

A

PROJECT REPORT ON

## **BITCODE TUTORIALS**

An online learning platform for new  
programmers



UNDER THE GUIDANCE OF  
Mr. Jitesh Bafna

PRESENTED BY

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*Submitted By:*

**Group No: 03**

AT  
CENTRE FOR DEVELOPMENT OF ADVANCE COMPUTING CDAC,  
PUNE

BitCode Tutorials is an online learning platform that provides various courses on a variety of programming languages. These tutorials are developer documentation based, with the best interpretation of technical jargons into simplified layman terms. The BitCode project is a collaborative effort to create a secure online platform to provide the helpful services to the users or customers which are in trouble or needy when they are travelling on the highway. Because nowadays we are seeing that in our country amount of night or highway accidents are increasing very rapidly. And if the accident place is far from city or village then it is difficult for peoples to get the help immediately. The Highway-Help project will allow service providers to list their services on an online application and to accept the payment directly from the users or customers. This will help the users/customers to get benefit of the services which are available on the application.

## ACKNOWLEDGEMENT

I take this occasion to thank God, almighty for blessing us with his grace and taking our endeavor to a successful culmination. I extend my sincere and heartfelt thanks to our esteemed guide, **Mrs. Jitesh Bafna** for providing me with the right guidance and advice at the crucial juncture and for showing me the right way. I extend my sincere thanks to our respected Centre Co-Ordinator **Mrs. Priyanka Ranade**, for allowing us to use the facilities available. I would like to thank the other faculty members also, at this occasion. Last but not the least, I would like to thank my friends and family for the support and encouragement they have given me during the course of our work.

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## **Table of Contents**

<b>1. Introduction .....</b>	<b>6</b>
Document Purpose .....	6
Problem Statement .....	6
Product Scope .....	6
<b>2. Aim &amp; Objectives .....</b>	<b>7</b>
<b>3. Overall Description .....</b>	<b>7</b>
<b>4. Operating Environment .....</b>	<b>8</b>
Server-side .....	8
Client-side .....	8
<b>5. Design and Implementation Constraints .....</b>	<b>8</b>
<b>6. Specific Requirements .....</b>	<b>9</b>
External Interface Requirements .....	9
Functional Requirements .....	9
Non-Functional Requirements .....	12
<b>7. System Design .....</b>	<b>12</b>
ER Diagram .....	14
Activity Diagram .....	15
Sequence Diagram .....	16
Data Flow Diagram .....	17
Class Diagram .....	18
Use Case Diagram .....	19
<b>8. Table Structure .....</b>	<b>20</b>
<b>9. UI Screen Shots .....</b>	<b>23</b>
Guest UI.....	23
Subscriber UI .....	27
Admin UI .....	30

<b>10. Conclusion .....</b>	<b>32</b>
Future Scope .....	32
<b>11. References .....</b>	<b>33</b>

### **List of Figures**

Figure 1 ER Diagram .....	11
Figure 2 User Activity Diagram .....	12
Figure 3 Sequence Diagram .....	13
Figure 4 Level 0 Data Flow Diagram .....	13
Figure 5 Level 1 Data Flow Diagram .....	14
Figure 6 Class Diagram .....	14
Figure 7 Use Case Diagram .....	15

## ❖ **Introduction**

BitCode Tutorials is an online learning platform that provides various courses on a variety of programming languages. These tutorials are developer documentation based, with the best interpretation of technical jargons into simplified layman terms.

The detailed requirements and specifications for the development of BitCode Tutorials website are provided in this document.

## **Document Purpose**

BitCode Tutorials website aims to create a E-learning programming tutorials website to provide free, extensive and accurate knowledge to the learners at one single place.

## **Problem Statement**

With the advent in technology and with the perpetual increase in the strength of the students and the number of departments in the educational institutions, it is laborious to exchange the study materials between the students and the faculties.

The main objective of the E-Learning is to help the students get over the traditional methods of learning and make them accustomed to the internet where the notes for their respective subjects are easily available. It provides an automation procedure of studying the notes online. The implementation of this project helps the students. The students can gain access to these notes by searching for the name of the file under their respective department.

This project not only helps to facilitate easier access to notes for the students but also helps cutting down on expenditure for the universities as well. Students and Universities alike spend a considerable amount of money on printing costs which can be prevented.

E-Learning is an inexpensive, efficient and comfortable way for students to easily access notes and an easier alternative to study for exams.

## **Product Scope**

This web application is an online E-learning tutorials website that helps programmers with extensive knowledge of various programming languages, along with plenty of coding examples. Each user can signup to this website and keep a track record of their learning journey. There are options to subscribe for premium contents of this tutorials website which provides user with exclusive content. A course purchase history is maintained for every subscription made.

## ❖ Aims & Objectives

Specific goals are: -

- To produce a web-based system that allow users to access the content depending upon the courses available which can be free and paid.
- To produce a web-based system that allow admins to add the contents in the existing courses and additional information.
- To maintain a track for the admin on the respective courses about the purchase ratios. And also keep tract upon the transactions.

## ❖ Overall Description

- This programming tutorials website provides plenty of code snippets to make user familiar with the programming environment and programming syntax. Each code snippet is followed by a in depth explanation.
- The content is thoroughly tested and designed in a manner that assures easy understanding to leaners.
- An online coding compiler is made available for users with paid subscriptions for immediate hands on.
- Admins have right to access all the user profiles and other related informations such as progress tracking, course enrollments, payment transactions, etc. Admins can add new contents within the existing courses and also can add new courses.
- The users are provided various courses with specific contents and relative information as per requirements. Users registration is done for the purchase various paid contents and profile is maintained along with the progress tracking.

## ❖ Operating Environment:

Server Side:

**Processor:** Intel® Xeon® processor 3500 series

**HDD:** Minimum 500GB Disk Space

**RAM:** Minimum 4GB

**OS:** Windows 10, Linux 6

**Database:** MySQL

Client Side (minimum requirement):

**Processor:** Intel Dual Core

**HDD:** Minimum 80GB Disk Space

**RAM:** Minimum 1GB

**OS:** Windows 8 and above, Linux

**Design and Implementation Constraints:**

- The application will use ReactJS, Spring Boot API, Ajax, JavaScript, jQuery and CSS as main web technologies.
- HTTP and FTP protocols are used as communication protocols. FTP is used to upload the web application in live domain and the client can access it via HTTP protocol.
- Several types of validations make this web application a secured one.
- Since BitCode Tutorials is a web-based application, internet connection must be established.
- BitCode Tutorials will be used on PCs and will function via internet or intranet in any web browser.

❖ **Specific Requirement**

**External Interface Requirements:**

User Interfaces:

- All the users will see the same page when they enter in this website. This page asks the users a username and a password.
- After being authenticated by correct username and password, user will be redirect to their corresponding profile where they can do various activities.
- The user interface will be simple and consistence, using terminology commonly understood by intended users of the system. The system will have simple interface, consistence with standard interface, to eliminate need for user training of infrequent users.



### Hardware Interfaces:

- No extra hardware interfaces are needed.
- The system will use the standard hardware and data communication resources.
- This includes, but not limited to, general network connection at the server/hosting site, network server and network management tools.

### **Functional Requirements**

#### Access Website

New users can register to this website for free and start their programming journey, or simply browse through the website for free content without registration.

#### Admin Profile

The admin has all the rights to have an access to the entire courses and the users profile which contains the user profile tracking, progress of the course for all users. The admin have an access to the payments related detailed information regarding the courses with respect to all users. Admin have an access to modify the existing course contents and also to add a new course as per required.

