**Title: Weather Data Analysis and Visualization with Mobile App**

**Research Problem Description:**

The research problem involves integrating weather sensors deployed both inside and outside an office building to gather real-time weather data. This data needs to be analyzed, processed, and made available to users through a mobile app. The challenge lies in effectively collecting, analyzing, and presenting weather data to provide valuable insights for building occupants and management.

**Proposed Solutions:**

**1. Data Collection**: Weather sensors will be installed inside and outside the office building. A data acquisition system will continuously collect sensor data and transmit it to a central server or cloud platform.

**2. Data Processing and Analysis:** The collected data will undergo preprocessing to clean and prepare it for analysis. Data analysts will employ statistical techniques, mathematical models, and possibly machine learning to derive insights from the data.

**3. Cloud Integration:** Cloud services will be used for scalable and secure data storage. Cloud databases and pipelines will be set up to handle data ingestion and processing tasks.

**4. Mobile App Development:** A mobile app, built using Flutter, will provide users with access to weather data. It will feature an intuitive user interface displaying current weather conditions, historical trends, and insights generated from data analysis.

**Tools/Applications Used:**

**-** Golang for data collection from weather sensors and data transmission.

- Data analysis will involve Python with libraries like NumPy, pandas, and scikit-learn.

- Cloud services such as AWS, Azure, or Google Cloud for data storage and management.

- Flutter for mobile app development on iOS and Android platforms.

**Additional Information:**

This project aims to provide a comprehensive solution for weather data analysis and visualization. It showcases the integration of IoT, data analytics, mobile app development, and cloud computing to offer valuable insights and real-time weather information to users, benefiting both office occupants and building management.

**References:**

* <https://www.snowflake.com/en/data-cloud/workloads/data-warehouse/>
* <https://www.nist.gov/publications/nist-cloud-computing-reference-architecture>
* <https://pkg.go.dev/golang.org/x/net/websocket>
* <https://docs.flutter.dev/>

**Team Members:**

* Satyalohit Nallamothu(NALLA1SL)
* Vasistinitha Pamireddy(PAMIR1V)
* Shivam Shah(SHAH1SP)