Unveiling The Virtual Classroom an In-Depth Analysis of The Online Education System

1 INTRODUCTION

1.1 Overview

Online classes and technology have emerged as a superhero during the lockdown days. We have all been under house arrest but are still connected with the world of education. Due to the lockdown, students have not been able to stay connected with the outer world and the lack of exposure is evident. The only reprieve for the students' mental well-being has been the transition to online classes. Teachers made sure that the learning for students was not compromised, so they took a great leap forward to find solutions and create new learning environments for their students to ensure that learning never stops. With the rapid advancements in technology and the widespread availability of internet access, online education has gained significant popularity in recent years.

1.2 Purpose

This project aims to delve deep into the various aspects of online education, examining its strengths, weaknesses, opportunities, and challenges. The outcomes of this project will provide valuable insights for educational institutions, policymakers, and online learning platforms to enhance the effectiveness and accessibility of online education. This analysis of the online education system aims to contribute to the ongoing dialogue on the future of education and help shape a more inclusive, engaging, and effective learning environment in the digital age.

2 LITERATURE SURVEY

2.1 Existing problem

- **Time Management**
- **Extra Resources**
- **No Recordings of Classes**

2.2 Proposed solution

Online classes offer more flexibility, convenience, and access to learning resources than offline classes.

- **Flexible:**
- **Ease of Access**
- **Affordable**
- **Comfortable and convenient**

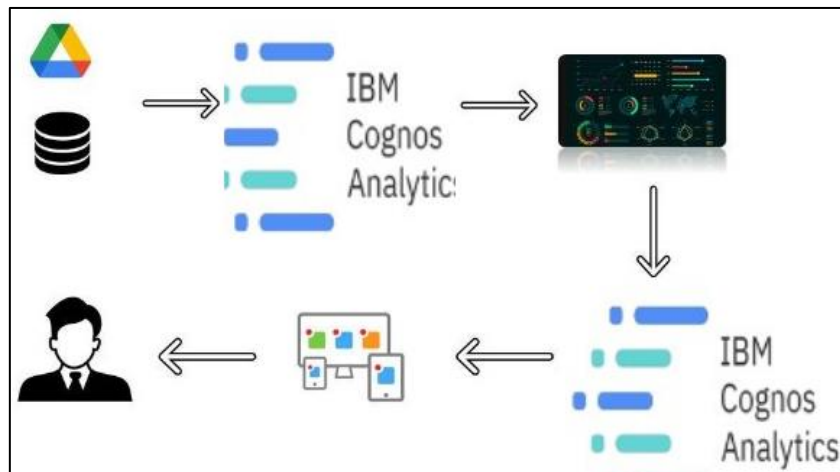**3 THEORITICAL ANALYSIS**

3.1 Block diagram

Fig 1 Block Diagram of Process

3.2 Hardware / Software Designing

- IBM Cloud
- IBM Cognos
- Visual Studio Code

4 EXPERIMENTAL INVESTIGATIONS

The experimental investigations yield actionable insights into the potential impact of IBM Cognos Analytics on online education. By analysing student performance, predicting areas of

