*A Minor Project Report*

*on*

**PROJECT RECOMMENDATION ENGINE**

*submitted in partial fulfillment of the requirements for the award of degree of*

**BACHELOR OF TECHNOLOGY**

*in*

**COMPUTER SCIENCE & ENGINEERING**

*by*

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*Under the guidance of*

**Mr Girish Kulkarni**

Assistant Professor

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**DEPARTMENT OF COMPUTER SCIENCE &ENGINEERING**

**B.V.RAJU INSTITUTE OF TECHNOLOGY**

(UGC Autonomous,Accredited by NBA & NAAC)

Vishnupur, Narspur, Medak(Dist.), Telangana State, India - 502313

2020–2021

 **B. V. Raju Institute of Technology**

(UGC Autonomous, Accredited by NBA &NAAC)

Vishnupur, Narsapur, Medak (Dist.),

Telangana State, India –502313

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**CERTIFICATE**

This is to certify that the Minor Project entitled **“PROJECT RECOMMENDATION ENGINE”**, being submitted by

**P. karthik sai varma (19211A05L7)**

**P. Asrith varma (19211A05M0)**

**P. Bharani kumar varma (19211A05L6)**

In partial fulfillment of the requirements for the award of degree of BACHELOR OF TECHNOLOGY in COMPUTER SCIENCE AND ENGINEERING to B.V.RAJU INSTITUTE OF TECHNOLOGY is a record of bonafide work carried out during a period fromMay2021to July2021 by them under the guidance of **Mr. Girish Kulkarni**, Assistant Professor, CSE Department.

This is to certify that the above statement made by the students is/are correct to the best of my knowledge.

**Mr. Girish Kulkarni**

Assistant Professor, CSE Department.

The Project Viva-Voce Examination of this team has been held on\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Dr. Ch. Madhu Babu**  Professor &HoD-CSE

 **B. V. Raju Institute of Technology**

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Vishnupur, Narsapur, Medak (Dist.),

Telangana State, India –502313

**CANDIDATE’S DECLARATION**

We hereby certify that the work which is being presented in the project entitled **“PROJECT RECOMMENDATION ENGINE”**in partial fulfillment of the requirements for the award of Degree of Bachelor of Technology and submitted in the Department of Computer Science and Engineering, B. V. Raju Institute of Technology, Narsapur is an authentic record of my own work carried out during a period from May 2021 to July 2021under the guidance of **Mr. Girish kulkarni**, Assistant Professor. The work presented in this project report has not been submitted by us for the award of any other degree of this or any other Institute/University.

P. Karthik sai varma (19211A05L7)

P.Asrith varma (19211A05M0)

P. Bharani kumar varma (19211A05L6)

**ACKNOWLEDGEMENT**

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We are thankful to and fortunate enough to get constant encouragement, support and guidance from all the staff members of CSE Department.

P. Karthik sai varma (19211A05L7)

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P. Bharani kumar varma (19211A05L6)

**PROJECT RECOMMENDATION ENGINE**

**ABSTRACT**

This project is about developing a webpage which gives the recommendation of the projects that we can do to improve our knowledge in that particular domain of the computer science engineering.

This webpage contains the main domains of CSE and when you select a domain you will get a list of projects that you can do in that domain. Even a slight description is provided to know about the basics of that project which you are trying to do.

You will also get to know about the software that you need to install into your system in order to do the project. This will be very helpful for the people who are a bit confused on what projects they can do in order to gain knowledge about the domain. The user interface would be interactive and styled!. We will be using a light weight ui for more comfortable experience. This system brings good idea of the projects to be used for many domains.

Key Words: HTML, list of projects, difficulty level, UI

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3. P. Bharani kumar varma (19211A05L6)

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***Chapter 1***

**INTRODUCTION**

* 1. **Motivation**

The factor which drove our team to do this project is the problem which we faced directly when we wanted to do a project, we are not able to pick a proper topic and we have been wasting a lot of time for searching the techniques and methodologies to develop this project ,as we all know that a problem is a lightening factor for an innovation, projects related to it that we can do to improve our knowledge in that particular domain of the computer science engineering. We thought of developing a solution for this problem and the best option we have found is to create a webpage with most of the leading fields in computer science and with a description and difficulty level filters. So here we are with our project to help every student who is confused on doing projects. Go through the list take the idea which you like and start your project and build your career in the domain of computer science engineering.

* 1. **Problem Definition**

Many students may not know how to develop new projects in the field of computer science so this will help students to explore a range of computer science projects, so this will help the students to know about the description and the tools required to do the project. And there is no necessity for all the students to do hard and tough projects all the time but they can also take and improve their basics by taking up basic projects, here all the projects all rated with a difficulty level.

* 1. **Objective of Project**

The objective of this project is to make things easy for students. generally when students try to do some projects they will waste a lot of time searching for tools and development methodologies, this project will make things easy for the students and the students will be having everything ready for them to do the projects when they decide to do, the only work they have to do is to work on the project directly without even wasting a single unit of time, they can hit the ground running right from the first second you decide to do the project

* 1. **Limitations of Project**
* There are some couple of limitations in our project some of them include
* Our project is limited to only computer science engineering domain.
* In our project only limited amount of projects are available.

***Chapter* 2**

**LITERATURE SURVEY**

**2.1 Introduction**

* The website consists of the main domains of CSE and when you select a domain you will get a list of projects that you can do in that domain.
* Even a slight description is provided to know about the basics of that project which you are trying to do.
* These projects are divided into levels according to their difficulty level as Beginner level, Intermediate level etc.
* This application gives the recommendation of the projects related to computer science engineering domains.

**2.2 Existing System**

* There are many existing system related to project recommendation.
* But all the domains are not included in a single website.
* Many websites do not contain the division of projects according to their difficulty levels.
* For example, crio.do is an example of existing system of our project.

**2.3 Disadvantages of Existing system**

* Existing systems do not provide all the domains of computer science stream
* In some systems the projects are not divided according to their difficulty levels.
* Tools required are also not provided for doing the project.

**2.4 Proposed system**

* This application gives the recommendations of projects

which are available in particular domains.

* All CSE related domains will be available in a single website.
* The user needs not to be switching websites to see different domains.
* UI will be user friendly.
* We can choose the difficulty level of the projects to do.

