

# City Show User Documents

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## 1 Environment:

Programming Language: Python 3.7

Mainly used package: PyQt5, matplotlib, csv

OS: Mac Os

## 2 Introduction

This is the description and user documentation of assignment from Smart MS3 Summer Internship.

### Goal of project:

- Display list of city names to the user, sorted alphabetically
- Allow user to sort reverse alphabetically if requested
- Ability to search for data by city name (search should output a plot of temperature over time)
- Allow user to plot temperature for multiple cities on the same plot
- Allow user to set a temperature threshold such that data points on the plot below the threshold are visually indicated as being below the threshold

This is an project that can show user the list of city and we can get information about this city. When we want to compare or demonstrate the trend of temperature over time among these cities, we can get some plot to analyze it.

## 3 UI description

In the figure shown below, we can see that the frame is mainly divided into two parts. The left part are about the list of cities and check boxes that we can choose to get some plots. The right part will show user the graph.

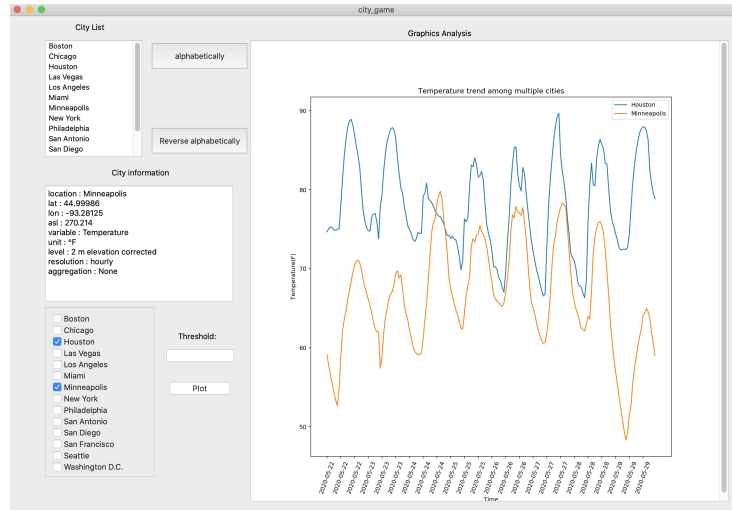


Figure 1: Main Frame

## 4 User guide

### 4.1 City list show

For the first and second task, we can use the city list and buttons: Alphabetically and Reverse alphabetically.

When we click the "Alphabetically" button, we can get a list of city names sorted alphabetically. And we can click the "Reverse Alphabetically" button to get a list of city names sorted reverse alphabetically. We can see in the Figure 2.

**What's new** I also provide an extra function that enables user to get some specific information about the city he chose.

### 4.2 plot of temperature over time

In the downside of city list, there is also a list of check boxes with city names, we can choose some cities, and click the "plot" button, then we can get a plot of temperature over time for one city or more. It is shown in figure 3

### 4.3 Threshold

I also provide a line Text that enables user to input some threshold that can indicate the points that are below the threshold. The approach is similar as the previous one. Choose some check boxes, and enter the threshold, click "plot" button, then we can get the plot we want.

City List

Boston

Chicago

Houston

Las Vegas

Los Angeles

Miami

Minneapolis

New York

Philadelphia

San Antonio

San Diego

alphabetically

Reverse alphabetically

City information

location : Boston

lat : 42.33319

lon : -71.25000

asl : 71.863

variable : Temperature

unit : °F

level : 2 m elevation corrected

resolution : hourly

aggregation : None

Figure 2: City List

☐ Boston  
☐ Chicago  
☒ Houston  
☐ Las Vegas  
☐ Los Angeles  
☐ Miami  
☒ Minneapolis  
☐ New York  
☐ Philadelphia  
☐ San Antonio  
☐ San Diego  
☐ San Francisco  
☐ Seattle  
☐ Washington D.C.

Threshold:

Plot

Figure 3: Check Box and Threshold set

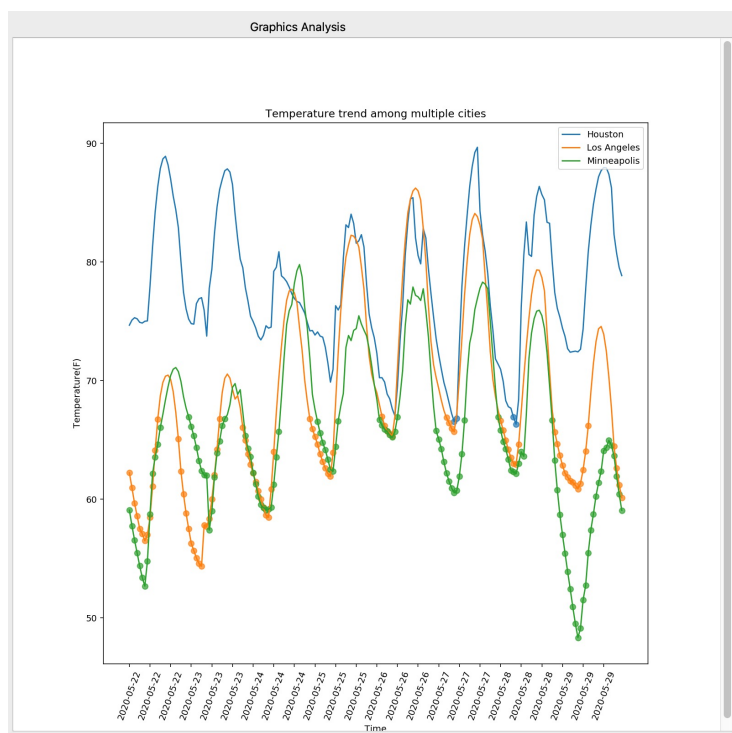


Figure 4: Graphics with threshold