concern, and tailoring learning experiences, the project aims to enhance the overall quality of online education.
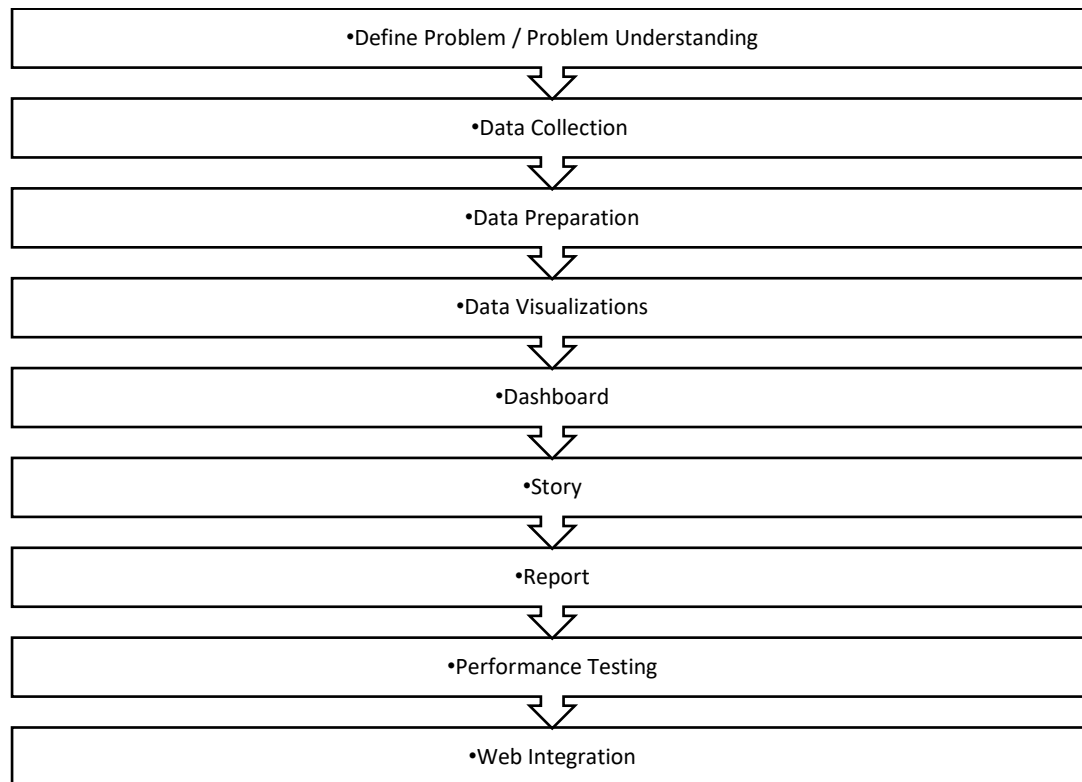
5 FLOWCHART

