A Mini Project Report
on

DevBootCamp

T.E. - I.T Engineering

Submitted By

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CERTIFICATE

This to certify that the Mini Project report on DevBootCamp has been submitted by Chirag Padyal (20104034), Vishal Bangar (20104084) and Anuj Kundar (20104047) who are a Bonafede students of A. P. Shah Institute of Technology, Thane, Mumbai, as a partial fulfilment of the requirement for the degree in **Information Technology**, during the academic year **2022-23** in the satisfactory manner as per the curriculum laid down by University of Mumbai.

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ABSTRACT

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Chapter 1

Introduction

After this covid period E-Learning has become an important part of our education system, So we introduce DevBootCamp which is an online course provider for Aspiring Software developers.

DevBootCamp offers online courses, certifications, and degrees in various Tech Fields.

The Problem we identify is, Users need a website to track their work and create a routine that can maximize their workout.

The Solution we proposed is,The user will be able to track work for a particular day with the ability to add exercises. Each exercise can have a corresponding detail of sets and information about how to do the corresponding exercise.

1.1 Purpose

Providing life-transforming learning experiences to learners around the world.

1.2 Problem Statement

Nowadays learners don't have a specific book for learning new emerging and complex technologies to keep themselves updated with new tech stack and get better opportunities This web application will help users by providing learning resources

1.3 Objective

- To empower people to learn new and complex frameworks.

  We achieve it by providing new and relevant courses and also allow new enthusiastic instructor to create relevant courses.

- To make best use of user's time

  We provide game like learning experience so that learner can make use of their time pro-efficiently.

- To add new skills in user's arsenal

  We achieve it by providing new and relevant courses and also allow new enthusiastic instructor to create relevant courses.

- To build a user-friendly website.

  Simple and efficient user-friendly for beginner user.

- To track users learning progress.

  We provide a efficient learning tracker.
- To track their workout progress with the help of graph.

  We provide graphs to see the user growth over time
- To be up to date regarding new Techstacks and new technologies through articles.

  We provide graphs to see the user growth over time

Scope

- Can be used to track course progression.
- Can be used to add exercises to workouts and their corresponding sets.
- Can be used to understand technical concepts through videos.
- Can be used to see improvement through quiz after completion of sections.
- Can be used to have a news of various articles regarding new technologies.

Chapter 2

Literature Review

1. Despite the enormous growth of e-learning in education and its perceived benefits, the efficiency of such tools will not be fully utilized if the users inclined to not accept and use the system. Therefore, the successful implementation of e-learning tools depends on whether or not the students are willing to adopt and accept the technology.

2. Thus, it has become imperative for practitioners and policy makers to understand the factors the user acceptance of web-based learning systems in order to enhance the students' learning (Tarhini et al., 2014a). However, recent studies have shown that e-learning implementation is not

3. simply a technological solution, but also a process of many different factors such as social factors (Schepers and Wetzels, 2007; Tarhini et al., 2014b; 2015), and individual factors (Liaw and Huang, 2011), organizational such as facilitating conditions (Sun and Zhang, 2006) in addition to behavioural and cultural factors (Masoumi, 2010).Such major factors play an important role in how an information technology is developed and used (Kim and Moore, 2005).

4. Fischer et al. (2015) studied how proceedings of scientific conferences can be used for trend studies in the field of e-learning. They examined the abstracts of 427 scientific articles of leading German-speaking e-learning conferences GesellschaftfürMedien in der Wissenschaft and E-Learning-Fachtagungen der GesellschaftfürInformatik e. V. (GMW and DeLFI) – published from 2007 to 2013. The study was conducted at German-speaking conferences and, thus, reflects the situation in Germany, Switzerland and Austria. Fischer et al. (2015) made an important contribution to the diffusion of digital media in higher education.

5. The researchers found that the detailed analysis of the frequency distribution over the seven years reflects the intensity of scientific discussion towards e-learning trends, and conclusions about the didactical or technical potentials of innovations can be introduced. Specifically, they found the development potential of learning management, mobile learning, virtual worlds, e-portfolio, social media and Massive Open Online Courses are crucial for e-learning in German higher education.

Chapter 3

Proposed System

The DevBootcamp is designed to assist people with insufficient knowledge about software development process. The system will feature learning resources and project building exercises. For the user the proposed system will benefit the users by giving technical knowledge about the development process.