#### User Profile

Each user has a personalized dashboard that displays user specific information like course purchase history, learning track record, etc.

Various personal details like profile name, password, etc can be updated via this dashboard as well.

### Enrollment of the course

The user can enroll the courses which are free as well as paid. Users need to enroll the paid courses by purchasing the course respective to their enrollment amounts.

### Progress Tracking

The course or contents enrolled by the specific user is been added to respective profiles with proper progress tracking bar. As the contents are been marked as done it reflects the progress within the profile.

### Application Interfaces:

**OS:** Windows 10, Linux

#### **Web Browser:**

The system is a web-based application; clients need a modern web browser such as Mozilla Firefox, Internet Explorer, Opera, and Chrome. The computer must have an Internet connection in order to be able to access the system.

#### Communications Interfaces:

- This system uses communication resources which includes but not limited to, HTTP protocol for communication with the web browser and web server and TCP/IP network protocol with HTTP protocol.
- This application will communicate with the database that holds all the booking information. Users can contact with server side through HTTP protocol by means of a function that is called HTTP Service. This function allows the application to use the data retrieved by server to fulfil the request fired by the user.

## **Non-Functional Requirements**

### **Security**

The system's back-end servers shall only be accessible to authenticated administrators. Sensitive data will be encrypted before being sent over insecure connections like the internet.

### **Availability**

The system should be available at all times, meaning the user can access it using a web browser, only restricted by the downtime of the server on which the system runs. In case of an of a hardware failure or database corruption, a replacement page will be shown. Also, in case of a hardware failure or database corruption, backups of the database should be retrieved from the server and saved by the administrator.

Then the service will be restarted. It means 24 X 7 availability.

### **Reliability**

The reliability of the overall program depends on the reliability of the separate components. The main pillar of the reliability of the system is the backup of the database which is continuously maintained and updated to reflect the most recent changes. Thus, the overall stability of the system depends on the stability of container and its underlying operating system.

### **Maintainability**

A commercial database is used for maintaining the database and the application server takes care of the site. In case of a failure, a re-initialization of the program will be done. Also, the software design is being done with modularity in mind so that maintainability can be done efficiently.

### **Accessibility**

The system will be a web-based application it is going to be accessible on the web browser.

### **Back up**

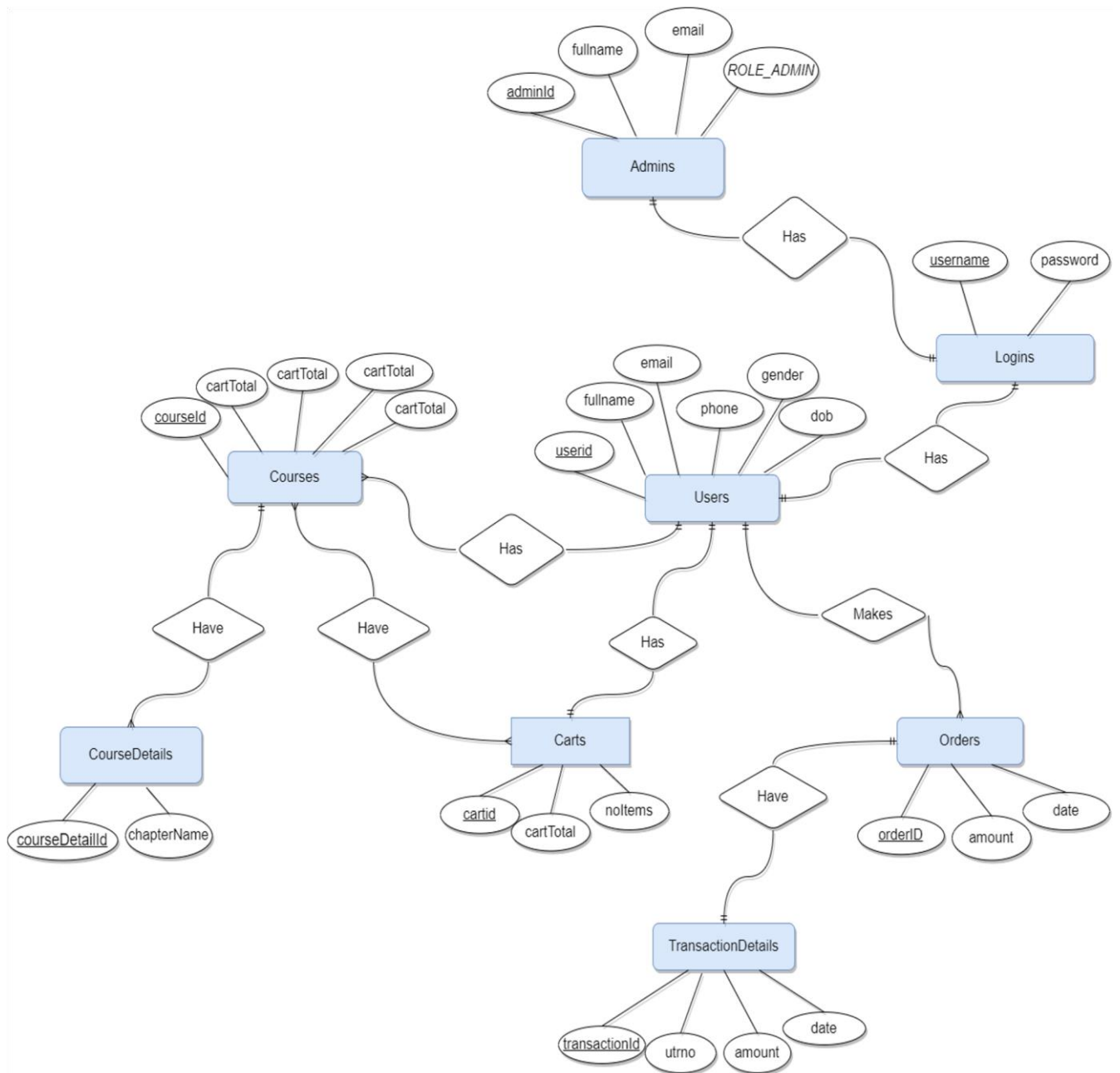
We will take a backup in our system database. In order to enable the administrator and the user to access the data from our system.

