



**APPLICATIONS OF INFORMATION AND COMPUTING  
TECHNOLOGIES**

**CS 108**

**Lab Engineer: Sir Nadeem Nawaz**

**Open Ended Lab:**

**GIS Data Exploration and Visualization**

**CS 14 B**

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**Title: Building a GIS-Integrated Image Database and Web Page**

Member Name	Qalam ID	Role	Assigned Tasks	Completion Status	Workload Evaluation (Self/Peer)
Fatima Sajjad	503676	Research Lead	Data collection	Completed	Excellent
Aman Ajmal	503460	Developer	Database setup +Integration with Web Page	Completed	Excellent
Waasila Asif	502395	UI Developer	Web page creation	Completed	Excellent

**Assignment**

**Deliverables**

1. **Database:** A working SQLite database with at least five images and metadata.
2. **Web Page:** A functioning Python/HTML page that displays the images and metadata.
3. **Bonus Content** (Optional): Any additional features or interesting information.

**Step 1: Research GIS Websites**

Landmark Name	Latitude	Longitude	Source	Resolution
Faisal Mosque	33.729597773102206	73.0368435195787	Google Maps	1596x674 pixels
Shakarparian National Park	33.68877341943761	73.0886985337631	Google Maps	1598x648 pixels
Masjid-e-Quba	33.5926264	73.1278901	OpenStreetMap	1596x613 pixels



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Rawal Lake	33.7029°	73.1277°	NASA Worldview	909x441 pixels
Lake View Park	33.715645012698424	73.13007211985679	Google Maps	777x656 pixels
International Islamic University Islamabad (IIUI)	33.65954003660057	73.02372041913544	Google Earth	1600x657 pixels
Lok Virsa Museum	33.6887°	73.0727°	NASA Worldview	844x428 pixels

### Step 2: Create a Local Database

#### CODE:

```
1 • create database OEL_Isb;
2 • use OEL_Isb;
3 • CREATE TABLE Landmarks (
4     ID INT AUTO_INCREMENT PRIMARY KEY,
5     ImagePath TEXT NOT NULL,
6     MapImagePath TEXT NOT NULL,
7     LandmarkName VARCHAR(255) NOT NULL,
8     Latitude FLOAT NOT NULL,
9     Longitude FLOAT NOT NULL,
10    Comments TEXT
11 );
12 • INSERT INTO Landmarks (ImagePath,MapImagePath, LandmarkName, Latitude, Longitude, Comments)
13 VALUES
14 ("C:\Users\HP\Desktop\OEL_ICT\OEL_ICT\i1.png","C:\Users\HP\Desktop\OEL_ICT\OEL_ICT\map1.png",
15  'Faisal Mosque', 33.729597773102206 ,73.0368435195787,
16  'The Faisal Mosque, located in Islamabad, Pakistan, is an iconic symbol of Islamic architecture and
17  one of the largest mosques in the world. Nestled at the foothills of the Margalla Hills, its unique
18  design resembles a Bedouin tent, blending tradition with modernity. Completed in 1986, it was funded by
19  King Faisal of Saudi Arabia and serves as a spiritual and cultural landmark for the nation. '),
20 ("C:\Users\HP\Desktop\OEL_ICT\OEL_ICT\Mon.jpg","C:\Users\HP\Desktop\OEL_ICT\OEL_ICT\map2.JPG",
21  'Shakarparian National Park', 33.68877341943761 , 73.0886985337631,
22  'A sprawling green space in the heart of Islamabad, Shakarparian is home to the iconic Pakistan Monument,
23  a towering structure representing the country\'s four provinces.The park offers picnic spots,
24  walking trails, and beautiful views of the city. '),
25 ("C:\Users\HP\Desktop\OEL_ICT\OEL_ICT\IIUI.jpg","C:\Users\HP\Desktop\OEL_ICT\OEL_ICT\map3.JPG",
26  'International Islamic University Islamabad (IIUI)', 33.65954003660057, 73.02372041913544,
27  'A prestigious university in Pakistan, known for its emphasis on Islamic learning and modern education.
28  It attracts students from around the world and serves as a hub for cultural and academic exchange. '),
29 ("C:\Users\HP\Desktop\OEL_ICT\OEL_ICT\Lake.jpg","C:\Users\HP\Desktop\OEL_ICT\OEL_ICT\map4.png",
30  'Lake View Park',33.7029,73.1027,
```



