1. Write a program to check for a valid triangle.

```c
#include <stdio.h>
int main()
{
    int side1,side2,side3;
    printf("Enter the length of sides of the triangle \n");
    scanf("%d %d %d",&side1,&side2,&side3);
    if((side1+side2>side3) && (side2+side3>side1) && (side1+side3>side2))
        printf("it is a triangle  \n");
    else
        printf("it is not a triangle \n");
    return 0;
}
```

Output
Enter the length of sides of the triangle
5 5 5
It is a triangle

---

2. Write a program to check if a character is an alphabet.

```c
#include <stdio.h>
int main()
{
            char al;
        printf("Enter an alphabet \n");
        scanf("%c",&al);
        If((al>=65 && al<=90) || (al>=97 && al<=122))
            printf("the character is an alphabet \n");
        else
            printf("the character is  not an alphabet\n");
        return 0;
}
```

Output
Enter an alphabet
a
the character is an alphabet

---

3. Write a program to check whether a year is a leap year.

```c
#include <stdio.h>
int main()
{
    int year;
    printf("Enter the year \n");
    scanf("%d",&year);
    if(year%400==0)
        printf("the year is a leap year \n");
    else
        printf("the year is not a leap year\n");
    return 0;
}
```

Output
Enter the year
1900
The year is not a leap year

---

4. Write a program to check if a number is divisible by 3.

```c
# include <stdio.h>

int main()
   {
    int num;
    printf("Enter a number \n");
    scanf("%d",&num);
    if(num%3==0)
        printf("the number is divisible by 3 \n");
    else
        printf("the number is not divisible by 3\n");
    return 0;
   }
```

Output
Enter a number
27
The number is divisible by 3

---

5. Write a program to check if a character is uppercase.

```c
#include <stdio.h>
int main()
{
    char al;
    printf("Enter an alphabet \n");
    scanf("%c",&al);
    if(al>=65 && al<=90)
        printf("the character is an uppercase alphabet \n");
    else
        printf("the character is  not an uppercase alphabet\n");
    return 0;
}
```

Ouput
Enter an alphabet
A
The character is an uppercase alphabet

---

6. Write a program to check if a character is a special character.

```c
include <stdio.h>
int main()
{
    char al;
    printf("Enter an alphabet \n");
    scanf("%c",&al);
    if((al>=65 && al<=90) || (al>=97 && al<=122) || (al>=0 && al<=9))
        printf("the character is not a special character  \n");
    else
        printf("the character is a special character\n");
    return 0;
}
```

Output
Enter an alphabet
-
The character is a special character

---

7. WAP to calculate the electricity bill based on the formula mentioned below

Calculations

To calculate your electricity bill, follow these steps:

Watts = (amps) x (volts)

Kilowatt-hours = (watts) x (usage) / 1000.

Cost = (kilowatt-hours) x (electricity rate)

Subtract the current meter reading from the previous month's reading to find the energy consumption.

Multiply the units consumed by the per-unit charges based on the applicable slabs (e.g., Rs. 4.22 for 1-100 units, Rs. 5.02 for 101-200 units).

Add the fixed charge and energy duty (e.g., Rs. 40 fixed charge and Rs. 0.15 per unit) to the energy charges

The sum of the energy charges, fixed charge, and energy duty gives you the total bill amount

Example: If you consumed 250 units with the applicable slabs mentioned above, the energy charges would be Rs. 1218.

Adding the fixed charge and energy duty, the total bill amount would be Rs. 1296. */

```c
#include<stdio.h>
int main()
{
    float V,I,usage,new_kwh,old_kwh,cost,total,watts,kwh;
    printf("enter the voltage current and usage \n");
    scanf("%f %f %f",&I,&V);
    printf("enter the prevoius month reading and current month reading");
    scanf("%f %f",&,old_kwh,&new_kwh);
    if(old_kwh>new_kwh)
    {
        printf("error");
    }
    else
    {
    watts=V*I;
    usage=new_kwh-new_kwh;
    kwh=watts*usage/1000.0;
    if(new_kwh>=1 && new_kwh<=100)
    {
        cost=4.22*kwh;
    }
    else if(new_kwh>100 && new_kwh<=200)
    {
        cost=(100*cost)+(usage-100)*5.02*kwh;
    }
    else
    {
        cost=(100*cost)+(usage-100)*6.02*kwh;
    }
    total=cost +40+usage;
```

```
    printf("total cost =%f \n",total);

    return 0;
}
```

8. Write a program to calculate the weekly pay.

```
#include<stdio.h>
int main()
{
    int num;
    float pay,pay1,tax=0,gross_pay;
    printf("enter the number of hours worked \n");
    scanf("%d",&num);
    if(num>40)
        pay=(num-40)*12*1.5+40*12;
    else
        pay=num*12;
        pay1=pay;
    if(pay>=300)
        {
            tax=15.0/100.0*(float)pay;
            pay=pay-300;
            if(pay>=150)
            {
                tax=tax+20.0/100.0*(float)pay;
                pay=pay-150;
                if(pay>0)
                {
                    tax=tax+25.0/100.0*(float)pay;
                }
            }
        }
    gross_pay=pay1-tax;
    printf("the net pay, gross pay and taxes are %f %f and
%f",pay1,gross_pay,tax);
}
```

Output
enter the number of hours worked
41

the net pay, gross pay and taxes are 498.000000 371.700012 and 126.299995

WAP to print Fibonacci Series up to a Given Number.

```c
#include<stdio.h>
int main()
{
    int num1=0,num2=1,sum=0,num;
    printf("enter a number \n");
    scanf("%d",&num);
    printf("%d ",num1);
    while(sum<=num)
    {
        sum=num1+num2;
        num1=num2;
        num2=sum;
        printf("%d ",num1);
    }
}
```

Output
enter a number
55
0 1 1 2 3 5 8 13 21 34 55

---

9. WAP to print factorial of a number.

```c
#include<stdio.h>
int main()
{
    int num,fact=1,i=1;
    printf("enter a number \n");
    scanf("%d",&num);
    while(i<=num)
    {
        fact=fact*i;
        i++;
    }
    printf("the factorial of the number is  %d",fact);
}
```

Output
enter a number

5
the factorial of the number is 120

---

10. WAP to check whether the number is Prime or not.

```c
#include<stdio.h>
 int main()
 {
     int num,i=1,count=0;
     printf("enter a number \n");
     scanf("%d",&num);
     while(i<=num/2)
     {
         if(num%i==0)
             count++;
         i++;
     }
     if(count>1)
         printf("the number is not prime ");
     else
        printf("the number is prime ");
 }
```

Output
enter a number
5
the number is prime

---

11. WAP to print lower case alphabets.

```c
#include<stdio.h>
   int main()
   {
       char ch;
       while(i>=97 && i<=122)
       {
           printf("%c ",i);
           i++;
       }
   }
```

Output
a b c d e f g h i j k l m n o p q r s t u v w x y z