## Performance

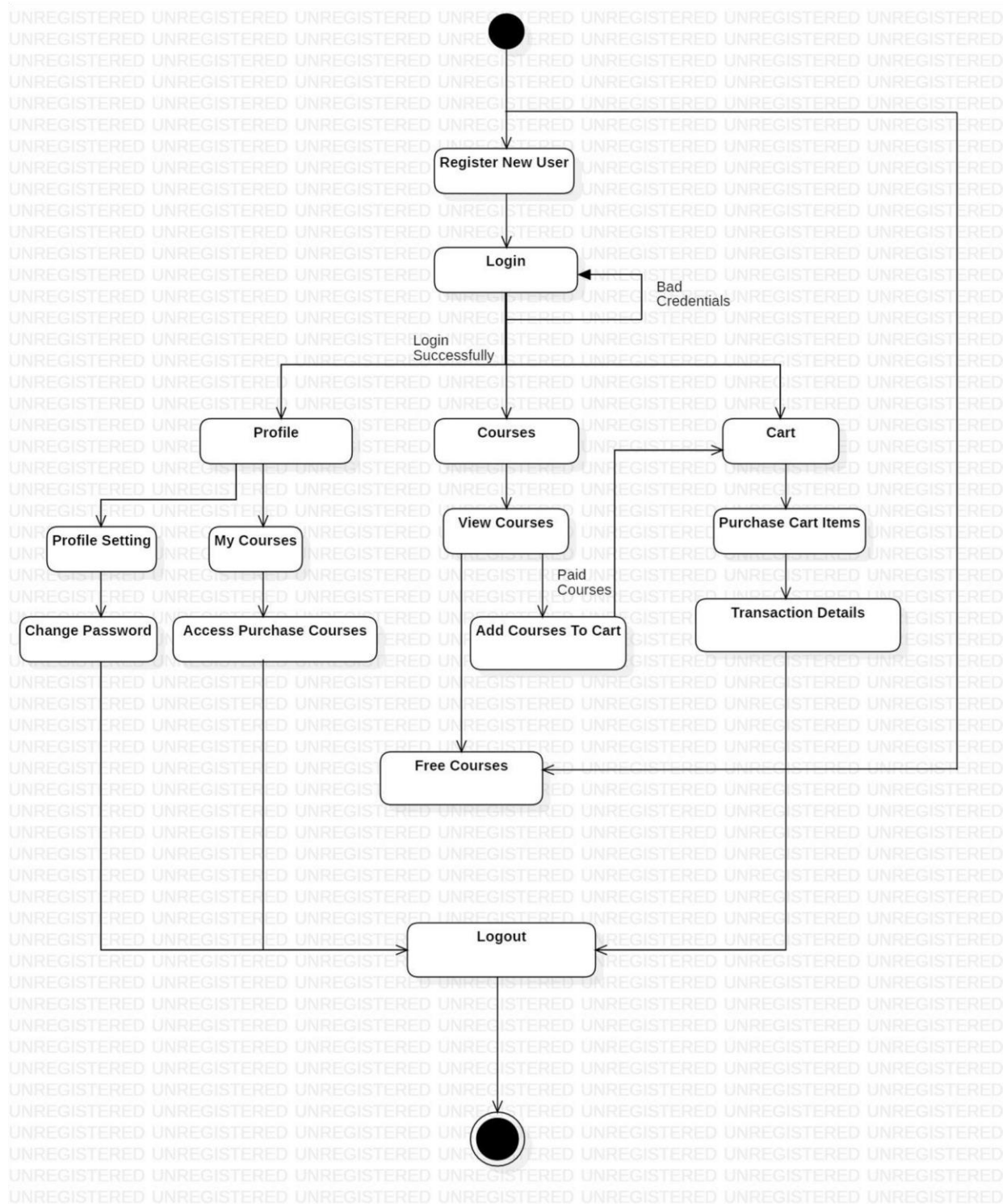
The product shall be based on web and has to be run from a web server. The product shall take initial load time depending on internet connection strength which also depends on the media from which the product is run. The performance shall depend upon hardware components of the client/customer

## ❖ System Design

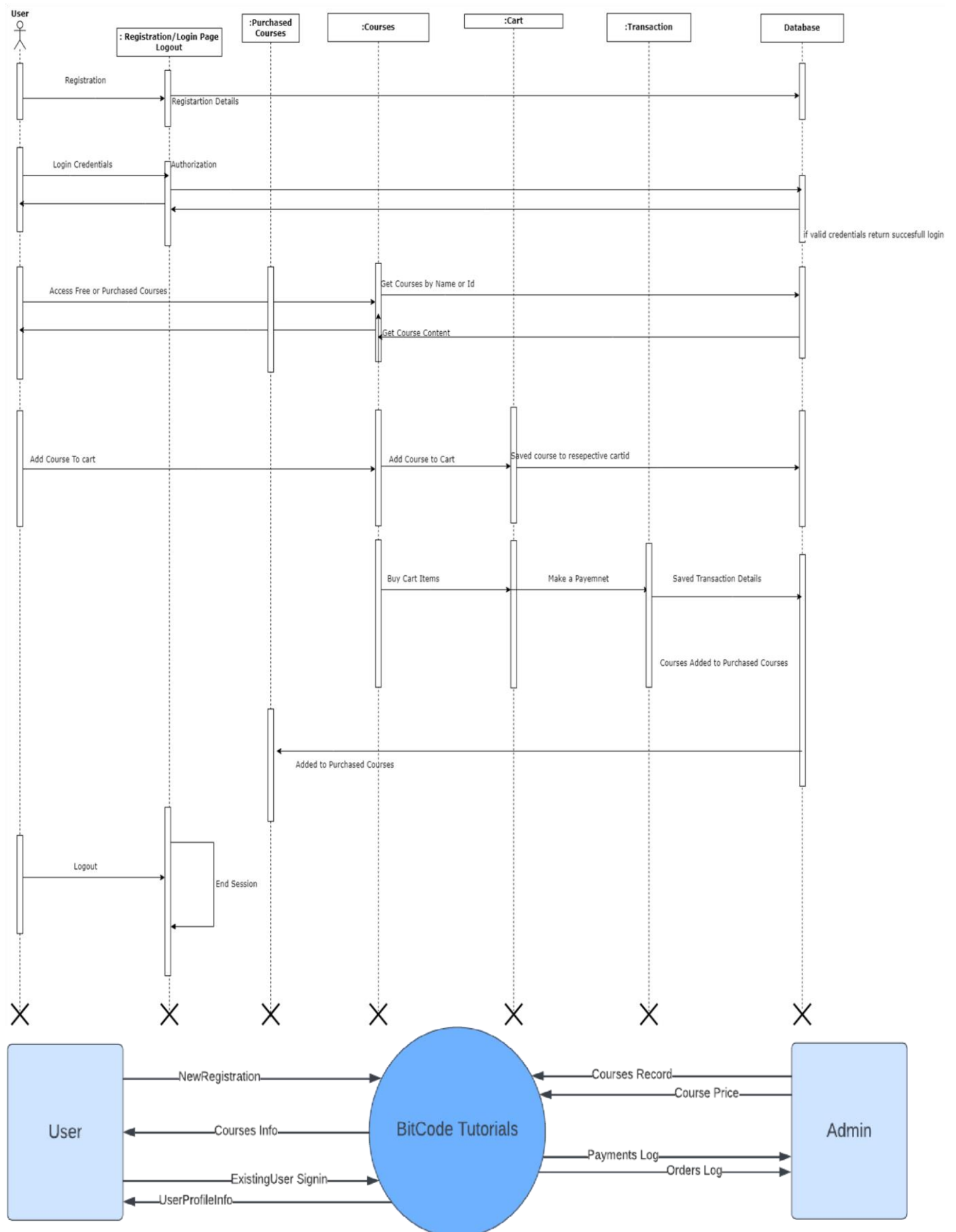
### ER Diagram:



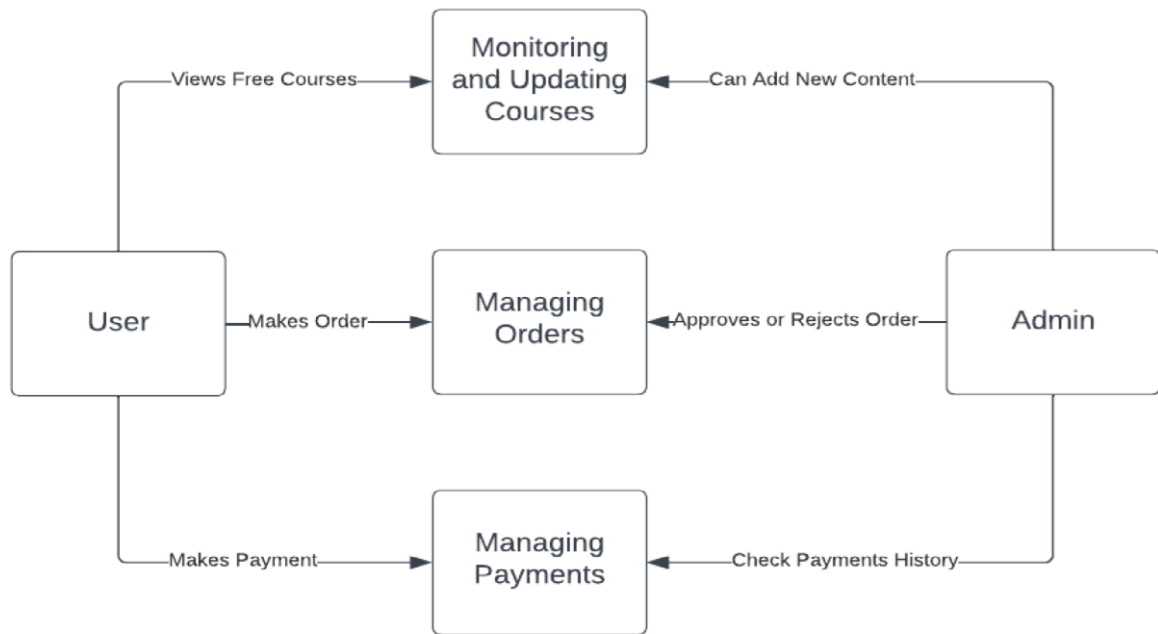
## Activity Diagram



## Sequence Diagram Data Flow Diagram



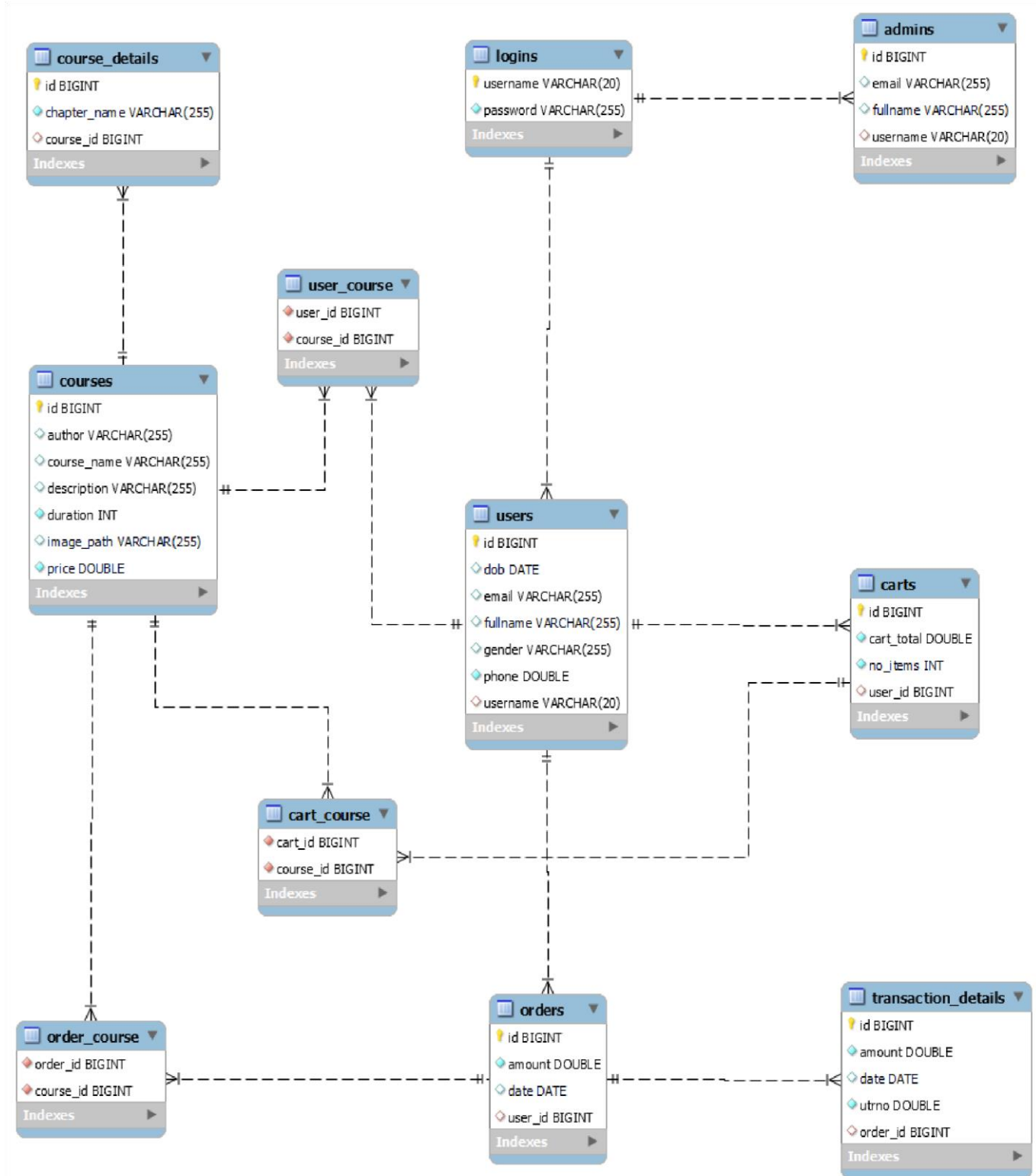
## Level 0



## Level 1



## Class Diagram



## Use Case Diagram



## Table Structure

Admin:

Field	Type	Null	Key	Default	Extra
id	bigint	NO	PRI	NULL	auto_increment
email	varchar(255)	YES		NULL	
fullname	varchar(255)	YES		NULL	
username	varchar(20)	YES	MUL	NULL	

Cart\_Courses

Field	Type	Null	Key	Default	Extra
cart_id	bigint	NO	MUL	NULL	
course_id	bigint	NO	MUL	NULL	

Cart

Field	Type	Null	Key	Default	Extra
id	bigint	NO	PRI	NULL	auto_increment
cart_total	double	NO		NULL	
no_items	int	NO		NULL	
user_id	bigint	YES	MUL	NULL	

Course\_Details

Field	Type	Null	Key	Default	Extra
id	bigint	NO	PRI	NULL	auto_increment
chapter_name	varchar(255)	NO	UNI	NULL	
course_id	bigint	YES	MUL	NULL	

## Courses

Field	Type	Null	Key	Default	Extra
id	bigint	NO	PRI	NULL	auto_increment
author	varchar(255)	YES		NULL	
course_name	varchar(255)	YES		NULL	
description	varchar(255)	YES		NULL	
duration	int	NO		NULL	
image_path	varchar(255)	YES		NULL	
price	double	NO		NULL	

## Logins

Field	Type	Null	Key	Default	Extra
username	varchar(20)	NO	PRI	NULL	
password	varchar(255)	NO		NULL	

## Order\_Courses

Field	Type	Null	Key	Default	Extra
order_id	bigint	NO	MUL	NULL	
course_id	bigint	NO	MUL	NULL	