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```
31 'Located on the shores of Rawal Lake, the park offers scenic views, picnic spots, and opportunities
32 for boating and fishing. '),
33 ("C:\Users\HP\Desktop\OEL_ICT\OEL_ICT\Lok.jpg", "C:\Users\HP\Desktop\OEL_ICT\OEL_ICT\map5.png",
34 'Lok Virsa Museum', 33.6887, 73.0727,
35 'A cultural museum in Islamabad that showcases the rich heritage of Pakistan.
36 It features traditional crafts, musical instruments, and displays representing the diverse cultures and
37 history of the country. '),
38 ("C:\Users\HP\Desktop\OEL_ICT\OEL_ICT\Quba.jpg", "C:\Users\HP\Desktop\OEL_ICT\OEL_ICT\map6.png",
39 'Masjid-e-Quba', 33.5926264, 73.1278901,
40 'A prominent mosque in Islamabad, known for its beautiful architecture and spiritual significance.
41 It is inspired by the first mosque built by Prophet Muhammad (PBUH) in Medina and serves as an important
42 place of worship and community gathering. '),
43 ("C:\Users\HP\Desktop\OEL_ICT\OEL_ICT\Rawal.png", "C:\Users\HP\Desktop\OEL_ICT\OEL_ICT\map7.png",
44 'Rawal Lake', 33.7029, 73.1277,
45 'Rawal Lake, nestled in the heart of Islamabad, is a serene artificial reservoir that serves as a vital
46 source of water for the city and its surroundings. Surrounded by lush green hills and picturesque
47 landscapes, the lake is a popular destination for picnics, boating, and fishing. ');
48
49 • select * from Landmarks;
49 • UPDATE Landmarks
50 • SET ImagePath = CASE LandmarkName
51 • WHEN 'Faisal Mosque' THEN '/static/images/i1.png'
52 • WHEN 'Shakarparian National Park' THEN '/static/images/Mon.jpg'
53 • WHEN 'International Islamic University Islamabad (IIUI)' THEN '/static/images/IIUI.jpg'
54 • WHEN 'Lake View Park' THEN '/static/images/Lake.jpg'
55 • WHEN 'Lok Virsa Museum' THEN '/static/images/Lok.jpg'
56 • WHEN 'Masjid-e-Quba' THEN '/static/images/Quba.jpg'
57 • WHEN 'Rawal Lake' THEN '/static/images/Rawal.png'
58 • END,
59 • MapImagePath = CASE LandmarkName
60 • WHEN 'Faisal Mosque' THEN '/static/images/mapp1.png'
61 • WHEN 'Shakarparian National Park' THEN '/static/images/map2.JPG'
62 • WHEN 'International Islamic University Islamabad (IIUI)' THEN '/static/images/map3.JPG'
63 • WHEN 'Lake View Park' THEN '/static/images/map4.png'
64 • WHEN 'Lok Virsa Museum' THEN '/static/images/map5.jpg'
65 • WHEN 'Masjid-e-Quba' THEN '/static/images/map6.jpg'
66 • WHEN 'Rawal Lake' THEN '/static/images/map7.jpg'
67 • END
68 • WHERE ID > 0;
69 • UPDATE Landmarks
70 • SET Latitude = 33.7152880410197,
71 • Longitude = 73.13093042671443
72 • WHERE ID = 4;
73 • select * from Landmarks;
```

### TABLE:



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ID	ImagePath	MapImagePath	LandmarkName	Latitude	Longitude	Comme
1	/static/images/i1.png	/static/images/mapp1.png	Faisal Mosque	33.7296	73.0368	The Fai
2	/static/images/Mon.jpg	/static/images/map2.JPG	Shakarparian National Park	33.6888	73.0887	A sprav
3	/static/images/IIU.jpg	/static/images/map3.JPG	International Islamic University Islamabad (IIUI)	33.6595	73.0237	A presti
4	/static/images/Lake.jpg	/static/images/map4.png	Lake View Park	33.7153	73.1309	Located
5	/static/images/Lok.jpg	/static/images/map5.jpg	Lok Virsa Museum	33.6887	73.0727	A cultur
6	/static/images/Quba.jpg	/static/images/map6.jpg	Masjid-e-Quba	33.5926	73.1279	A promi
7	/static/images/Rawal.png	/static/images/map7.jpg	Rawal Lake	33.7029	73.1277	Rawal L

ImagePath	LandmarkName	Latitude	Longitude	Comments
/images/mapp1.png	Faisal Mosque	33.7296	73.0368	The Faisal Mosque, located in Islamabad, Pakist...
/images/map2.JPG	Shakarparian National Park	33.6888	73.0887	A sprawling green space in the heart of Islamab...
/images/map3.JPG	International Islamic University Islamabad (IIUI)	33.6595	73.0237	A prestigious university in Pakistan, known for it...
/images/map4.png	Lake View Park	33.7153	73.1309	Located on the shores of Rawal Lake, the park ...
/images/map5.jpg	Lok Virsa Museum	33.6887	73.0727	A cultural museum in Islamabad that showcases...
/images/map6.jpg	Masjid-e-Quba	33.5926	73.1279	A prominent mosque in Islamabad, known for its...
/images/map7.jpg	Rawal Lake	33.7029	73.1277	Rawal Lake, nestled in the heart of Islamabad, i...

#	Time	Action	Message	Duration / Fetch
1	11:49:19	create database OEL_isb	1 row(s) affected	0.016 sec
2	11:49:26	use OEL_isb	0 row(s) affected	0.000 sec
3	11:49:26	CREATE TABLE Landmarks ( ID INT AUTO_INCREMENT PRIMARY KEY, Ima...	0 row(s) affected	0.109 sec
4	11:49:34	INSERT INTO Landmarks (ImagePath, MapImagePath, LandmarkName, Latitude, Lo...	7 row(s) affected Records: 7 Duplicates: 0 Warnings: 0	0.016 sec
5	11:49:39	select * from Landmarks LIMIT 0, 1000	7 row(s) returned	0.000 sec / 0.000 sec

## Step 4: Develop a Simple Web Page

### Python/Flask Code:

app.py



app.py - C:/Users/HP/Desktop/app.py (3.13.1)

```
File Edit Format Run Options Window Help
from flask import Flask, render_template
import mysql.connector

app = Flask(__name__)

def get_landmarks():
    try:
        conn = mysql.connector.connect(
            host="localhost",
            user="root",
            password="rani2005",
            database="OEL_Isb"
        )
        cursor = conn.cursor()
        cursor.execute("SELECT * FROM Landmarks")
        landmarks = cursor.fetchall()
        cursor.close()
        conn.close()
        return landmarks
    except mysql.connector.Error as err:
        print(f"Database error: {err}")
        return []

@app.route('/')
def home():
    landmarks = get_landmarks()
    return render_template('index.html', landmarks=landmarks)

if __name__ == '__main__':
    app.run(debug=True)
```

CSS:

style.css





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```
/* Resetting Default Margins and Font */
body {
  background-color: lightgray; /* Replace with your desired color */
  margin: 0; /* Removes any default margin to ensure the color fills the viewport */
  padding: 0; /* Ensures no padding interferes with the layout */
  font-family: 'Lora', serif; /* Ensures consistency with your font */
}
/* General styles for the page */
/* Footer styles */
.footer {
  background-color: lightgray; /* Light gray background */
  color: #333; /* Dark gray text */
  display: flex;
  justify-content: space-between;
  align-items: flex-start;
  padding: 20px 50px;
  height: 28vh; /* 28% of viewport height */
  border-top: 1px solid #ddd; /* Subtle top border */
  box-shadow: 0 -2px 5px rgba(0, 0, 0, 0.1); /* Subtle shadow */
}

.footer-column {
  flex: 1;
  padding: 10px;
}

.footer-column h4 {
  font-size: 1rem;
  margin-bottom: 10px;
  color: #555;
}

.footer-column a {
```



```
.footer-column a {
    text-decoration: none;
    color: #007BFF;
    font-size: 0.9rem;
    display: block;
    margin-bottom: 5px;
    transition: color 0.2s ease;
}

.footer-column a:hover {
    color: #0056b3; /* Darker blue on hover */
}

.footer-logo {
    flex: 1;
    text-align: center;
    font-size: 1.2rem;
    color: #333;
}

.footer-logo span {
    font-weight: bold;
    font-size: 1.5rem;
}

.map-point {
    position: absolute;
    width: 15px;
    height: 15px;
    background-color: yellow;
    border-radius: 50%;
    box-shadow: 0 0 5px rgba(255, 255, 0, 0.8);
    transition: transform 0.5s, box-shadow 0.3s;
    cursor: pointer;
}
```



```
/* Glow effect on hover */
.map-point:hover {
  transform: scale(1.5);
  box-shadow: 0 0 15px rgba(255, 255, 0, 1);
}
.fullscreen-container {
  width: 100%;
  height: 100vh; /* Full screen height */
  display: flex;
  flex-direction: column;
  justify-content: center;
  align-items: center;
  background-color: #f5f5f5; /* Light background */
  text-align: center;
  background-color: lightgray;
}

.fullscreen-container .heading {
  font-size: 2.5rem;
  color: #333; /* Dark grey */
  margin: 0; /* Remove default margin */
}

.fullscreen-container .subtext-container {
  display: flex;
  align-items: center;
  margin-top: 1rem;
  width: 100%; /* Spans full width for alignment of lines */
  max-width: 600px; /* Restricts the width for alignment */
}

.fullscreen-container .subtext-container::before,
.fullscreen-container .subtext-container::after {
  content: '';
  flex: 1;
```





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```
flex: 1;
height: 2px;
background-color: #007BFF; /* Blue lines */
}

.fullscreen-container .subtext {
  font-size: 1rem;
  color: #6c757d; /* Muted grey */
  margin: 0 1rem; /* Spacing between text and blue lines */
  white-space: nowrap;
}

/* Banner Styling */
.banner {
  width: 100%;
  height: 100vh;
  background-image: linear-gradient(rgba(0, 0, 0, 0.75), rgba(0, 0, 0, 0.75)), url("../images/mainn.jpg");
  /* or use absolute path */
  /* background-image: linear-gradient(rgba(0, 0, 0, 0.75), rgba(0, 0, 0, 0.75)), url("/static/images/mainn.jpg"); */
  background-size: cover;
  background-position: center;
  position: relative;
}

.bmap {
  width: 100%;
  height: 100vh;
  background-image: linear-gradient(rgba(0, 0, 0, 0.2), rgba(0, 0, 0, 0.2)), url("../images/mainm.png");
  /* or use absolute path */
  /* background-image: linear-gradient(rgba(0, 0, 0, 0.2), rgba(0, 0, 0, 0.2)), url("/static/images/mainm.png"); */
  background-size: cover;
  background-position: center;
  position: relative;
}
/* Urdu Text Styling */
```



```
.urdu-text {
  position: absolute;
  top: 80%;
  left: 50%;
  transform: translate(-50%, -50%);
  font-family: 'Noto Nastaliq Urdu', 'Arial', sans-serif;
  font-size: 3em;
  color: white;
  text-shadow: 2px 2px 4px rgba(0, 0, 0, 0.7);
  direction: rtl; /* Right-to-left text direction */
}

/* Hero Section Styling */
.hero-section {
  position: absolute;
  top: 20%;
  left: 50%;
  transform: translate(-50%, -50%);
  text-align: center;
  color: #f4f4f4;
}

/* Hero Title Styling */
.hero-title {
  font-family: 'Cinzel', serif;
  font-size: 6em;
  font-weight: 400;
  letter-spacing: 0.15em;
  color: #ffffff;
  text-transform: uppercase;
  text-shadow: 4px 4px 8px rgba(0, 0, 0, 0.7);
  margin: 0;
}
```



```
/* Hero Subtitle Styling */
.hero-subtitle {
  font-family: 'Lora', serif;
  font-size: 1.8em;
  font-weight: 300;
  letter-spacing: 0.05em;
  color: #dcdcdc;
  margin: 10px 0 0;
  text-shadow: 1px 1px 4px rgba(0, 0, 0, 0.5);
  text-align: center;
}

/* Content Section Styling */
.content-section {
  display: flex;
  align-items: center;
  justify-content: space-between;
  padding: 50px;
  background-color: #f8f9fa;
  min-height: 100vh;
  position: relative;
  overflow: hidden;
  background-color: lightgray;
}

/* Left Image Styling */
.content-left {
  flex: 0 0 45%; /* Fix the width to 35% of the screen */
  display: flex;
  justify-content: center;
  align-items: center;
  height: 100vh; /* Full screen height */
  overflow: hidden; /* Ensure no overflow */
  position: relative;
```



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```
animation: slide-in-left 3s ease-in-out forwards;
opacity: 0; /* Initially hidden */

border-radius: 15px; /* Adjust the value to control the roundness */
overflow: hidden; /* Ensures content within the border doesn't spill out */

}
/*
/* Map Image Styling */

/* Right Text Styling */
.content-right {
    flex: 1; /* Occupy remaining space */
    display: flex;
    flex-direction: column;
    justify-content: center;
    animation: slide-in-right 3s ease-in-out forwards;
    opacity: 0;
    padding: 20px;
}

.content-right h2 {
    font-family: 'Cinzel', serif;
    font-size: 2.5em;
    margin-bottom: 20px;
    color: #343a40;
}

.content-right p {
    font-family: 'Lora', serif;
    font-size: 1.2em;
    color: #6c757d;
    line-height: 1.6;
}
```



```
/* Animation Definitions */
@keyframes slide-in-left {
  from {
    transform: translateX(-100%);
    opacity: 0;
  }

  to {
    transform: translateX(0);
    opacity: 1;
  }
}

@keyframes slide-in-right {
  from {
    transform: translateX(100%);
    opacity: 0;
  }

  to {
    transform: translateX(0);
    opacity: 1;
  }
}

/* Responsive Design for Smaller Screens */
@media (max-width: 768px) {
  .hero-title {
    font-size: 4em;
  }

  .hero-subtitle {
    font-size: 1.5em;
  }
}
```



```
.hero-title {
  font-size: 4em;
}

.hero-subtitle {
  font-size: 1.5em;
}

.content-section {
  flex-direction: column;
  padding: 50px 20px;
}

.content-left {
  flex: 0 0 auto; /* Remove fixed width */
  width: 100%; /* Full width */
  height: auto; /* Allow height to adjust */
  opacity: 1; /* No animation */
  animation: none;
}

.map-image,
.map-image-r {
  width: 100%;
  height: auto; /* Ensure proportional resizing */
}

.content-right {
  text-align: center;
  opacity: 1; /* No animation */
  animation: none;
}
}
```

HTML:





# National University of Sciences and Technology (NUST)

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```
<!DOCTYPE html>
<html lang="en">
<head>
  <link href="https://fonts.googleapis.com/css2?family=Noto+Nastaliq+Urdu&display=swap" rel="stylesheet">
  <link href="https://fonts.googleapis.com/css2?family=Cinzel:wght@400;700&family=Lora:wght@300;400&family=Noto+Nastaliq+Urdu&display=swap"
rel="stylesheet">
  <link href="https://fonts.googleapis.com/css2?family=Cinzel:wght@400;700&family=Lora:wght@300;400&display=swap" rel="stylesheet">
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Islamabad</title>
  <link rel="stylesheet" href="{{ url_for('static', filename='css/style.css') }}">
</head>
<body>
  <div class="banner">
    <div class="hero-section">
      <h1 class="hero-title">Islamabad</h1>
      <p class="hero-subtitle">The Perfect Harmony of Progress and Serenity</p>
    </div>
    <div class="urdu-text">
      حسن کی وادی، اسلام آباد
    </div>
  </div>

  <div class="fullscreen-container">
    <h1 class="heading">Quaid e Azam</h1>
    <div class="subtext-container">
      <span class="subtext">
        "Let us resolve to work with might and main,<br>
        shoulder to shoulder, to make this land into <br />
        a noble and happy homeland."<br />
      </span>
    </div>
  </div>
</div>
```

```
<div class="bmap">
  <a href="#section1" class="map-point" style="top: 20.44808%; left: 26.88877%;" title="Faisal Mosque"></a>
  <a href="#section2" class="map-point" style="top: 47.088%; left: 62.33879%;" title="Rawal Lake"></a>
  <a href="#section3" class="map-point" style="top: 33.488%; left: 63.433879%;" title="Lake View Park"></a>
  <a href="#section4" class="map-point" style="top: 23.698%; left: 67.6%;" title="Masjid e Quba"></a>
  <a href="#section5" class="map-point" style="top: 59.698%; left: 47%;" title="ShakarParian National Park"></a>
  <a href="#section6" class="map-point" style="top: 59.698%; left: 40.8%;" title="Lok Virsa"></a>
  <a href="#section7" class="map-point" style="top: 87%; left: 21.5%;" title="International Islamic University"></a>
</div>

<!-- Section 1 - Faisal Mosque -->
<div id="section1">
  <div class="content-section">
    <div class="content-right">
      <h2>{{ landmarks[0][3] }}</h2>
      <p>{{ landmarks[0][6] }}</p>
    </div>
    <div class="content-left">
      
    </div>
  </div>
  <div class="content-section">
    <div class="content-left">
      
    </div>
    <div class="content-right">
      <h2>Location Details</h2>
      <ul>
        <li><strong>Latitude:</strong> {{ "%.6f"|format(landmarks[0][4]) }}° N</li>
        <li><strong>Longitude:</strong> {{ "%.6f"|format(landmarks[0][5]) }}° E</li>
        <li><strong>Special Insight:</strong> The Faisal Mosque is the largest mosque in
Pakistan and was designed by Turkish architect Vedat Dalokay.</li>
      </ul>
    </div>
  </div>
```



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```
<a href="https://maps.app.goo.gl/DyvB8wfccKbGTc4VA" target="_blank" class="view-on-maps-btn">
  View on Google Maps
</a>
</div>
</div>
</div>
</div>

<!-- Section 2 - Shakarparian -->
<div id="section5">
  <div class="content-section">
    <div class="content-right">
      <h2>{{ landmarks[1][3] }}</h2>
      <p>{{ landmarks[1][6] }}</p>
    </div>
    <div class="content-left">
      
    </div>
  </div>
  <div class="content-section">
    <div class="content-left">
      
    </div>
    <div class="content-right">
      <h2>Location Details</h2>
      <ul>
        <li><strong>Latitude:</strong> {{ "%.6f"|format(landmarks[1][4]) }}° N</li>
        <li><strong>Longitude:</strong> {{ "%.6f"|format(landmarks[1][5]) }}° E</li>
        <li><strong>Special Insight:</strong> There is a monument in the park to mark the spot
where President Ayub Khan stood with other members and decided that this will be new capital of Pakistan. </li>
      </ul>
      <a href="https://maps.app.goo.gl/GXpad8GATin3MYcn7" target="_blank" class="view-on-maps-btn">
        View on Google Maps
      </a>
    </div>
  </div>

</div>
</div>

</div>
</div>

<!-- Section 3 - IIUI -->
<div id="section7">
  <div class="content-section">
    <div class="content-right">
      <h2>{{ landmarks[2][3] }}</h2>
      <p>{{ landmarks[2][6] }}</p>
    </div>
    <div class="content-left">
      
    </div>
  </div>
  <div class="content-section">
    <div class="content-left">
      
    </div>
    <div class="content-right">
      <h2>Location Details</h2>
      <ul>
        <li><strong>Latitude:</strong> {{ "%.6f"|format(landmarks[2][4]) }}° N</li>
        <li><strong>Longitude:</strong> {{ "%.6f"|format(landmarks[2][5]) }}° E</li>
        <li><strong>Special Insights:</strong> Established in 1980,IIUI was the first institution
in Pakistan to blend Islamic and contemporary education through a presidential decree.</li>
      </ul>
      <a href="https://maps.app.goo.gl/V7haD2qM49KCRPqN7" target="_blank" class="view-on-maps-btn">
        View on Google Maps
      </a>
    </div>
  </div>
</div>
</div>

<!-- Section 4 - Lake View Park -->
```



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```
<div id="section3">
  <div class="content-section">
    <div class="content-right">
      <h2>{{ landmarks[3][3] }}</h2>
      <p>{{ landmarks[3][6] }}</p>
    </div>
    <div class="content-left">
      
