**Project Title:**Environmental Monitoring

**Project Definition:**

* The project involves setting up IoT devices to monitor environmental conditions in public parks, including temperature and humidity.
* The primary objective is to provide real-time environmental data to park visitors through a public platform, enabling them to plan their outdoor activities accordingly.
* This project includes defining objectives, designing the IoT sensor system, developing the environmental monitoring platform, and integrating them using IoT technology and Python.

**Design Thinking:**

**1.Project Objectives:**

* ***Real-time Environmental Monitoring:*** Continuously monitor and collect data on environmental conditions such as temperature and humidity in public parks.
* ***Aiding Park Visitors in Activity Planning:*** Provide park visitors with access to real-time environmental data to help them plan outdoor activities more effectively.
* ***Promoting Outdoor Experiences :*** Encourage people to spend time in public parks by highlighting the benefits of the natural environment.
* ***Enhancing Visitor Satisfaction:*** Improve the overall park experience by offering valuable information and promoting a more enjoyable visit.

**2. IoT Devices Design:**

* ***Sensor Selection:*** Choose appropriate IoT sensors (e.g., temperature and humidity sensors) that are accurate, durable, and suitable for outdoor use.
* ***Deployment Strategy:*** Determine the locations within public parks where sensors will be installed for optimal data collection.
* ***Power Source:*** Decide on the power source for IoT devices, considering options like battery, solar panels, or wired connections.
* ***Connectivity:*** Select the communication method (e.g., Wi-Fi, cellular, LoRa) for transmitting data from sensors to the monitoring platform.

**3. Environmental Monitoring Platform:**

* ***Technology Stack:*** Choose the technology stack for building the web-based platform, including programming languages (e.g., Python), web frameworks (e.g., Django, Flask), and databases (e.g., PostgreSQL).
* ***User Interface:*** Design a user-friendly web interface that displays real-time environmental data in an easily understandable format.
* ***Data Visualization:*** Implement data visualization tools and charts to present the data effectively to park visitors.
* ***Accessibility:*** Ensure that the platform is accessible to a wide range of users, including those with disabilities.

**4. Integration Approach:**

* ***Data Transmission:*** Determine how IoT devices will transmit data to the environmental monitoring platform. This may involve protocols like MQTT, HTTP, or custom APIs.
* ***Data Processing:*** Develop a mechanism to process incoming data, including data validation and filtering.
* ***Real-time*** ***Updates:*** Ensure that the platform can receive and display data in real-time to provide park visitors with up-to-date information.
* ***Error*** ***Handling:*** Implement error handling and recovery mechanisms to deal with data transmission or platform issues.