Programming Fundamentals – SE Fall 2014

Lab-08

**Instructions:**

**Use meaningful variable names. Follow the naming conventions.**

**Indent your code properly.**

**Use meaningful prompt lines/labels for all input/output that is done by your programs.**

**You are not allowed to discuss your problems with your fellows. If you feel any problem**

**in understanding then you may ask your teacher or TA.**

**Task: 01**

Write a program that should have a function displayInfo () and this function should display your name and roll number , university name and degree name on the screen. Call this function from main observe output. (**perform this task with prototype and without protype**)

**Task:02**

A prime number is a number that is only evenly divisible by itself and 1. For example,

the number 5 is prime because it can only be evenly divided by 1 and 5. The number

6, however, is not prime because it can be divided evenly by 1, 2, 3, and 6.

Write a function name isPrime, which takes an integer as an argument and returns

true if the argument is a prime number, or false otherwise. Demonstrate the function

in a complete program

**Task: 03**

Write a program that should take two numbers (that is, first and last) from user and display all

the numbers and their squares in the form of an ordered pair between first and last numbers.

**Sample Run 1:**

Enter first: 2

Enter last: 5

(2,4) (3,9) (4,16) (5,25)

**Sample Run 2:**

Enter first: -3

Enter last: 1

(-3,9) (-2,4) (-1,1) (0,0) (1,1)

**Sample Run 3:**

Enter first: 13

Enter last: 7

Invalid range as 10 is not less than or equal to 7

**Task -04**

The Student CD contains a partially written program named AreaRectangle.cpp.

Your job is to complete the program. When it is complete, the program will ask the

user to enter the width and length of a rectangle, and then display the rectangle’s area.

The program calls the following functions, which have not been written:

• getLength– This function should ask the user to enter the rectangle's length, and

then return that value as a double.

• getWidth- This function should ask the user to enter the rectangle's width, and

then return that value as a double.

• getArea– This function should accept the rectangle's length and width as argu-ments, and return the rectangle's area. The area is calculated by multiplying the

length by the width.

• displayData– This function should accept the rectangle's length, width, and

area as arguments, and display them in an appropriate message on the screen.

**Sample Run:**

**Enter Length of Rectangle : 10**

**Enter Wideht of Rectangle: 0.5**

**Area of Rectangle = 5;**

**Task: 05**

Write a program that should take two integer numbers and a character. Your program should also

has following functions:

***void sum(int, int); // takes two numbers as parameters and calculates and displays sum of the parameters***

***void diff(int, int); // takes two numbers as parameters and calculates and displays difference of the parameters***

***void product(int, int); // takes two numbers as parameters and calculates and displays product of the***

***parameters***

***void division (int, int); // takes two numbers as parameters and calculates and displays quotient and***

***remainder of the parameters***

***void power (int, int); // takes two numbers as parameters (base and exp) and calculates and displays baseexp***

your program should compare the character with the following values:

-if character is a ‘+’ then it should call sum function.

-if character is a ‘-’ then it should call diff function.

-if character is a ‘\*’ then it should call product function.

-if character is a ‘/’ then it should call division function.

-if character is a ‘^’ then it should call power function.

**Task: 06**

Write a program that contains following functions:

bool isDigit (char); // returns true if the parameter is a digit.

bool isArithmeticOperator(char); // returns true if the parameter is an arithmetic operator.

bool isSmall(char); // returns true if the parameter is a small alphabet.

bool isCapital(char); // returns true if the parameter is a capital alphabet.

Display a menu to the user and act according to the user’s choice.

**Sample Run 1:**

**-----------------------> Menu <---------------------**

**To Enter a Digit press ‘d’ or ‘D’**

**To Enter an Arithmetic Operator press ‘a’ or ‘A’**

**To Enter a Small letter press ‘s’ or ‘S’**

**To Enter a Capital letter press ‘c’ or ‘C’**

**To Exit press ‘e’ or ‘E’**

**------------------------------------------------------**

**Enter your choice: S**

**------------------------------------------------------**

**Enter Small Letter: d**

**Yes it is a small letter.**

**Sample Run 2:**

**-----------------------> Menu <-----------------------**

**To Enter a Digit press ‘d’ or ‘D’**

**To Enter an Arithmetic Operator press ‘a’ or ‘A’**

**To Enter a Small letter press ‘s’ or ‘S’**

**To Enter a Capital letter press ‘c’ or ‘C’**

**To Exit press ‘e’ or ‘E’**

**------------------------------------------------------**

**Enter your choice: c**

**------------------------------------------------------**

**Enter Capital Letter: g**

**NO, it is not a Capital letter.**