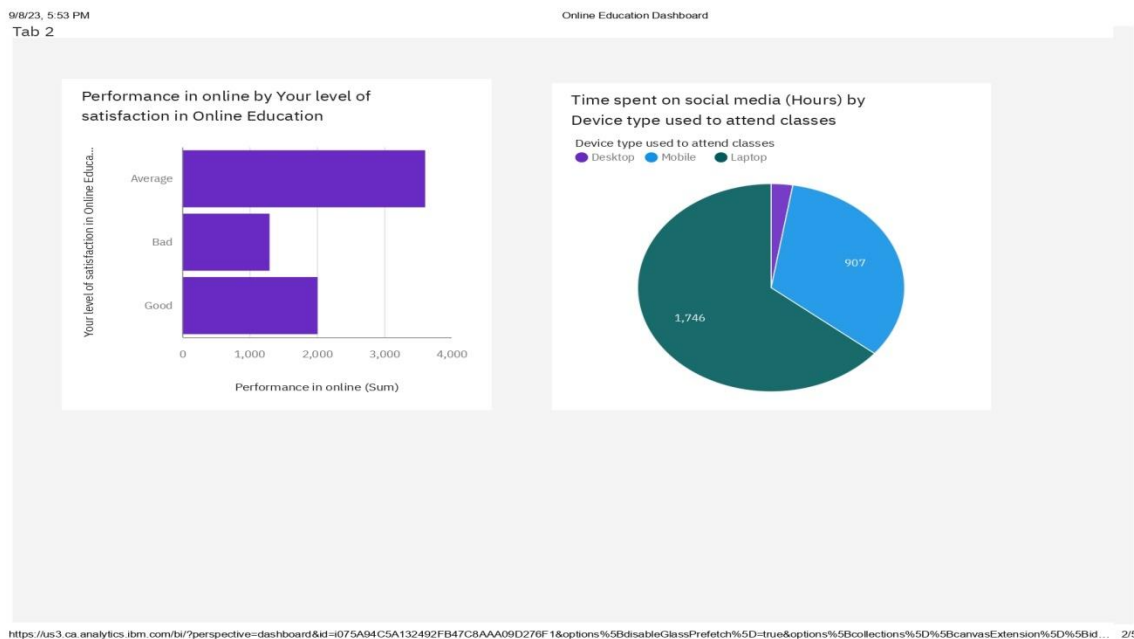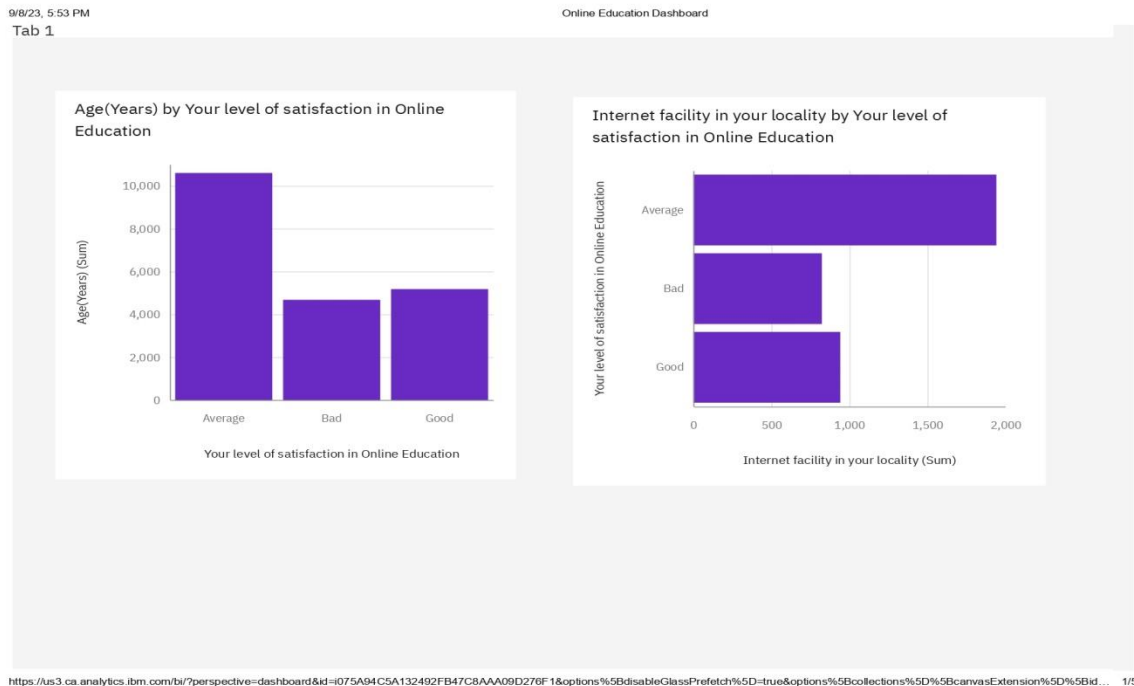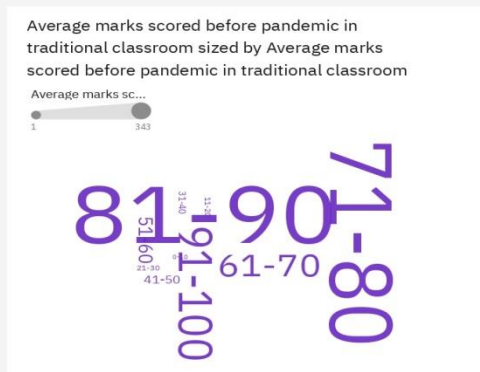| |
|---|
| •Define Problem / Problem Understanding |
| •Data Collection |
| •Data Preparation |
| •Data Visualizations |
| •Dashboard |
| •Story |
| •Report |
| •Performance Testing |
| •Web Integration |

