**Task No 1**

**C++ Programming**

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**Code:**

#include <iostream>

#include <vector>

#include <string>

#include <fstream>

#include <sstream>

using namespace std;

// Class to manage a Location

class Location {

private:

string name;

double latitude;

double longitude;

public:

Location(string name, double latitude, double longitude)

: name(name), latitude(latitude), longitude(longitude)

{

}

string getName() const

{

return name;

}

double getLatitude() const

{

return latitude;

}

double getLongitude() const

{

return longitude;

}

};

// Class to manage Weather Variables

class WeatherVariable {

private:

string name;

double value; // Assuming a single value for simplicity

public:

WeatherVariable(string name, double value)

: name(name), value(value)

{

}

string getName() const

{

return name;

}

double getValue() const

{

return value;

}

};

// Class to manage Weather Forecasting System

class WeatherForecastingSystem {

public:

void fetchWeatherData(Location location) {

// Simulated output for demonstration

cout << "Fetching weather data for " << location.getName() << "...\n";

cout << "Temperature: 25°C, Wind Speed: 10 km/h\n";

}

};

// Class to manage Historical Weather System

class HistoricalWeatherSystem {

public:

void fetchHistoricalData(Location location) {

// Simulated output for demonstration

cout << "Fetching historical data for " << location.getName() << "...\n";

cout << "Temperature (last month): 20°C, Wind Speed (last month): 8 km/h\n";

}

};

// Class to manage Air Quality Forecasting System

class AirQualityForecastingSystem {

public:

void fetchAirQualityData(Location location) {

// Simulated output for demonstration

cout << "Fetching air quality data for " << location.getName() << "...\n";

cout << "Air Quality Index: 50\n";

}

};

// Main function to interact with the user

int main() {

string cityName;

double latitude, longitude;

// Get input from the user

cout << "Enter city name: ";

getline(cin, cityName);

cout << "Enter latitude: ";

cin >> latitude;

cout << "Enter longitude: ";

cin >> longitude;

// Create a Location object

Location city(cityName, latitude, longitude);

// Instantiate systems

WeatherForecastingSystem weatherSystem;

HistoricalWeatherSystem historicalSystem;

AirQualityForecastingSystem airQualitySystem;

// Fetch and display data

weatherSystem.fetchWeatherData(city);

historicalSystem.fetchHistoricalData(city);

airQualitySystem.fetchAirQualityData(city);

return 0;

}

**Output**:







