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

```c
#include<stdio.h>
int  main()
{
char c;
printf("enter an alphabet");
scanf("%c",&c);
if(c=='a' || c=='e' || c=='i' || c=='o' || c=='u')
printf("  '%c' is vowe",c);
if( ! (c=='a' || c=='e' || c=='i' || c=='o' || c=='u'))
printf(" '%d' is consonant",c);
return 0;
```

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

```c
#include<math.h>
#include<stdio.h>
int main()
{
float a,b,c,d;
printf("input a,b,c for quadratic equation respectively\n");
scanf("%f%f%f",&a,&b,&c);
d=(b*b)-(4*a*c);
if(d<0){printf("the roots are imaginary.");}
else if(a==0)
{printf("invalid value for a");}
else
{
printf("the roots are %f and %f.\n",(-b+sqrt(d))/(2*a),(-b-sqrt(d))/(2*a));
return 0;
}
}
```

Q.n 3) Check Leap Year (Using if..else)

```c
#include <stdio.h>
int main()
{
int y;
printf("Enter year: ");
    scanf("%d",&y);
  if(y % 4 == 0)
    {
        if( y % 100 == 0)
        {
            if ( y % 400 == 0)
                printf("%d is a Leap Year", y);
            else
```

```
                printf("%d is not a Leap Year", y);
        }
        else
            printf("%d is a Leap Year", y );
    }
    else

printf("%d is not a Leap Year", y);
    return 0;
}
```

Que no.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 1st no.");
    scanf("%d",&small);
    printf("Enter the 2nd no whih is greater than 1st no.");
    scanf("%d",&medium);
    printf("Enter the 3rd no whih is greater than 2nd no.");
    scanf("%d",&large);
    if((small-medium)-(medium-large)==0)
    printf("True");
    else
    printf("False");

}
```

Que no.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 unit;
char A[10], B[10];
float c, su =0, cu;
printf("Type the customer id, name and unit consumed");
```

```c
scanf("%s %s %d", &A, &B, &unit);
if(unit<200)
cu=1.20;
else if(unit>=200 && unit<400)
cu=1.50;
else if(unit>=400 && unit<600)
cu=1.80;
else if(unit>=600)
cu=2.00;
c=unit*cu;
if(c>400)
su=c*0.15;
else
su=0;
printf("ID: %s\n", A);
printf("Name: %s\n", B);
printf("unit consumed: %d\n", unit);
printf("amount charges Rs. %.2f per unit: %.2f\n", cu, c);
printf("surchage amount: %.2f\n", su);
printf("net amount paid: %.2f\n", c+su);
return 0;
}
```

Que no 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

```c
#include <stdio.h>
int main()
{
    float m1, m2, m3, average;
    printf("Enter 1st subject mark");
    scanf("%f", &m1);
    printf("Enter 2nd subject mark");
    scanf("%f", &m2);
    printf("Enter 3rd subject mark");
    scanf("%f", &m3);
    average =(m1 + m2 + m3) / 3;
    printf("Average: %0.2f\n", average);
    if (average >= 90)
    printf("Grade A");
    else if (average >= 80)
    printf("Grade B");
    else if (average >= 70)
    printf("Grade C");
```

```c
    else if (average >= 60)
    printf("Grade D");
    else
    printf("Grade F");
    return 0;
}
```

Que no 8) print total number of days in a month using switch case.

```c
#include <stdio.h>

int main()
{
    int m;
    printf("Enter month");
    scanf("%d", &m);

    switch(m)
    {
        case 1:
        printf("31 days");
        break;
        case 2:
        printf("28 days");
        break;
        case 3:
        printf("31 days");
        break;
        case 4:
        printf("30 days");
        break;
        case 5:
        printf("31 days");
        break;
        case 6:
        printf("30 days");
        break;
        case 7:
        printf("31 days");
        break;
        case 8:
        printf("31 days");
        break;
        case 9:
        printf("30 days");
        break;
        case 10:
        printf("31 days");
        break;
        case 11:
        printf("30 days");
        break;
        case 12:
        printf("31 days");
```

```
        break;
        default:
        printf("Invalid");


    }


    return 0;
}
```

Que no 9) create Simple Calculator using switch case.

```
#include<stdio.h>
int main()
{
    float num1,num2,result;
    char op;
    printf("enter the first no.");
    scanf("%f",&num1);
    printf("enter the operation");
    scanf(" %c",&op);
    printf("enter the second no.");
    scanf("%f",&num2);
    switch (op)
    {
        case '-':
        result=num1-num2;
        printf("%f",result);
        break;
        case '+':
        result=num1+num2;
        printf("%f",result);
        break;
        case '*':
        result=num1*num2;
        printf("%f",result);
        break;
        case '/':
        result=num1/num2;
        printf("%f",result);
        break;
        default:
        printf("The operation is not valid");
    }
    return 0;
}
```

Que no10) Prompts the user to enter grade. Your program should display the corresponding meaning of grade as per the following table (Using Switch Case)

```c
#include<stdio.h>
void main()
{
    int mark;
    printf("Enter mark");
    scanf("%d", &mark);
    switch( mark / 10 )
    {
    case 10:
    case 9:
    printf("Grade: A");
    break;
    case 8:
    printf("Grade: B");
    break;
    case 7:
    printf("Grade: C");
    break;
    case 6:
    printf("Grade: D");
    break;
    case 5:
    printf("Grade: E");
    break;
    default:
    printf("Grade: F");
    break;
    }
}
```