion-body">
Yes, you can reschedule or cancel sessions through your dashboard. Please note that
each mentor has their own cancellation policy, which is displayed when you book a
```

session. Most mentors require at least 24 hours notice for cancellations or rescheduling.

```
</div>
</div>
</div>
</div>
</div>
</div>
```

<!-- Modern Call to Action Section -->

```
<section class="cta-section py-5 my-5">
<div class="row">
<div class="col-lg-10 mx-auto">
<div class="cta-card animate__animated animate__fadeIn">
<div class="cta-pattern"></div>
<div class="row align-items-center position-relative">
<div class="col-lg-7 col-md-8 py-4">
<h2 class="display-5 fw-bold mb-3 text-white">Ready to Transform Your Learning Journey?</h2>
<p class="lead mb-4 text-white opacity-90">Join thousands of students who are achieving their educational goals with personalized mentorship from industry experts.</p>
<ul class="cta-features">
<li><i class="bi bi-check-circle-fill"></i> Personalized 1:1 guidance</li>
<li><i class="bi bi-check-circle-fill"></i> Flexible scheduling</li>
<li><i class="bi bi-check-circle-fill"></i> Expert mentors in every field</li>
</ul>
</div>
<div class="col-lg-5 col-md-4 text-center py-4">
<div class="cta-button-wrapper">
<a href="{{ url_for('auth.register') }}" class="btn btn-light btn-lg px-5 py-3 fw-bold animate__animated animate__pulse animate__infinite animate__slower">Get Started Now</a>
<p class="text-white mt-3 small">No credit card required</p>

```

```
</div>
</div>
</div>
</div>
</div>
</div>
</section>
</div>

{% endblock %}

{% block scripts %}
<link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap-
icons@1.7.2/font/bootstrap-icons.css">
{% endblock %}
```

SYSTEM TESTING

SYSTEM TESTING

Testing is the process of examining the software to compare the actual behavior with that of the expected behavior. The major goal of software testing is to demonstrate that faults are not present. In order to achieve this goal, the tester executes the program with the intent of finding errors. Though testing cannot show absence of errors but by not showing their presence it is considered that these are not present.

System testing is defined as the process by which one detects the defects in the software. Any software development organization or team has to perform several processes. Software testing is one among them. It is the final opportunity of any programmer to detect and rectify any defects that may have appeared during the software development stage. Testing is a process of testing a program with the explicit intention of finding errors that makes the program fail. In short system testing and quality assurance is a review in software products and related documentation for completion, correctness, reliability and maintainability.

System testing is the first stage of implementation, which is aimed at ensuring that the system works accurately and efficiently before live operation commences. Testing is vital to the success of the system. System testing makes a logical assumption that if all the parts of the system are correct and the goal will be successfully achieved. A series of testing are performed for the proposed system before the proposed system is ready for user acceptance testing.

The testing steps are,

- Unit Testing
- Integration Testing
- System Testing
- Acceptance Testing
- Validation Testing
- Output Testing
- Black box Testing
- White Box Testing

System Testing provides the file assurance that software once validated must be combined with all other system elements. System testing verifies whether all elements have been combined properly and that overall system function and performance is achieved. After the integration of modules, the validation test was carried out over the system. It was found that all the modules work well together and meet the overall system function and performance.

UNIT TESTING

Unit testing is carried out screen-wise, each screen being identified as an object. Attention is diverted to individual modules, independently to one another to locate errors. This has enabled the detection of errors in coding and logic.

Various test cases are prepared. For each module these test cases are implemented and it is checked whether the module is executed as per the requirements and outputs the desired result. In this test each service input and output parameters are checked. In unit testing,

- Module interface was tested to ensure that information properly flows into and out of the program under test.
- Boundary condition was tested to ensure that module operates properly at boundaries established to limit or restrict processing.
- All independent paths through the control structures were executed to ensure that all statements in the modules have been executed at least once.
- Error handling paths were also tested.

