WEATHER FORECASTING SYSTEM

Submitted by

Name of the Students: **Anwesha Karmakar**
Enrolment Number: **12022002019089**
Section: **D**
Class Roll Number: *89*
Stream: **CSE(IoT)**
Subject: Programming for Problem Solving using C language
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Department: Basic Science and Humanities

Under the supervision of
Swarnendu Ghosh

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PROJECT REPORT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE SECOND SEMESTER

DEPARTMENT OF BASIC SCIENCE AND HUMANITITES
INSTITUTE OF ENGINEERING AND MANAGEMENT, KOLKATA

CERTIFICATE OF RECOMMENDATION

We hereby recommend that the project prepared under our supervision by Anwesha Karmakar, entitled Weather Forecasting System be accepted in partial fulfillment of the requirements for the degree of partial fulfillment of the second semester.

Head of the Department Basic Sciences and Humanities IEM, Kolkata	Project Supervisor

1 Introduction

The proposed system provides the weather of different cities.In this system the user can view weather foe which they search for.

1.1 Objective

To create a C program on Weather Forecasting System project.

1.2 Organization of the Project

I used the basic ***stdio.h*** and then I used the struct system to create a structure variable and then I added functions to call them.

2 Programs

```
#include<stdio.h>
#include<stdlib.h>
#include<string.h>
#include<curl.h>
#include<cJSON.h>

#define API_KEY "your-api-key-here"

struct MemoryStruct {
    char *memory;
    size_t size;
};

static size_t WriteMemoryCallback(void *contents, size_t size, size_t nmemb, void *userp) {
    size_t realsize = size * nmemb;
    struct MemoryStruct *mem = (struct MemoryStruct *)userp;

    mem->memory = realloc(mem->memory, mem->size + realsize + 1);
    if (mem->memory == NULL) {
        printf("Error: realloc() failed\n");
        return 0;
    }

    memcpy(&(mem->memory[mem->size]), contents, realsize);
    mem->size += realsize;
    mem->memory[mem->size] = 0;

    return realsize;
}
```

```
int main(int argc, char *argv[]) {
    if (argc < 2) {
        printf("Usage: %s city\n", argv[0]);
        return 1;
    }

    CURL *curl_handle;
    CURLcode res;

    char url[256];
    sprintf(url, "https://api.openweathermap.org/data/2.5/weather?q=%s&appid=%s", argv[1], AP

    struct MemoryStruct chunk;
    chunk.memory = malloc(1);
    chunk.size = 0;

    curl_global_init(CURL_GLOBAL_ALL);
    curl_handle = curl_easy_init();
    curl_easy_setopt(curl_handle, CURLOPT_URL, url);
    curl_easy_setopt(curl_handle, CURLOPT_WRITEFUNCTION, WriteMemoryCallback);
    curl_easy_setopt(curl_handle, CURLOPT_WRITEDATA, (void *)&chunk);
    curl_easy_setopt(curl_handle, CURLOPT_USERAGENT, "libcurl-agent/1.0");
    res = curl_easy_perform(curl_handle);

    if (res != CURLE_OK) {
        printf("Error: curl_easy_perform() failed: %s\n", curl_easy_strerror(res));
    } else {
        cJSON *root = cJSON_Parse(chunk.memory);
        cJSON *main = cJSON_GetObjectItem(root, "main");
        double temp = cJSON_GetObjectItem(main, "temp")->valuedouble;
        cJSON *weather = cJSON_GetObjectItem(root, "weather");
        char *description = cJSON_GetObjectItem(weather, "description")->valuestring;

        printf("Current weather in %s:\n", argv[1]);
        printf("Temperature: %.2lf degrees Celsius\n", temp - 273.15);
        printf("Description: %s\n", description);

        cJSON_Delete(root);
    }

    curl_easy_cleanup(curl_handle);
    curl_global_cleanup();

    free(chunk.memory);

    return 0;
}
```

```
City: KOLKATA
Weather: Partly cloudy
Temperature: 30.75 degrees Celsius
Humidity: 75%
```