Object Oriented Programming

Assignment # 02

Instructions:

- First think about a problem statement and then write/draw your logic on paper.
- After designing the logic on paper, code the problem statement on any editor (VS Code, Gedit, etc).
- Copied tasks will be awarded **zero** marks without any investigation.
- Comments you code properly.
- Assignment After Due Date assignment will not be Accepted.
- Assignment should be submitted in a zip file named as 22P-9307_M_Kaif.
- The zip file should contain all .cpp files.
- Plagiarism of any shape or form will not be tolerated. In case of plagiarism, the particular question will be marked zero and 50% marks from total obtained marks will be deducted.

If your code contains any concepts which you haven't studied in the class then your marks will be deducted.

Problem: 1 |[25 Marks]

Design and implement a class dayType that implements the day of the week in a program. The class dayType should store the day, such as Sun for Sunday. The program should be able to perform the following operations on an object of type dayType. Create a separate function which can allocate the object of class dynamically. Output must be menu driven.

a. Set the day.

b. Print the day.

c. Return the day.

d. Return the next day.

e. Return the previous day.

f. Calculate and return the day by adding certain days to the current day.

For example, if the current day is Monday and we add 4 days, the day to be returned is Friday. Similarly, if today is Tuesday and we add 13 days, the day to be returned is Monday.

g. Add the appropriate constructors.

h. Make a copy constructor to copy the data of one object to another.

i. Store the data member of the class dynamically.

Problem: 2 | [25 marks]

In ocean navigation, locations are measured in degrees and minutes of latitude and longitude. Thus if you're lying off the mouth of Papeete Harbor in Tahiti, your location is 149 degrees 34.8 minutes west longitude, and 17 degrees 31.5 minutes south latitude. This is written as 149°34.8' W, 17°31.5' S. There are 60 minutes in a degree. (An older system also divided a minute into 60 seconds, but the modern approach is to use decimal minutes instead.) Longitude is measured from 0 to 180 degrees, east or west from Greenwich, England, to the international dateline in the Pacific. Latitude is measured from 0 to 90 degrees, north or south from the equator to the poles.

Create a class angle that includes three member variables: an int for degrees, a float for minutes, and a char for the direction letter (N, S, E, or W). This class can hold either a latitude variable or a longitude variable. Write one member function to obtain an angle value (in degrees and minutes) and a direction from the user, and a second to display the angle value in 179°59.9' E format. Also write a three-argument constructor.

Write a main() program that displays an angle initialized with the constructor, and then, within a loop, allows the user to input any angle value, and then displays the value. You can use the hex character constant '\xF8', which usually prints a degree (°) symbol.

Note:

a) Store the data member of the class dynamically.

b) Make a copy constructor to copy the data of one object to another.

c) Create a separate function which can allocate the object of class dynamically.

d) Add the appropriate constructors.