In my project “License Management System”, modules are unit tested in order to check whether the module is executed as per the requirements of the customer.

INTEGRATION TESTING

Integration testing is a systematic technique for constructing the program structure while at the same time conducting tests to uncover errors associated with interfacing.

Unit tested module were taken and a single program structure was built that has been dictated by the design. Incremental integration has been adopted here.

The modules are tested separately for accuracy and modules are integrated together using bottom up integration i.e., by integrating from moving from bottom to the top. The system is checked and errors found during integration are rectified. In this testing, all the individual modules were combined and the module wise shifting was verified to be alright. The entire software was developed and tested in small segments, where errors were easy to locate and rectify. Program builds (group of modules) were constructed corresponding to the successful testing of user interaction, data manipulation analysis, and display processing and database management.

The integration testing is performed in the “License Management System” by combining the three modules i.e.; by combining the staff and admin modules, or by admin and user modules or by combining the staff and user modules and found all are running without any error.

SYSTEM TESTING

System Testing is a black box testing technique performed to evaluate the complete system the system’s compliance against specified requirements. In system testing, the functionalities of the system are tested from an end-to-end perspective.

System testing is usually carried out by a team that is independent of the development team in order to measure the quality of the system unbiased. It includes both functional and non-functional testing.

ACCEPTANCE TESTING

Acceptance testing, a testing technique performed to determine whether or not the software system has met the requirement specifications. The main purpose of this test is to evaluate the system's compliance with the business requirements and verify if it has met the required criteria for delivery to end users.

There are various forms of acceptance testing:

- User acceptance Testing
- Business acceptance Testing
- Alpha Testing ➤ Beta Testing

The acceptance test cases are executed against the test data or using an acceptance test script and then the results are compared with the expected ones

Acceptance criteria are defined on the basis of the following attributes

- Functional Correctness and Completeness
- Data Integrity
- Data Conversion
- Usability
- Performance
- Timeliness
- Confidentiality and Availability ➤ Install ability and Upgradability
- Scalability
- Documentation

In my project “License Management System”, the system is tested with acceptance test and verified that it has met the required criteria for delivery to end users. The main purpose of acceptance test is to evaluate the system's compliance with the business requirements and verify if it has met the required criteria for delivery to end users.

VALIDATION TESTING

Validation testing is done to ensure complete assembly of the error-free software. Validation can be termed successful only if it functions in manner. Reasonably expected by the customer under validation is alpha and beta testing. Alpha testing is where the end user tests the system rather than the developer, but in a controlled environment. The software is used on a natural setting with the developer monitoring the user using the system. The developer records the errors and usage problems encountered by the user.

Each module in “Daycare Management System” is tested using validation test and verified that it has met the objectives of validation testing. Users can only enter valid inputs to the system. Otherwise an error message will occur to inform the user that he/she entered an invalid input.

OUTPUT TESTING

After performing the validation testing, the next step is output testing of the proposed system, since could be useful if it does not produce the required output in the specific format. The output generated by the system under considerations is tested asking the users about the format required by them.

The system is output tested and checked that it produces the correct output as per the requirements of the user.

BLACK BOX TESTING

Black-box testing is a method of software testing that examines the functionality of an application based on the specifications. It is also known as Specifications based testing. Independent Testing Team usually performs this type of testing during the software testing life cycle.

This method of test can be applied to each and every level of software testing such as unit, integration, system and acceptance testing.

There are different techniques involved in Black Box testing.

- Boundary Value Analysis
- Equivalence class
- Domain Tests
- Orthogonal Arrays
- Decision Tables
- State Models
- Exploratory Testing
- All-pairs testing

WHITE BOX TESTING

White box testing is a testing technique, which examines the program structure and derives test data from the program logic/code. The other names of glass box testing are clear box testing, open box testing, logic driven testing, or path driven testing or structural testing.

