**CSCI 110-Fall semester 2024**

**Homework 2**

**Assigned on:09/18/2024**

**Due Date:09/22/2024 till midnight**

**Total points:30**

**Programming Challenges based on chapter 2 and chapter 3.(5 points each)**

**Write the source code of the following labs below on your required IDE**

**Submit all the programming assigned in.cpp file format with the screenshot of an output. You can document all the screenshots together but make sure it should be well organized according to the lab.**

**So, submit 6 cpp files with one document file containing all the screenshots. Run and test each lab at least 2 times.**

**Lab 1: Miles per Gallon**

Write a program that calculates a car’s gas mileage. The program should ask the user to enter the number of gallons of gas the car can hold, and the number of miles it can be driven on a full tank. It should then display the number of miles that may be driven per gallon of gas.

**Lab 2: Test Average**

Write a program that asks for five test scores. The program should calculate the average test score and display it.

**Lab 3: Average Rainfall**

Write a program that calculates the average rainfall for three months. The program should ask the user to enter the name of each month, such as June or July, and the amount of rain (in inches) that fell each month. The program should display a message similar to the following:

The average rainfall for June, July, and August is 6.72 inches.

**Lab 4: Pizza Pi**

Joe’s Pizza Palace needs a program to calculate the number of slices a pizza of any size can be divided into. The program should perform the following steps:

A) Ask the user for the diameter of the pizza in inches.

B) Calculate the number of slices that may be taken from a pizza of that size.

C) Display a message telling the number of slices.

To calculate the number of slices that may be taken from the pizza, you must know the following facts:

• Each slice should have an area of 14.125 inches.

• To calculate the number of slices, simply divide the area of the pizza by 14.125.

• The area of the pizza is calculated with this formula:

Area = *πr*2

**NOTE:** is the Greek letter pi. 3.14159 can be used as its value. The variable *r* is the radius of the pizza. Divide the diameter by 2 to get the radius.

Make sure the output of the program displays the number of slices rounded to one decimal Use a named constant for pi.

**Lab 5: Minimum/Maximum**

Write a program that asks the user to enter two numbers. The program should use the conditional operator to determine which number is the smaller and which is the larger.

**Lab 6: Areas of Rectangles**

The area of a rectangle is the rectangle’s length times its width. Write a program that asks for the length and width of two rectangles. The program should tell the user which rectangle has the greater area, or if the areas are the same.