3.1 Features and Functionality

- **Course videos:**

  User can refer to various workout plans to help them understand the exercises.

- **Quiz /exercises:**

  User can give quiz to understand grasp of concepts.

- **Detailed Solutions to problems:**

  User can view the solution related to the exercises of that particular section.

- **Graph:**

  User can have a observe on his/her progress through the graph constantly.

- **Track Progress:**

  User can track their daily course progression

Chapter 4

Requirement Analysis

4.1. Performance Requirements

The load time for the user interface screen should take no longer than 5 seconds.

Course videos for reference should be there.

Track of daily progress made by user should be seen through graph or daily tracking information.

4.2. Design Constraints

The application should be able to run on any Pc or Laptop.

4.3. Availability

The application should be available at all times whenever user wants to use.

4.4. Hardware requirements

RAM

The application requires a device with a minimum of 512MB RAM while running.

Processor speed

The application requires a device with a minimum processor speed of 1GHz while running.

4.5. Software requirements

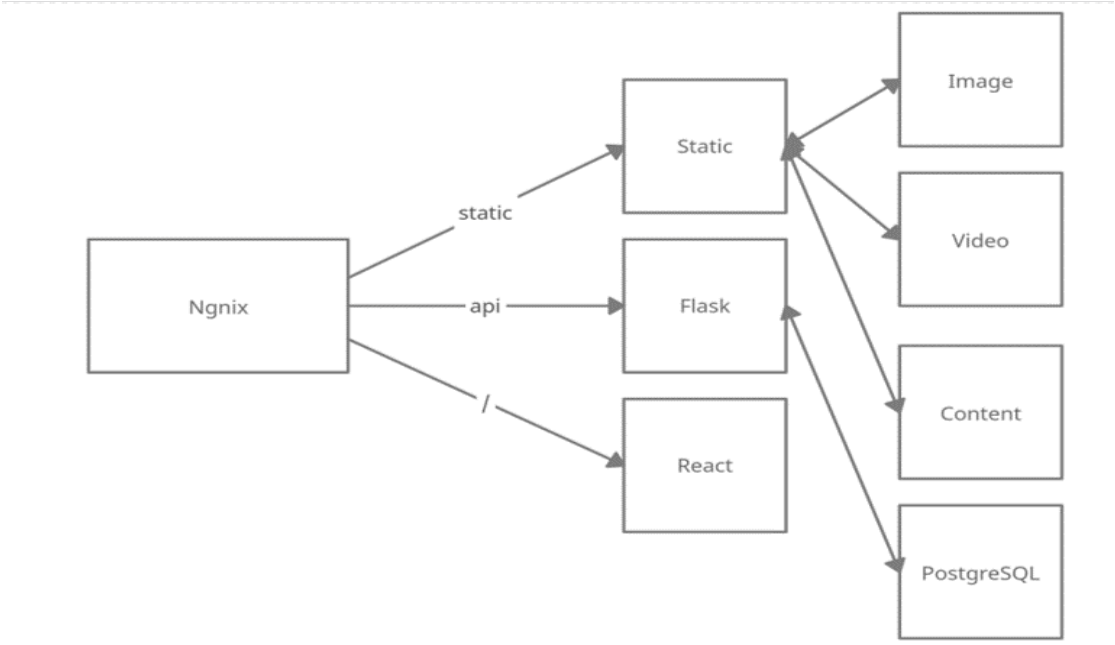
Operating system

The application must run on any Operation System.