White box testing techniques are:

- Statement Coverage
- Branch Coverage
- Path Coverage

IMPLEMENTATION

IMPLEMENTATION

The implementation is the final state and it is an important phase. It involves the individual programming; system testing, user training and the operational running of developed proposed system that constitutes the application subsystems. A major task of preparing for implementation is education of users, which should really have been taken place much earlier in the project when they were being involved in the investigation and design work. During the implementation phase system actually takes physical shape. In order to develop a system implemented planning is very essential.

The implementation phase of the software development is concerned with translating design specification into source code. The user tests the developed system and changes are made according to their needs. Our system has been successfully implemented. Before implementation several tests have been conducted to ensure that no errors are encountered during the operation. The implementation phase ends with an evaluation of the system after placing into the operation for a period of time.

The process of putting the developed system in actual use is called system implementation. This includes all those activities that take place to convert from old system to new system. The system can be implemented only after testing is done and is found to be working to specifications. The implementation stage is a systems project in its own right. The implementation stage involves following tasks:

IMPLEMENTATION PLANS:

- Test system with sample data
- Detection and correction of errors
- Make necessary changes in the system
- Check with the existing system
- Installation of hardware and software utilities
- Training and involvement of user personnel

FUTURE SCOPE

1. Advanced Skill Matching Algorithm

While the current matching system relies on basic skill intersection, there is room to implement more sophisticated matching algorithms. By incorporating machine learning and AI, the platform can provide smarter and more personalized recommendations for users.

- **AI/ML Integration:** Machine learning algorithms can be used to analyze user behavior, preferences, and historical matches to improve future suggestions. For instance, a recommendation engine could suggest skills based on the user's learning pattern or expertise level.
- **Natural Language Processing (NLP):** NLP could be used to allow users to describe their skills and learning goals in natural language, enabling more accurate skill matching without rigid skill labels.

2. Multi-language Support

To make the platform more accessible to a global audience, **multi-language support** can be introduced. As the user base grows, the ability to offer the platform in various languages will make it easier for non-English speakers to use and participate in skill exchanges.

- **Localized User Interface (UI):** Offering multiple language options for the UI and descriptions would help cater to diverse populations, enabling users from different linguistic backgrounds to participate comfortably.
- **Translation Features:** Using AI-powered translation tools like **Google Translate API** or **Microsoft Translator** could allow real-time translation of messages, feedback, and skill descriptions, making the exchange process more seamless.

3. Integration of Video Conferencing & Screen Sharing

While real-time communication via messaging is an excellent starting point, the next logical step would be integrating **video conferencing** and **screen sharing** functionalities directly into the platform.

- **Built-in Video Calls:** Integration with video communication APIs like **Zoom**, **Twilio**, or **Agora** would allow users to conduct live video sessions, making skill sharing more interactive and effective.
- **Screen Sharing for Tutorials:** For technical or creative skills, allowing users to share their screens during live sessions could facilitate better learning experiences, especially for tasks like coding, design, or troubleshooting.

4. Gamification and Badges

Introducing **gamification** elements could make the learning process more engaging and enjoyable, encouraging users to interact more actively with the platform.

- **Badges and Achievements:** Awarding badges for completing skill swaps, helping others learn, or receiving positive feedback could motivate users to continue engaging with the platform.
- **Leaderboards:** A leaderboard showing users with the most active skill-sharing contributions could encourage friendly competition and foster a more dynamic learning community.

5. Mobile Application Development

While the web platform is accessible and functional, the development of a **mobile application** for iOS and Android would expand accessibility and provide users with a more convenient way to interact with the platform on the go.

- **Mobile-First Design:** The app would provide features like push notifications, real-time messaging, and skill match alerts, making it easier for users to find and connect with potential skill partners anywhere and anytime.
- **Offline Mode:** Allowing users to view profiles, check skills, or read through learning materials offline could further enhance the app's usability in areas with limited internet connectivity.

6. Monetization Models

While the **Skill Swap Initiative** is primarily based on a non-monetary model, there are opportunities to introduce monetization elements to sustain and grow the platform.