Fig 2: Online education system flowchart

6 RESULTS

6.1 Online Education Dashboard

Tab 1

Age(Years) by Your level of satisfaction in Online Education

Internet facility in your locality by Your level of satisfaction in Online Education

Tab 2

Performance in online by Your level of satisfaction in Online Education

Time spent on social media (Hours) by Device type used to attend classes

Device type used to attend classes
● Desktop ● Mobile ● Laptop

907

1,746

Tab 3

Engaged in group studies? sized by Performance in online

Performance in on...

2,899 ——————●—— 4,018

Average marks scored before pandemic in traditional classroom sized by Average marks scored before pandemic in traditional classroom

Average marks sc...

1 ——————●—— 343

Tab 4

Economic status, Home Location and Performance in online

Economic status	Home Location	Performance in online
Middle Class	Rural	6.72
	Urban	6.68
Summary		6.69
Poor	Rural	6.49
	Urban	6.07
Summary		6.37
Rich	Rural	9
	Urban	7.11
Summary		7.3
Summary		6.7

Level of Education by Level of Education colored by Home Location

Home Location
● Rural ● Urban

6.2 Online Education Story

Level of Education by Level of Education colored by Home Location
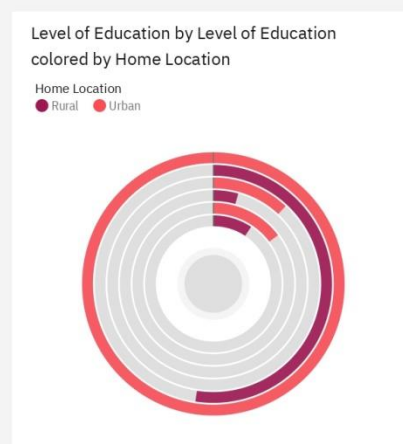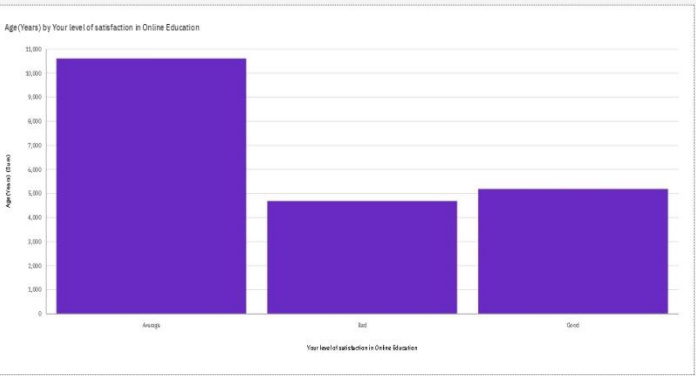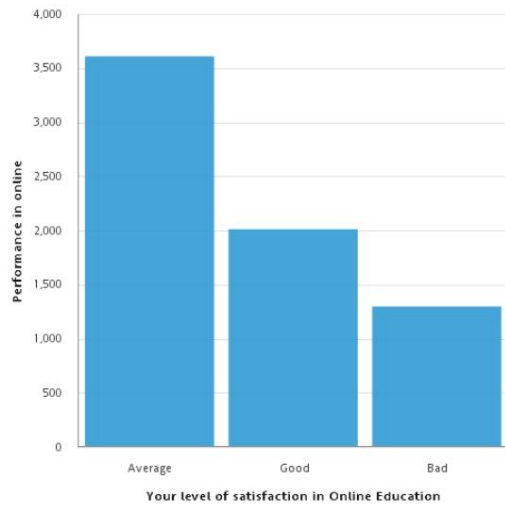
Economic status, Home Location and Performance in online

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	Urban	6.07
Summary		6.37
Rich	Rural	9
	Urban	7.11
Summary		7.3
Summary		6.7

