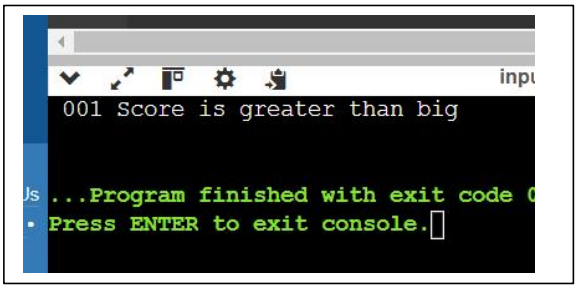
ASSIGNMENT

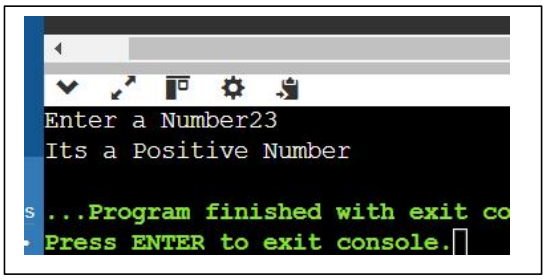
If Statement

```
#include<stdio.h>
int main(){
   int score =80 ;
   int big=75;
   if (score>big)
      printf(" 001 Score is greater than big\n");
   if (score<big){
      score++;
      printf(" 002 Score is greater than big");
   }
   return 0;
}
```



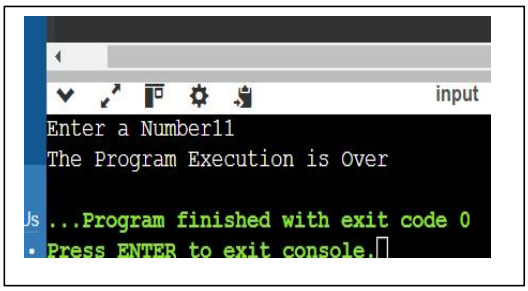
1. Check whether the number is positive. The program will ask for user input for integers.

```
#include<stdio.h>
int main(){
   int num1;
   printf("Enter a Number");
   scanf("%d",&num1);
   if (num1>0)
      printf("Its a Positive Number");
   return 0;
}
```



2. Check whether the number is Even. Program will ask for user input.

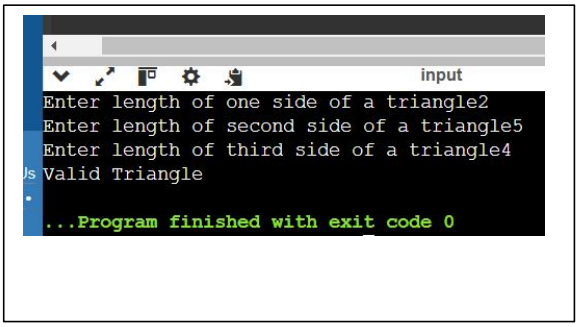
```
#include<stdio.h>
int main(){
   int num;
   printf("Enter a Number");
   scanf("%d",&num);
   if(num%2==0){
      printf("%d is Even",num);
   }
   printf("The Program Execution is Over");
   return 0;
}
```



Assignment

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

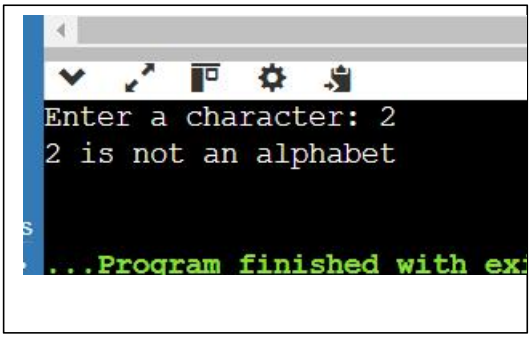
```
#include<stdio.h>
int main(){
   int a,b,c;

   printf("Enter length of one side of a triangle");
   scanf("%d",&a);

   printf("Enter length of second side of a triangle");
   scanf("%d",&b);
```



```
   printf("Enter length of third side of a triangle");
   scanf("%d",&c);

   if ((a+b>c) && (b+c>a) && (a+c>b))
      printf("Valid Triangle");

   return 0;
}
```

