

Web Based Case Study

- **Programming Language Used (Front-end CLIENT):** HTML, CSS
- **Programming Language Used (Back-end SERVER):** PYTHON 3.9 (FLASK)
- **Programming Editor Used:** VS CODE

APPROACH

- + Creation of a CSV database file 'students.csv', with all the initials provided.
- + 4 individual Client UI/UX HTML pages were set up [CSS was used for customization]: -
- + First HTML Page ['WELCOME PAGE'] provides 3 hyperlinks to the rest of the 3 HTML pages.
- + Creation of ['ADD STUDENT'] HTML page, catering to the functionality of adding students in the database as per USER's input to the HTML Form.
- + Creation of ['STUDENT SEARCH'] HTML page, catering to the functionality of searching of a particular student based on STUDENT ID.
- + Creation of ['DISPLAY STUDENTS'] HTML page, catering to the functionality of displaying all the student data in a TABLE format.
- + Development of a FLASK server (using Python3), for routing data to the HTML pages from the Database file (students.csv).
- + Running the FLASK server, synchronizing with all the HTML templates for proper operations and functionalities.

Templates

(1) INDEX.HTML

```

1  <!DOCTYPE html>
2  <html lang="en">
3  <head>
4      <meta charset="UTF-8">
5      <meta http-equiv="X-UA-Compatible" content="IE=edge">
6      <meta name="viewport" content="width=device-width, initial-scale=1.0">
7      <title>WELCOME BACK</title>
8      <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.0-beta3/dist/css/bootstrap.min.css"
9      rel="stylesheet" integrity="sha384-e0JMYsd53ii+sc0/b7GFsiCZc+5NDVN2yr8+0RDqr0Ql0h+rP48ckxlpbzKgwra6"
10     crossorigin="anonymous">
11 </head>
12 <body>
13     <div1>
14         <h1>WELCOME</h1>
15     </div1>
16     <div class="gradient-border" id="box">
17         <a href="/addstudent" class="btn btn-primary btnstyle">ADD STUDENT</a>
18     </div>
19     <div class="gradient-border" id="box">
20         <a href="/searchstudent" class="btn btn-primary btnstyle">STUDENT SEARCH</a>
21     </div>
22     <div class="gradient-border" id="box">
23         <a href="/displaystudents" class="btn btn-primary btnstyle">DISPLAY STUDENTS</a>
24     </div>
25     <style>
26         div1{
27             margin:0 px;
28             padding: 80px;
29             color: ■rgba(255, 255, 255, 0.685);
30         }
31         @import url('https://fonts.googleapis.com/css?family=raleway:200');
32         html, body {
33             height: 100%;
34             padding: 0px;
35             margin: 0px;
36             display: flex;
37             justify-content: center;

```

```

38         | align-items: center;
39         | }
40         | body {
41             | display: flex;
42             | justify-content: center;
43             | align-items: center;
44             | height: 100%;
45             | background: ■ #141616;
46         | }
47         | #box {
48             | display: flex;
49             | align-items: center;
50             | justify-content: center;
51             | width: 300px;
52             | height: 150px;
53             | color: ■ white;
54             | font-family: Georgia, serif;
55             | font-size: 3rem;
56         | }
57         | .gradient-border {
58             | --borderWidth: 8px;
59             | background: ■ #313436;
60             | position: relative;
61             | border-radius: var(--borderWidth);
62             | width: 300px;
63             | height: 150px;
64             | display: flex;
65             | flex-direction: column;
66             | justify-content: center;
67             | align-items: center;
68             | border: 1px solid ■ black;
69             | border-radius: 3px;
70         | }
71         | .gradient-border:after {
72             | content: '';
73             | position: absolute;
74             | top: calc(-1 * var(--borderWidth));

```

```

75     left: calc(-1 * var(--borderWidth));
76     height: calc(100% + var(--borderWidth) * 2);
77     width: calc(100% + var(--borderWidth) * 2);
78     background: linear-gradient(60deg, #f79533, #f37055, #ef4e7b, #a166ab, #5073b8, #1098ad, #07b39b, #6fba82);
79     border-radius: calc(2 * var(--borderWidth));
80     z-index: -1;
81     animation: animatedgradient 3s ease alternate infinite;
82     background-size: 300% 300%;
83   }
84   .btnstyle{
85     margin: auto;
86     width: 250px;
87   }
88   @keyframes animatedgradient {
89     0% {
90       background-position: 0% 50%;
91     }
92     50% {
93       background-position: 100% 50%;
94     }
95     100% {
96       background-position: 0% 50%;
97     }
98   }
99 </style>
100 </body>
101 </html>

