Lab 5

Reminder :

1. Write each question in separate source file.
2. For each questions, add the following information in comments at the beginning of the source code
    a. Question number
    b. Your name

Quick reference Resources : https://www.w3schools.com/cpp/default.asp

Question 1

Write a C++ function named `WriteProverb` that prints the proverb `"Now is the time for all good men to come to the aid of their party".`

Then, call the above function in a main mentod to prints the proverb.

Question 2

Write a C++ function named calcVolume that accepts radius (double) and height (double) as parameters. Then calculate and return the volume of a cylinder. Use the following formula to calculate volume of a cyclinder:

$$V=\pi r^2 h.$$ *Note: user Pi value of 3.14.*

Write a C++ program that ask users to input the radius and height of a cylinder. Then, call the function calcValume to calculate the volume and display the volume of the cyclinder.

Question 3

Write a program that will input miles traveled and hours spent in travel. The program will determine miles per hour. This calculation must be done in a function other than main; however, main will print the result of calculation. The function will thus have 2 parameters: miles, hours and return the value of mile per hour. Make sure the output is fixed with 2 decimal point precision.

Sample Run:
Please input the miles traveled
475
Please input the hours traveled
8
Your speed is 59.38 miles per hour

Question 4

Define a function calcAverageGrade that accepts 2 integer parameter lists : sumOfScore and totalStudent. The function shall calculate and return the average mark based on the sumOfScore and totalStudent.

Write a program that will prompt user number of student. Then, the program will allow the user to enter the score for each students and sum up the all the student's score. The program shall call the function calcAverageGrade to calculate the average Score. The main function will then determine the letter grade of that average based on the following:

90–100 A
80–89 B
70–79 C
60–69 D
0–59 F

Sample Run:
Enter the number of students
3
Enter a score between 0-100
90
Enter a score between 0-100
80
Enter a score between 0-100
50
The grade is C

Question 5
Write a program that will convert miles to kilometers and kilometres to miles. The user will indicate both a number (representing a distance) and a choice of whether that number is in miles to be converted to kilometres or kilometers to be converted to miles. Each conversion is done with a value returning function. You may use the following conversions.

1 kilometer = .621 miles
1 mile = 1.61 kilometers

Sample Run:
Please input
1 Convert miles to kilometers
2 Convert kilometers to miles
3 Quit
1

Please input the miles to be converted
120
120 miles = 193.2 kilometers

Please input
1 Convert miles to kilometers
2 Convert kilometers to miles
3 Quit
2
Please input the kilometers to be converted

235
235 kilometers = 145.935 miles

Please input
1 Convert miles to kilometers
2 Convert kilometers to miles
3 Quit
3

Question 6

Write two c++ function as below :

1) totalPrice().
   Accepts unit price and quantity as parameters. The function should calculate and return the total price of an item.

2) DiscountPrice()
   Accpets totalPrice and discountRate as parameter. The function should calculate and return the price after the discount.

Write a program that asks user to input unit price and quantity for an item The program shall display the price before and after discount. Make sure the output is fixed with 2 decimal point precision.

Question 7

Write a function checkCharRange that take in a character parameter called ch. The function prints the message "First Half!" if the character is within the range A to M. The function then prints out "Second Half!" if the character is from N to Z. Other characters will print "Invalid Range!". Assume that the character ch is always in uppercase format

Write a program that call this function.

Question 8 (OPTIONAL)

Write a C++ fuction called getRange that accepts 3 integer parameters. Calculate and return the difference bewtween the lowerst value and haihgest value from the given parameters. Use max and min function in C++ to drive the highest and lowest value.

Write a programe that ask user to input 3 integer values. Prints the different between the lowest value and highest value.

Note:
Max and min are from <algorithm>. Refer below link for more details:

https://www.cplusplus.com/reference/algorithm/max/
https://www.cplusplus.com/reference/algorithm/min/

Question 9 (OPTIONAL)

Write a function called zero_small () that has two integer augements being passed by reference and sets the smaller of the two numbers to 0. Write the main program to access the function.

Question 10 (OPTIONAL)

Write a program that lets the user perform arithmetic operations on two numbers. Your program must be menu driven, allowing the user to select the operation (+, -, *, or /) and input the numbers. Furthermore, your program must consist of following functions:
1. Function showChoice: This function shows the options to the user and explains how to enter data.
2. Function add: This function accepts two number as arguments and returns sum.
3. Function subtract: This function accepts two number as arguments and returns their difference.
4. Function multiply: This function accepts two number as arguments and returns product.
5. Function divide: This function accepts two number as arguments and returns quotient.