**Java code for**

**weather forecasting application document**

**WeatherForecastingApp.java**

import java.io.BufferedReader;

import java.io.InputStreamReader;

import java.net.HttpURLConnection;

import java.net.URL;

import org.json.JSONObject;

public class WeatherForecastingApp {

private static final String API\_KEY = "your\_api\_key\_here"; // Replace with your actual API key

private static final String API\_URL = "https://api.openweathermap.org/data/2.5/weather?q=%s&appid=%s&units=metric";

public static void main(String[] args) {

String cityName = "London"; // Example city

fetchWeatherData(cityName);

}

public static void fetchWeatherData(String cityName) {

String urlString = String.format(API\_URL, cityName, API\_KEY);

try {

URL url = new URL(urlString);

HttpURLConnection connection = (HttpURLConnection) url.openConnection();

connection.setRequestMethod("GET");

int responseCode = connection.getResponseCode();

if (responseCode == 200) {

BufferedReader reader = new BufferedReader(new InputStreamReader(connection.getInputStream()));

StringBuilder response = new StringBuilder();

String line;

while ((line = reader.readLine()) != null) {

response.append(line);

}

reader.close();

parseWeatherData(response.toString());

} else {

System.out.println("Error: Unable to fetch weather data.");

}

} catch (Exception e) {

e.printStackTrace();

}

}

public static void parseWeatherData(String jsonResponse) {

JSONObject jsonObject = new JSONObject(jsonResponse);

String city = jsonObject.getString("name");

JSONObject main = jsonObject.getJSONObject("main");

double temperature = main.getDouble("temp");

double humidity = main.getDouble("humidity");

String weatherDescription = jsonObject.getJSONArray("weather").getJSONObject(0).getString("description");

System.out.printf("Weather in %s:\n", city);

System.out.printf("Temperature: %.2f°C\n", temperature);

System.out.printf("Humidity: %.2f%%\n", humidity);

System.out.printf("Description: %s\n", weatherDescription);

}

}

**WeatherApp.java**

package com.example;

import com.google.gson.JsonObject;

import com.google.gson.JsonParser;

import org.apache.http.HttpEntity;

import org.apache.http.client.methods.CloseableHttpResponse;

import org.apache.http.client.methods.HttpGet;

import org.apache.http.impl.client.CloseableHttpClient;

import org.apache.http.impl.client.HttpClients;

import org.apache.http.util.EntityUtils;

import java.io.IOException;

public class WeatherApp {

private static final String API\_KEY = "YOUR\_API\_KEY"; // Replace with your API key

private static final String API\_URL = "https://api.openweathermap.org/data/2.5/weather?q=%s&appid=%s&units=metric";

public static void main(String[] args) {

String city = "London"; // Change this to any city

String url = String.format(API\_URL, city, API\_KEY);

try {

String response = getWeatherData(url);

parseAndDisplayWeather(response);

} catch (IOException e) {

e.printStackTrace();

}

}

private static String getWeatherData(String url) throws IOException {

try (CloseableHttpClient client = HttpClients.createDefault()) {

HttpGet request = new HttpGet(url);

try (CloseableHttpResponse response = client.execute(request)) {

HttpEntity entity = response.getEntity();

return EntityUtils.toString(entity);

}

}

}

private static void parseAndDisplayWeather(String json) {

JsonObject jsonObject = JsonParser.parseString(json).getAsJsonObject();

String cityName = jsonObject.get("name").getAsString();

JsonObject main = jsonObject.getAsJsonObject("main");

double temperature = main.get("temp").getAsDouble();

double humidity = main.get("humidity").getAsDouble();

String weatherDescription = jsonObject.getAsJsonArray("weather")

.get(0).getAsJsonObject()

.get("description").getAsString();

System.out.println("Weather in " + cityName + ":");

System.out.println("Temperature: " + temperature + "°C");

System.out.println("Humidity: " + humidity + "%");

System.out.println("Description: " + weatherDescription);

}

}

**pom.xml**

<project xmlns="http://maven.apache.org/POM/4.0.0"

xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"

xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.apache.org/xsd/maven-4.0.0.xsd">

<modelVersion>4.0.0</modelVersion>

<groupId>com.example</groupId>

<artifactId>weather-app</artifactId>

<version>1.0-SNAPSHOT</version>

<dependencies>

<dependency>

<groupId>org.apache.httpcomponents</groupId>

<artifactId>httpclient</artifactId>

<version>4.5.13</version>

</dependency>

<dependency>

<groupId>com.google.code.gson</groupId>

<artifactId>gson</artifactId>

<version>2.8.8</version>

</dependency>

</dependencies>

</project>