Chapter 5

Project Design

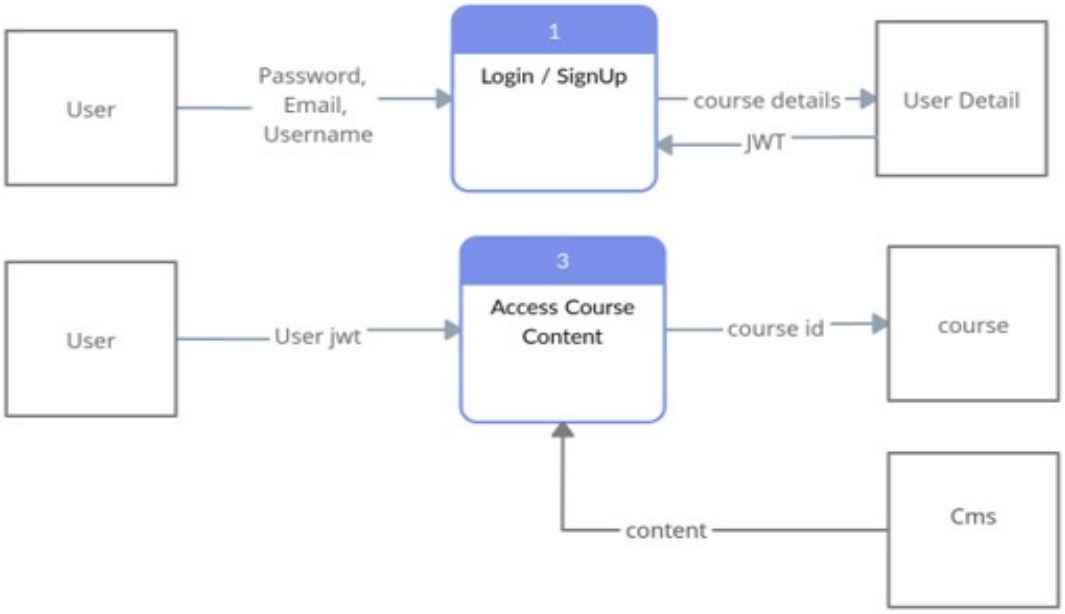
5.1 Block Diagram



5.1) DFD for Login and Course Access

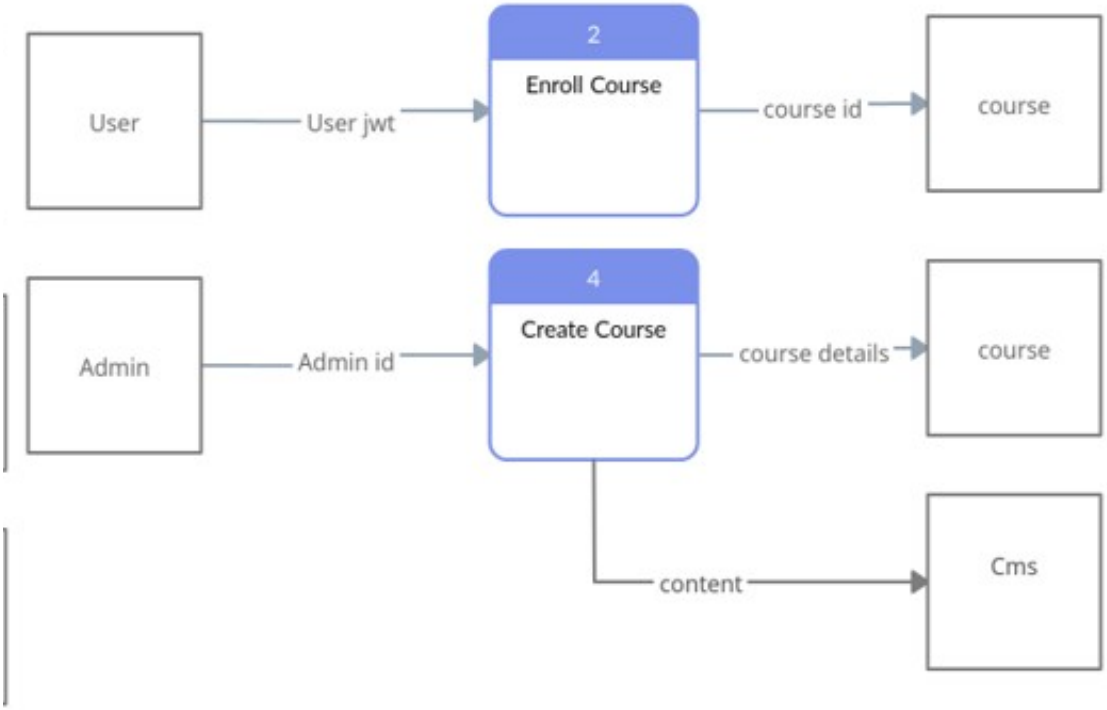
We are using ngnix as our webserver, so its a base of our system architecture. Ngnix maps the routes to specific infrastructure to have a proper data flow. Static files like images, videos or other multimedia files are served using “/static” route. And any backend api query or request is handled using “/api” routes it avoid the cors errors and we can host front-end and backend on a same device or server. All the remaing routes excluding \static and \api are served under react. Flask also has postgresql which is our database for normal data entries, any larger binaries get stored in server and course content is served through \static routes by provided cms (content management system)

5.2 DFD



5.2.1) DFD for Login and Course Access

In the above dfd diagram the user must login or register in our server then a jwt or json web token is generated. With the help of jwt the user can access the course detail page.
The Jwt is also required to access course content or register a course.
The Jwt lasts for 30 minutes, so each user session last for 30 minutes maximum, increasing security.



