Assignment 3: Conditional Statement

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1.A function f is defined as follows

$$F(x) = ax^3 - bx^2 + cx - d \qquad \text{if } x > k$$

$$= 0 \qquad \text{if } x = k$$

$$= -ax^3 + bx^2 - cx + d \qquad \text{if } x < k$$

Write a program to accept a, b, c, d, k and x. and display the value of f(x).

```c
//Q1
#include <stdio.h>

int main(){
    int a, b, c, d, k, x;
    printf("F(x) = ax^3 - bx^2 + cx - d,  if x > k\n");
    printf("F(x) = 0,                     if x = k\n");
    printf("F(x) = -ax^3 + bx^2 - cx +d,  if x < k\n");
    printf("a = ");
    scanf("%d", &a);
    printf("b = ");
    scanf("%d", &b);
    printf("c = ");
    scanf("%d", &c);
    printf("d = ");
    scanf("%d", &d);
    printf("x = ");
    scanf("%d", &x);
    int F;
    F = a*(x*x*x) - b*(x*x)+ c*x - d;
    printf("F(x) = %d", F);
}
```

2. Write a program to read marks from the keyboard and display equivalent grade.

(Use if-else if ladder)

Marks	Grade
100 – 80	Distinction
60 – 79	First Class
35 – 59	Second Class
0 – 35	Fail

```c
//Q2
#include <stdio.h>
int main(){
    int marks;
    printf("Enter Your Marks - ");
    scanf("%d", &marks);
    if ((marks>=0) && (marks<=35))
        printf("Fail");
    else if ((marks>35) && (marks <= 59))
        printf("Second Class");
    else if ((marks>59) && (marks <= 79))
        printf("First Class");
    else if ((marks > 79) && (marks <= 100))
        printf("Distinction");
    else
        printf("Invalid Input");
}
```

```
garvitshah@Garvits-MacBook-Air ~/D/C/FCP> cd "/Users/garvitshah/Desktop/College/FCP/" && gcc Assignm
ent-3.c -o Assignment-3 && "/Users/garvitshah/Desktop/College/FCP/"Assignment-3
Enter Your Marks - 89
Distinction
garvitshah@Garvits-MacBook-Air ~/D/C/FCP> cd "/Users/garvitshah/Desktop/College/FCP/" && gcc Assignm
ent-3.c -o Assignment-3 && "/Users/garvitshah/Desktop/College/FCP/"Assignment-3
Enter Your Marks - 50
Second Class
garvitshah@Garvits-MacBook-Air ~/D/C/FCP> cd "/Users/garvitshah/Desktop/College/FCP/" && gcc Assignm
ent-3.c -o Assignment-3 && "/Users/garvitshah/Desktop/College/FCP/"Assignment-3
Enter Your Marks - 0
Fail
```

3. Write programs for the following:

- Take two numbers of float and divide the first number by second and show the result as integer number.

- Take the first number as -VE integer and second as +VE float, divide the first by second and display output as integer number.

- Take the first number as +VE float and second number as -VE integer, divide the first number by second and display output in the float.

```c
//Q3
#include <stdio.h>
int main(){
    float a, b;
    printf("1st Number - ");
    scanf("%f", &a);
    printf("2nd Number - ");
    scanf("%f", &b);
    int c = a/b;
    printf("%f/%f = %d", a, b, c);
}
```

```
garvitshah@Garvits-MacBook-Air ~/D/C/FCP> cd "/Users/garvitshah/Desktop/College/FCP/" && gcc Assignm
ent-3.c -o Assignment-3 && "/Users/garvitshah/Desktop/College/FCP/"Assignment-3
1st Number - 12
2nd Number - 7
12.000000/7.000000 = 1
```

```c
#include <stdio.h>
int main(){
    int a;
    float b;
    printf("1st -ve Integer - ");
    scanf("%d", &a);
    printf("2nd +ve Floating Number - ");
    scanf("%f", &b);
    int c = a/b;
    printf("Division of 1st by 2nd is %d", c);
}
```

```
garvitshah@Garvits-MacBook-Air ~/D/C/FCP> cd "/Users/garvitshah/Desktop/College/FCP/" && gcc Assignm
ent-3.c -o Assignment-3 && "/Users/garvitshah/Desktop/College/FCP/"Assignment-3
1st -ve Integer - -890
2nd +ve Floating Number - 7.23
Division of 1st by 2nd is -123
```

```c
#include <stdio.h>
int main(){
    float a;
    int b;
    printf("1st +ve Floating Number - ");
    scanf("%f", &a);
    printf("2nd -ve Integer - ");
    scanf("%d", &b);
    float c = a/b;
    printf("Division of 1st by 2nd is %f", c);
}
```

```
garvitshah@Garvits-MacBook-Air ~/D/C/FCP> cd "/Users/garvitshah/Desktop/College/FCP/" && gcc Assignm
ent-3.c -o Assignment-3 && "/Users/garvitshah/Desktop/College/FCP/"Assignment-3
1st +ve Floating Number - 45.97
2nd -ve Integer - -23
Division of 1st by 2nd is -1.998696
```

