

## Assignment 4

1. Check Whether a Character is a Vowel or Consonant (Using if).

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

```
int main()
```

```
{
```

```
    char ch;
```

```
    printf("Enter a character : ");
```

```
    scanf("%c",&ch);
```

```
    if(ch=='a' || ch=='A' || ch=='e' || ch=='E' || ch=='i' || ch=='I' || ch==  
    ='o' || ch=='O' || ch=='u' || ch=='U')
```

```
        printf("%c is a VOWEL.",ch);
```

```
    else
```

```
        printf("%c is not a VOWEL.",ch);
```

```
    getch();
```

```
    return 0;
```

```
}
```

## 2. Find Roots of a Quadratic Equation (Using else if ladder).

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

```
int main()
```

```
{
```

```
    int a,b,c,D;
```

```
    printf("Enter the value of a b and c : ");
```

```
    scanf("%d%d%d",&a,&b,&c);
```

```
    D=(b*b)-(4*a*c);
```

```
    if(D==0)
```

```
    {
```

```
        printf("Roots are same...\n");
```

```
        printf("root1 = root2 = %f",-b/(2.0*a));
```

```
    }
```

```
    else if(D>0)
```

```
    {
```

```
        printf("Roots are real...\n");
```

```
        printf("root1 = %f , root2 = %f",(-b + sqrt(D)) / (2*a),(-b-sqrt(D))/(2*a));
```

```
    }
```

```
    else
```

```
    {
```

```
        printf("Roots are imaginary...\n");
```

```
        printf("root1 = %f , root2= %f",(-b+sqrt(D))/(2.0*a),(-b-sqrt(D))/(2.0*a));
```

```
    }
```

```
    getch();
```

```
    return 0;
```

```
}
```

### 3. Check Leap Year (Using if..else).

```
#include<stdio.h>

int main()
{
    int year;
    printf("Enter a year : ");
    scanf("%d",&year);
    if(year%100==0)
    {
        if(year%400==0)
            printf("%d year is a leap year.",year);
        else
            printf("%d year is NOT a leap year.",year);
    }
    else
    {
        if(year%4==0)
            printf("%d year is leap year.",year);
        else
            printf("%d year is not a leap year.",year);
    }
    getch();
    return 0;
}
```

4. check which number nearest to the value 100 among two given integers. Return 0 if the two numbers are equal. (Using nested if...else).

```
#include<stdio.h>

int main()
{
    int n1,n2;

    printf("For same number, result : 0\nFor same distance, result : -1\n");

    printf("Enter two numbers : ");

    scanf("%d%d",&n1,&n2);

    printf("Nearest of 100 is %d",near(n1,n2));

    getch();

    return 0;
}

int near(int n1,int n2)
{
    int a,b;

    if(n1==n2)

        return 0;

    else if(n1<100 && n2<100)

        return(n1>n2?n1:n2);

    else if(n1>100 && n2>100)

        return(n1<n2?n1:n2);

    else

    {

        a=n1<n2?n1:n2;

        b=n1>n2?n1:n2;

        a=100-a; b=b-100;

        if(a>b)

            return n2;

        else if(a<b)

            return n1;

        else

            return -1;

    }
}
```

5. check three given integers (small, medium and large) and return true if the difference between small and medium and the difference between medium and large is same. (Using nested if...else).

```
#include<stdio.h>

int main()
{
    int small,medium,large;
    printf("Enter the small number : ");
    scanf("%d",&small);
    printf("Enter the medium number : ");
    scanf("%d",&medium);
    printf("Enter the large number : ");
    scanf("%d",&large);
    if(check(small,medium,large))
        printf("True");
    else
        printf("False");
    getch();
    return 0;
}

int check(int s,int m, int l)
{
    if(m-s==l-m)
        return 1;
    else
        return 0;
}
```

6. Calculate and print the Electricity bill of a given customer. The customer id., name and unit consumed by the user should be taken from the keyboard and display the total amount to pay to the customer. The charge are as follow :

Unit	Charge/unit
upto 199	@1.20
200 and above but less than 400	@1.50
400 and above but less than 600	@1.80
600 and above	@2.00

If bill exceeds Rs. 400 then a surcharge of 15% will be charged and the minimum bill should be of Rs. 100/- (Using else if ladder)