```

(2) ADD-STUDENT.HTML

```

1  <!DOCTYPE html>
2  <html lang="en">
3  <head>
4    <meta charset="UTF-8">
5    <meta http-equiv="X-UA-Compatible" content="IE=edge">
6    <meta name="viewport" content="width=device-width, initial-scale=1.0">
7    <title>ADD STUDENT DETAILS</title>
8  </head>
9  <body>
10    <form action="/addstudent" method="POST" onsubmit="alert('Student Details Added')">
11      <h1>ADD STUDENT DETAILS</h1>
12      <div class="main-container">
13        <label for="studentid"><b>STUDENT ID</b></label>
14        <input type="text" name="studentid" placeholder="STUDENT ID" required>
15
16        <label for="studentname"><b>STUDENT NAME</b></label>
17        <input type="text" placeholder="STUDENT NAME" name="studentname" required>
18
19        <label><b>GENDER</b></label>
20        <div class="gender">
21          <div>
22            <input type="radio" name="gender" value="Male" id="male" />
23            <label for="male">MALE</label>
24            <input type="radio" name="gender" value="Female" id="female" />
25            <label for="female">FEMALE</label>
26          </div>
27        </div>
28        <label for="dateofbirth"><b>DATE OF BIRTH</b></label>
29        <input type="date" name="dateofbirth" id="dateofbirth">
30
31        <label for="city"><b>CITY</b></label>
32        <input type="text" placeholder="CITY" name="city" required>
33
34        <label for="state"><b>STATE</b></label>
35        <input type="text" placeholder="STATE" name="state" required>
36
37        <label for="email"><b>EMAIL</b></label>

```

```

38     <input type="email" placeholder="EMAIL" name="email" required>
39
40     <label for="qualification"><b>QUALIFICATION</b></label>
41     <input type="text" placeholder="QUALIFICATION" name="qualification" required>
42
43     <label for="stream"><b>STREAM</b></label>
44     <input type="text" placeholder="STREAM" name="stream" required>
45
46     <button type="submit" class="btn"><b>ADD STUDENT</b></button>
47 </div>
48 </form>
49 <style>
50     @import url('https://fonts.googleapis.com/css?family=Montserrat:400,500&display=swap');
51
52     body {
53         font-family: Georgia, serif;
54         background-image: linear-gradient(to right, rgba(245, 6, 193, 0.493), rgba(0, 247, 255, 0.719));
55         padding: 0;
56         margin: 0;
57         display: flex;
58         justify-content: center;
59         align-items: center;
60     }
61     .main-container {
62         padding: 20px;
63         width: 500px;
64         border: 1px solid #ccc;
65         border-radius: 10px;
66         background: white;
67         box-shadow: 2px 1px 21px -9px rgba(0,0,0,0.38);
68         border-radius: 5px;
69         border: 5px solid #000000;
70         border-bottom-width: 2px;
71     }
72     .gender{
73         width: 95%;

```

```

74         padding: 10px;
75         margin: 5px 0 22px 0;
76         border: none;
77         background: #c7d6d4a8;
78         font-family: Georgia, serif;
79         border-radius: 5px;
80         border: 1px solid #7db1aa;
81         border-bottom-width: 2px;
82     }
83     h1{
84         text-align: center;
85         font-family: Georgia, serif;
86     }
87     input[type=text], input[type=email],input[type=date] {
88         width: 95%;
89         padding: 10px;
90         margin: 5px 0 22px 0;
91         display: inline-block;
92         background: #d2dce0;
93         font-family: Montserrat,Arial, Helvetica, sans-serif;
94         caret-color: #5372f0;
95         border-radius: 5px;
96         border: 1px solid #7db1aa;
97         border-bottom-width: 2px;
98         transition: all 0.2s ease;
99     }
100     input[type=text]:focus, input[type=email]:focus, input[type=date]:focus{
101         background-color: rgb(144, 158, 180);
102         outline: none;
103     }
104     button {
105         background-image: linear-gradient(to right, rgba(245, 6, 193, 0.493), rgba(0, 247, 255, 0.719));
106         color: black;
107         padding: 14px 20px;
108         margin: 8px 0;
109         cursor: pointer;
110         width: 100%;

```

```

111 opacity: 0.9;
112 font-size:20px;
113 font-family: 'Courier New';
114 border-radius:10px;
115 border-radius: 5px;
116 border: 5px solid #b429cf;
117 border-bottom-width: 5px;
118 }
119 button:hover {
120 opacity:1;
121 }
122 </style>
123 </body>
124 </html>