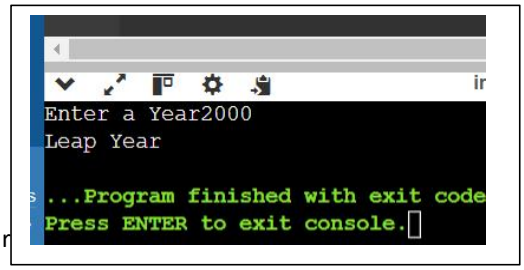
2. Write a program to check if a character is an Alphabet.

```
#include <stdio.h>
int main() {
   char c;

   printf("Enter a character: ");
   scanf("%c", &c);

   if ((c >= 'A' && c <= 'Z') || (c >= 'a' && c <= 'z')) {
      printf("%c is an alphabet\n",c);
   } else {
      printf("%c is not an alphabet\n", c);
   }
   return 0;
}
```



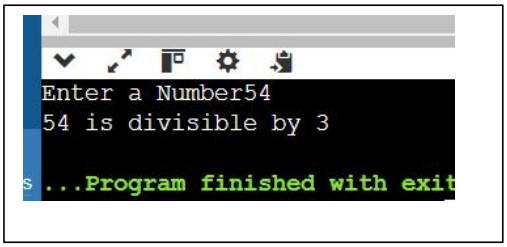
3. Write a program to check if a year is a Leap year

```
#include<stdio.h>
int main(){
   int year;
   printf("Enter a Year");
   scanf("%d",&year);

   if((year%400==0 && year%100==0)||(year%4==0 && year
      printf("Leap Year");
   }
   else{
         printf("Not Leap Year");

   }
   return 0;
}
```



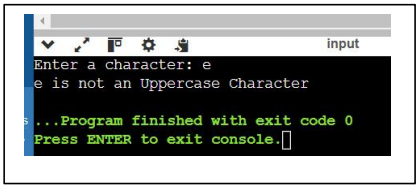
4. Write a program to check if a number is divisible by 3.

```
#include <stdio.h>

int main()
{
   int num;
   printf("Enter a Number");
   scanf("%d",&num);
   if(num%3==0)
      printf("%d is divisible by 3",num);

   return 0;
}
```



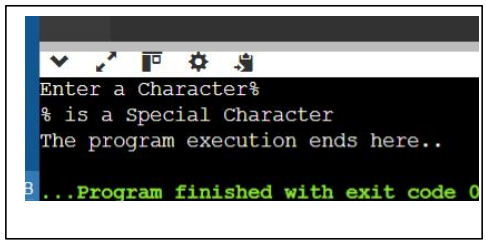
5.Write a program to check for uppercase characters.

```
#include <stdio.h>

int main() {
   char c;

   printf("Enter a character: ");
   scanf("%c", &c);

   if (c >= 'A' && c <= 'Z') {
      printf("%c is an Uppercase Character", c);
   }
   else{
      printf("%c is not an Uppercase Character", c);
   }
   return 0;

}
```



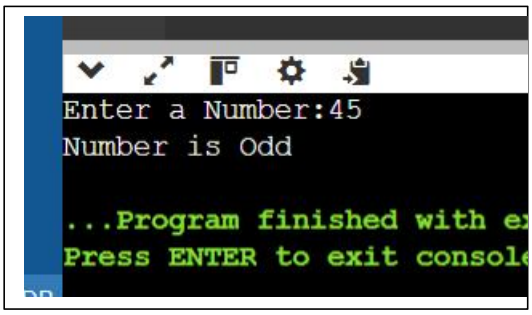
6.Write a program to check for Special Characters.

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

int main()
{
   char c;
   printf("Enter a Character");
   scanf("%c",&c);

   if(!isalnum(c))
      printf("%c is a Special Character\n",c);

   printf("The program execution ends here..");

   return 0;
}
```



<u>If Else Statements</u>

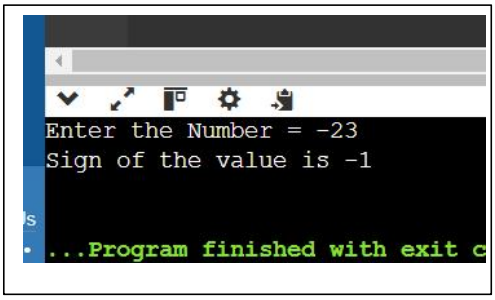
```
#include<stdio.h>

int main(){
   int num,result;

   printf("Enter a Number:");
   scanf("%d",&num);

   result=num%2;