    </div>
  </div>
  <div class="content-section">
    <div class="content-left">
      
    </div>
    <div class="content-right">
      <h2>Location Details</h2>
      <ul>
        <li><strong>Latitude:</strong> {{ "%.6f"|format(landmarks[3][4]) }}° N</li>
        <li><strong>Longitude:</strong> {{ "%.6f"|format(landmarks[3][5]) }}° E</li>
        <li><strong>Special Insights:</strong> Lake View Park in Islamabad is renowned for housing
Pakistan's largest aviary, featuring approximately 7,000 birds across 400 species, making it a unique
destination for bird enthusiasts. </li>
      </ul>
      <a href="https://maps.app.goo.gl/6jVviEp1CfaakyLU7" target="_blank" class="view-on-maps-btn">
        View on Google Maps
      </a>
    </div>
  </div>
</div>

<!-- Section 5 - Lok Virsa -->
<div id="section6">
  <div class="content-section">
    <div class="content-right">
```

```
      <h2>{{ landmarks[4][3] }}</h2>
      <p>{{ landmarks[4][6] }}</p>
    </div>
    <div class="content-left">
      
    </div>
  </div>
  <div class="content-section">
    <div class="content-left">
      
    </div>
    <div class="content-right">
      <h2>Location Details</h2>
      <ul>
        <li><strong>Latitude:</strong> {{ "%.6f"|format(landmarks[4][4]) }}° N</li>
        <li><strong>Longitude:</strong> {{ "%.6f"|format(landmarks[4][5]) }}° E</li>
        <li><strong>Special Insights:</strong> Islamabad's Lok Virsa Museum is one of the largest
museums in the country, showcasing Pakistan's rich cultural heritage</li>
      </ul>
      <a href="https://maps.app.goo.gl/Q9SyBD1DihBvwTXM7" target="_blank" class="view-on-maps-btn">
        View on Google Maps
      </a>
    </div>
  </div>
</div>

<!-- Section 6 - Masjid e Quba -->
<div id="section4">
  <div class="content-section">
    <div class="content-right">
      <h2>{{ landmarks[5][3] }}</h2>
      <p>{{ landmarks[5][6] }}</p>
    </div>
    <div class="content-left">
```



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```
        
      </div>
    </div>
    <div class="content-section">
      <div class="content-left">
        
      </div>
      <div class="content-right">
        <h2>Location Details</h2>
        <ul>
          <li><strong>Latitude:</strong> { { "%.6f"|format(landmarks[5][4]) }}° N</li>
          <li><strong>Longitude:</strong> { { "%.6f"|format(landmarks[5][5]) }}° E</li>
          <li><strong>Special Insights:</strong>
Masjid e Quba in Islamabad is a replica of the original Masjid e Quba in Madinah, Saudi Arabia,
which holds the distinction of being the first mosque built in Islamic history. </li>
        </ul>
        <a href="https://maps.app.goo.gl/LDRCLQC5rmUCsbrg8" target="_blank" class="view-on-maps-btn">
          View on Google Maps
        </a>
      </div>
    </div>
  </div>
</div>
```

```
<!-- Section 7 - Rawal Lake -->
<div id="section2">
  <div class="content-section">
    <div class="content-right">
      <h2>{ { landmarks[6][3] }}</h2>
      <p>{ { landmarks[6][6] }}</p>
    </div>
    <div class="content-left">
      
    </div>
  </div>
</div>

<div class="content-section">
  <div class="content-left">
    
  </div>
  <div class="content-right">
    <h2>Location Details</h2>
    <ul>
      <li><strong>Latitude:</strong> { { "%.6f"|format(landmarks[6][4]) }}° N</li>
      <li><strong>Longitude:</strong> { { "%.6f"|format(landmarks[6][5]) }}° E</li>
      <li><strong>Special Insights:</strong> A unique feature of Rawal Lake is its role as a habitat
for wintering waterfowl, attracting migratory bird species like the Anas platyrhynchos.</li>
    </ul>
    <a href="https://maps.app.goo.gl/61t41GjfV8SAiCo37" target="_blank" class="view-on-maps-btn">
      View on Google Maps
    </a>
  </div>
</div>
</div>

<footer class="footer">
  <div class="footer-column">
    <h4><b>Data Collection</b></h4>
    <ul>
      <li><a href="https://www.linkedin.com/in/fatima-sajjad-086206334">Fatima Sajjad</a></li>
      <li>Qalam ID</li>
      <li>503676</li>
    </ul>
  </div>

  <div class="footer-column">
    <h4><b>UI/UX Design</b></h4>
    <ul>
      <li><a href="https://www.linkedin.com/in/waasila-asif-a82459328/">Waasila Asif</a></li>
      <li>Qalam ID</li>
    </ul>
  </div>
</div>
```



## National University of Sciences and Technology (NUST) School of Electrical Engineering and Computer Science

```
<li>502395</li>
</ul>
</div>

<div class="footer-column">
  <h4>Database Management</h4>
  <ul>
    <li><a href="https://www.linkedin.com/in/aman-ajmal-3776aa321">Aman Ajmal</a></li>
    <li>Qalam ID</li>
    <li>503460</li>
  </ul>
</div>

<div class="footer-logo">
  <span>
    <span>BSCS 14-B</span>
    <p>ICT Open Ended Lab</p>
  </div>
</footer>

</body>
</html>
```

