SE 226 Spring 22-23 Project Task

Project Description: Create a <u>weather information displaying program</u> with a graphical user interface (GUI) using Python. The <u>program will allow users to select a city from a dropdown list</u> and <u>display the weather information for the chosen city.</u> The weather data will be gathered from the internet using the <u>"requests"</u> and <u>"beautifulsoup4"</u> modules. Python data structures will be utilized to store and present the weather data. Additionally, the <u>program will include a button to toggle between Celsius and Fahrenheit temperature units</u>. It will also <u>implement functionality to save and load user preferences, including the selected city and temperature unit, from a</u> <u>*Settings.txt*</u> file.

Tasks:

GUI Development (25P)

   I.   Use Tkinter or any other suitable GUI library to create the graphical interface for the program.
  II.   <u>Design and implement a dropdown list to allow users to select a city.</u>
 III.   Create an area in the GUI to display the weather information.

Retrieve Weather Data (25P)

   I.   <u>Utilize the "requests" library to send HTTP requests and fetch the weather information from the internet. Choose a website as your resource.</u>
  II.   <u>Use the "beautifulsoup4" library to parse the HTML content and extract the necessary weather data for the chosen city.</u>

Store and Display Weather Information (15P)

   I.   <u>Utilize Python data structures, such as lists and dictionaries, to store the weather data retrieved from the internet.</u>
  II.   Create a display area in the GUI to present the weather information.

III.   Show the weather information for the chosen city, including the temperature (day and night) and wind speed for the next three days.

Temperature Conversion (15P)

I.   Implement a button in the GUI that allows users to toggle between Celsius and Fahrenheit temperature units.
II.   Include the necessary logic to convert the temperature values and update the displayed weather information accordingly.

Save and Load User Preferences (20P)

I.   Implement functionality to save the selected city and temperature unit to a Settings.txt file when the program is closed.
II.   When the program starts, check if the Settings.txt file exists.
III.   If the file exists, read the city and temperature unit preferences from the file and set them as the default.
IV.   If the file does not exist or the preferences cannot be read, start with an empty city and the default temperature unit.

Additional Considerations:

-   Provide error handling mechanisms to handle situations where the internet connection is unavailable, or the weather data cannot be retrieved.

-   Enhance the GUI by including appropriate labels, buttons, and user-friendly elements to improve the overall user experience.

-   Consider adding additional features, such as displaying weather icons, sunrise/sunset times, or extended forecasts, to make the program more comprehensive and informative. Better GUI may result in bonus points up to 15.

Important: If you can not retrieve the weather data from the internet for some reason. Use same logic as User Preferences. Write some data you have generated to a text file to be read in the program and simulate the program. However, do not forget, this will make your group lose points from Retrieve Weather Data task.