**PMAS Arid Agriculture University Rawalpindi**

***Due Date: 9, May. 2022***

**University Institute of Information Technology**

**Assignment No. 4**

**Important Note:**

Assignments will be submitted in soft form along with printed output.

Copying/Cheating whole or part of the assignment from anywhere will not be tolerated. Whether you have copied or your work has been copied by someone else, you will get zero marks in that assignment.

**Question 01:**

Create a class called manipulateString that has char member data for str[]. One constructor should initialize this data to null character, and another should initialize it to fixed string. Another member function should display string. The class has following manipulation member functions.

* **occurrenceChar() :** to show how many times a character occur in string

e.g. (show in screen short)

* **oppositeCase() :** to convert each character into opposite case
* **moveString() :** to move string obj1 to another obj2
* **wordsCount() :**  to count words in string

u’r program must be covered more than 2 spaces

**Question 02:**

Create a class called manipulateString that has char member data for str[]. One constructor should initialize this data to null character, and another should initialize it to fixed string. Another member function should display string. The class has following manipulation member functions.

* **subStringCount() :** to count how many times sub-string occur in actual string
* **addSubString() :** to add sub string at specific index in actual String
* **removeSubString() :** to remove sub string from specific index in actual String
* **palindromeString() :** to check that string is palindrome or not ?

**Question 03:**

Create a class called time that has separate int member data for hours, minutes, and seconds. One constructor should initialize this data to 0, and another should initialize it to fixed values. Another member function should display it, in 11:59:59 format. The final member function uses the overloaded + operator to add two times. And two another member function Overloaded ++ & -- to increase/decrease the time by 1 minute respectively. Write a program to test this class.

**Question 04:**

Create a class called customString which applies mathematical operations (+, -) and comparison operator (==) on two string objects. Also, one constructor should initialize this data to null character. The class has following member functions.

* **Input()** : to input string
* **Display()** : to show string
* **+ operator :** concatenates str2 to str1
* **- operator :** removes str2 from str1
* **== operator** : to compare strings (ascii length)

**Question 05:**

Write a class Circle which overloads (++, --, +, - operators) such that

* **++ operator** (post-fix) increase Radius R of the circle with 1 unit
  + **operator** (post-fix) decreases Radius R of the circle with 1 unit
  + **Circle1+ circle2** creates a circle of radius r1+r2;
  + **Circle1- circle2** creates a circle of radius r1-r2;

In main function

1. If user enters 1 the radius of the circle is incremented with 1 unit and Area of the circle with incremented radius is computed.
2. If user enters 2 the radius of the circle is decremented with 1 unit and circumference of the circle with decremented radius is computed.
3. If user enters 3, two objects are created and Plus Operation (+) on two these objects is carried out
4. If user enters 4, two objects are created and Minus Operation (-) on two these objects is carried out
5. If user enters 5, user is asked for a values which repeats / cancels the selection process based on the provided value