***Chapter 3***

***ANALYSIS***

**3.1 Introduction**

In this chapter, we will discuss about the analysis of the development process of our project including software requirements to do the project. Hardware requirements which make the webpage run smoothly. The requirements are included to provide complete description and over view of the system requirements of the user and the admin so that it will be very useful. Software requirement specification is divided into three components as follows, user requirements, software requirements and hardware requirements for convenience.

**3.2 Software Requirement Specification**

**3.2.1 User requirements**

* Operating system :

Laptop: Windows 7, windows 8, windows, Linux and Mac compatible.

Mobile: Android, ios

* Browser :

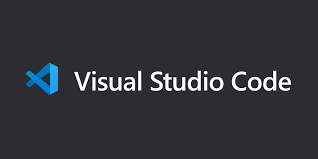
Chrome, Firefox, Microsoft edge or safari

* Internet connection:

Required

**3.2.2 Software requirements**

* HTML & CSS
* BOOTSTRAP 4
* PYTHON
* MySQL - Database
* VISUAL STUDIO CODE- Code editor

****

**3.2.3 Hardware requirements**

* OS:

Microsoft Windows 7 or 8 or 10 (32 bit or 64 bit)

* Processor:

Intel core i3 or above recommended

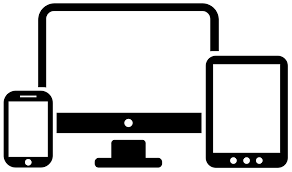
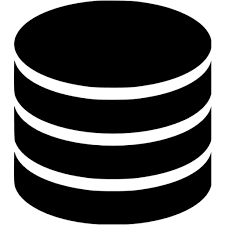
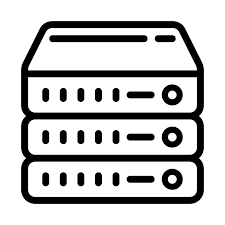
* RAM:

Minimum 4GB RAM and 8GB recommended

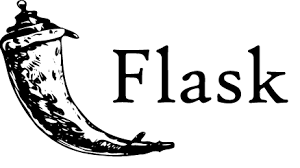
* Memory:

300MB for VS code, 2GB for MySQL workbench

* 1. **Content Diagrams of Project**

**  **

**DEVICES DATABASE SERVER**

** **

**WED FRAMEWORK FILE SYSTEM**

**3.4 Algorithms and Flowcharts**

**USER**

**FRONTEND**

**BACKEND**

***Chapter* 4**

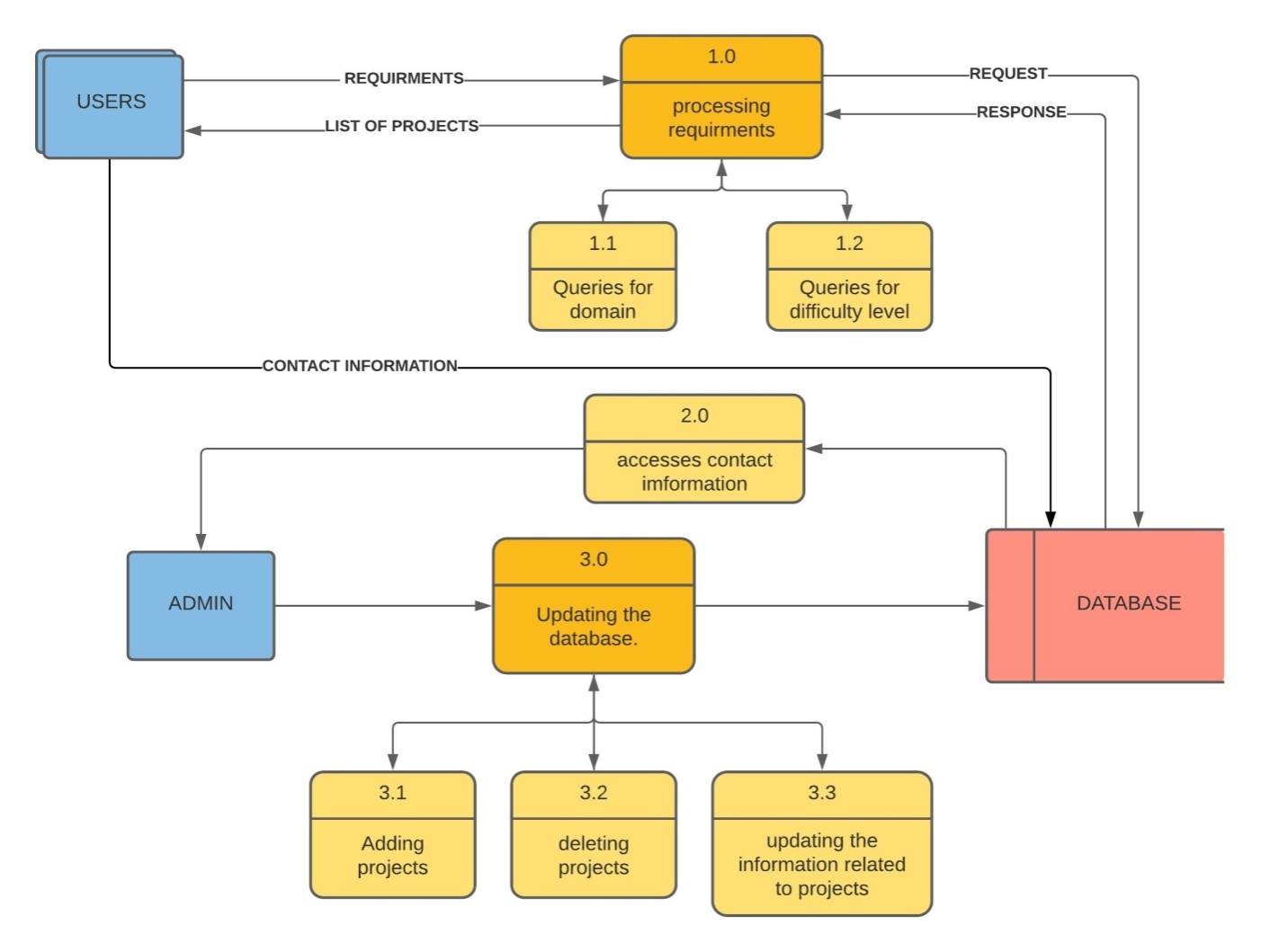
**DESIGN**

**4.1 Introduction**

* The design of our project is similar to all the other web applications. We have front end and backend.
* This web page is used to provide information to viewers, including pictures of all the computer science domains to help illustrate important topics and project related description. This web page may also be used as a method to view projects. Multiple domains make up a good computer science domain related projects.
* The front end of a web application is everything which contains all the list of computer science domains and interacts with while using the application. It has difficulty level selection in the user interface in the webpage.
* Backend contains the logic of web application; back end involves communication between database and browser in which our project is embedded. Backend consists of the **MySQL** database and here database and front end are connected using **Flask**, which is a light web framework written in python.

