

## Programming solutions E BALAGURUSAMY

### Chapter-1

#### Problem-1.1

Write a program that will print your mailing address in the following form:

First Line: Name

Second Line : Door No, Street

Third Line: City, Pin code

#### Solution:

```
#include <stdio.h>
void main()
{
    printf("Sanjida Afrin Mou\n");
    printf("35 no Hamidra Dash road\n");
    printf("Dhaka\n");
}
```

#### Problem -1.2

Modify the above program to provide border line to the address.

```
#include <stdio.h>
#include <stdlib.h>
void main()
{
    printf("Sanjida Afrin Mou\n");
    printf(" |-----|\n");
    printf(" | 35 no Hamidra Dash road   |\n");
    printf(" | Dhaka                      |\n");
    printf(" |-----|");
}
```

#### Problem-1.3

Write a program using one print statement to print the pattern as shown below

```
#include <stdio.h>
#include <stdlib.h>

void main()
{
    printf("*\n**\n***\n****\n");
}
```

### Problem-1.5

Given the radius of a circle, write a program to compute and display its area. Use a symbolic constant to define PI value and assume a suitable value for radius.

Solution:

```
#include <stdio.h>
#include <stdlib.h>
#define PI 3.1416
void main()
{
    int radius;
    float area;
    scanf("%d",&radius);
    area=PI*(radius*radius);
    printf("The area of the circle is %f",area);
}
```

### Problem1.6

Write a program to output the following multiplication table

5x1=5

5x2=10

.....

.....

5x10=50

Solution:

```
#include <stdio.h>
#include <stdlib.h>
void main()
{
    int num1=5,num2,result;
    for(num2=1;num2<=10;num2++)
    {
        result=num1*num2;
        printf("%d x %d=%d\n",num1,num2,result);
    }
}
```

### Problem1.7

Given two integers 20 and 10, write a program that uses a function add() to add these two numbers and sub() to find the difference of these two numbers and then display the sum in the following form-

20+10=30

20-10=10

Solution:

```
#include <stdio.h>
#include <stdlib.h>
int add(int x, int y);
int sub(int x, int y);
main()
{
    int sum,dif;
    sum=add(10,20);
    printf("20+10=%d\n",sum);
    dif=sub(20,10);
    printf("20-10=%d",dif);
}
int add(int x, int y) //function definition
{
    int d;
    d=x+y;
    return(d);
}
int sub(int x, int y) //function definition
{
    int d;
    d=x-y;
    return(d);
}
```

Problem 1.8

Given the values of three variables a, b and c, write a program to compute and display the value of x, where  $x=a/(b-c)$ .

Execute your program for the following values:

(a) a=250, b=85, c=25

(b) a=300, b=70, c=70

**Solution:**

```
#include <stdio.h>
#include <stdlib.h>
main()
{
    float x;
    int a, b, c;
    printf("Value of a\n");
    scanf("%d",&a);
    printf("Value of b\n");
    scanf("%d",&b);
```

```

printf("Value of c\n");
scanf("%d",&c);
x=a/(b-c);
printf("The value of x is %f",x);
}

```

### Problem 1.9

Relationship between Celsius and Fahrenheit is governed by the formula  $F = (9C/5) + 32$

Write a program to convert temperature

(a) From Celsius to Fahrenheit

(b) From Fahrenheit to Celsius

**Solution:**

```

#include <stdio.h>
#include <stdlib.h>
main()
{
float f,c,result;
char option;
printf("Enter your option F or C F for celcius to Fahrenheit and C for Fahrenheit to Celcius\n");
option=getchar();
if(option=='F' || option=='f')
{
printf("Input Celcius\n");
scanf("%f",&c);
result=((9*c)/5)+32;
printf("The Fahrenheit is %f",result);
}
else if(option=='C' || option=='c')
{
printf("Input Fahrenheit\n");
scanf("%f",&f);
result=(5*(32-f))/9;
printf("The Cecius is %f",result);
}
else
{
printf("Wrong option chosen");
}
}

```

### Problem 1.10

Area of a triangle is given by the formula  $A = \sqrt{S(S-a)(S-b)(S-c)}$

Where a, b and c are sides of the triangle and  $2S = a + b + c$ . Write a program to compute the area of the triangle given the values a, b and c.

**Solution:**

```
#include <stdio.h>
#include <stdlib.h>
#include <math.h>
main()
{
    int a, b, c;
    float s, result;
    printf("Enter value of a");
    scanf("%d", &a);
    printf("Enter value of b");
    scanf("%d", &b);
    printf("Enter value of c");
    scanf("%d", &c);
    s = (a + b + c) / 2;
    result = sqrt(s * (s - a) * (s - b) * (s - c));
    printf("Area is %f", result);
}
```

Problem-1.11

Distance between two points (x1,y1) and (x2,y2) is governed by the formula

$$D^2 = (x_2 - x_1)^2 + (y_2 - y_1)^2$$

Write a program to compute D given the coordinates of the points.

**Solution:**

```
#include <stdio.h>
#include <stdlib.h>
#include <math.h>
main()
{
    int x1, x2, y1, y2;
    float d;
    printf("Insert X1");
    scanf("%d", &x1);
    printf("Insert X2");
    scanf("%d", &x2);
    printf("Insert Y1");
    scanf("%d", &y1);
    printf("Insert Y2");
    scanf("%d", &y2);
```

```

d=sqrt((x2-x1)*(x2-x1)+(y2-y1)*(y2-y1));
printf("Value of D is %f",d);

}

```

### Problem 1.12

A point on the circumference of a circle whose center is (0,0) and (5,6). Write a program to compute perimeter and area of the circle.

```

#include<stdio.h>
#include<math.h>
#define pi 3.14159

void main()
{
float r,x1,x2,y1,y2,A;
x1=0;
x2=0;
y1=4;
y2=5;
r=sqrt((x1-x2)*(x1-x2)+(y1-y2)*(y1-y2));
A=pi*r*r;
printf("Result=%f",A);
}

```

### Problem-1.13

The line joining the points (2,2) and(5,6) which lie on the circumference of a circle is the diameter of the circle. Write a program to compute the are of the circle.

```

#include<stdio.h>
#include<math.h>
#define pi 3.14159

void main()
{
float D,r,x1,x2,y1,y2,A;
x1=2;
x2=2;
y1=5;
y2=6;
D=sqrt((x1-x2)*(x1-x2)+(y1-y2)*(y1-y2));
r=D/2;

```

```
A=pi*r*r;  
printf("Result=%f",A);  
}
```

#### **Problem 1.14**

**Write a program to make the equation of a line in form  $ax+by=c$**

**For  $a=5$ ,  $b=8$ ,  $c=18$**

**Solution:**

```
include<stdio.h>  
#include<conio.h>  
void main()  
{ int a,b,c;  
clrscr();  
a=5;  
b=8;  
c=18;  
printf("%dx+%dy=%d",a,b,c);  
getch();  
}
```

**SOLUTION BY MD. ASIF RAHMAN**

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**Next chapter solution will be published soon.....**

**I Apologize if there is any mistake.....**