```

(3) SEARCH-STUDENT.HTML

```

1 <!DOCTYPE html>
2 <html lang="en">
3 <head>
4 <meta charset="UTF-8">
5 <meta http-equiv="X-UA-Compatible" content="IE=edge">
6 <meta name="viewport" content="width=device-width, initial-scale=1.0">
7 <title>Search Students</title>
8 <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/css/bootstrap.min.css" rel="stylesheet"
9 integrity="sha384-EVSTQN3/azprG1Anm3QDgpJLIm9Nao0Yz1ztcQTwFspd3yD65VohhpuuCOmLASjC"
10 crossorigin="anonymous">
11 </head>
12 <body>
13 <div class="main-container">
14 <h1><b>STUDENT DETAILS</b></h1>
15 <form action="/searchstudent" method="POST">
16 <div class="search-box">
17 <input class="search-input" type="text" placeholder="STUDENT ID" name="Search" required>
18 <button class="search-button" type="submit" ><b>Search</b></button>
19 </div>
20 </form>
21 {% if tstate %}
22 <table class="table table-hover tablestyle" >
23 <tr>
24 <th class="thead">{{data}}</th>
25 <td>{{row[data]}}</td>
26 </tr>
27 {%endfor%}
28 </table>
29 {% endif %}
30 <div class="button-container">
31 <a href="/" class="btn btn-danger btnstyle">BACK</a>
32 </div>
33 </div>
34 </body>
35 </html>
36 <style>
37 body {

```

```

75     }
76     .search-input{
77     width: 100%;
78     padding: 10px;
79     border: 4px solid #111d5e;
80     border-radius:10px 0 0 10px ;
81     border-right: none;
82     outline: none;
83     font-size: 20px;
84     background: none;
85     }
86     .search-button{
87     text-align: center;
88     height: 51px;
89     width: 90px;
90     outline: none;
91     cursor: pointer;
92     border: 4px solid #111d5e;
93     border-radius: 0 10px 10px 0 ;
94     border-left: none;
95     background: none;
96     font-size: 20px;
97     border-left: 4px solid #111d5e;
98     }
99     .button-container{
100     |   display: flex;
101     |   justify-content: flex-end;
102     |   }
103     .btnstyle{
104     |   width: 100px;
105     |   margin: 20px;
106     |   }
107     </style>
108 </body>
109 </html>

```

```

38     font-family: Georgia, serif;
39     background-image: linear-gradient(to right, rgba(245, 6, 193, 0.493), rgba(0, 247, 255, 0.719));
40     padding: 0;
41     margin: 0;
42     display: flex;
43     justify-content: center;
44     align-items: center;
45     }
46     .main-container{
47     |   width: 100%;
48     |   display: flex;
49     |   justify-content: center;
50     |   align-items: center;
51     |   flex-direction: column;
52     |   margin-top: 20px;
53     |   }
54     .tablestyle{
55     |   width: 50%;
56     |   height: 51px;
57     |   border: 2px solid black;
58     |   margin-top: 50px;
59     |   }
60     .thead{
61     |   border-right: 2px solid black;
62     |   }
63     .tr{
64     |   border-bottom: 2px solid black;
65     |   }
66     h1{
67     |   margin-top: 50px;
68     |   font-family: Georgia, serif;
69     |   }
70     .search-box{
71     height: 51px;
72     width: 100%;
73     display: flex;
74     margin-top: 50px;