   if(0==result){
      printf("Number is Even");
   }
   else{
      printf("Number is Odd");
   }
   return 0;
}
```



Else if Statements

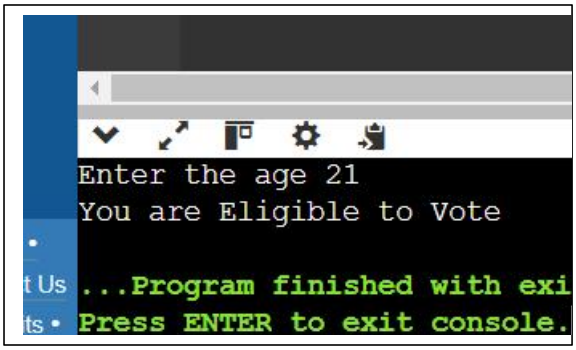
1.Write a program to findout the sign of a value.

```
#include<stdio.h>
int main(){
   int num,sign;
   printf("Enter the Number = ");
   scanf("%d",&num);
   if(num>0){
      sign = 1;
   }
   else if(0==num){
      sign = 0;
   }
   else{
      sign = -1;
   }
   printf("Sign of the value is %d\n",sign);
}
```



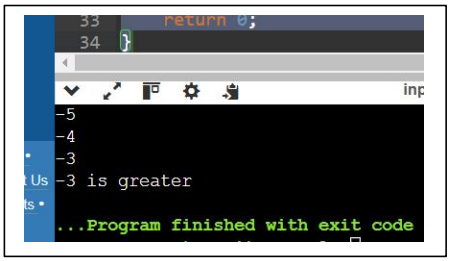
2. Write a program to check for voting eligibility.

```
#include<stdio.h>
int main(){
   int age;
   printf("Enter the age ");
   scanf("%d",&age);

   if(age>=18){
      printf("You are Eligible to Vote");
   }
   else{
      printf("You are not Eligible to Vote");
   }
   return 0;
}
```



3.Write a program to check largest among three numbers

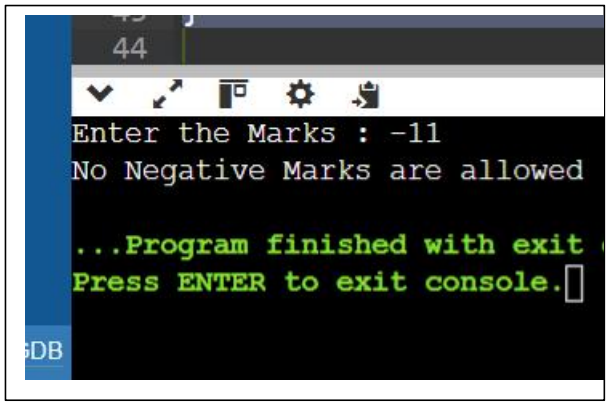
```
#include<stdio.h>
int main(){
   int a,b,c;
   printf("Enter three numbers\n");
   scanf("%d %d %d",&a,&b,&c);

   if (a>b){
      if (a>c){
         printf("%d is greater",a);
      }
      else{
         printf("%d is greater",c);
      }
   }
   else{
      if (b>c){
         printf("%d is greater",b);
```



```
    }
    else{
       printf("%d is greater",c);
    }
  }
  return 0;
}
```

4.Write a program to determine the grade of a student based on following
grade A = marks>=90
grade B =marks>=80 and marks<90
grade C =marks>=70 and marks<80
grade D =marks>=60 and marks<70
grade F =marks<60

```
#include<stdio.h>
int main(){

  int marks;

  printf("Enter the Marks : ");
  scanf("%d",&marks);

  if (marks>=90){
    printf("Grade A");
  }
  else if(marks>=80 && marks<90){
    printf("Grade B");
  }
  else if(marks>=70 && marks<80){
    printf("Grade C");
  }
  else if(marks>=60 && marks<70){
    printf("Grade D");
  }
  else if(marks<60 && marks>0){
    printf("Grade F");
  }
  else{
    printf("No Negative Marks are allowed");
  }
  return 0;
}
```



5.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)

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

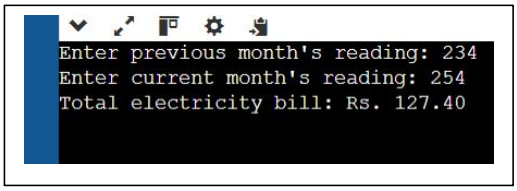
2. Multiply the units consumed by the per-unit charges based on the applicable slabs (e.g., Rs. 4.22 for 1-100 units,
Rs. 5.02 for 101-200 units).

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

4. 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.