**4.2 DFD /ER Diagrams**

* Data flow diagram of our project consists of the following components,
* *External Entities:*
  1. User
  2. Admin
* *Data stores:*
  1. Database(MySQL)
* *Processes:* 
  1. Processing Requirements
  2. Updating database
  3. Accessing contact information



**4.3 Module design and organization**

***Chapter* 5**

**IMPLEMENTATION & RESULTS**

**5.1 Introduction**

Implementation deals with the systematic, disciplined and quantifiable approach to the development, operation and maintenance of our web application. The process involved with the development of web applications is significantly different from the process of developing conventional web application.

**CODE:**

Connect.py**:**

from flask import Flask,render\_template,redirect,request

import mysql.connector

app = Flask(\_\_name\_\_)

conn=mysql.connector.connect(host="localhost",user="root",password="2912",database="projectslist")

cursor=conn.cursor()

#--------------------------------------------------------------------------------------------------------------------

@app.route("/")

def index():

    return redirect("/frontpage")

@app.route("/frontpage")

def test():

    return render\_template("frontpage.html")

#--------------------------------------------------------------------------------------------------------------------

@app.route("/ai1")

def ai1():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='AI' AND P.PLEVEL=1")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Artificial Intelligence Beginner Level')

@app.route("/ai2")

def ai2():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='AI' AND P.PLEVEL=2")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Artificial Intelligence Intermediate Level')

@app.route("/ai3")

def ai3():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='AI' AND P.PLEVEL=3")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Artificial Intelligence Advanced Level')

@app.route("/ai4")

def ai4():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='AI'")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Artificial intelligence')

@app.route("/ml1")

def ml1():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='ML' AND P.PLEVEL=1")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Machine Learning Beginner Level')

@app.route("/ml2")

def ml2():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='ML' AND P.PLEVEL=2")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Machine Learning Intermediate Level')

@app.route("/ml3")

def ml3():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='ML' AND P.PLEVEL=3")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Machine Learning Advanced Level')

@app.route("/ml4")

def ml4():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='ML'")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Machine Learning')

@app.route("/iot1")

def iot1():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='iot' AND P.PLEVEL=1")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Internet of Things Beginner Level')

@app.route("/iot2")

def iot2():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='iot' AND P.PLEVEL=2")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Internet of Things Intermediate Level')

@app.route("/iot3")

def iot3():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='iot' AND P.PLEVEL=3")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Internet of Things Advanced Level')

@app.route("/iot4")

def iot4():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='iot'")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Internet of Things')

@app.route("/bc1")

def bc1():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='bc' AND P.PLEVEL=1")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Blockchain Beginner Level')

@app.route("/bc2")

def bc2():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='bc' AND P.PLEVEL=2")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Blockchain Intermediate Level')

@app.route("/bc3")

def bc3():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='bc' AND P.PLEVEL=3")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Blockchain Advanced Level')

@app.route("/bc4")

def bc4():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='bc'")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Blockchain')

@app.route("/cc1")

def cc1():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='cc' AND P.PLEVEL=1")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Cloud Computing Beginner Level')

@app.route("/cc2")

def cc2():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='cc' AND P.PLEVEL=2")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Cloud Computing Intermediate Level')

@app.route("/cc3")

def cc3():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='cc' AND P.PLEVEL=3")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Cloud Computing Advanced Level')

@app.route("/cc4")

def cc4():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='cc'")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Cloud Computing')

@app.route("/cs1")

def cs1():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='cs' AND P.PLEVEL=1")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Cyber Security Beginner Level')

@app.route("/cs2")

def cs2():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='cs' AND P.PLEVEL=2")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Cyber Security Intermediate Level')

@app.route("/cs3")

def cs3():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='cs' AND P.PLEVEL=3")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Cyber Security Advanced Level')

@app.route("/cs4")

def cs4():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='cs'")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Cyber Security')

@app.route("/da1")

def da1():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='da' AND P.PLEVEL=1")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Data Analytics Beginner Level')

@app.route("/da2")

def da2():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='da' AND P.PLEVEL=2")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Data Analytics Intermediate Level')

@app.route("/da3")

def da3():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='da' AND P.PLEVEL=3")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Data Analytics Advanced Level')

@app.route("/da4")

def da4():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='da'")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Data Analytics')

@app.route("/dl1")

def dl1():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='dl' AND P.PLEVEL=1")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Deep Learning Beginner Level')

@app.route("/dl2")

def dl2():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='dl' AND P.PLEVEL=2")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Deep Learning Intermediate Level')

@app.route("/dl3")

def dl3():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='dl' AND P.PLEVEL=3")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Deep Learning Advanced Level')

@app.route("/dl4")

def dl4():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='dl'")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Deep Learning')

@app.route("/dm1")

def dm1():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='dm' AND P.PLEVEL=1")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Data Mining Beginner Level')

@app.route("/dm2")

def dm2():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='dm' AND P.PLEVEL=2")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Data Mining Intermediate Level')

@app.route("/dm3")

def dm3():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='dm' AND P.PLEVEL=3")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Data Mining Advanced Level')

@app.route("/dm4")

def dm4():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='dm'")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Data Mining')

@app.route("/ds1")

def ds1():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='ds' AND P.PLEVEL=1")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Data Science Beginner Level')

@app.route("/ds2")

def ds2():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='ds' AND P.PLEVEL=2")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Data Science Intermediate Level')

@app.route("/ds3")

def ds3():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='ds' AND P.PLEVEL=3")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Data Science Advanced Level')

@app.route("/ds4")

def ds4():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='ds'")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Data Science')

@app.route("/ip1")

def ip1():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='ip' AND P.PLEVEL=1")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Image Processing Beginner Level')

@app.route("/ip2")

def ip2():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='ip' AND P.PLEVEL=2")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Image Processing Intermediate Level')

@app.route("/ip3")

def ip3():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='ip' AND P.PLEVEL=3")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Image Processing Advanced Level')

@app.route("/ip4")

def ip4():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='ip'")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Image Processing')