## Orders

Field	Type	Null	Key	Default	Extra
id	bigint	NO	PRI	NULL	auto_increment
amount	double	NO		NULL	
date	date	YES		NULL	
user_id	bigint	YES	MUL	NULL	

## Transaction\_details

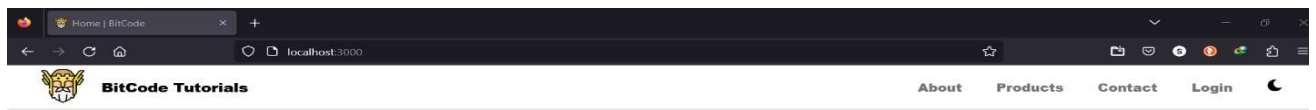
Field	Type	Null	Key	Default	Extra
id	bigint	NO	PRI	NULL	auto_increment
amount	double	NO		NULL	
date	date	YES		NULL	
utrno	double	NO		NULL	
order_id	bigint	YES	MUL	NULL	

## User\_Course

Field	Type	Null	Key	Default	Extra
user_id	bigint	NO	MUL	NULL	
course_id	bigint	NO	MUL	NULL	

## User

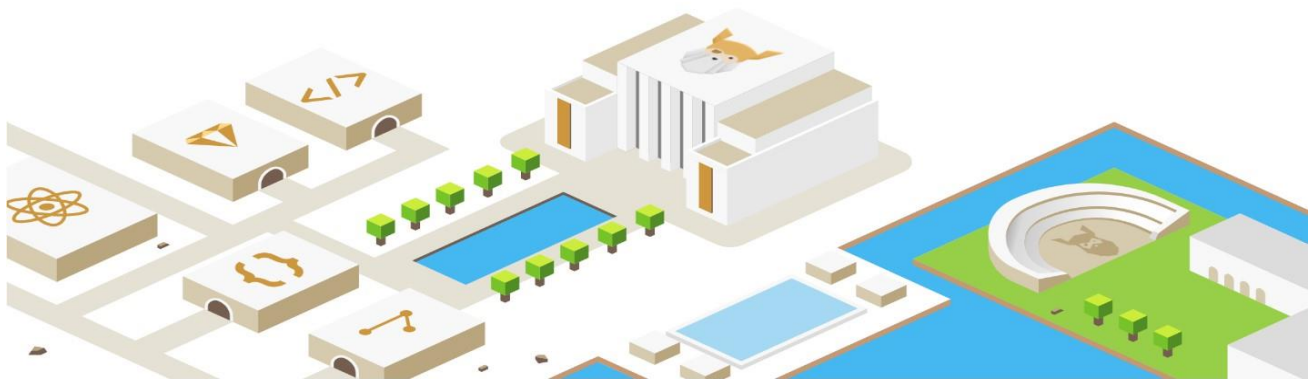
Field	Type	Null	Key	Default	Extra
id	bigint	NO	PRI	NULL	auto_increment
dob	date	YES		NULL	
email	varchar(255)	YES		NULL	
fullname	varchar(255)	YES		NULL	
gender	varchar(255)	YES		NULL	
phone	double	NO		NULL	
username	varchar(20)	YES	MUL	NULL	