```

(4) DISPLAY-STUDENTS.HTML

```
1 <!DOCTYPE html>
2 <html lang="en">
3 <head>
4   <meta charset="UTF-8">
5   <meta http-equiv="X-UA-Compatible" content="IE=edge">
6   <meta name="viewport" content="width=device-width, initial-scale=1.0">
7   <title>Display Students</title>
8   <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/css/bootstrap.min.css" rel="stylesheet"
9     integrity="sha384-EVSTQN3/azprG1Anm3QDgpJLIm9Nao0Yz1ztcQTwFspd3yD65VohhpuuCOmLASjC"
10    crossorigin="anonymous">
11 </head>
12 <body>
13   <div class="main-container">
14     <h1><b>STUDENTS DETAILS</b></h1>
15     <br>
16     <br>
17     <table class="table table-hover">
18       <thead>
19         <tr>
20           <th scope="col">STUDENT ID</th>
21           <th scope="col">STUDENT NAME</th>
22           <th scope="col">GENDER</th>
23           <th scope="col">DATE OF BIRTH</th>
24           <th scope="col">CITY</th>
25           <th scope="col">STATE</th>
26           <th scope="col">EMAIL</th>
27           <th scope="col">QUALIFICATION</th>
28           <th scope="col">STREAM</th>
29         </tr>
30       </thead>
31       <tbody>
32         {% for row in rows %}
33         <tr>
34           <td>{{row['Student ID']}}</td>
35           <td>{{row['Student Name']}}</td>
36           <td>{{row['Gender']}}</td>
37           <td>{{row['DateOfBirth']}}</td>
```

```
38           <td>{{row['City']}}</td>
39           <td>{{row['State']}}</td>
40           <td>{{row['EmailId']}}</td>
41           <td>{{row['Qualification']}}</td>
42           <td>{{row['Stream']}}</td>
43         </tr>
44         {%endfor%}
45       </tbody>
46     </table>
47     <div class="button-container">
48       <a href="/" class="btn btn-danger btnstyle">BACK</a>
49     </div>
50 </div>
51
52 <style>
53   body {
54     font-family: Georgia, serif;
55     background-image: linear-gradient(to right, rgba(245, 6, 193, 0.493), rgba(0, 247, 255, 0.719));
56     padding: 0;
57     margin: 0;
58     display: flex;
59     justify-content: center;
60     align-items: center;
61   }
62   .main-container{
63     width: 90%;
64     margin-top: 40px;
65   }
66
67   .button-container{
68     margin-top: 40px;
69     display: flex;
70     justify-content: center;
71   }
72   .btnstyle{
73     width: 100px;
74     margin: 20px;
```

```

75     }
76     h1{
77         text-align: center;
78     }
79     </style>
80 </body>
81 </html>

```

SERVER BACKEND

PYTHON-FLASK APPLICATION

```

1  import csv
2  from flask import Flask,render_template,request,Response,jsonify
3
4  app=Flask(__name__)
5
6  @app.route("/")
7  def home():
8      return render_template('index.html')
9
10 @app.route("/addstudent", methods =["GET", "POST"])
11 def addstudent():
12     if request.method == "POST":
13         Student_ID=request.form.get("studentid")
14         Student_Name=request.form.get("studentname")
15         Gender=request.form.get('gender')
16         DateOfBirth=request.form.get("dateofbirth")
17         City=request.form.get("city")
18         State=request.form.get("state")
19         EmailId=request.form.get("email")
20         Qualification=request.form.get("qualification")
21         Stream=request.form.get("stream")
22         data=[Student_ID,Student_Name,Gender,DateOfBirth,City,State,EmailId,Qualification,Stream]
23         with open('students.csv', 'a', newline='') as csvfile:
24             fieldnames = ['Student ID','Student Name','Gender','DateOfBirth','City','State','EmailId','Qualification','Stream']
25             writer = csv.DictWriter(csvfile, fieldnames=fieldnames)
26             writer.writerow({'Student ID': Student_ID,'Student Name': Student_Name,'Gender': Gender,
27                             'DateOfBirth': DateOfBirth,'City': City, 'State': State,'EmailId': EmailId, 'Qualification': Qualification,
28                             'Stream': Stream})
29         return render_template('index.html')
30     else:
31         return render_template('add-student.html')
32
33 @app.route("/searchstudent",methods =["GET", "POST"])
34 def searchstudent():
35     rows=0
36     tstate=False
37     if request.method == "POST":

```

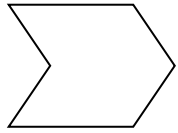
```

38         Student_ID=request.form.get("Search")
39         print(Student_ID)
40         with open('students.csv', 'r', newline='') as csvfile:
41             reader = csv.DictReader(csvfile)
42             for row in reader:
43                 if row['Student ID']==str(Student_ID):
44                     rows=row
45             tstate=True
46         return render_template('search-student.html',row=rows,tstate=tstate)
47     else:
48         return render_template('search-student.html',row=rows,tstate=tstate)
49
50 @app.route("/displaystudents")
51 def displaystudents():
52     rows=[]
53     with open('students.csv', 'r', newline='') as csvfile:
54         reader = csv.DictReader(csvfile)
55         for row in reader:
56             rows.append(row)
57     return render_template('display-students.html',rows=rows)
58
59 if __name__ == '__main__':
60     app.run(debug=True)

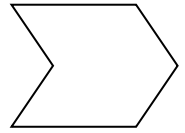
```


STUDENT.CSV DATABASE

```
students.csv
1 Student ID,Student Name,Gender,DateOfBirth,City,State,EmailId,Qualification,Stream
2
3 1,Raj,Male,1995-10-10,Mumbai,Maharashtra,raj@gmail.com,B.E.,Electronics
4 2,Priyanka,Female,1995-10-20,Pune,Maharashtra,priyanka@gmail.com,B.Tech,IT
```