```
#include<stdio.h>

int main() {

   int previous_reading, current_reading;

   float units_consumed, energy_charge = 0.0, energy_duty, fixed_charge = 40.0, energy_duty_rate = 0.15, total_bill;

   printf("Enter previous month's reading: ");

   scanf("%d", &previous_reading);

   printf("Enter current month's reading: ");

   scanf("%d", &current_reading);

   units_consumed = current_reading - previous_reading;

   if (units_consumed <= 100) {

      energy_charge = units_consumed * 4.22;

   } else if (units_consumed <= 200) {

      energy_charge = (100 * 4.22) + ((units_consumed - 100) * 5.02);

   } else {

      energy_charge = (100 * 4.22) + (100 * 5.02) + ((units_consumed - 200) * 6.05);

   }

   energy_duty = units_consumed * energy_duty_rate;

   total_bill = energy_charge + fixed_charge + energy_duty;
```



```
    printf("Total electricity bill: Rs. %.2f\n", total_bill);

    return 0;

}
```

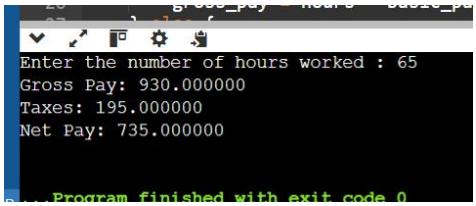
6.

Requirements

- In this challenge, you are to create a C program that calculates your weekly pay.
- The program should ask the user to enter the number of hours worked in a week via the keyboard
- The program should display as output the gross pay, the taxes, and the net pay
- The following assumptions should be made:
  - Basic pay rate = $12.00/hr
  - Overtime (in excess of 40 hours) = time and a half
  - Tax rate:
    - 15% of the first $300
    - 20% of the next $150
    - 25% of the rest
- You will need to utilize if/else statements

```
#include <stdio.h>

int main() {
    int hours;
    float gross_pay, taxes, net_pay;

    const float basic_pay_rate= 12.0;
    const float overtime_rate= 1.5;
    const int regular_hours = 40;
    const float tax_rate_1= 0.15;        // Tax rate for first $300
    const float tax_rate_2= 0.20;        // Tax rate for next $150
    const float tax_rate_3 = 0.25;        // Tax rate for remaining income

    printf("Enter the number of hours worked : ");
    scanf("%d", &hours);

    if (hours <= regular_hours) {
        gross_pay = hours * basic_pay_rate;
    } else {
        gross_pay = (regular_hours * basic_pay_rate) + ((hours - regular_hours) * basic_pay_rate *
overtime_rate );
    }
    if (gross_pay <= 300) {
        taxes = gross_pay * tax_rate_1;
    } else if (gross_pay <= 450) {
        taxes = (300 * tax_rate_2) + ((gross_pay - 300) * tax_rate_2);
```

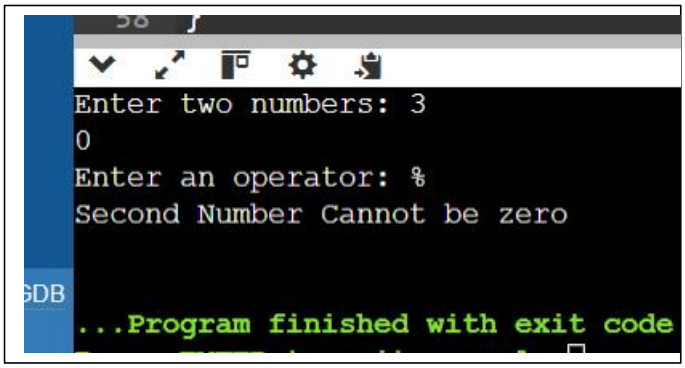
```
    } else {
        taxes = (300 * tax_rate_1) + (150 * tax_rate_2) + ((gross_pay - 450) * tax_rate_3);
    }

    net_pay = gross_pay - taxes;

    printf("Gross Pay: %f\n", gross_pay);
    printf("Taxes: %f\n", taxes);
    printf("Net Pay: %f\n", net_pay);

    return 0;
}
```



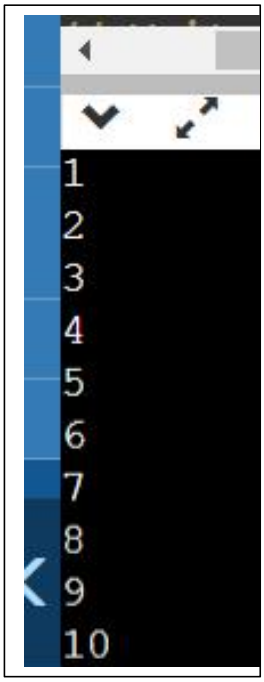
Switch Statements

1. Write a program for switch case for calculator