@app.route("/mob1")

def mob1():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='mob' AND P.PLEVEL=1")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Mobile Application Beginner Level')

@app.route("/mob2")

def mob2():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='mob' AND P.PLEVEL=2")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Mobile Application Intermediate Level')

@app.route("/mob3")

def mob3():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='mob' AND P.PLEVEL=3")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Mobile Application Advanced Level')

@app.route("/mob4")

def mob4():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='mob'")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Mobile Application')

@app.route("/nlp1")

def nlp1():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='nlp' AND P.PLEVEL=1")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Natural Language Processing Beginner Level')

@app.route("/nlp2")

def nlp2():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='nlp' AND P.PLEVEL=2")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Natural Language Processing Intermediate Level')

@app.route("/nlp3")

def nlp3():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='nlp' AND P.PLEVEL=3")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Natural Language Processing Advanced Level')

@app.route("/nlp4")

def nlp4():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='nlp'")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Natural Language Processing')

@app.route("/net1")

def net1():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='net' AND P.PLEVEL=1")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Networks Beginner Level')

@app.route("/net2")

def net2():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='net' AND P.PLEVEL=2")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Networks Intermediate Level')

@app.route("/net3")

def net3():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='net' AND P.PLEVEL=3")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Networks Advanced Level')

@app.route("/net4")

def net4():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='net'")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Networks')

@app.route("/se1")

def se1():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='se' AND P.PLEVEL=1")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Software Engineering Beginner Level')

@app.route("/se2")

def se2():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='se' AND P.PLEVEL=2")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Software Engineering Intermediate Level')

@app.route("/se3")

def se3():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='se' AND P.PLEVEL=3")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Software Engineering Advanced Level')

@app.route("/se4")

def se4():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='se'")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Software Engineering')

@app.route("/web1")

def web1():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='web' AND P.PLEVEL=1")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Web Application Beginner Level')

@app.route("/web2")

def web2():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='web' AND P.PLEVEL=2")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Web Application Intermediate Level')

@app.route("/web3")

def web3():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='web' AND P.PLEVEL=3")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Web Application Advanced Level')

@app.route("/web4")

def web4():

    cursor.execute("SELECT D.DNAME, P.PNAME, P.PD, P.PTOOLS, L.LNAME FROM PLIST P, DOMAINNAMES D, LEVELNAMES L WHERE P.PDOMAIN=D.PDOMAIN AND L.PLEVEL=P.PLEVEL AND P.PDOMAIN='web'")

    users=cursor.fetchall()

    conn.commit()

    return render\_template("nextpage.html",users=users,msg='Web Application')

@app.route("/submit",methods=["POST","GET"])

def submit():

    if request.method== "POST":

        email=request.form.get("email")

        comments=request.form.get("comments")

        rating=request.form.get("rating")

        # print(email, comments, feedback)

        cursor.execute("insert into feedback(email,rating,comments) values('{}','{}','{}')". format(email,rating,comments))

        conn.commit()

        return redirect('/')

if \_\_name\_\_ == "\_\_main\_\_" :

    app.run(debug=True)

frontpage.html:

<!DOCTYPE html>

<html lang="en" dir="ltr">

     <head>

          <meta charset="utf-8">

          <title>Project Recommendation Engine</title>

           <meta name="viewport" content="width=device-width, initial-scale=1">

           <link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/4.5.2/css/bootstrap.min.css">

           <link rel="preconnect" href="https://fonts.gstatic.com">

           <link href="https://fonts.googleapis.com/css2?family=Lato&display=swap" rel="stylesheet">

           <link rel="stylesheet" href="static/frontpage.css">

           <link rel="stylesheet" href="https://use.fontawesome.com/releases/v5.15.3/css/all.css" integrity="sha384-SZXxX4whJ79/gErwcOYf+zWLeJdY/qpuqC4cAa9rOGUstPomtqpuNWT9wdPEn2fk" crossorigin="anonymous">

     </head>

<body>

<nav class="navbar navbar-expand-lg navbar-dark bg-dark">

  <a class="navbar-brand" href="#">PRE</a>

   <button class="navbar-toggler" type="button" data-toggle="collapse" data-target="#navbarSupportedContent" aria-controls="navbarSupportedContent" aria-expanded="false" aria-label="Toggle navigation">

        <span class="navbar-toggler-icon"></span>

   </button>

  <div class="collapse navbar-collapse" id="navbarSupportedContent">

          <ul class="navbar-nav ml-auto">

             <li class="nav-item active">

                  <a class="nav-link" href="#">HOME<span class="sr-only">(current)</span></a>

             </li>

             <li class="nav-item dropdown">

              <a class="nav-link dropdown-toggle" href="#" id="navbarDropdown" role="button" data-toggle="dropdown" aria-haspopup="true" aria-expanded="false">

               DOMAINS

              </a>

              <div class="dropdown-menu" aria-labelledby="navbarDropdown">

                <a class="dropdown-item" href="#ai">Artificial Intelligence</a>

                <a class="dropdown-item" href="#bc">BlockChain Technology</a>

                <a class="dropdown-item" href="#cc">Cloud computing</a>

                <a class="dropdown-item" href="#cs">Cyber Security</a>

                <a class="dropdown-item" href="#da">Data analytics</a>

                <a class="dropdown-item" href="#dm">Data mining</a>

                <a class="dropdown-item" href="#ds">Data science</a>

                <a class="dropdown-item" href="#ip">Image processing</a>

                <a class="dropdown-item" href="#iot">Internet of Things</a>

                <a class="dropdown-item" href="#ml">Machine Learning</a>

                <a class="dropdown-item" href="#mob">Mobile Applications</a>

                <a class="dropdown-item" href="#nlp">Natural Language Processing</a>

                <a class="dropdown-item" href="#net">Networks</a>

                <a class="dropdown-item" href="#se">Software Engineering</a>

                <a class="dropdown-item" href="#web">Web Applications</a>

              </div>

            </li>

             <li class="nav-item">

                  <a class="nav-link" href="#contactus">CONTACT US</a>

             </li>

             <li class="nav-item">

                  <a class="nav-link" href="#about">ABOUT</a>

             </li>

          </ul>

  </div>

</nav>

<div class="card-group" >

  <div class="card">

    <div class="card-body" style="padding-top: 30px; text-align: center;">

      <h1 class="card-title">Looking for project ideas</h1>

      <h5 class="card-text" >well... this website is for you</h5>

      <img src="static\images\look.jpg" style="width:60%; height: auto; padding: 30px;" alt="look2">