**To run the website:** You will need to install python and then run the flask program, app.py on the command prompt in the project folder, using the command python app.py. The project folder includes the index.html file in the templates folder and the style.css file in the CSS folder inside the static folder which also contains all the images.

```
Windows PowerShell
PS C:\Users\HP\Desktop\OELICT> python app.py
* Serving Flask app 'app'
* Debug mode: on
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
* Running on http://127.0.0.1:5000
Press CTRL+C to quit
* Restarting with stat
* Debugger is active!
* Debugger PIN: 111-953-435
127.0.0.1 - - [13/Jan/2025 18:21:42] "GET / HTTP/1.1" 200 -
127.0.0.1 - - [13/Jan/2025 18:21:42] "GET /static/images/il.png HTTP/1.1" 304 -
127.0.0.1 - - [13/Jan/2025 18:21:42] "GET /static/images/Mon.jpg HTTP/1.1" 304 -
127.0.0.1 - - [13/Jan/2025 18:21:42] "GET /static/css/style.css HTTP/1.1" 304 -
127.0.0.1 - - [13/Jan/2025 18:21:42] "GET /static/images/map2.JPG HTTP/1.1" 304 -
127.0.0.1 - - [13/Jan/2025 18:21:42] "GET /static/images/mappl.png HTTP/1.1" 304 -
127.0.0.1 - - [13/Jan/2025 18:21:42] "GET /static/images/IIU.jpg HTTP/1.1" 304 -
127.0.0.1 - - [13/Jan/2025 18:21:42] "GET /static/images/map3.JPG HTTP/1.1" 304 -
127.0.0.1 - - [13/Jan/2025 18:21:42] "GET /static/images/Lake.jpg HTTP/1.1" 304 -
127.0.0.1 - - [13/Jan/2025 18:21:42] "GET /static/images/map4.png HTTP/1.1" 304 -
127.0.0.1 - - [13/Jan/2025 18:21:42] "GET /static/images/Lok.jpg HTTP/1.1" 304 -
127.0.0.1 - - [13/Jan/2025 18:21:42] "GET /static/images/map5.jpg HTTP/1.1" 304 -
127.0.0.1 - - [13/Jan/2025 18:21:42] "GET /static/images/Quba.jpg HTTP/1.1" 304 -
127.0.0.1 - - [13/Jan/2025 18:21:42] "GET /static/images/map6.jpg HTTP/1.1" 304 -
127.0.0.1 - - [13/Jan/2025 18:21:42] "GET /static/images/map7.jpg HTTP/1.1" 304 -
127.0.0.1 - - [13/Jan/2025 18:21:42] "GET /static/images/Rawal.png HTTP/1.1" 304 -
127.0.0.1 - - [13/Jan/2025 18:21:42] "GET /static/images/mainn.jpg HTTP/1.1" 304 -
127.0.0.1 - - [13/Jan/2025 18:21:42] "GET /static/images/mainn.png HTTP/1.1" 304 -
127.0.0.1 - - [13/Jan/2025 18:21:42] "GET /favicon.ico HTTP/1.1" 404 -
```

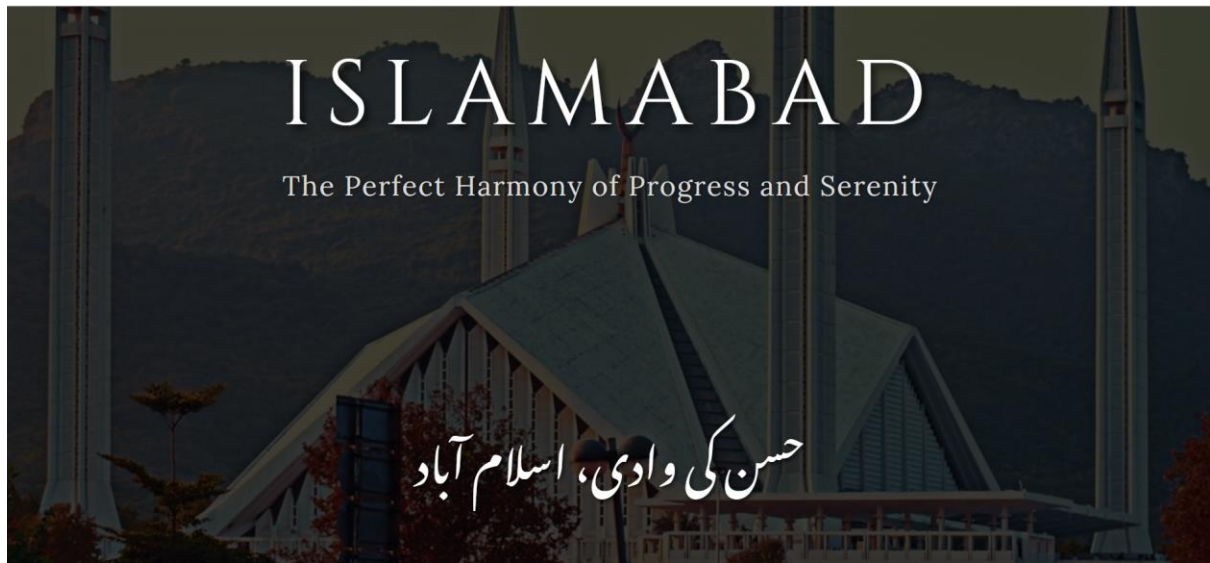
### WEBSITE:

It has a map of Islamabad on which there are points showing Landmarks that you can click to display the respective Landmarks' details.



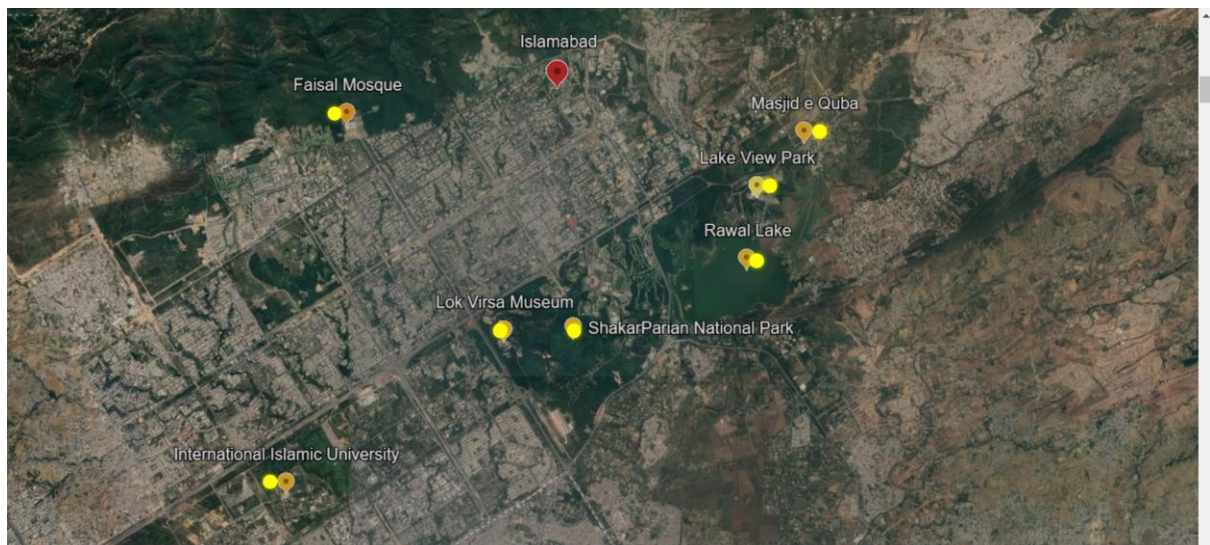


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## Quaid e Azam

"Let us resolve to work with might and main,  
shoulder to shoulder, to make this land into  
a noble and happy homeland."





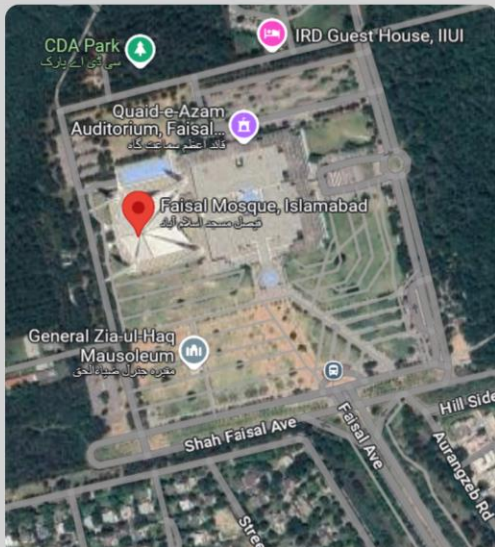


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### FAISAL MOSQUE

The Faisal Mosque, located in Islamabad, Pakistan, is an iconic symbol of Islamic architecture and one of the largest mosques in the world. Nestled at the foothills of the Margalla Hills, its unique design resembles a Bedouin tent, blending tradition with modernity. Completed in 1986, it was funded by King Faisal of Saudi Arabia and serves as a spiritual and cultural landmark for the nation.



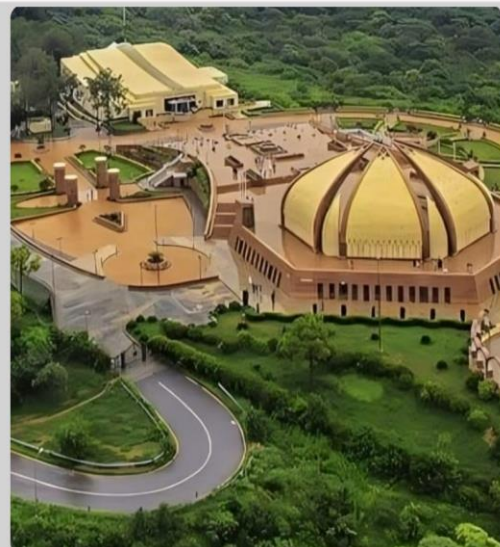
### LOCATION DETAILS

- **Latitude:** 33.729600° N
- **Longitude:** 73.036800° E
- **Special Insight:** The Faisal Mosque is the largest mosque in Pakistan and was designed by Turkish architect Vedat Dalokay.

[View on Google Maps](#)

### SHAKARPARIAN NATIONAL PARK

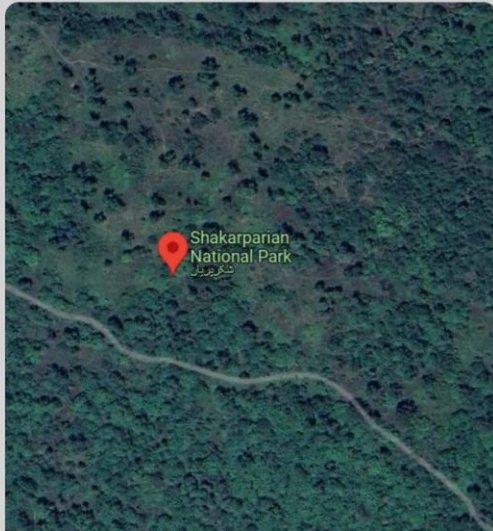
A sprawling green space in the heart of Islamabad, Shakarparian is home to the iconic Pakistan Monument, a towering structure representing the country's four provinces. The park offers picnic spots, walking trails, and beautiful views of the city.





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### LOCATION DETAILS

- **Latitude:** 33.688800° N
- **Longitude:** 73.088700° E
- **Special Insight:** There is a monument in the park to mark the spot where President Ayub Khan stood with other members and decided that this will be new capital of Pakistan.

[View on Google Maps](#)

## INTERNATIONAL ISLAMIC UNIVERSITY ISLAMABAD (IIUI)

A prestigious university in Pakistan, known for its emphasis on Islamic learning and modern education. It attracts students from around the world and serves as a hub for cultural and academic exchange.



### LOCATION DETAILS

- **Latitude:** 33.659500° N
- **Longitude:** 73.023700° E
- **Special Insights:** Established in 1980, IIUI was the first institution in Pakistan to blend Islamic and contemporary education through a presidential decree.

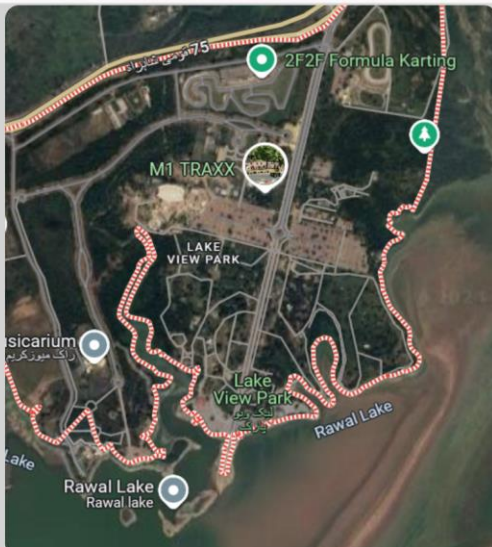
[View on Google Maps](#)





## LAKE VIEW PARK

Located on the shores of Rawal Lake, the park offers scenic views, picnic spots, and opportunities for boating and fishing.



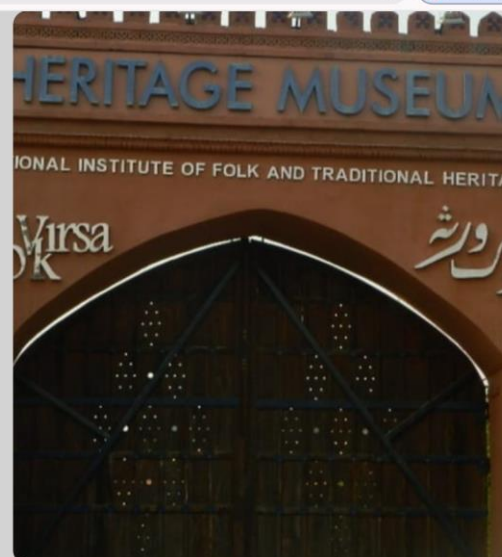
## LOCATION DETAILS

- **Latitude:** 33.715300° N
- **Longitude:** 73.130900° E
- **Special Insights:** Lake View Park in Islamabad is renowned for housing Pakistan's largest aviary, featuring approximately 7,000 birds across 400 species, making it a unique destination for bird enthusiasts.

