Answer’s

Task: 02

1 Ans:

```
import java.io.*;
import java.net.HttpURLConnection;
import java.net.URL;
import java.util.Scanner;
import org.json.JSONObject;

public class WeatherApp {

    private static final String API_KEY = "YOUR_API_KEY";
    private static final String BASE_URL = "http://api.openweathermap.org/data/2.5/weather?q=";

    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter city name: ");
        String city = scanner.nextLine();
        scanner.close();

        fetchWeatherData(city);
    }

    private static void fetchWeatherData(String city) {
        try {
            String urlString = BASE_URL + city + "&appid=" + API_KEY + "&units=metric";
            URL url = new URL(urlString);
            HttpURLConnection conn = (HttpURLConnection) url.openConnection();
            conn.setRequestMethod("GET");
            conn.setRequestProperty("Accept", "application/json");

            if (conn.getResponseCode() != 200) {
                System.out.println("Error: Could not fetch weather data. Response Code: " + conn.getResponseCode());
                return;
            }

            BufferedReader reader = new BufferedReader(new InputStreamReader(conn.getInputStream()));
            StringBuilder response = new StringBuilder();
            String line;
            while ((line = reader.readLine()) != null) {
                response.append(line);
            }
            reader.close();

            parseAndDisplayWeather(response.toString());
        } catch (Exception e) {
            System.out.println("An error occurred: " + e.getMessage());
        }
    }

    private static void parseAndDisplayWeather(String jsonResponse) {
        JSONObject jsonObject = new JSONObject(jsonResponse);
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        String city = jsonObject.getString("name");
        JSONObject main = jsonObject.getJSONObject("main");
        double temperature = main.getDouble("temp");
        int humidity = main.getInt("humidity");

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

        System.out.println("\nWeather Data for " + city + ":");
        System.out.println("Temperature: " + temperature + "°C");
        System.out.println("Humidity: " + humidity + "%");
        System.out.println("Condition: " + description);
    }
}
```

2 Ans:

```
import java.io.*;
import java.net.HttpURLConnection;
import java.net.URL;
import java.util.Scanner;
import org.json.JSONObject;

/**
 * Java program that handles HTTP requests and parses JSON responses
 * using OpenWeatherMap API to fetch weather data.
 */
public class WeatherApp {

    private static final String API_KEY = "YOUR_API_KEY";
    private static final String BASE_URL = "http://api.openweathermap.org/data/2.5/weather?q=";

    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter city name: ");
        String city = scanner.nextLine();
        scanner.close();

        fetchWeatherData(city);
    }

    /**
     * Fetches weather data from OpenWeatherMap API for a given city.
     * @param city The city name to retrieve weather data for.
     */
    private static void fetchWeatherData(String city) {
        try {
            String urlString = BASE_URL + city + "&appid=" + API_KEY + "&units=metric";
            URL url = new URL(urlString);
            HttpURLConnection conn = (HttpURLConnection) url.openConnection();
            conn.setRequestMethod("GET");
            conn.setRequestProperty("Accept", "application/json");

            if (conn.getResponseCode() != 200) {
                System.out.println("Error: Could not fetch weather data. Response Code: " + conn.getResponseCode());
```

```
            return;
        }

        BufferedReader reader = new BufferedReader(new InputStreamReader(conn.getInputStream()));
        StringBuilder response = new StringBuilder();
        String line;
        while ((line = reader.readLine()) != null) {
            response.append(line);
        }
        reader.close();

        parseAndDisplayWeather(response.toString());
    } catch (Exception e) {
        System.out.println("An error occurred: " + e.getMessage());
    }
}

/**
 * Parses and displays weather data from JSON response.
 * @param jsonResponse The JSON response string.
 */
private static void parseAndDisplayWeather(String jsonResponse) {
    JSONObject jsonObject = new JSONObject(jsonResponse);
    String city = jsonObject.getString("name");
    JSONObject main = jsonObject.getJSONObject("main");
    double temperature = main.getDouble("temp");
    int humidity = main.getInt("humidity");

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

    System.out.println("\nWeather Data for " + city + ":");
    System.out.println("Temperature: " + temperature + "°C");
    System.out.println("Humidity: " + humidity + "%");
    System.out.println("Condition: " + description);
}
}
```