    </div>

  </div>

  <div class="card">

    <div class="card-body" style="padding-top: 30px; text-align: center;">

      <h1 class="card-title">kick start your projects</h1>

      <h5 class="card-text" >Right Now...!</h5>

      <img src="static\images\look2.jpg" style="width:60%; height: auto; padding: 30px;" alt="look2">

    </div>

  </div>

</div>

<div>

  <h2 style="margin: 15px 0px 15px 40px; color: #fff;">Explore And Get Started:</h2>

</div>

<div class="card-deck">

  <div class="card domains ai" id="ai" >

    <img class="card-img-top" src="static\images\ai.jpg"  alt="ai">

    <div class="card-body" style="text-align: center;">

      <h5 class="card-title">Artificial Intelligence</h5>

      <div class="dropdown">

        <button type="button" name="ai" class="btn btn-primary btn-sm dropdown-toggle" data-toggle="dropdown">

          See Projects

        </button>

        <form action="">

        <div class="dropdown-menu">

          <h4 class="dropdown-header">Select Difficulty Level:</h4>

          <a class="dropdown-item" name=1 href="/ai1">Beginner</a>

          <a class="dropdown-item" name=2 href="/ai2">Intermediate</a>

          <a class="dropdown-item" name=3 href="/ai3">Advanced</a>

          <div class="dropdown-divider"></div>

          <a class="dropdown-item" href="/ai4">See all</a>

        </div>

      </form>

      </div>

    </div>

  </div>

  <div class="card domains ml" id="ml">

    <img class="card-img-top" src="static\images\ml.jpg" alt="ml">

    <div class="card-body" style="text-align: center;">

      <h5 class="card-title">Machine Learning</h5>

      <div class="dropdown">

        <button type="button" class="btn btn-primary btn-sm dropdown-toggle" data-toggle="dropdown" aria-haspopup="true" aria-expanded="false">

          See Projects

        </button>

        <div class="dropdown-menu">

          <h4 class="dropdown-header">Select Difficulty Level:</h4>

          <a class="dropdown-item" href="/ml1">Beginner</a>

          <a class="dropdown-item" href="/ml2">Intermediate</a>

          <a class="dropdown-item" href="/ml3">Advanced</a>

          <div class="dropdown-divider"></div>

          <a class="dropdown-item" href="/ml4">See all</a>

        </div>

      </div>

    </div>

  </div>

  <div class="card domains iot" id="iot">

    <img class="card-img-top" src="static\images\iot.jpg" alt="iot">

    <div class="card-body" style="text-align: center;">

      <h5 class="card-title">Internet of things </h5>

      <div class="dropdown">

       <button type="button" class="btn btn-primary btn-sm dropdown-toggle" data-toggle="dropdown" aria-haspopup="true" aria-expanded="false">

         See Projects

       </button>

       <div class="dropdown-menu">

         <h4 class="dropdown-header">Select Difficulty Level:</h4>

         <a class="dropdown-item" href="/iot1">Beginner</a>

         <a class="dropdown-item" href="/iot2">Intermediate</a>

         <a class="dropdown-item" href="/iot3">Advanced</a>

         <div class="dropdown-divider"></div>

         <a class="dropdown-item" href="/iot4">See all</a>

       </div>

     </div>

    </div>

  </div>

</div>

<div class="card-deck">

  <div class="card domains cc" id="cc">

    <img class="card-img-top" src="static\images\cloud.jpg"  alt="cc">

    <div class="card-body" style="text-align: center;">

      <h5 class="card-title">Cloud Computing</h5>

      <div class="dropdown">

        <button type="button" class="btn btn-primary btn-sm dropdown-toggle" data-toggle="dropdown" aria-haspopup="true" aria-expanded="false">

          See Projects

        </button>

        <div class="dropdown-menu">

          <h4 class="dropdown-header">Select Difficulty Level:</h4>

          <a class="dropdown-item" href="/cc1">Beginner</a>

          <a class="dropdown-item" href="/cc2">Intermediate</a>

          <a class="dropdown-item" href="/cc3">Advanced</a>

          <div class="dropdown-divider"></div>

          <a class="dropdown-item" href="/cc4">See all</a>

        </div>

      </div>

    </div>

  </div>

  <div class="card domains net" id="net">

    <img class="card-img-top" src="static\images\network.jpg" alt="net">

    <div class="card-body" style="text-align: center;">

      <h5 class="card-title">Networks</h5>

      <div class="dropdown">

       <button type="button" class="btn btn-primary btn-sm dropdown-toggle" data-toggle="dropdown" aria-haspopup="true" aria-expanded="false">

         See Projects

       </button>

       <div class="dropdown-menu">

         <h4 class="dropdown-header">Select Difficulty Level:</h4>

         <a class="dropdown-item" href="/net1">Beginner</a>

         <a class="dropdown-item" href="/net2">Intermediate</a>

         <a class="dropdown-item" href="/net3">Advanced</a>

         <div class="dropdown-divider"></div>

         <a class="dropdown-item" href="/net4">See all</a>

       </div>

     </div>

    </div>

  </div>

  <div class="card domains nlp" id="nlp">

    <img class="card-img-top" src="static\images\nlp.jpg" alt="nlp">

    <div class="card-body" style="text-align: center;">

      <h5 class="card-title">Natural Language Processing</h5>

      <div class="dropdown">

        <button type="button" class="btn btn-primary btn-sm dropdown-toggle" data-toggle="dropdown" aria-haspopup="true" aria-expanded="false">

          See Projects

        </button>

        <div class="dropdown-menu">

          <h4 class="dropdown-header">Select Difficulty Level:</h4>

          <a class="dropdown-item" href="/nlp1">Beginner</a>

          <a class="dropdown-item" href="/nlp2">Intermediate</a>

          <a class="dropdown-item" href="/nlp3">Advanced</a>

          <div class="dropdown-divider"></div>

          <a class="dropdown-item" href="/nlp4">See all</a>

        </div>

      </div>

    </div>

  </div>

</div>

<div class="card-deck">

  <div class="card domains web" id="web" >

    <img class="card-img-top" src="static\images\web.jpg"  alt="web">

    <div class="card-body" style="text-align: center;">

      <h5 class="card-title">Web Applications</h5>

      <div class="dropdown">

        <button type="button" class="btn btn-primary btn-sm dropdown-toggle" data-toggle="dropdown" aria-haspopup="true" aria-expanded="false">