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### Product Description

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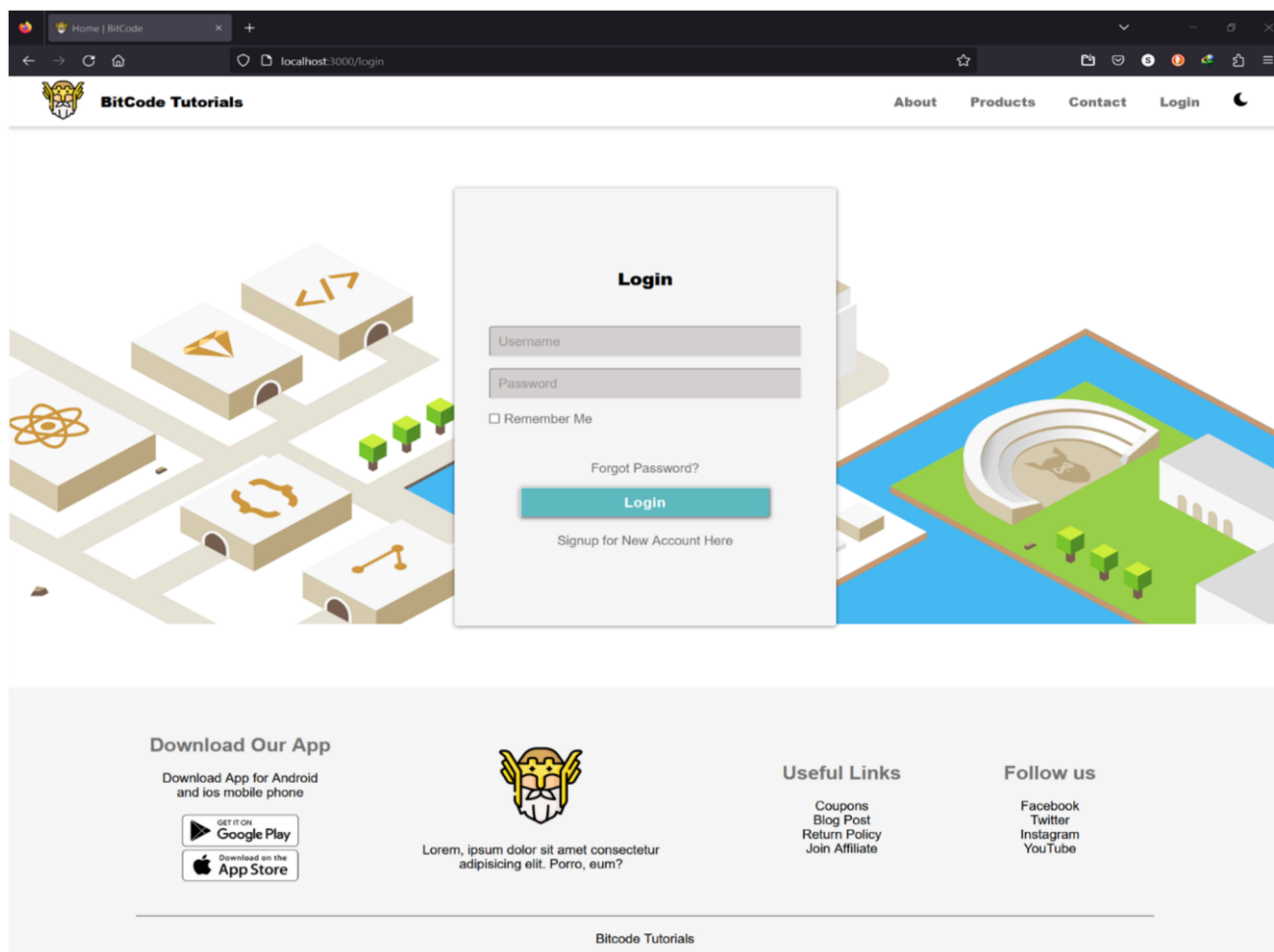
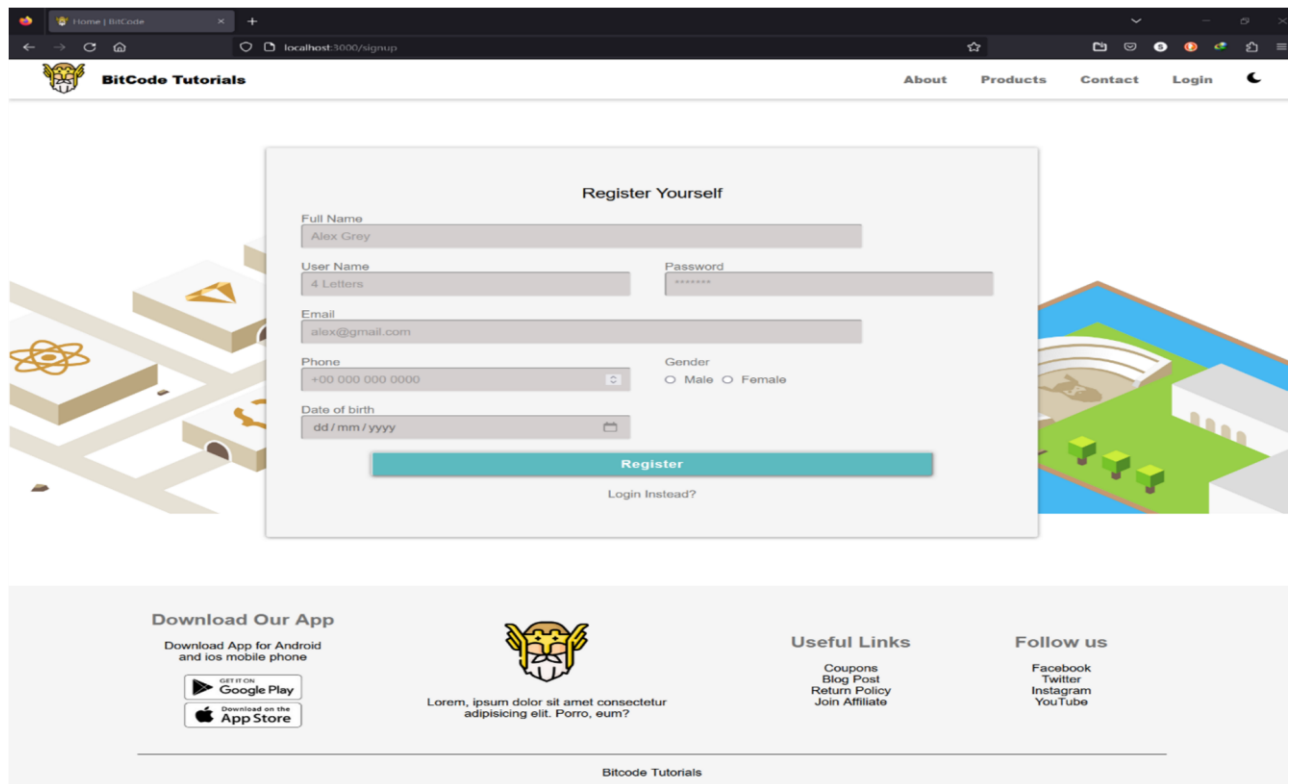
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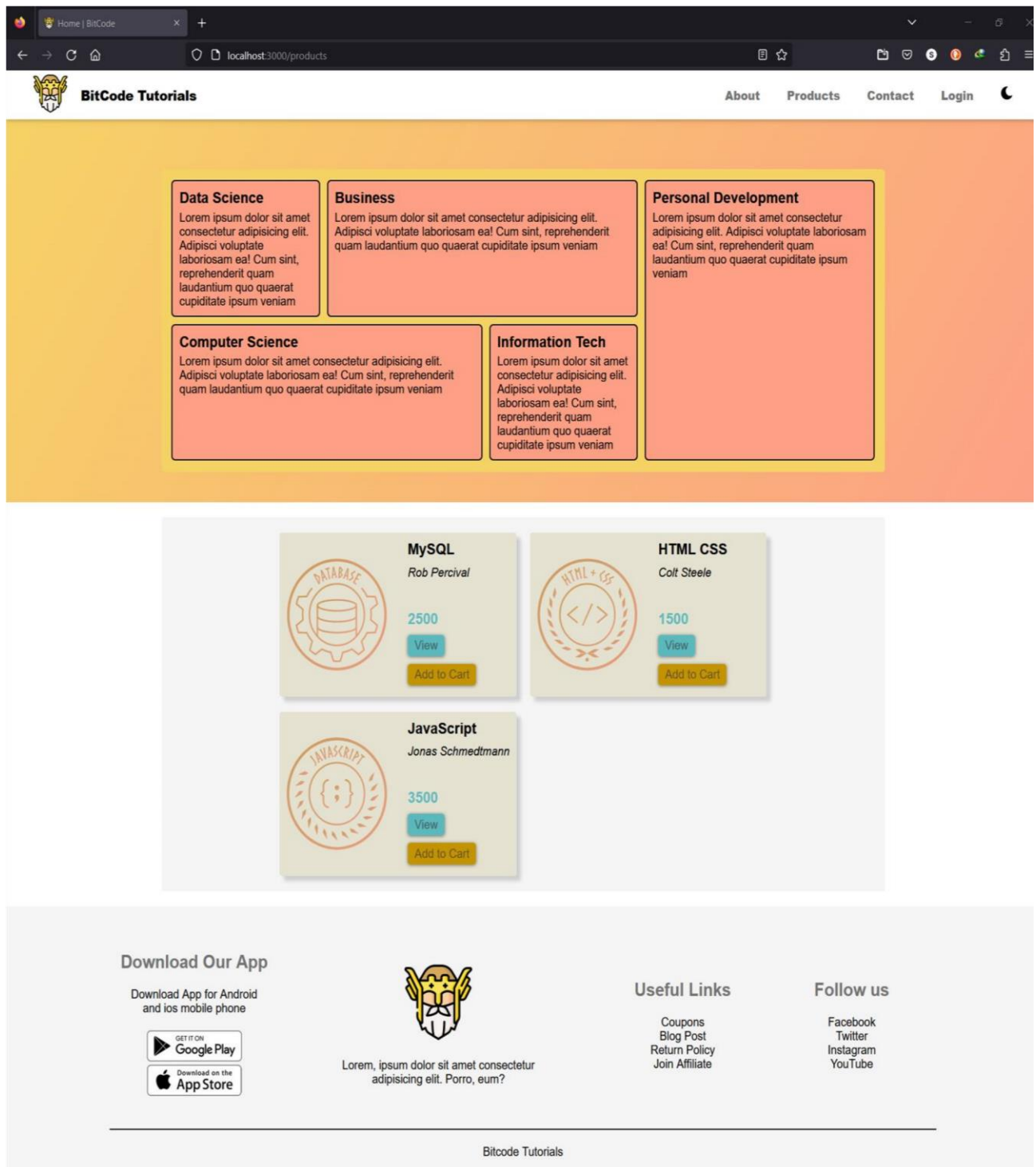
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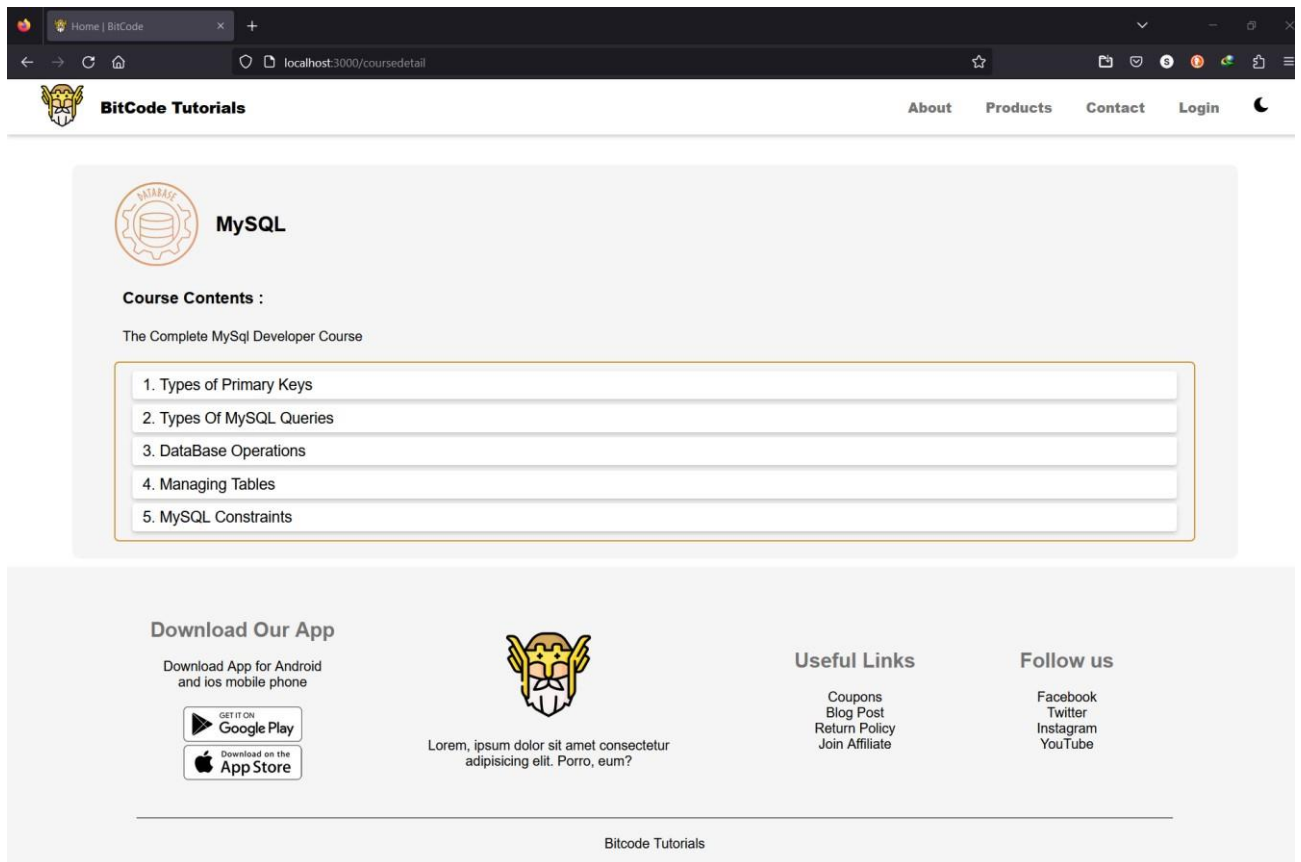
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Edit Information