[View on Google Maps](#)

## LOK VIRSA MUSEUM

A cultural museum in Islamabad that showcases the rich heritage of Pakistan. It features traditional crafts, musical instruments, and displays representing the diverse cultures and history of the country.





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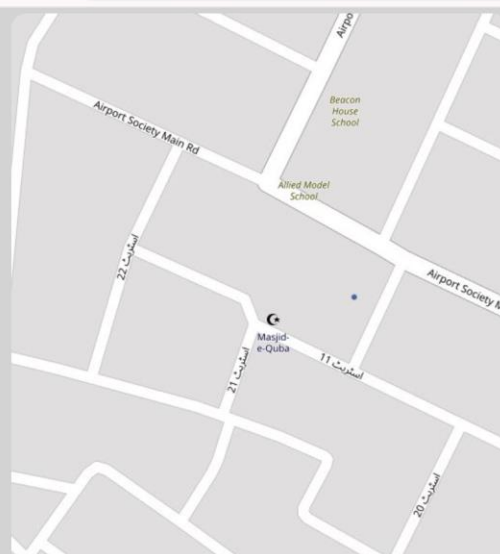
### LOCATION DETAILS

- **Latitude:** 33.688700° N
- **Longitude:** 73.072700° E
- **Special Insights:** Islamabad's Lok Virsa Museum is one of the largest museums in the country, showcasing Pakistan's rich cultural heritage

[View on Google Maps](#)

### MASJID-E-QUBA

A prominent mosque in Islamabad, known for its beautiful architecture and spiritual significance. It is inspired by the first mosque built by Prophet Muhammad (PBUH) in Medina and serves as an important place of worship and community gathering.



### LOCATION DETAILS

- **Latitude:** 33.592600° N
- **Longitude:** 73.127900° E
- **Special Insights:** Masjid e Quba in Islamabad is a replica of the original Masjid e Quba in Madinah, Saudi Arabia, which holds the distinction of being the first mosque built in Islamic history.

[View on Google Maps](#)

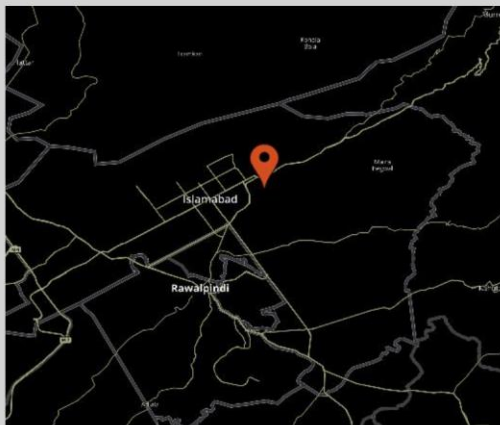


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### RAWAL LAKE

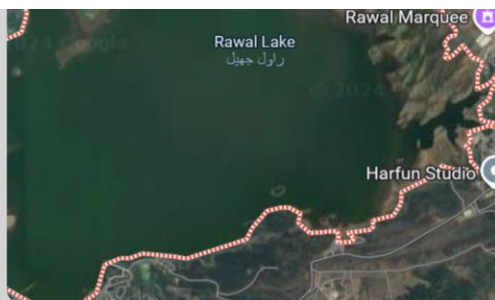
Rawal Lake, nestled in the heart of Islamabad, is a serene artificial reservoir that serves as a vital source of water for the city and its surroundings. Surrounded by lush green hills and picturesque landscapes, the lake is a popular destination for picnics, boating, and fishing.



### LOCATION DETAILS

- **Latitude:** 33.702900° N
- **Longitude:** 73.127700° E
- **Special Insights:** A unique feature of Rawal Lake is its role as a habitat for wintering waterfowl, attracting migratory bird species like the *Anas platyrhynchos*.

[View on Google Maps](#)



- **Latitude:** 33.702900° N
- **Longitude:** 73.127700° E
- **Special Insights:** A unique feature of Rawal Lake is its role as a habitat for wintering waterfowl, attracting migratory bird species like the *Anas platyrhynchos*.

[View on Google Maps](#)

#### Data Collection

- Fatima Sajjad
- Qalam ID
- 503676

#### UI/UX Design

- Waasila Asif
- Qalam ID
- 502395

#### Database Management

- Aman Ajmal
- Qalam ID
- 503460

BSCS 14-B

ICT Open Ended Lab



### **TASK OUTCOMES:**

We created a website showcasing Islamabad's landmarks, with interesting information and visuals. The project was divided into three main tasks:

**1. Data Collection**

The first member gathered data from various GIS websites (e.g., Google Maps, OpenStreetMap, NASA Worldview), including geographic images, latitudes, longitudes, and scenic photos of landmarks.

**2. Database Creation**

The second member

- Created MySQL database for Islamabad landmarks and stored all the data collected by the first member.
- Resolved static file management and image path issues.
- Successfully combined backend database with responsive frontend display with Flask web integration.

**3. Website Development**

The third member developed a multi-page website to present the landmarks. The website displayed comprehensive details, including images, location coordinates, and unique insights about each landmark.

### **TEAMWORK EVALUATION:**

<b>Member Name</b>	<b>Qalam ID</b>	<b>Role</b>	<b>Assigned Tasks</b>	<b>Completion Status</b>	<b>Workload</b>	<b>Evaluation (Peer)</b>
<b>Fatima Sajjad</b>	503676	Research Lead	Data collection	Completed	Explored different GIS websites to extract relevant geographic images and data of Islamabad's famous landmarks along with their latitudes and longitudes.	Completed her job on time and cooperated well.
<b>Aman Ajmal</b>	503460	Database Developer	Database setup + Integration with website	Completed	Created a local database to store downloaded images and related information and	She completed her tasks on time and collaborated effectively.





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					integrated it with the website.	
<b>Waasila Asif</b>	502395	UI Developer	Web page creation	Completed	Created an eye-catching website with several webpages using HTML to display the images and add details of all the landmarks.	She finished her work on schedule and worked well with others.