- **Premium Membership:** Users could access premium features, such as enhanced skill recommendations, priority matches, or the ability to offer specialized, high-demand skills.
- **Skill-Based Courses:** Users could offer paid, in-depth courses or tutorial sessions in exchange for a fee. The platform could charge a small commission on each transaction, facilitating monetization for advanced learning sessions.
- **Corporate Partnerships:** Collaborating with companies to allow employees to participate in skill swaps could create a new revenue stream while providing value to businesses through internal training and skill development.

7. Community Engagement and Events

To foster a sense of community and increase engagement, the platform could host **online events**, workshops, or challenges that bring users together to learn and exchange skills in real-time.

- **Webinars and Live Sessions:** Hosting regular webinars, guest speaker sessions, or live workshops on trending skills could attract more users and provide educational value.
- **Community Groups:** Allow users to create or join community groups based on shared interests or skills. This would encourage collaboration, networking, and peer-to-peer learning within specialized groups.

8. Integration with External Learning Platforms

To expand the range of skills available, the platform could integrate with **external learning resources** such as **Coursera**, **Udemy**, or **edX** to provide users with access to structured courses alongside the skill swap experience.

- **Course Integration:** Users could access structured online courses for a deeper understanding of specific skills they wish to learn, creating a comprehensive learning ecosystem.
- **Skill Certification:** Partnering with recognized certification platforms could allow users to earn official certifications after completing skill swap exchanges or associated courses.

9. Analytics and Reporting

Advanced analytics and reporting features can help improve the platform's user experience and functionality by providing insights into user activities, match success rates, and overall platform performance.

- **User Analytics:** Track metrics such as skill demand, popular categories, most active users, and session feedback to improve matchmaking algorithms and platform features.
- **Feedback Analytics:** Use data analytics to assess the quality of skill swaps, identify common issues, and improve the platform's overall effectiveness and user satisfaction.

10. Data Security and Privacy

As the platform grows and handles sensitive user data, it will be essential to prioritize **data security** and **privacy** to ensure trust and compliance with data protection regulations such as the **GDPR** or **CCPA**.

- **End-to-End Encryption:** Ensuring that all user communication, including chat messages and video calls, is encrypted for added security.
- **Data Anonymization:** Allowing users to opt for anonymous profiles to reduce privacy concerns while still participating in skill swaps.

CONCLUSION

CONCLUSION

The **Skill Swap Initiative** is a project designed to create a platform where individuals can share and exchange skills in a collaborative and non-monetary environment. By leveraging modern technologies, including **Python** and **SQLite**, the platform can efficiently manage user data, skill information, and provide real-time communication features for users to connect and learn from one another.

Using **Python**, the project benefits from its simplicity, flexibility, and power, enabling the development of a scalable backend that can handle user registrations, skill matching, messaging, and feedback. Python-based frameworks like **Django** ensure the project is built with a solid foundation, while its integration with **SQLite** makes the database management lightweight, portable, and easy to scale as the platform grows.

The **SQLite** database provides a simple yet effective solution for storing and managing critical data such as user profiles, skills, and ratings. With its efficient query processing, the platform can handle skill exchanges and feedback in a seamless manner, making it easy for users to find the skills they need and connect with those who can help.

Ultimately, the **Skill Swap Initiative** leverages technology to break down barriers to learning and skill development. It fosters a community of individuals helping one another to learn and grow by swapping their knowledge. The platform's focus on inclusivity, accessibility, and real-time interaction ensures that users can learn new skills while contributing to the growth of others, creating a positive and collaborative learning environment.

With the integration of Python and SQLite, the project has laid a strong foundation for a user-centric platform that can be continuously improved and expanded. This project exemplifies the power of community-driven learning and how technology can be harnessed to build a more inclusive and accessible education ecosystem.