Full Name

Suraj Khokrale

Date of birth

26/01/2001

Phone

9890458627

Email

suraj@gmail.com

Edit

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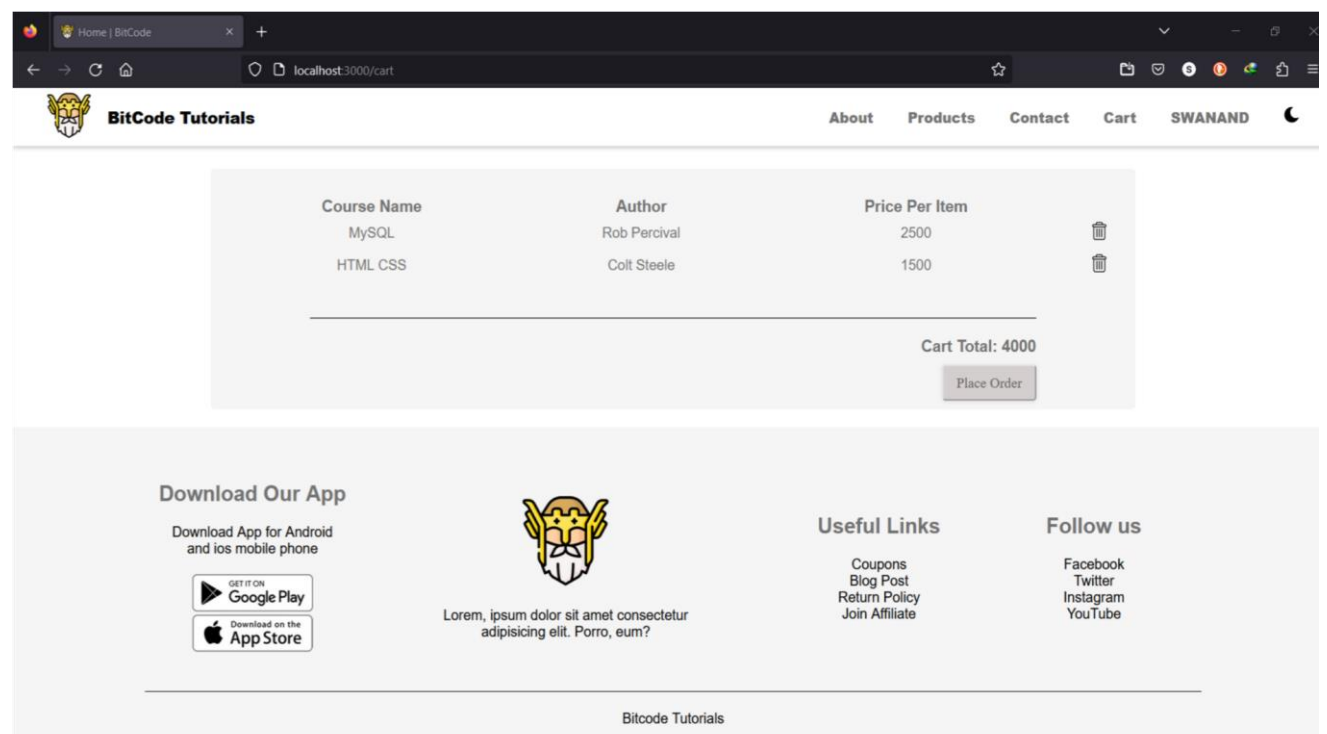
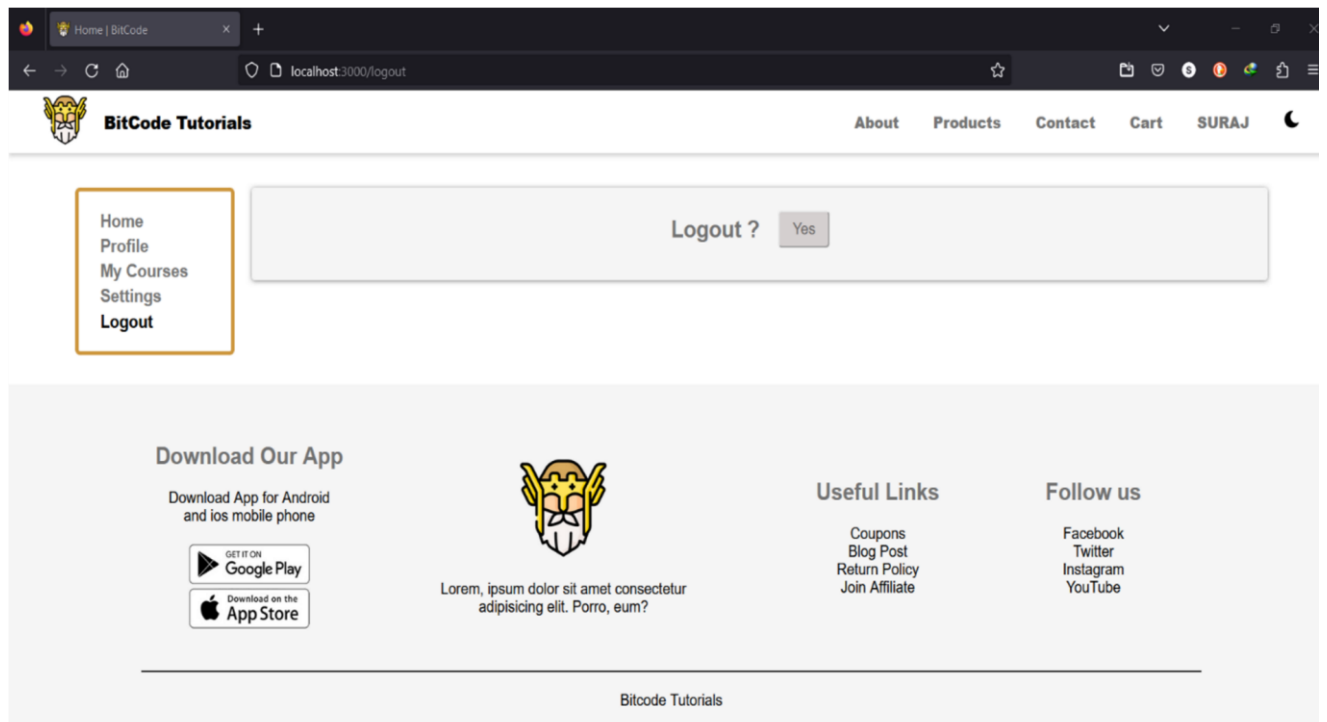
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MySQL