Age(Years) by Your level of satisfaction in Online Education

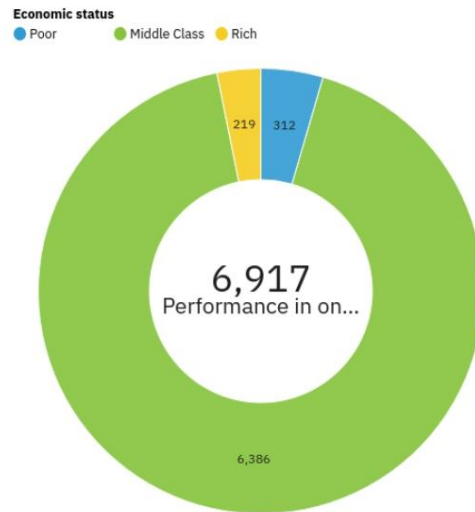Age(Years) by Your level of satisfaction in Online Education
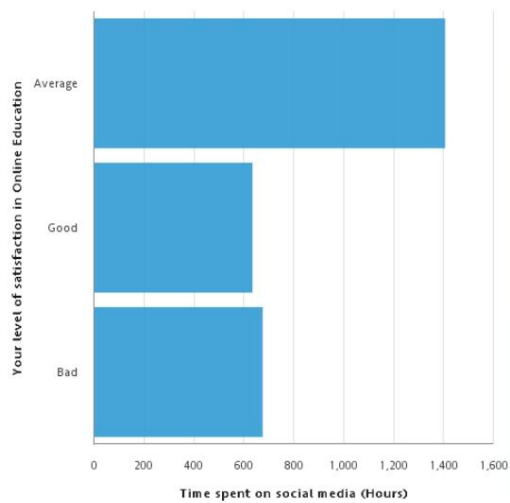
6.3 Online Education Report
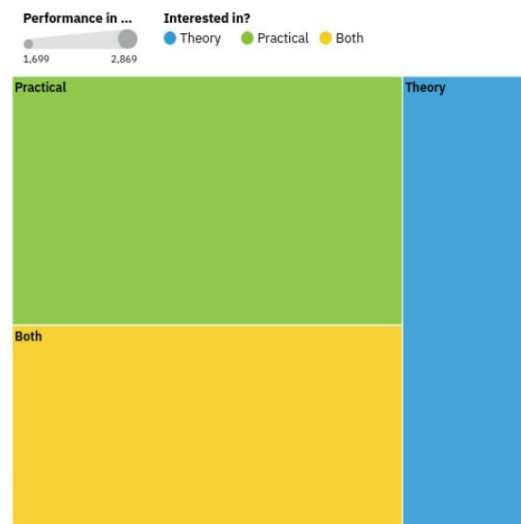
Student Performance by Level of Education

Coorelation between Economic status and Performance

Effect of Social Media on Performance

Performance by Interest of Taching Method

7 ADVANTAGES & DISADVANTAGES

Advantages of Online Education

- Online classes allow students to be more flexible with their schedules because they can attend classes from the comfort of their own homes.
- Online education is easily available everywhere and at any time if one has a reliable internet connection.
- In comparison to Offline School, where fees range from transportation to uniforms, extracurriculars, and a variety of other things, the whole education cost in online education is deducted fairly.
- Because of the reasons stated above, online education is far more convenient than traditional education.

Disadvantages of Online Education

- Any connectivity issues that may arise are one of the key downsides of online education.
- For a teacher, one of the major disadvantages of online education is managing student attention.
- Another significant and unavoidable disadvantage of online classes is the amount of time spent in front of the computer.
- Online education, unlike offline education, does not allow students to engage with their peers daily.

8 APPLICATIONS

- It can be used in Analysing the Complexities of Online Education Systems
- The effects of online education on academic success can be studied.
- It aids in Optimization of Online Education and Teaching Evaluation System

9 CONCLUSION

The online education system has both pros and cons. IBM Cognos Analytics provides new insights into the key factors of accessibility, educator preparation, and student engagement.