APPENDIX

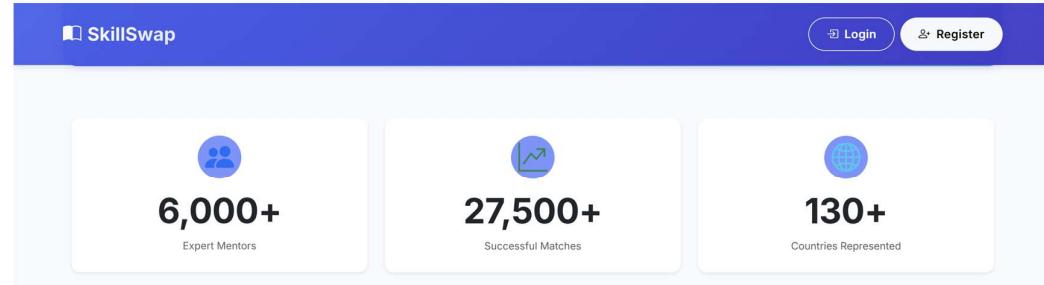
Home Page



The home page features a large blue central area with the text "Unlock Your Potential, Faster." and "Connect With Expert Mentors Today". Below this, a subtext reads: "One-on-one personalized guidance from industry leaders to accelerate your career and learning journey." At the bottom of this area are two buttons: "Find A Mentor" and "Become A Mentor".

Find A Mentor

Become A Mentor

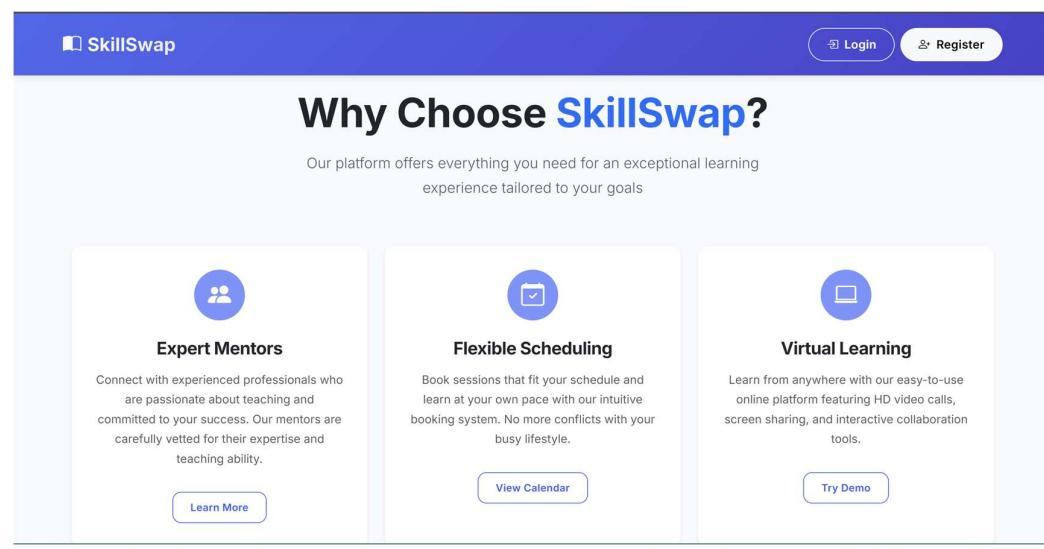


Three white boxes showing statistics: "6,000+ Expert Mentors", "27,500+ Successful Matches", and "130+ Countries Represented". Each box has a corresponding icon: people, a chart, and a globe.