```
#include <stdio.h>
int main() {
    int num1, num2;
    float result;
    char operators;

    printf("Enter two numbers: ");
    scanf("%d %d", &num1, &num2);

    printf("Enter an operator: ");
    scanf(" %c", &operators);

    switch (operators) {
        case '+':
            result = num1 + num2;
            printf("%d + %d = %f\n", num1, num2, result);
            break;
        case '-':
            result = num1 - num2;
            printf("%d - %d = %f\n", num1, num2, result);
            break;
        case '*':
            result = num1 * num2;
            printf("%d * %d = %f\n", num1, num2, result);
            break;
        case '/':
            if (num2 == 0) {
                printf("Second Number Cannot be zero\n");
            } else {
                result = num1 / num2;
                printf("%d / %d = %f\n", num1, num2, result);
            }
            break;
```



```
    case '%':
      if (num2 == 0) {
        printf("Second Number Cannot be zero\n");
      } else {
        result = num1 % num2;
        printf("%d %% %d = %f\n", num1, num2,result);
      }
      break;
    default:
      printf("Invalid operator\n");
  }

  return 0;
}
```



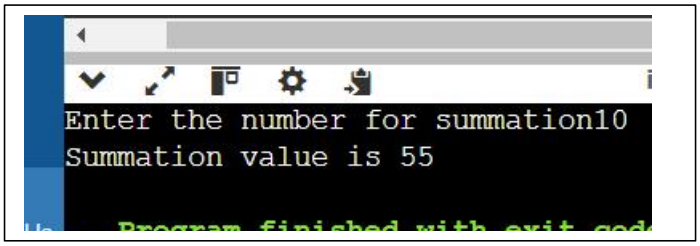
While Loop

1.Write a program to print the values between 1 to 10 using while loop

```
#include <stdio.h>
int main(){

  int num=1;
  while(num<=10)
    printf("%d \n",num++);
  return 0;
}
```

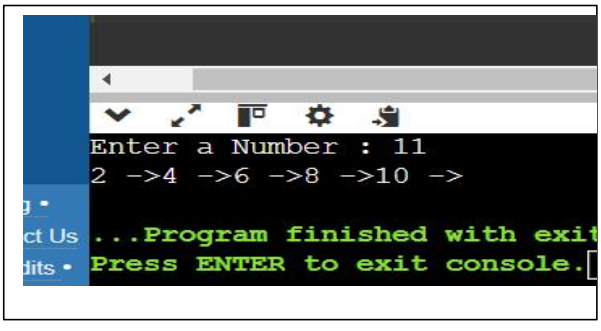
2.Write a program to calculate the sum of natural numbers

```
#include <stdio.h>
int main(){
  int num,sum=0,i=1;
  printf("Enter the number for summation");
  scanf("%d",&num);

  while(i<=num){
    sum +=i;
    i++;
  }
  printf("Summation value is %d",sum);
  return 0;
}
```



3. Write a program to print even numbers upto a given numbers

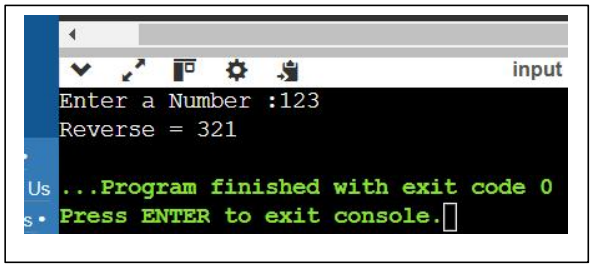
```
#include<stdio.h>
int main(){
  int num,i=2;

  printf("Enter a Number : ");
  scanf("%d",&num);
```



```
    while(i<=num){
        printf("%d ->",i);
        i+=2;
    }
    return 0;
}
```

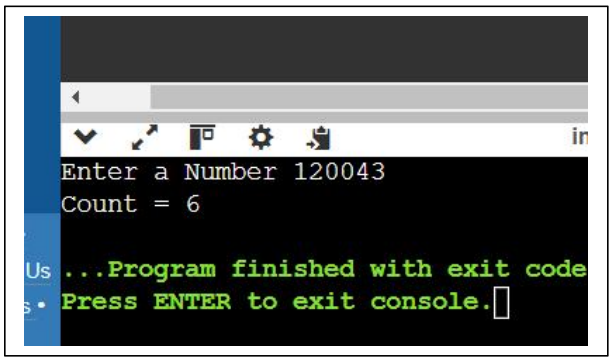
4.Write a program to reverse a number