Using IBM Cognos Analytics, we can use data to improve these factors and enhance the effectiveness of virtual classrooms.

10 BIBILOGRAPHY

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https://inspiria.edu.in/online-vs-offline-education-advantages-and-disadvantages/
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https://www.hindawi.com/journals/cin/2021/8785127/.
7. Sustainability | Free Full-Text | The Effectiveness of Online Education.
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APPENDIX

1. Index.html

```html
2.  <!DOCTYPE html>
3.  <html lang="en">
4.  <head>
5.    <meta charset="utf-8">
6.    <meta content="width=device-width, initial-scale=1.0" name="viewport">
7.    <title>FlexStart Bootstrap Template - Index</title>
8.    <meta content="" name="description">
9.    <meta content="" name="keywords">
10.   <!-- Favicons -->
11.   <link href="assets/img/favicon.png" rel="icon">
12.   <link href="assets/img/apple-touch-icon.png" rel="apple-touch-icon">
13.   <!-- Google Fonts -->
14.   <link
   href="https://fonts.googleapis.com/css?family=Open+Sans:300,300i,400,400i,6
   00,600i,700,700i|Nunito:300,300i,400,400i,600,600i,700,700i|Poppins:300,300
   i,400,400i,500,500i,600,600i,700,700i" rel="stylesheet">
15.   <!-- Vendor CSS Files -->
16.   <link href="assets/vendor/aos/aos.css" rel="stylesheet">
17.   <link href="assets/vendor/bootstrap/css/bootstrap.min.css"
   rel="stylesheet">
```

```html
18.    <link href="assets/vendor/bootstrap-icons/bootstrap-icons.css"
    rel="stylesheet">
19.    <link href="assets/vendor/glightbox/css/glightbox.min.css"
    rel="stylesheet">
20.    <link href="assets/vendor/remixicon/remixicon.css" rel="stylesheet">
21.    <link href="assets/vendor/swiper/swiper-bundle.min.css" rel="stylesheet">
22.
23.    <!-- Template Main CSS File -->
24.    <link href="assets/css/style.css" rel="stylesheet">
25.
26.    <!-- ======================================================
27.    * Template Name: FlexStart
28.    * Updated: Aug 30 2023 with Bootstrap v5.3.1
29.    * Template URL: https://bootstrapmade.com/flexstart-bootstrap-startup-
    template/
30.    * Author: BootstrapMade.com
31.    * License: https://bootstrapmade.com/license/
32.    ====================================================== -->
33. </head>
34. <body>
35.    <!-- ======= Header ======= -->
36.    <header id="header" class="header fixed-top">
37.      <div class="container-fluid container-xl d-flex align-items-center
    justify-content-between">
38.        <a href="index.html" class="logo d-flex align-items-center">
39.          <img src="assets/img/logo.png" alt="">
40.          <span>Online Education System</span>
41.        </a>
42.        <nav id="navbar" class="navbar">
43.          <ul>
44.            <li><a class="nav-link scrollto active"
    href="#hero">Home</a></li>
45.            <li><a class="nav-link scrollto" href="#about">Report</a></li>
46.            <li><a class="nav-link scrollto"
    href="#services">Dashboard</a></li>
47.            <li><a class="nav-link scrollto" href="#portfolio">Story</a></li>
48.            <li><a class="nav-link scrollto" href="#contact">Contact</a></li>
49.            <li><a class="getstarted scrollto" href="#about">Get
    Started</a></li>
50.          </ul>
51.          <i class="bi bi-list mobile-nav-toggle"></i>
52.        </nav><!-- .navbar -->
53.      </div>
54.    </header><!-- End Header -->
55.    <!-- ======= Hero Section ======= -->
56.    <section id="hero" class="hero d-flex align-items-center">
57.      <div class="container">
58.        <div class="row">
```

```html
59.            <div class="col-lg-6 d-flex flex-column justify-content-center">
60.              <h1 data-aos="fade-up">Unveiling The Virtual Classroom: An In-
    Depth Analysis Of The Online Education System</h1>