Featured Mentors

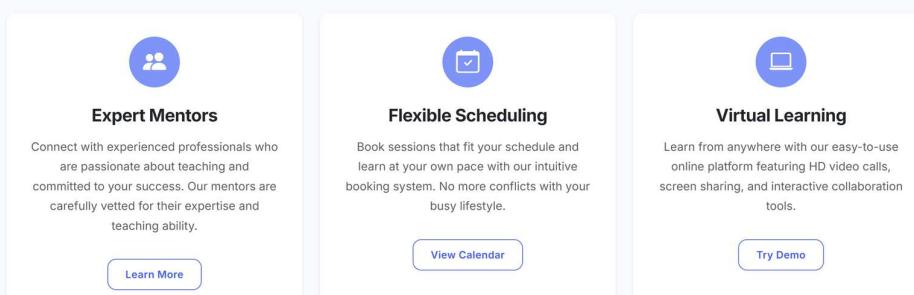


Text: "Connect with our exceptional educators and industry experts who are ready to guide you on your learning journey"



Why Choose SkillSwap?

Our platform offers everything you need for an exceptional learning experience tailored to your goals



Expert Mentors: Connect with experienced professionals who are passionate about teaching and committed to your success. Our mentors are carefully vetted for their expertise and teaching ability. [Learn More](#)

Flexible Scheduling: Book sessions that fit your schedule and learn at your own pace with our intuitive booking system. No more conflicts with your busy lifestyle. [View Calendar](#)

Virtual Learning: Learn from anywhere with our easy-to-use online platform featuring HD video calls, screen sharing, and interactive collaboration tools. [Try Demo](#)

Dashboard

Welcome, neethu!

Student Dashboard

Upcoming Sessions

No upcoming sessions. [Find a mentor](#) to schedule one!

Profile Overview

Default Profile Picture
neethu

No bio added yet.

[Edit Profile](#)

Profile

SkillSwap

Quick Links Resources Newsletter

127.0.0.1:5000/my_sessions

Edit Profile

neethu
neethu@gmail.com
[Student](#)

About me
Aspiring Engineer

Skills (comma separated)
Python,Mathematics,Physics

Separate skills with commas (e.g., Python, Mathematics, Physics)

Availability

Group sessions

SkillSwap

Dashboard Find Mentors Messages My Sessions Mentorship

neethu

Group Sessions

Upcoming Sessions

No upcoming sessions available.

Resource Library

Resource Library

Public Libraries

No public libraries available.

Create Your First Library

SkillSwap Dashboard Find Mentors Messages My Sessions Mentorship neethu

Session-Analytics

Session Analytics

Sessions Progress Engagement Success Rates ROI Reports

Total Sessions	Hours Mentored	Students Mentored	Avg. Engagement
0 0 completed	0 Total mentoring time	0 Unique students	0% Student participation

Session Trend

Topic Distribution

SkillSwap Dashboard Find Mentors Messages My Sessions Mentorship anand

Gamification

Gamification Dashboard

Dashboard Badges Achievements Leaderboards Rewards

anand	1 LEVEL	0 XP total	2000 XP needed for Level 2
0 XP			

Recent Activity

No activity yet

Start participating to earn badges, achievements, and XPI

Recent Badges

You haven't earned any badges yet.

Explore Badges

Recent Achievements

SkillSwap Dashboard Find Mentors Messages My Sessions Mentorship anand

Achievements

Your Achievement Progress

Complete achievements to earn XP and unlock special rewards.

0/9 Completed Categories 3 XP Earned 0

① Achievements are milestone-based goals that reward your progress and participation.

Learning Achievements

First Steps	Knowledge Seeker
Complete your first learning path	Complete 5 learning paths
Progress	Progress
100 XP	500 XP

Leaderboard

How Leaderboards Work

- XP Leaderboard**: Ranks users based on total experience points earned. Earn XP by completing achievements, earning badges, attending sessions, and more.
- Badges Leaderboard**: Ranks users based on the number of badges earned. Collect badges by participating in various activities on the platform.
- Achievements Leaderboard**: Ranks users based on the number of achievements completed. Complete achievements to climb the ranks.

Leaderboard Rewards

- 1st Place**: Exclusive "Champion" badge, 500 bonus XP at the end of each month, Featured on the platform homepage.