          See Projects

        </button>

        <div class="dropdown-menu">

          <h4 class="dropdown-header">Select Difficulty Level:</h4>

          <a class="dropdown-item" href="/web1">Beginner</a>

          <a class="dropdown-item" href="/web2">Intermediate</a>

          <a class="dropdown-item" href="/web3">Advanced</a>

          <div class="dropdown-divider"></div>

          <a class="dropdown-item" href="/web4">See all</a>

        </div>

      </div>

    </div>

  </div>

  <div class="card domains mob" id="mob">

    <img class="card-img-top" src="static\images\mob.jpg" alt="mob">

    <div class="card-body" style="text-align: center;">

      <h5 class="card-title">Mobile Applications</h5>

      <div class="dropdown">

        <button type="button" class="btn btn-primary btn-sm dropdown-toggle" data-toggle="dropdown" aria-haspopup="true" aria-expanded="false">

          See Projects

        </button>

        <div class="dropdown-menu dropdown-menu">

          <h4 class="dropdown-header">Select Difficulty Level:</h4>

          <a class="dropdown-item" href="/mob1">Beginner</a>

          <a class="dropdown-item" href="/mob2">Intermediate</a>

          <a class="dropdown-item" href="/mob3">Advanced</a>

          <div class="dropdown-divider"></div>

          <a class="dropdown-item" href="/mob4">See all</a>

        </div>

      </div>

    </div>

  </div>

  <div class="card domains bc" id="bc">

    <img class="card-img-top" src="static\images\bc.jpg" alt="bc">

    <div class="card-body" style="text-align: center;">

      <h5 class="card-title">Block Chain Technology</h5>

      <div class="dropdown">

        <button type="button" class="btn btn-primary btn-sm dropdown-toggle" data-toggle="dropdown" aria-haspopup="true" aria-expanded="false">

          See Projects

        </button>

        <div class="dropdown-menu">

          <h4 class="dropdown-header">Select Difficulty Level:</h4>

          <a class="dropdown-item" href="/bc1">Beginner</a>

          <a class="dropdown-item" href="/bc2">Intermediate</a>

          <a class="dropdown-item" href="/bc3">Advanced</a>

          <div class="dropdown-divider"></div>

          <a class="dropdown-item" href="/bc4">See all</a>

        </div>

      </div>

    </div>

  </div>

</div>

<div class="card-deck">

  <div class="card domains da" id="da" >

    <img class="card-img-top" src="static\images\da.jpg"  alt="da">

    <div class="card-body" style="text-align: center;">

      <h5 class="card-title">Data Analytics</h5>

      <div class="dropdown">

       <button type="button" class="btn btn-primary btn-sm dropdown-toggle" data-toggle="dropdown" aria-haspopup="true" aria-expanded="false">

         See Projects

       </button>

       <div class="dropdown-menu">

         <h4 class="dropdown-header">Select Difficulty Level:</h4>

         <a class="dropdown-item" href="/da1">Beginner</a>

         <a class="dropdown-item" href="/da2">Intermediate</a>

         <a class="dropdown-item" href="/da3">Advanced</a>

         <div class="dropdown-divider"></div>

         <a class="dropdown-item" href="/da4">See all</a>

       </div>

     </div>

    </div>

  </div>

  <div class="card domains ds" id="ds">

    <img class="card-img-top" src="static\images\ds.jpg" alt="ds">

    <div class="card-body" style="text-align: center;">

      <h5 class="card-title">Data Science</h5>

      <div class="dropdown">

        <button type="button" class="btn btn-primary btn-sm dropdown-toggle" data-toggle="dropdown" aria-haspopup="true" aria-expanded="false">

          See Projects

        </button>

        <div class="dropdown-menu">

          <h4 class="dropdown-header">Select Difficulty Level:</h4>

          <a class="dropdown-item" href="/ds1">Beginner</a>

          <a class="dropdown-item" href="/ds2">Intermediate</a>

          <a class="dropdown-item" href="/ds3">Advanced</a>

          <div class="dropdown-divider"></div>

          <a class="dropdown-item" href="/ds4">See all</a>

        </div>

      </div>

    </div>

  </div>

  <div class="card domains dm" id="dm">

    <img class="card-img-top" src="static\images\dm.jpg" alt="dm">

    <div class="card-body" style="text-align: center;">

      <h5 class="card-title">Data mining</h5>

      <div class="dropdown">

        <button type="button" class="btn btn-primary btn-sm dropdown-toggle" data-toggle="dropdown" aria-haspopup="true" aria-expanded="false">

          See Projects

        </button>

        <div class="dropdown-menu">

          <h4 class="dropdown-header">Select Difficulty Level:</h4>

          <a class="dropdown-item" href="/dm1">Beginner</a>

          <a class="dropdown-item" href="/dm2">Intermediate</a>

          <a class="dropdown-item" href="/dm3">Advanced</a>

          <div class="dropdown-divider"></div>

          <a class="dropdown-item" href="/dm4">See all</a>

        </div>

      </div>

    </div>

  </div>

</div>

<div class="card-deck">

  <div class="card domains se" id="se" >

    <img class="card-img-top" src="static\images\se.jpg"  alt="se">

    <div class="card-body" style="text-align: center;">

      <h5 class="card-title">Software Engineering</h5>

      <div class="dropdown">

        <button type="button" class="btn btn-primary btn-sm dropdown-toggle" data-toggle="dropdown" aria-haspopup="true" aria-expanded="false">

          See Projects

        </button>

        <div class="dropdown-menu">

          <h4 class="dropdown-header">Select Difficulty Level:</h4>

          <a class="dropdown-item" href="/se1">Beginner</a>

          <a class="dropdown-item" href="/se2">Intermediate</a>

          <a class="dropdown-item" href="/se3">Advanced</a>

          <div class="dropdown-divider"></div>

          <a class="dropdown-item" href="/se4">See all</a>

        </div>

      </div>

    </div>

  </div>

  <div class="card domains ip" id="ip">

    <img class="card-img-top" src="static\images\ip.jpg" alt="ip">

    <div class="card-body" style="text-align: center;">

      <h5 class="card-title">Image Processing</h5>

      <div class="dropdown">

        <button type="button" class="btn btn-primary btn-sm dropdown-toggle" data-toggle="dropdown" aria-haspopup="true" aria-expanded="false">

