CS36 Lab 3

Functions (Lesson 1 to Lesson 46)

(no arrays or anything thing we have not covered in lessons 1 to 46)

you can declare strings as `char strname[value]`**)**

3 test runs for each question

1. Separate each question with a banner with question number, short description of the question.
2. For each question you must provide output for 3 test runs (use the sample test run formatting and data already provided plus makeup the rest yourself).
3. You must use the data given in the sample test runs that are given in the question. Provide your own data whenever there is no sample run data.
4. Your test run must be exactly the same as the sample test run specifications provided.
5. You are not allowed to use #include<math.h>, #include<iostream>, #include<stdlib.h> , arrays , structs, and any topics not covered from lesson 1 to lesson 46.
6. Do not use any other topics not covered in lesson 1 to lesson 46

The break, continue and goto C commands are not allowed to be used with loops. A zero will be given for that question if your program contains a break, continue or goto command used with loops. The break command is allowed only as part of the switch statement.

Lab 3 Functions – Draw structure charts to help with your programs.

*****NO GLOBAL variables allowed. Must function prototype each program**

1. Write a program with functions (no user input required):
    a. Create a function texas() where:
        - birds = 5000
        - print the string "Texas has 5000 birds"
    b. create a function California() where:
        - birds = 8000
        - print the string "California has 8000 birds"

    c. create a function main() to call the two functions

Sample test run (only one test run for this question)

```
Texas has 5000 birds
California has 8000 birds
```

2. a. write a function *show_interest()* to take in 3 arguments principal, rate and periods. Calculate the interest and return the interest value.
   - interest = principal * rate * periods
   - return the interest to the calling function

   b. write the *main()* function to call *show_interest*() .
   - allow the user to input principal, rate and period(number of years)
   - print the following string if user inputs principal(10,000), rate(.1), period(1)
     The simple interest will be $1000.00

Sample test run 1(blue user input)

```
Please input the principal amount, rate and period(in years): 10000 .1 1
The simple interest will be $1000.00
```

Provide your own data for test runs 2 and 3

3. Write a program to find the area of a triangle using functions.

   a. Write a function *getData()* for user to input the length and the perpendicular height of a triangle. **No return statement** for this function.
   b. Write a function *trigArea()* to calculate the area of a triangle. Return the area to the calling function.
   c. Write a function *displayData()* to print the length, height, and the area of a triangle
   d. Write the main() function to call *getData()*, call *trigArea()* and call *displayData()*.

Sample test run 1(blue user input)

```
Length of Triangle: 5
Perpendicular Height of Triangle: 5
Triangle Length = 5.00
Triangle Height = 5.00
Triangle Area = 12.50
```

Provide your own data for test runs 2 and 3

Continue on next page…

4. Write the functions that are called in the main() function to produce these outputs(blue user input)

Sample Test run 1

Enter the monthly sales: 14550.00
Enter the amount of advanced pay, or enter 0 if no advanced pay was given.
Advanced pay: 1000.00
The pay is $746.00

Sample Test run 2

Enter the monthly sales: 9500
Enter the amount of advanced pay, or enter 0 if no advanced pay was given.
Advanced pay: 0
The pay is $950.00

Sample Test run 3

Enter the monthly sales: 12000.00
Enter the amount of advanced pay, or enter 0 if no advanced pay was given.
Advanced pay: 2000.00
The pay is $-560.00
The salesperson must reimburse the company.

```
//the template for the main() function, you cannot change anything in the template(no adding, deleting or changing)
//write the codes for the functions get_sales(), get_advanced_pay(), determine_comm_rate(sales)
//This program calculates a salesperson's pay

#include<stdio.h>

//function prototype
Put the function prototypes here

int main()
{
  //declaration
  double sales, advanced_pay, comm_rate, pay;

  //call functions
  sales = get_sales();
  advanced_pay = get_advanced_pay();
  comm_rate = determine_comm_rate(sales);

  //calculations
  pay = sales * comm_rate - advanced_pay;

  //output
  printf("The pay is $%.2f", pay);

  if (pay < 0)
  {
    printf("\nThe salesperson must reimburse the company.");
  }

  return 0;
}
```

Requirements for the function - determine_comm_rate()

	rate
Sales less than 10000.00	.10
Sales from 10000.00 to 14999.99	.12
Sales from 15000.00 to 17999.99	.14
Sales from 18000.00 to 21999.99	.16
Sales greater than 21999.99	.18