```
#include<stdio.h>
int main(){
    int num,reverse_num=0;
    printf("Enter a Number :");
    scanf("%d",&num);
    while(num!=0){
        reverse_num=reverse_num*10+num%10;
        num/=10;
    }
    printf("Reverse = %d",reverse_num);
}
```



5.Write a program to count the number of digits in a number

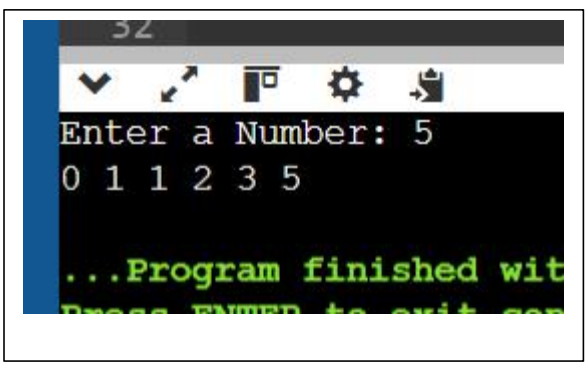
```
#include<stdio.h>
int main(){
    int num,count=0;
    printf("Enter a Number ");
    scanf("%d",&num);

    while(num!=0){
        num/=10;
        count+=1;
    }
    printf("Count = %d",count);
}
```



Assignment

1. Write a program to print Fibonacci Series upto a given number.

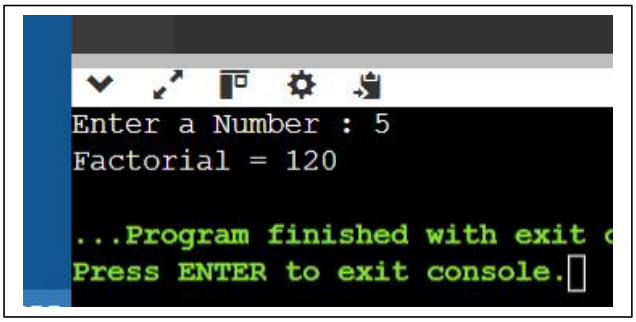
```
#include <stdio.h>

int main() {
    int num;
    int previous = 0, next = 1, sum = 0;

    printf("Enter a Number: ");
    scanf("%d", &num);

    printf("%d %d", previous, next);

    while (sum <= num) {
        sum = previous + next;
        if (sum > num)
            break;
        printf(" %d", sum);
```



```
        previous = next;
        next = sum;
    }

    return 0;
}
```

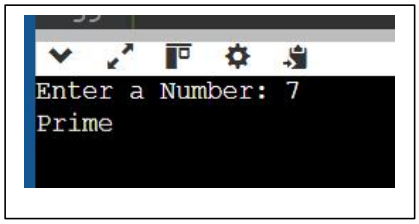
2. Write a program to print factorial of a number.

```
#include<stdio.h>
int main(){
    int num,i=1,factorial=1;

    printf("Enter a Number : ");
    scanf("%d",&num);
    while(i<=num){
        factorial*=i;
        i++;
    }
    printf("Factorial = %d",factorial);
    return 0;

}
```



3. Write a program to check whether the number is Prime or not.

```
#include <stdio.h>

int main() {

    int num, i = 2;

    int isPrime = 1;

    printf("Enter a Number: ");

    scanf("%d", &num);

    if (num <= 1) {

        printf("Not Prime\n");

        return 0;

    }

    while (i <= num / 2) {

        if (num % i == 0) {

            isPrime = 0;

            break;

        i++;
```



```
    }
    if (isPrime) {
        printf("Prime\n");
    } else {
        printf("Not Prime\n");
    }
    return 0;
}
```

4. Write a program to print lower case alphabets.

```
#include <stdio.h>
int main() {
    char ch = 'a';
    while (ch <= 'z') {
        printf("%c ", ch);
        ch++;
    }
    printf("\n");
    return 0;
}
```