5.2.2) DFD for Enroll course and Create course

In the above dfd diagram the user must login or register in our server then a jwt or json web token is generated. With the help of jwt the user can access the course detail page.
The Jwt is also required to access course content or register a course.
The admin doesn’t use jwt but has basic auth only, the admin can create course, once course created the course textual data will be stored in course database and course content to cms (content management system)

Chapter 6

Technical Specification

6.1. Front-end: -

1. Framework: - React
2. State Manager: - Redux

6.2. Back-end: -

1. Framework: - Flask
2. Webserver: - Ngnix
3. Auth: - Basic Auth
4. Security: - Json Web Token

6.3. Database: - PostgreSQL.

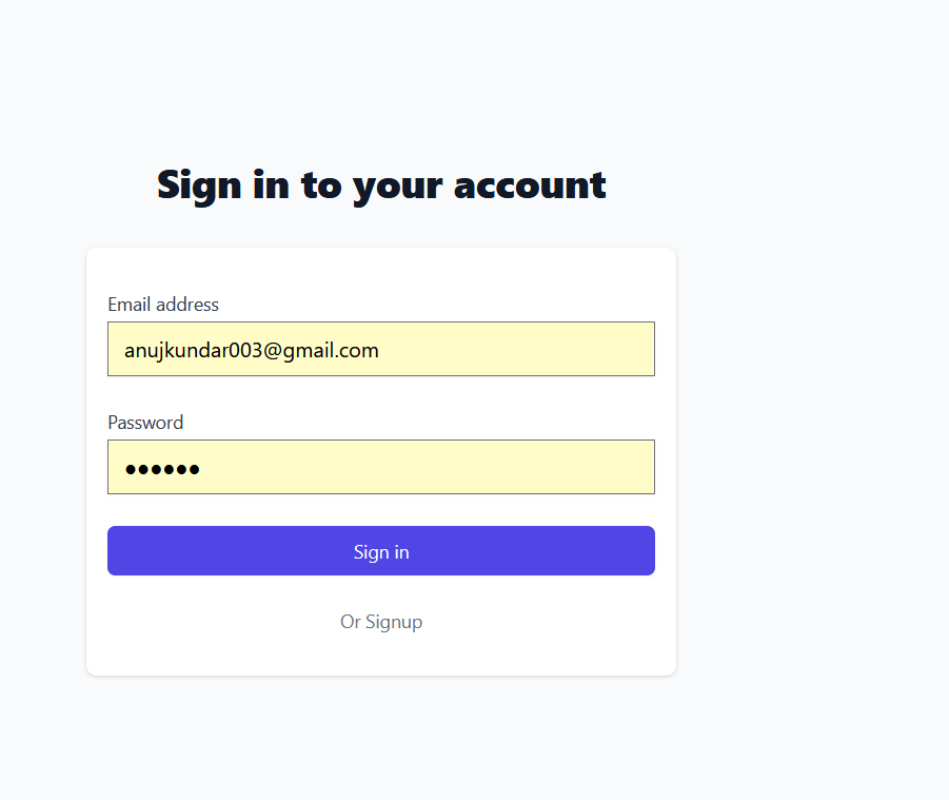
Chapter 7

Project Scheduling

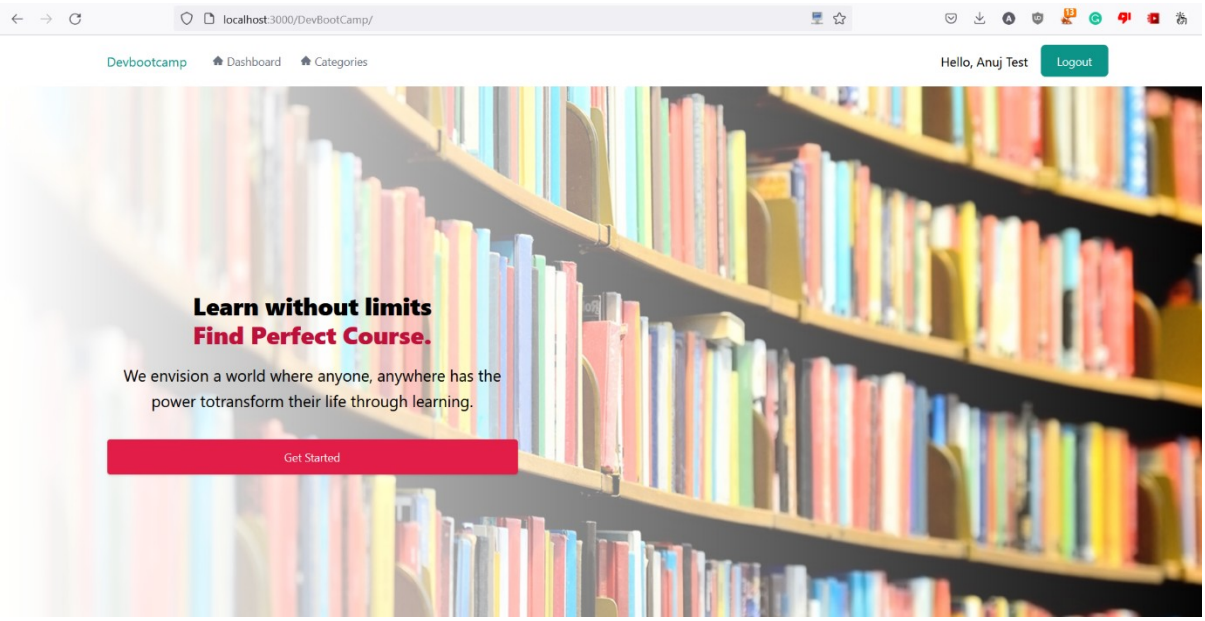
Sr. No	Group Member	Time duration	Work to be done
1	Anuj kundar Vishal Bangar Chirag Padyal	1st week of August	Implementing Login, Registration and Home Page in react js.
		2nd week of August	Implementing Flask Backend for Registration using Basic Auth and jwt and integrating it with front end
2	Anuj kundar Vishal Bangar Chirag Padyal	3rd week of August	Implementing Rest full api in flask to handle different routes to perform course crud operations
		4th week of August	Course Categories page frontend and itegrating with api
3	Anuj kundar Vishal Bangar Chirag Padyal	1st week of September	Course Information page frontend and itegrating with api
		2nd week of September	Course Content page and itegrating with api
4.	Anuj kundar Vishal Bangar Chirag Padyal	3rd week of September	Adding course quiz funtion to course content
	Anuj kundar Vishal Bangar Chirag Padyal	3rd week of September	Adding automatic certification generation
5.		4th week of September	Serving Frontent and Backend on Nginx Web Server
		4th week of September	Dockerizing the whole project