5. A cloth showroom has announced the following seasonal discount on the purchase of items.

Purchase Amount	Discount	
	Mill Cloth	Handloom Items
0 – 100	-	5.0%
101 – 200	5.0 %	7.5%
201 – 300	7.5 %	10.0%
Above 300	10.0 %	15.0%

Write a program to compute the net amount to be paid by a customer.

```c
// Q5
#include <stdio.h>
int main(){
    int pamt, netamt, dis;
    char cloth;
    printf("For Mill Cloth Press M or m & for Handloom items Press H or h\n");
    scanf("%c", &cloth);

    if ((cloth == 'M') || (cloth == 'm')){

        printf("Enter the Purchase Amount - ");
        scanf("%d", &pamt);

        if ((pamt>=0) && (pamt<=100)){
            dis = pamt*(0.0);
            netamt = pamt - dis;
        }

        else if ((pamt>=101) && (pamt<=200)){
            dis = pamt*(0.05);
            netamt = pamt - dis;
        }
        else if ((pamt >= 201) && (pamt <= 300)){
```

```c
            dis = pamt*(0.075);
            netamt = pamt - dis;
        }

        else if (pamt >= 301){
            dis = pamt*(0.1);
            netamt = pamt - dis;
        }
        printf("Discount Amount = %d \n", dis);
        printf("Total Amount after discount = %d \n", netamt);
    }
    else if ((cloth == 'H') || (cloth == 'h')){
     printf("Enter the Purchase Amount - ");
        scanf("%d", &pamt);

        if ((pamt>=0) && (pamt<=100)){
            dis = pamt*(0.05);
            netamt = pamt - dis;
        }

        else if ((pamt>=101) && (pamt<=200)){
            dis = pamt*(0.075);
            netamt = pamt - dis;
        }
        else if ((pamt >= 201) && (pamt <= 300)){
            dis = pamt*(0.1);
            netamt = pamt - dis;
        }

        else if (pamt >= 301){
            dis = pamt*(0.15);
            netamt = pamt - dis;
        }
        printf("Discount Amount = %d \n", dis);
        printf("Total Amount after discount = %d \n", netamt);
    }
    else{
        printf("Invalid Input !");
    }
}
```

6. The commission a life insurance sales woman earns on insurance policy sold is as follows:

Policy Amount (Rs.)	Commission
Less or Equal to 10000	0.5 % of Policy Amount
Between 10000 and 25000	Rs 50 + 0.6 % of the amount in excess of Rs 10000
Greater or Equal to 25000	Rs 140 + 0.75 % of the amount in excess of Rs 25000

Write a program that reads the amount of insurance sold and output the commission due to the sales woman.

```c
//Q6
#include <stdio.h>
int main(){
    int amt, comm;
    printf("Enter the Policy Amount - ");
    scanf("%d", &amt);
    if (amt <= 10000 ){
        comm = 0.005*amt;
        printf("Commission due to Sales Woman - %d", comm);
    }
    else if ((amt>10000) && (amt<25000)){
        comm = 50 + (amt - 10000)*0.006;
        printf("Commission due to Sales Woman - %d", comm);
    }
    else if (amt>=25000){
        comm = 140 + (amt - 25000)*0.0075;
```

```c
        printf("Commission due to Sales Woman - %d", comm);
    }
    else{
        printf("Invalid Input !");
    }
}
```

```
garvitshah@Garvits-MacBook-Air ~> cd "/Users/garvitshah/Desktop/College/FCP/" && gcc Assignment-3.c -o Assignment-3 && "/User
s/garvitshah/Desktop/College/FCP/"Assignment-3
Enter the Policy Amount - 1231789
Commission due to Sales Woman - 9190
```