Programming in C

Duration time: 90 minutes

Introduction

Requirements

- Variables, datatypes.
- Loops.
- Conditional statements.

Exercise 1

Write a C program to print the following line as shown below:

```
Welcome!
You are able to test your skill of writing C code here.
```

Exercise 2

Write a C program to declare two integer and one float variables then initialize them to 10, 15, and 12.6. It then prints these values on the screen.

Exercise 3

Write a C program to prompt the user to input her/his age and print it on the screen, as shown below.

```
Please enter your age: 20
Your age is 20 years old.
```

Exercise 4

Write a C program to prompt the user to input 3 integer values and print these values in forward and reversed order, as shown below.

```
Please enter your 3 numbers: 12 45 78

Your numbers forward:
12
45
78

Your numbers reversed:
78
```

```
45
12
```

Exercise 5

Write C code to produce the output as shown below:

```
Results:
x value          y value            expressions         results
10      |        5         |         x=y+3          |    x=8
10      |        5         |         x=y-2          |    x=3
10      |        5         |         x=y*5          |    x=25
10      |        5         |         x=x/y          |    x=2
10      |        5         |         x=x%y          |    x=0
```

Exercise 6

Write C code to generate the results as shown below:

```
Results:
=======Quizzes===============
Enter the score of the first quiz: 90
Enter the score of the second quiz: 75
Enter the score of the third quiz: 91
=======Mid-term=============
Enter the score of the mid-term: 80
=======Final================
Enter the score of the final: 89

Quiz Total:      256
Mid-term :       80
Final        :       89
.....................
Total: 425
```

Exercise 7

Given the following pseudo code, write a program that executes it.

a. read x
b. read y

c. compute p=x*y
d. compute s=x+y
e. total=s2+p*(s-x)*(p+y)
f. print

Exercise 8

Write a C code that prompts the user to input tree integer values and find the greatest value of the three values.

```
Enter 3 integer vales separated by space: 10 15 20
The greatest value is: 20
```

Exercise 9

Write a program that determines a student's grade. The program will read three scores and determine the grade based on the following rules:

-if the average score =90% =>grade=A
-if the average score >= 70% and <90% => grade=B
-if the average score>=50% and <70% =>grade=C
-if the average score<50% =>grade=F

Exercise 10

The program will prompt the user to input the values of a, b, and c. It then computes the real roots of the equation based on the following rules:
-if a and b are zero=> no solution
-if a is zero=>one root (-c/b)
-if b^2-4ac is negative=>no roots
-Otherwise=> two roots
The roots can be computed using the following formula:
x_1=-b+$(b^2-4ac)^{1/2}$/2a
x_2=-b-$(b^2-4ac)^{1/2}$/2a

Exercise 11

Write a C program that will print the following pattern:

****
******

```
*****
****
***
**
*
```

Exercise 12

Write a C program that will print the following pattern:

```
1******
12*****
123****
1234***
12345**
123456*
1234567
```

Exercise 13

Write a C program that will print the patters as shown below:

```
*
***
*****
*******
*********
*********
*******
*****
***
*
```

Exercise 14

Write a C program that will ask the user to input n positive numbers. The program will terminate if one of those number is not positive.