          See Projects

        </button>

        <div class="dropdown-menu">

          <h4 class="dropdown-header">Select Difficulty Level:</h4>

          <a class="dropdown-item" href="/ip1">Beginner</a>

          <a class="dropdown-item" href="/ip2">Intermediate</a>

          <a class="dropdown-item" href="/ip3">Advanced</a>

          <div class="dropdown-divider"></div>

          <a class="dropdown-item" href="/ip4">See all</a>

        </div>

      </div>

    </div>

  </div>

<div id="contactus">

  <h2 style="margin: 20px 0px 20px 40px; color: #fff;">Contact Us:</h2>

</div>

  <div class="form w-50 m-auto">

    <form action="/submit" method="POST">

      <div class="form-group">

        <label for="email" style="color: #fff;">Email address</label>

        <input type="email" name="email" class="form-control" id="email" placeholder="name@example.com" required autocomplete="off">

      </div>

      <div class="form-group">

        <label for="feedback" style="color: #fff;">Give Us A Feedack</label>

        <select class="form-control" name="rating" id="feedback">

          <option>Excellent</option>

          <option>Very good</option>

          <option>Good</option>

          <option>Satisfactory</option>

          <option>Poor</option>

        </select>

      </div>

      <div class="form-group">

        <label for="comments" style="color: #fff;">Comments</label>

        <textarea class="form-control" name="comments" id="comments" rows="3" placeholder="Drop Your Comments Here" required></textarea>

      </div>

      <button type="submit" class="btn btn-primary">Submit</button>

    </form>

  </div>

  <div id="about">

    <h2 style="margin: 20px 0px 20px 40px; color: #fff;">About:</h2>

  </div>

  <footer>

    <div class="card text-center" style="margin: 5px;">

      <div class="card-body">

        <p class="card-title" style="margin: 0 10% 15px 10%;">This webpage contains the main domains of CSE and projects related to it that we can do to improve our knowledge in that particular domain of the computer science engineering.

        </p>

        <h5>Developers:</h5>

        <p>P.Karthik Sai Varma

          <a href="https://www.facebook.com/karthikvarma2912/" target="\_blank"><i class="fab fa-facebook fa-2x "></i></a>

          <a href="mailto: karthikvarma2912@gmail.com"><i class="fas fa-envelope fa-2x"></i></a>

          <a href="https://www.linkedin.com/in/karthik-sai-varma-penmetsa-5477101b6/" target="\_blank"><i class="fab fa-linkedin fa-2x"></i></a>

          <a href="https://www.instagram.com/karthik\_varma\_\_\_/" target="\_blank"><i class="fab fa-instagram fa-2x"></i></a>

          <a href="https://twitter.com/karthiksaivarm1" target="\_blank"><i class="fab fa-twitter fa-2x"></i></a>

        </p>

        <p>P.Asrith Varma

          <a href=""><i class="fab fa-facebook fa-2x "></i></a>

          <a href=""><i class="fas fa-envelope fa-2x"></i></a>

          <a href=""><i class="fab fa-linkedin fa-2x"></i></a>

          <a href=""><i class="fab fa-instagram fa-2x"></i></a>

          <a href=""><i class="fab fa-twitter fa-2x"></i></a>

        </p>

        <p>P.Bharani kumar Varma

          <a href=""><i class="fab fa-facebook fa-2x "></i></a>

          <a href=""><i class="fas fa-envelope fa-2x"></i></a>

          <a href=""><i class="fab fa-linkedin fa-2x"></i></a>

          <a href=""><i class="fab fa-instagram fa-2x"></i></a>

          <a href=""><i class="fab fa-twitter fa-2x"></i></a>

        </p>

        <h5 class="card-title" >Thankyou for visiting our website :)</h5>

      </div>

    </div>

  </footer>

          <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.5.1/jquery.min.js"></script>

          <script src="https://cdnjs.cloudflare.com/ajax/libs/popper.js/1.16.0/umd/popper.min.js"></script>

          <script src="https://maxcdn.bootstrapcdn.com/bootstrap/4.5.2/js/bootstrap.min.js"></script>

</body>

</html>

Nextpage.html:

<!DOCTYPE html>

<html lang="en" dir="ltr">

     <head>

          <meta charset="utf-8">

          <title>Projects</title>

           <meta name="viewport" content="width=device-width, initial-scale=1">

           <link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/4.5.2/css/bootstrap.min.css">

           <link rel="preconnect" href="https://fonts.gstatic.com">

           <link href="https://fonts.googleapis.com/css2?family=Lato&display=swap" rel="stylesheet">

           <link rel="stylesheet" href="static/nextpage.css">

           <link rel="stylesheet" href="https://use.fontawesome.com/releases/v5.15.3/css/all.css" integrity="sha384-SZXxX4whJ79/gErwcOYf+zWLeJdY/qpuqC4cAa9rOGUstPomtqpuNWT9wdPEn2fk" crossorigin="anonymous">

     </head>

<body>

  <div class="title">

    <h3>{{msg}} Projects:</h3>

  </div>

  <div class="contents">

  <h4>  <img src="static\images\contents.jpg" style="width: 30px; height: 30px;" alt=""> Table of contents:</h4>

  {% for row in users %}

  <a href="#{{row[1]}}"><i class="fas fa-arrow-right fa-xs"></i> {{row[1]}}<br></a>

  {% endfor %}

  </div>

    {% for row in users %}

        <div class="card project">

          <div class="card-body">

            <h5 class="card-title" id="{{row[1]}}">{{row[1]}}</h5>

            <p class="card-text">{{row[2]}}</p>

            <h6 class="card-text"> <img src="static\images\tools.jpg" style="width: 20px; height: 20px;" alt=""> <b> Tools required: </b></h6>

            <p style="padding-left: 25px;"> {{row[3]}}</p>

            <p class="card-text"> <img src="static\images\level.png" style="width: 20px; height: 20px;" alt=""> <b> Difficulty Level: </b>{{row[4]}} </p>

          </div>

        </div>

    {% endfor %}

    <footer>

        <div class="card text-center" style="margin: 5px;">

          <div class="card-body">

            <p class="card-title" style="margin: 0 10% 15px 10%;">This webpage will be very helpful for the people who are a bit confused on what projects they can do in order to improve knowledge about the domain. This webpage contains the main domains of CSE and projects related to it that we can do to improve our knowledge in that particular domain of the computer science engineering.