- 2nd Place**: "Silver Medalist" badge, 300 bonus XP at the end of each month.
- 3rd Place**: "Bronze Medalist" badge, 150 bonus XP at the end of each month.

Rewards

Available Rewards

No rewards available at the moment.
Check back later for new rewards!

Your Points

100 Available XP

Earn More XP

Reward Categories

Premium Features

Availability Management

SkillSwap Dashboard Find Mentors Messages My Sessions Mentorship anand

✓ Availability slot added successfully!

Availability Management

Add Availability

Day	Time	Duration	Timezone	Status	Actions
Monday	10:00 AM	-8h	UTC	Active	Edit Delete

Timezone Settings

Your Timezone: UTC

Current time in your timezone: Thursday, April 3, 2025 at 8:51:17 PM

Save Timezone

Availability Tips

Cancellation Policy

SkillSwap Dashboard Find Mentors Messages My Sessions Mentorship anand

Your Cancellation Policy

Notice Period (hours): 24

Minimum notice required for cancellations or reschedules.

Penalty Type: No Penalty

Penalty for late cancellations or no-shows.

Maximum Reschedules: 3

Maximum number of times a session can be rescheduled.

Policy Description:

Cancellations must be made at least 24 hours in advance. Late cancellations or no-shows may incur a penalty. Sessions can be rescheduled up to 3 times.

Policy Preview

Notice Period: 24 hours

Late Cancellation Penalty: No penalty

Rescheduling Limit: Maximum 3 reschedules per session

Full Policy:

Cancellations must be made at least 24 hours in advance. Late cancellations or no-shows may incur a penalty. Sessions can be rescheduled up to 3 times.

Notifications

SkillSwap Dashboard Find Mentors Messages My Sessions Mentorship anand

My Sessions

Upcoming Sessions Past Sessions Session

Notifications

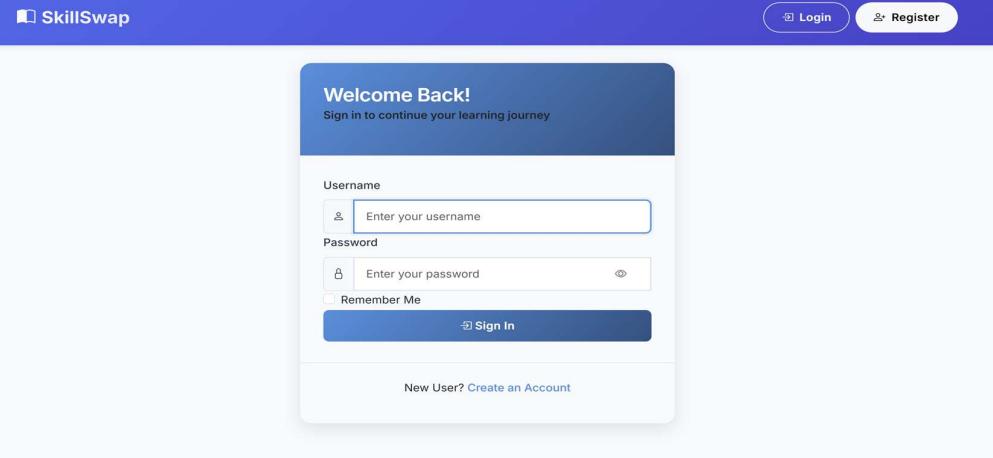
No notifications yet
We'll notify you when something important happens

Close Mark All As Read

Newsletter

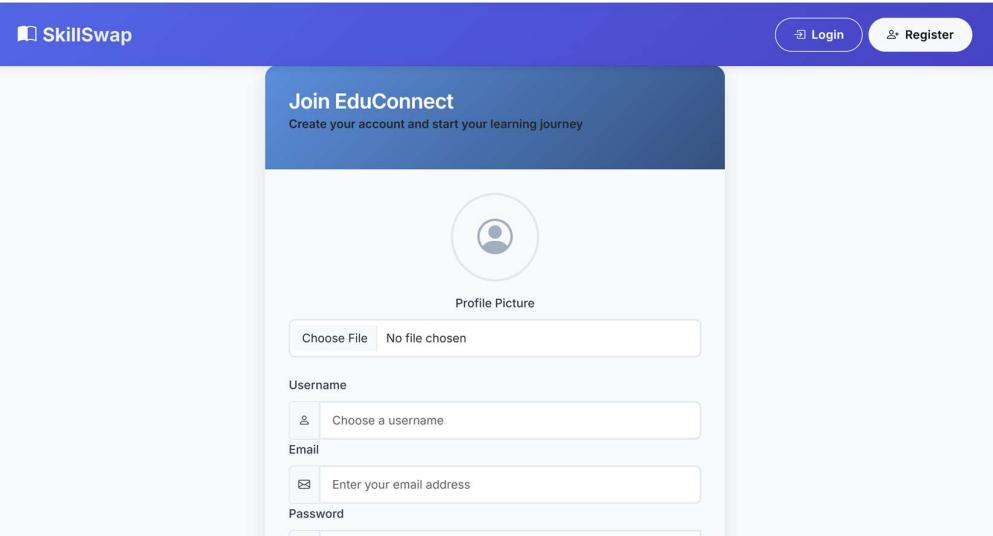
Your email Sign Up

Login Page



The login page features a blue header with the SkillSwap logo. Below it is a central form titled "Welcome Back!" with the sub-instruction "Sign in to continue your learning journey". The form includes fields for "Username" (with placeholder "Enter your username") and "Password" (with placeholder "Enter your password"). There is also a "Remember Me" checkbox and a "Sign In" button. At the bottom of the form, there is a link "New User? Create an Account".