- Types Of Primary Keys
- Types Of MySQL Queries
- DataBase Operations
- Managing Tables
- MySQL Constraints

### 1. Types Of Primary Keys :



A primary key is a column or a set of columns that uniquely identifies each row in the table. The primary key follows these rules:


- 1.A primary key must contain unique values. If the primary key consists of multiple columns, the combination of values in these columns must be unique.
- 2.A primary key column cannot have NULL values. Any attempt to insert or update NULL to primary key columns will result in an error. Note that MySQL implicitly adds a NOT NULL constraint to primary key columns.
- 3.A table can have one an only one primary key.

Because MySQL works faster with integers, the data type of the primary key column should be the integer e.g., INT, BIGINT. And you should ensure sure that value ranges of the integer type for the primary key are sufficient for storing all possible rows that the table may have.

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User's Name	Amount	Date	UtrNo
Suraj Khokrale	4000	2023-03-08	244832874
Suraj Khokrale	3500	2023-03-09	2378423980
Akshay Gaikwad	4000	2023-03-09	34912398102
Shruti Singh	2500	2023-03-09	236847629

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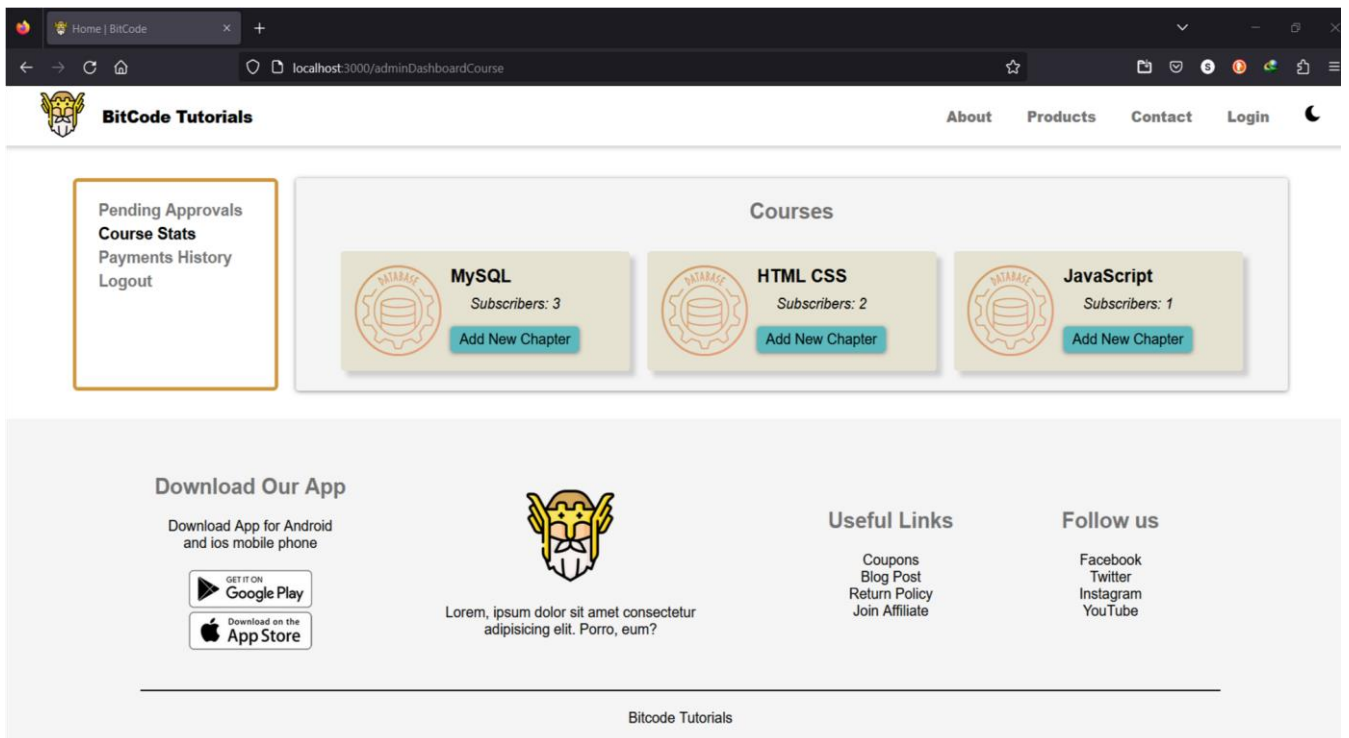
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## **Conclusion**

In conclusion, Bitcode tutorial can be an effective tool for students of all ages and backgrounds to enhance their academic performance. The website can provide a variety of resources, such as interactive quizzes, practice problems, and study tips, to cater to different learning styles and preferences. Additionally, it can offer flexibility and convenience for students who may have busy schedules or limited access to traditional learning resources.

For a successful online study tutorial website, it is important to conduct thorough research on the target audience and their specific needs and preferences. The website is user-friendly and accessible, with clear and concise instructions for accessing and using the resources. Regular updates and improvements to the website can also help to keep the content fresh and relevant.

Overall, Bitcode tutorial website is a valuable tool for students seeking to improve their academic performance and achieve their educational goals. By providing accessible and comprehensive resources, the website can help to support students in their learning journey and contribute to their long-term success.

## **Future Scope**

This project can be enhanced further by adding more facilities like nearby hostels and their facilities and also other services. Also, we can extend this service providing facility over wide area network. In this project we have just used geo-location like latitude and longitude but in future we can use real Google map so that user and service providers can track their respective locations. We have tried our best to present this user-friendly website to all users.



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