CLIENT OUTPUT (FRONTEND) CLIENT OUTPUT (FRONTEND)



WELCOME

ADD STUDENT

STUDENT SEARCH

DISPLAY STUDENTS

INPUT → 'ADD STUDENT'

ADD STUDENT DETAILS

STUDENT ID

STUDENT NAME

GENDER

☐ MALE ☐ FEMALE

DATE OF BIRTH



CITY

STATE

EMAIL

QUALIFICATION

STREAM

ADD STUDENT

ADD STUDENT DETAILS

STUDENT ID

405

STUDENT NAME

TSG

GENDER

☒ MALE ☐ FEMALE

DATE OF BIRTH

01-01-2000



CITY

KOLKATA

STATE

WEST BENGAL

EMAIL

xyz@gmail.com

QUALIFICATION

B.Tech

STREAM

EE

ADD STUDENT

SAMPLE FORM INPUT (WORKING)

students.csv

```
1 Student ID,Student Name,Gender,DateOfBirth,City,State,EmailId,Qualification,Stream
2
3 1,Raj,Male,1995-10-10,Mumbai,Maharashtra,raj@gmail.com,B.E.,Electronics
4 2,Priyanka,Female,1995-10-20,Pune,Maharashtra,priyanka@gmail.com,B.Tech,IT
5 405,TSG,Male,2000-01-01,KOLKATA,WEST BENGAL,xyz@gmail.com,B.Tech,EE
```

DATA MODIFICATION (UPDATION) IN 'students.csv'

INPUT → 'STUDENT SEARCH'

STUDENT DETAILS

Student ID	405
Student Name	TSG
Gender	Male
DateOfBirth	2000-01-01
City	KOLKATA
State	WEST BENGAL
EmailId	xyz@gmail.com
Qualification	B.Tech
Stream	EE

SAMPLE SEARCH OF DETAILS OF A STUDENT -- USING STUDENT ID - '405'

INPUT → 'DISPLAY STUDENTS'



STUDENTS DETAILS

STUDENT ID	STUDENT NAME	GENDER	DATE OF BIRTH	CITY	STATE	EMAIL	QUALIFICATION	STREAM
1	Raj	Male	1995-10-10	Mumbai	Maharashtra	raj@gmail.com	B.E.	Electronics
2	Priyanka	Female	1995-10-20	Pune	Maharashtra	priyanka@gmail.com	B.Tech	IT
405	TSG	Male	2000-01-01	KOLKATA	WEST BENGAL	xyz@gmail.com	B.Tech	EE

BACK

SERVER OUTPUT (BACKEND)

PROBLEMS OUTPUT **TERMINAL** DEBUG CONSOLE

Python + v   ^

```
PS C:\Users\tasen\Desktop\LTII-LBJ_CASE-STUDY2> & C:\Users\tasen\AppData\Local\Microsoft\WindowsApps\python3.9.exe c:\Users\tasen\Desktop\LTII-LBJ_CASE-STUDY2\backend.py
* Serving Flask app 'backend' (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: 885-346-655
* Running on http://[REDACTED] / (Press CTRL+C to quit)
12 [REDACTED] - - [09/Aug/2021 17:21:20] "GET / HTTP/1.1" 200 -
12 [REDACTED] - - [09/Aug/2021 17:23:31] "GET /addstudent HTTP/1.1" 200 -
12 [REDACTED] - - [09/Aug/2021 17:31:59] "POST /addstudent HTTP/1.1" 200 -
12 [REDACTED] - - [09/Aug/2021 17:35:54] "GET /searchstudent HTTP/1.1" 200 -
40 [REDACTED] - - [09/Aug/2021 17:36:00] "POST /searchstudent HTTP/1.1" 200 -
12 [REDACTED] - - [09/Aug/2021 17:41:54] "GET /searchstudent HTTP/1.1" 200 -
12 [REDACTED] - - [09/Aug/2021 17:41:56] "GET / HTTP/1.1" 200 -
12 [REDACTED] - - [09/Aug/2021 17:41:57] "GET /displaystudents HTTP/1.1" 200 -
12 [REDACTED] - - [09/Aug/2021 17:43:32] "GET / HTTP/1.1" 200 -
```

P.S - LOCAL HOST - SERVER ADDRESS HAS BEEN PURPOSELY REMOVED FOR PRIVACY VIOLATIONS

THANK YOU