Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	28 June 2025
Team ID	LTVIP2025MID58662
Project Name	Learnhub:Your Center For Skill Enhancement
Maximum Marks	4 Marks

Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2

Example: Order processing during pandemics for offline mode

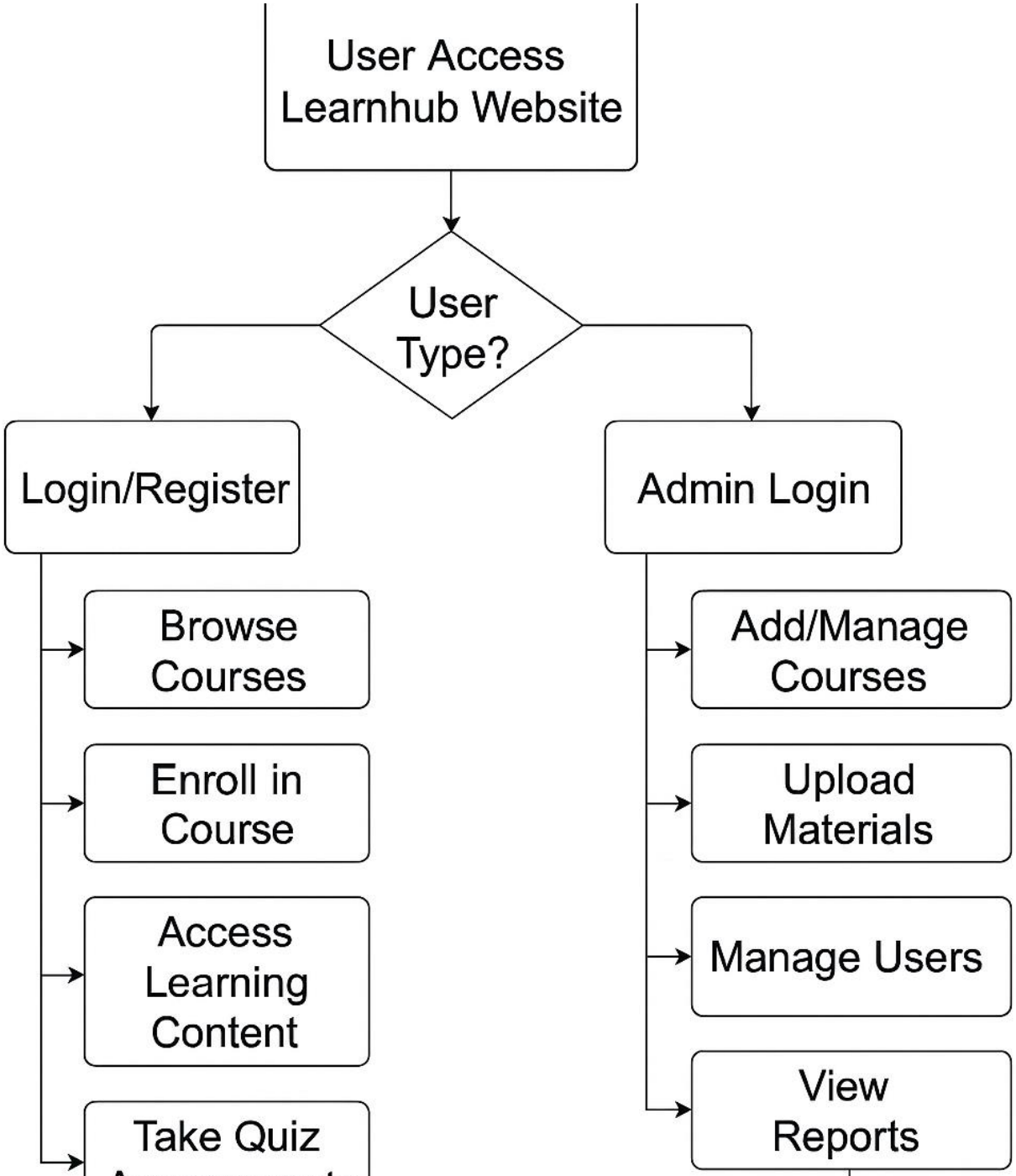
User Access Learnhub Website
User Type?
Login/Register
Admin Login
Browse Courses
Enroll in Course
Access Learning Content
Take Quiz
Add/Manage Courses
Upload Materials
Manage Users
View Reports

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Web-based interactive user interface for learners and trainers	HTML, CSS, JavaScript (Bootstrap for styling)
2.	Application Logic-1	User registration, course management, skill tracking	Python (Flask/Django)
3.	Application Logic-2	Backend logic for content delivery, user progress tracking	Python (Flask/Django), SQLite/MySQL
4.	Application Logic-3	Data analysis on learner progress and skill gaps	Python (Pandas, Matplotlib for visualization)
5.	Database	Storage for user data, courses, and assessments	SQLite / MySQL
6.	Cloud Database	Optional for deployment scalability	Firebase / Google Cloud SQL (Optional)
7.	File Storage	Store course materials, user uploads	Local File System / Google Drive (Optional)
8.	External API-1	For sending notifications / emails	SMTP API / Twilio (Optional)
9.	External API-2	Integration with third-party learning platforms (optional)	REST APIs (Optional)
10.	Machine Learning Model	(Optional) Recommendation engine for personalized learning path	Python (scikit-learn, TensorFlow/Keras)

11.	Infrastructure	Deployment of web app and backend	Google Cloud / AWS / Localhost.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Used for backend and frontend development	Python (Flask/Django), HTML, CSS, JavaScript
2.	Security Implementations	Basic user authentication and role management	Flask/Django Authentication, bcrypt (for password hashing)
3.	Scalable Architecture	Can be scaled with cloud deployment and load balancers	Google Cloud / AWS
4.	Availability	High if deployed on cloud with proper load balancing	Google Cloud App Engine / AWS EC2
5.	Performance	Optimized for fast content delivery and user interaction	Flask/Django, SQLite/MySQL, Caching mechanisms