            </p>

            <h6>Developers:</h6>

            <p>P.Karthik Sai Varma

              <a href=""><i class="fab fa-facebook fa-2x "></i></a>

              <a href=""><i class="fas fa-envelope fa-2x"></i></a>

              <a href=""><i class="fab fa-linkedin fa-2x"></i></a>

              <a href=""><i class="fab fa-instagram fa-2x"></i></a>

              <a href=""><i class="fab fa-twitter fa-2x"></i></a>

            </p>

            <p>P.Asrith Varma

              <a href=""><i class="fab fa-facebook fa-2x "></i></a>

              <a href=""><i class="fas fa-envelope fa-2x"></i></a>

              <a href=""><i class="fab fa-linkedin fa-2x"></i></a>

              <a href=""><i class="fab fa-instagram fa-2x"></i></a>

              <a href=""><i class="fab fa-twitter fa-2x"></i></a>

            </p>

            <p>P.Bharani kumar Varma

              <a href=""><i class="fab fa-facebook fa-2x "></i></a>

              <a href=""><i class="fas fa-envelope fa-2x"></i></a>

              <a href=""><i class="fab fa-linkedin fa-2x"></i></a>

              <a href=""><i class="fab fa-instagram fa-2x"></i></a>

              <a href=""><i class="fab fa-twitter fa-2x"></i></a>

            </p>

            <h6 class="card-title" >Thankyou for visiting our website :)</h6>

          </div>

        </div>

      </footer>

    <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.5.1/jquery.min.js"></script>

    <script src="https://cdnjs.cloudflare.com/ajax/libs/popper.js/1.16.0/umd/popper.min.js"></script>

    <script src="https://maxcdn.bootstrapcdn.com/bootstrap/4.5.2/js/bootstrap.min.js"></script>

</body>

</html>

frontpage.css:

\*{

  margin: 0;

  padding: 0;

  box-sizing: border-box;

}

body{

  background: linear-gradient(to right, #000000 9%, #0062ff 100%);

}

.carousel-inner img {

    width: 100%;

    height: 100%;

  }

.domains{

  margin: 20px;

}

.card-deck{

  margin: 5px 15% 5px 15%;

}

.card-body{

  padding: 10px;

}

.card-group{

  margin: 2% ;

}

footer{

  text-align: center;

}

.table{

     color: white;

}

.dropdown-item {

     text-align: center;

     padding: 3px;

}

.dropdown-menu :hover {

     background-color: #0062ff;

     color:white;

     transition: 300ms;

}

.dropdown-header:hover{

     background-color: white;

     color: black;

}

.dropdown-header{

  font-size: 13px;

   padding: 10px 0px 10px 10px;

}

.dropdown-menu{

   padding: 3px;

   font-size: 13px;

}

.msg{

  text-align: center;

  color: white;

}

html {

  scroll-behavior: smooth;

}

Nextpage.css:

body{

  background: linear-gradient(to right, #000000 9%, #0062ff 100%);

}

.card{

  margin: 5px 7% 5px 7%;

}

.title{

  margin: 20px 7% 10px 7%;

  color: #fff;

}

/\* h4{

  color: #fff;

} \*/

.contents{

  margin: 10px 7% 5px 7%;

  border: white 3px solid;

  border-radius: 5px;

  display: inline-block;

  padding: 10px ;

  background-color: #fff;

}

footer{

  font-size: x-small ;

}

**When we run the python code local host is generated, which is a local server and is local to our PC:**

PS D:\minor project> & C:/Users/PC/AppData/Local/Programs/Python/Python38-32/python.exe "d:/minor project/connect.py"

\* Serving Flask app 'connect' (lazy loading)

\* Environment: production

WARNING: This is a development server. Do not use it in a production deployment.

Use a production WSGI server instead.

\* Debug mode: on

\* Restarting with stat

\* Debugger is active!

\* Debugger PIN: 132-153-619

\* Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)

**5.2 Explanation of Key functions:**

* Key functions in our project involve selecting the domain and selecting the domain.
* Data from database is retrieved and displayed according to the inputs given by the user from the front end.
* Admin can manipulate the data according to the needs of user and he can add the data, update the data, delete the dataand manipulate the data.

5.3 Method of Implementation

**5.3.1 Output Screens**

**5.3.3 Result Analysis**

* When the user selects the domain, a dropdown is displayed suggesting to select the difficulty level.
* There we can select beginner, intermediate, advanced levels or if you want to see all the projects related to that domain they see all option should be selected.
* The results are displayed according to the requirements of the user.

**Chapter 6**

**TESTING & VALIDATION**

**6.1 Introduction**

* The process of evaluating software during the development process or at the end of the development process to determine whether it satisfies specified business requirements.
* Validation Testing ensures that the product actually meets the client's needs. It can also be defined as to demonstrate that the product fulfills its intended use when deployed on appropriate environment.

**6.2 Design of test cases and scenarios**

* Testing a web application is not easy than testing a static website but not much difficult than testing. Functionality testing is the most important thing to be performed while testing a web application.
* The web application may contain much-complicated functionality so test cases need to be very careful while testing.
* Our project includes test cases which are accepted across maximum number of scenarios.

**6.3 Validation**

* Validation ensures that your website complies with the standards accepted by most web designers.
* Our web application can be validated as it is consisting of less amount of code when compared to other commercial web apps so it is bug free and is any bug is found is can be removed easily.
* That also means that it will be accessible to more people, across more web browsers and operation systems. Havingan accessible website is also regarded as good web design practice.

***Chapter* 7**

**CONCLUSION & FUTURE WORK**

Conclusion:

* To conclude, this webpage will be very helpful for the people who are a bit confused on what projects they can do in order to improve knowledge about the domain.
* This webpage contains the main domains of CSE and projects related to it that we can do to improve our knowledge in that particular domain of the computer science engineering.
* It is also compatible for mobile and it is very helpful for the students.

Future work:

* If the user have any new project ideas we can upload them with respect to the given inputs.
* We try to constantly upgrade the list of projects in our database.
* We can implement a login system in our project and if user logs in, we can give few benefits like more number of projects.

**References**

1. www.w3schools.com
2. [www.geeksforgeeks.org/python-mysql/](http://www.geeksforgeeks.org/python-mysql/)
3. <https://dev.mysql.com/doc/>
4. www.edureka.co/blog/web-development-tutorial/
5. www.youtube.com
6. <https://getbootstrap.com/docs/4.0/getting-started/introduction/>
7. https://pypi.org/project/Flask/

Thank you