61.              <h2 data-aos="fade-up" data-aos-delay="400">Online classes and
    technology have emerged as a superhero during the lockdown days. We have
    all been under house arrest but are still connected with the world of
    education. The only reprieve for the students' mental well-being has been
    the transition to online classes.</h2>
62.              <div data-aos="fade-up" data-aos-delay="600">
63.                <div class="text-center text-lg-start">
64.                  <a href="#about" class="btn-get-started scrollto d-inline-
    flex align-items-center justify-content-center align-self-center">
65.                    <span>Get Started</span>
66.                    <i class="bi bi-arrow-right"></i>
67.                  </a>
68.                </div>
69.              </div>
70.            </div>
71.            <div class="col-lg-6 hero-img" data-aos="zoom-out" data-aos-
    delay="200">
72.              <img src="assets/img/hero-img.png" class="img-fluid" alt="">
73.            </div>
74.          </div>
75.       </div>
76.
77.    </section><!-- End Hero -->
78.    <main id="main">
79.      <!-- ======= About Section ======= -->
80.      <section id="about" class="about">
81.        <div class="container" data-aos="fade-up">
82.          <div class="row gx-0">
83.            <iframe
    src="https://us3.ca.analytics.ibm.com/bi/?pathRef=.my_folders%2FOnline%2BEd
    ucation%2BReport&amp;closeWindowOnLastView=true&amp;ui_appbar=false&amp;ui_
    navbar=false&amp;shareMode=embedded&amp;action=edit" width="1100"
    height="1000" frameborder="0" gesture="media" allow="encrypted-media"
    allowfullscreen=""></iframe>
84.            </div>
85.            <div class="col-lg-6 d-flex align-items-center" data-aos="zoom-
    out" data-aos-delay="200">
86.              <img src="assets/img/about.jpg" class="img-fluid" alt="">
87.            </div>
88.          </div>
89.        </div>
90.      </section><!-- End About Section -->
91.      <!-- ======= Services Section ======= -->
92.      <section id="services" class="services">
93.        <div class="container" data-aos="fade-up">
```

```
94.        <iframe
   src="https://us3.ca.analytics.ibm.com/bi/?perspective=dashboard&amp;pathRef
   =.my_folders%2FOnline%2BEducation%2BDashboard&amp;closeWindowOnLastView=tru
   e&amp;ui_appbar=false&amp;ui_navbar=false&amp;shareMode=embedded&amp;action
   =view&amp;mode=dashboard&amp;subView=model0000018a74bc06ed_00000000"
   width="1100" height="1000" frameborder="0" gesture="media"
   allow="encrypted-media" allowfullscreen=""></iframe>
95.        </div>
96.      </div>
97.    </section><!-- End Services Section -->
98.    <!-- ======= Portfolio Section ======= -->
99.    <section id="portfolio" class="portfolio">
100.       <div class="container" data-aos="fade-up">
101.        <iframe
   src="https://us3.ca.analytics.ibm.com/bi/?perspective=story&amp;pathRef=.my
   _folders%2FOnline%2Beducation%2Bstory&amp;closeWindowOnLastView=true&amp;ui
   _appbar=false&amp;ui_navbar=false&amp;shareMode=embedded&amp;action=view&am
   p;sceneId=model0000018a74bfefe8_00000000&amp;sceneTime=0" width="1100"
   height="1000" frameborder="0" gesture="media" allow="encrypted-media"
   allowfullscreen=""></iframe>
102.        </div>
103.      </div>
104.    </section><!-- End Portfolio Section -->
105.        <!-- ======= Contact Section ======= -->
106.    <section id="contact" class="contact">
107.       <div class="container" data-aos="fade-up">
108.        <header class="section-header">
109.         <h2>Contact</h2>
110.         <p>Contact Us</p>
111.        </header>
112.        <div class="row gy-4">
113.         <div class="col-lg-6">
114.
115.           <div class="row gy-4">
116.             <div class="col-md-6">
117.               <div class="info-box">
118.                 <i class="bi bi-geo-alt"></i>
119.                 <h3>Address</h3>