Registration Page



The registration page features a blue header with the SkillSwap logo. Below it is a central form titled "Join EduConnect" with the sub-instruction "Create your account and start your learning journey". The form includes a "Profile Picture" field with a placeholder image of a person, a "Choose File" button, and a message "No file chosen". Below this are fields for "Username" (placeholder "Choose a username"), "Email" (placeholder "Enter your email address"), and "Password".

APPENDIX

1. Existing Mentor-Mentee Platforms (For Inspiration)

- **MentorCruise** – <https://mentorcruise.com/>
- **MicroMentor** – <https://www.micromentor.org/>
- **SCORE Mentors** – <https://www.score.org/>
- **LinkedIn Mentorship** – <https://www.linkedin.com/> (LinkedIn has mentorship features)
- **Everwise** – <https://www.geteverwise.com/>

2. UI/UX Design References

- **Dribbble (Mentorship Platform Designs)** – <https://dribbble.com/tags/mentorship>
- **Behance (Mentor-Mentee Case Studies)** – <https://www.behance.net/> (Search for "mentorship platform")
- **Awwwards (Best Web Designs)** – <https://www.awwwards.com/>

3. Technical References (Development)

- **Building a Matching Algorithm**
 - Research papers on mentor-mentee matching (Google Scholar)
 - Example: "*A Matching Algorithm for Mentor-Mentee Pairing in Universities*"
- **User Authentication & Profiles**
 - Firebase Auth – <https://firebase.google.com/docs/auth>
 - OAuth (Google, LinkedIn login)
- **Real-time Chat (For Mentor-Mentee Communication)**
 - Socket.io – <https://socket.io/>
 - Firebase Realtime Database – <https://firebase.google.com/>

4. Research Papers & Articles

- **"Designing Effective Mentorship Programs"** – Harvard Business Review
- **"Mentorship in the Digital Age"** – ResearchGate
- **"Best Practices for Online Mentorship Platforms"** – eLearning Industry

5. Open-Source Projects (GitHub)

- **Mentorship System** – <https://github.com/anitab-org/mentorship-backend>
- **Mentor-Mentee Matching App** – <https://github.com/search?q=mentor+mentee>