8. Implementation

Frontend

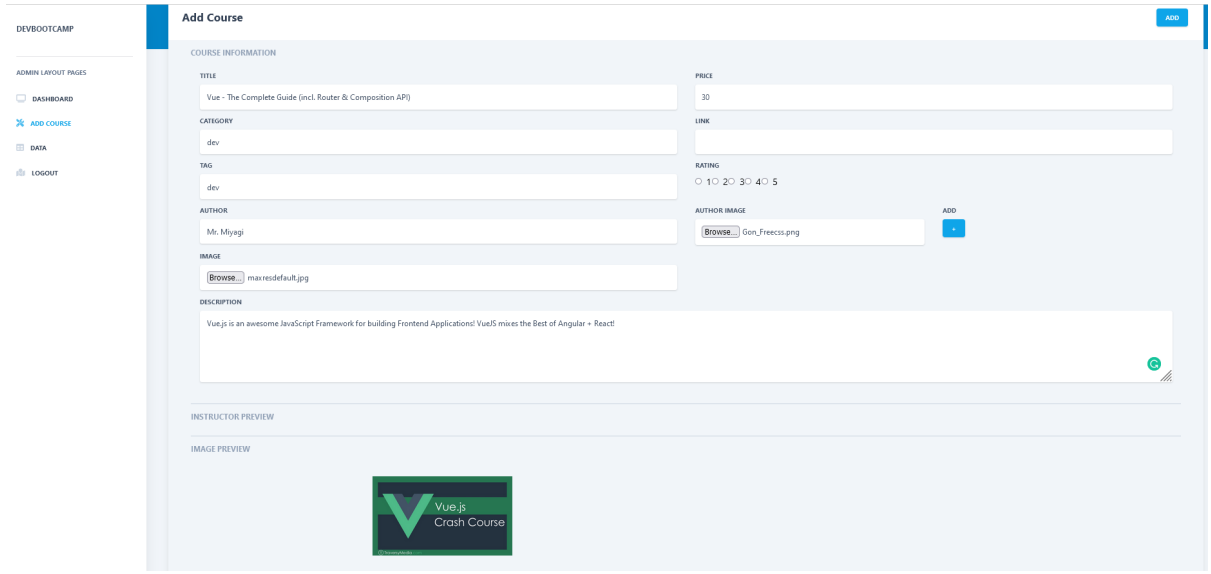


8.1) Login Page

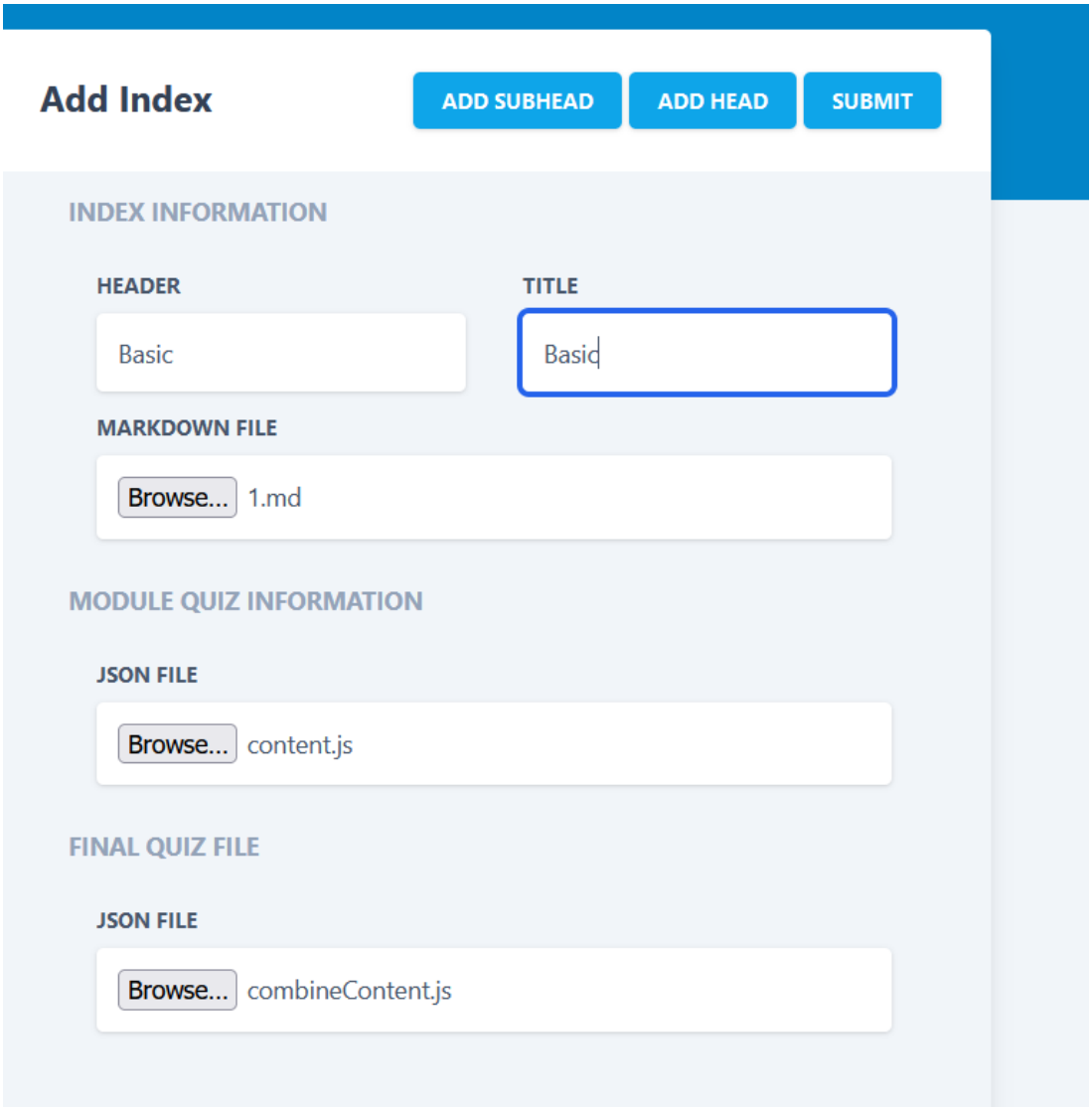


8.2) Home Page

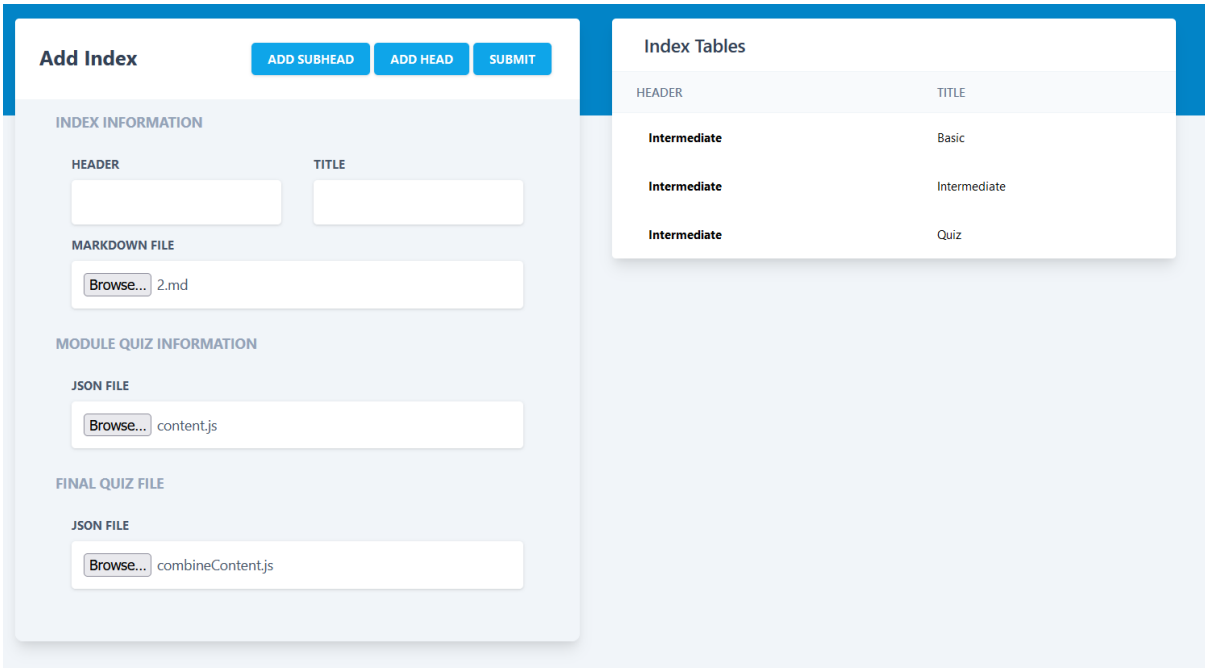
8.3) Dashboard Page



8.4) Add Course Page



8.5) Add Course Index Page



8.6) Add Course Content Page

9. Result and Discussion

1. Add video in course content
2. Add Quiz after each course module
3. Add Email Authentication
4. Tabular Literature Review
5. Course Categories

10. Conclusion and Future Scope

Online course portal project is developed in javascript (React) and Python (Flask). The main aim of this system is to implement an online based mostly portal with education data which is able to be helpful for faculty students. on-line education is one o f the quick growing field on internet wherever users will directly solve issues by visiting web site with none facilitate from academics. This method had inflated scope of on-line education and on-line courses. in conjunction with on-line courses this computer are often updated with alternative data like job updates, on-line communication details, coming events, government job, and tips for teaching. The future scope of our system is :-

- Can be used in Education field to empower at-place learning.
- Can be used in Company’s and industries to tech workers their latest tech, with no human error.
- Can be used by individual teacher, to spread its reach in global market.
- Can be used to see improvement through quiz after completion of sections.

Reference

(1) Courses as markdown:- https://github.com/remarkjs/react-markdown/

(2) Fetch Static (i.e. videos, markdownfiles, images):- https://fedingo.com/how-to-use-nginx-with-flask/

(3) JWT :- https://www.geeksforgeeks.org/using-jwt-for-user-authentication-in-flask/

(4) Dockerize:- https://blog.miguelgrinberg.com/post/how-to-dockerize-a-react-flask-project