120.                 <p>Hyderabad<br>Telangana, India 500028</p>
121.               </div>
122.             </div>
123.             <div class="col-md-6">
124.               <div class="info-box">
125.                 <i class="bi bi-telephone"></i>
126.                 <h3>Call Us</h3>
127.                 <p>+91 9603225511</p>
128.               </div>
129.             </div>
```

```
130.                    <div class="col-md-6">
131.                      <div class="info-box">
132.                        <i class="bi bi-envelope"></i>
133.                        <h3>Email Us</h3>
134.                        <p>prof.umadulhare@gmail.com</p>
135.                      </div>
136.                    </div>
137.                    <div class="col-md-6">
138.                      <div class="info-box">
139.                        <i class="bi bi-clock"></i>
140.                        <h3>Open Hours</h3>
141.                        <p>Monday - Friday<br>9:00AM - 05:00PM</p>
142.                      </div>
143.                    </div>
144.                  </div>
145.              </div>
146.              <div class="col-lg-6">
147.                  <form action="forms/contact.php" method="post" class="php-
    email-form">
148.                    <div class="row gy-4">
149.                      <div class="col-md-6">
150.                        <input type="text" name="name" class="form-control"
    placeholder="Your Name" required>
151.                      </div>
152.                      <div class="col-md-6 ">
153.                        <input type="email" class="form-control" name="email"
    placeholder="Your Email" required>
154.                      </div>
155.                      <div class="col-md-12">
156.                        <input type="text" class="form-control"
    name="subject" placeholder="Subject" required>
157.                      </div>
158.                      <div class="col-md-12">
159.                        <textarea class="form-control" name="message"
    rows="6" placeholder="Message" required></textarea>
160.                      </div>
161.                      <div class="col-md-12 text-center">
162.                        <div class="loading">Loading</div>
163.                        <div class="error-message"></div>
164.                        <div class="sent-message">Your message has been sent.
    Thank you!</div>
165.                        <button type="submit">Send Message</button>
166.                      </div>
167.                    </div>
168.                  </form>
169.              </div>
170.            </div>
171.        </div>
```

```
172.        </section><!-- End Contact Section -->
173.      </main><!-- End #main -->
174.      <a href="#" class="back-to-top d-flex align-items-center justify-
   content-center"><i class="bi bi-arrow-up-short"></i></a>
175.      <!-- Vendor JS Files -->
176.      <script
   src="assets/vendor/purecounter/purecounter_vanilla.js"></script>
177.      <script src="assets/vendor/aos/aos.js"></script>
178.      <script
   src="assets/vendor/bootstrap/js/bootstrap.bundle.min.js"></script>
179.      <script src="assets/vendor/glightbox/js/glightbox.min.js"></script>
180.      <script src="assets/vendor/isotope-
   layout/isotope.pkgd.min.js"></script>
181.      <script src="assets/vendor/swiper/swiper-bundle.min.js"></script>
182.      <script src="assets/vendor/php-email-form/validate.js"></script>
183.      <!-- Template Main JS File -->
184.      <script src="assets/js/main.js"></script>
185.    </body>
186.    </html>
```

187. App.py

```python
188.  from flask import Flask, render_template
189.  app = Flask(__name__)
190.  @app.route("/")
191.  def home():
192.      return render_template(r"index.html")
193.  if __name__ == "__main__":
194.      app.run(debug=False, port=5000)
```