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

```
int main()
```

```
{
```

```
    int c_id,unit,per;
```

```
    char name[20];
```

```
    printf("Enter customer name and ID : ");
```

```
    gets(name);
```

```
    scanf("%d",&c_id);
```

```
    printf("Enter total unit consumed : ");
```

```
    scanf("%d",&unit);
```

```
if(unit>=100)
{
    if(unit<=199)
        printf("Your bill is %.2f",1.20*unit);
    else if(unit>=200 && unit<=400)
        printf("Your bill is %f",1.50*unit);
    else if(unit>=400 && unit<=600)
    {
        per=unit*15/100;
        printf("Your bill is %f",(1.80*unit)+per);
    }
    else
    {
        per=unit*15/100;
        printf("Your bill is %f",(2.00*unit)+per);
    }
}
else
    printf("%s is not eligible",name);
getch();
return 0;
}
```

7. The marks obtained by a student in 3 different subjects are input by the user. Your program should calculate the average of subjects. The student gets a grade as per the following rules: (Using else if ladder)

Average	Grade
90-100	A
80-89	B
70-79	C
60-69	D
0-59	F

```
#include<stdio.h>

int main()
{
    int m1,m2,m3,avg;

    printf("Enter mark 1 mark 2 and mark 3 : ");

    scanf("%d%d%d",&m1,&m2,&m3);

    avg=m1+m2+m3/3;

    if(avg>=90 && avg<=100)

        printf("GRADE A");

    else if(avg>=80 && avg<=89)

        printf("GRADE B");

    else if(avg>=70 && avg<=79)

        printf("GRADE C");

    else if(avg>=60 && avg<=69)

        printf("GRADE D");

    else if(avg>0)

        printf("GRADE F");

    else

        printf("FAIL");

    getch();

    return 0;
}
```



8. print total number of days in a month using switch case.

```
#include<stdio.h>

int main()
{
    int choice;

    printf("1. January\n2. February\n3. March\n4. April\n5. May\n6. June\n7.
July\n");

    printf("8. August\n9. September\n10. October\n11. November\n12.
December\n\n");

    printf("Enter your choice like for January select 1 and so on...\n");
    scanf("%d",&choice);

    switch(choice)
    {
        case 1:
            printf("January : 31 days.");
            break;

        case 2:
            printf("February : 28 days.");
            break;

        case 3:
            printf("March : 31 days.");
            break;

        case 4:
            printf("Aril : 30 days.");
            break;
```

case 5:

```
printf("May : 31 days.");
```

```
break;
```

case 6:

```
printf("June : 30 days.");
```

```
break;
```

case 7:

```
printf("July : 31 days.");
```

```
break;
```

case 8:

```
printf("August : 31 days.");
```

```
break;
```

case 9:

```
printf("September : 30 days.");
```

```
break;
```

case 10:

```
printf("October : 31 days.");
```

```
break;
```

case 11:

```
printf("November : 30 days.");
```

```
break;
```

case 12:

```
printf("December : 31 days.");
```

```
break;
```

default:

```
printf("Wrong Choice !"); } }
```

9. create Simple Calculator using switch case.

```
#include<stdio.h>

int main()
{
    int n1,n2,ch;

    printf("1.
Addition\n2.Subtraction\n3.Multiplication\n4.Division\n\n");

    printf("Enter your choice : ");
    scanf("%d",&ch);
    switch(ch)
    {
        case 1:
            printf("Enter 2 numbers : ");
            scanf("%d%d",&n1,&n2);
            printf("%d",n1+n2);
            break;
        case 2:
            printf("Enter 2 numbers : ");
            scanf("%d%d",&n1,&n2);
            printf("%d",n1-n2);
            break;
```

case 3:

```
printf("Enter 2 numbers : ");  
scanf("%d%d",&n1,&n2);  
printf("%d",n1*n2);  
break;
```

case 4:

```
printf("Enter 2 numbers : ");  
scanf("%d%d",&n1,&n2);  
printf("%d",n1/n2);  
break;
```

default:

```
printf("Wrong choice!");  
}  
}
```

10. Prompts the user to enter grade. Your program should display the corresponding meaning of grade as per the following table (Using Switch Case).

Grade	Meaning
A	Excellent
B	Good
C	Average
D	Deficient
F	Failing

```
#include<stdio.h>

int main()
{
    char ch;
    printf("Enter your grade : ");
    scanf("%c",&ch);
    switch(ch)
    {
        case 'A':
            printf("Exellent");
            break;
        case 'B':
            printf("Good");
            break;
```

```
case 'C':  
    printf("Average");  
    break;  
case 'D':  
    printf("Deficient");  
    break;  
case 'E':  
    printf("Failing");  
    break;  
default:  
    printf("wrong entry");  
}  
getch();  
return 0;  
}
```