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INTRODUCTION TO C PROGRAMMING

BATCH: 2023-24

BCA HONS. (AI & DS)

Submitted to:

Mr. Rishi Kumar
Assistant Professor (CS/IT)
Graphic Era University

Submitted by:

Sujal Tyagi
(23021377)

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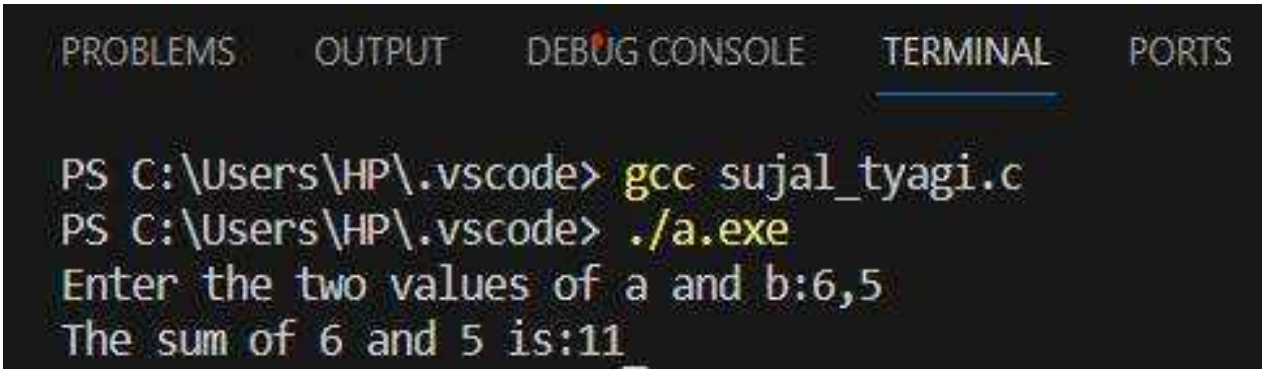
PROGRAMS

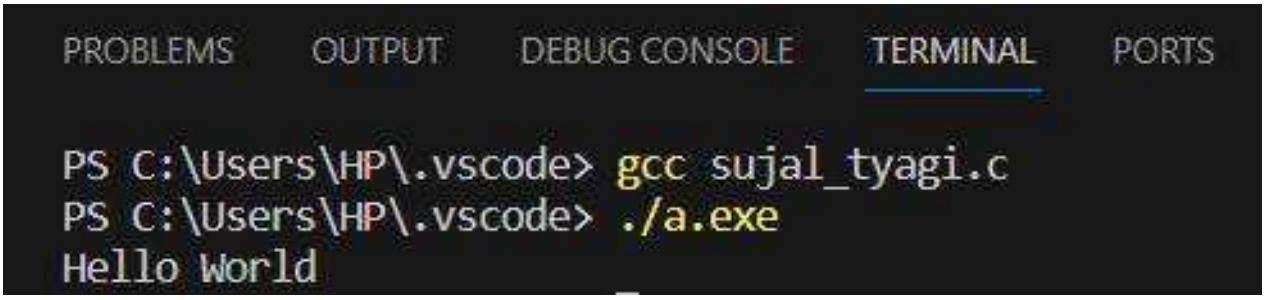
Program 1: WAP to find sum of 2 No.

```
#include<stdio.h>
int main(){ int
a,b; int sum;
printf(“Enter the two numbers separated by comma:”);
scanf(“%d,%d”,&a,&b);
sum=a+b;
printf(“The sum of %d and %d is:%d”,a,b,sum); return
0;
}
```



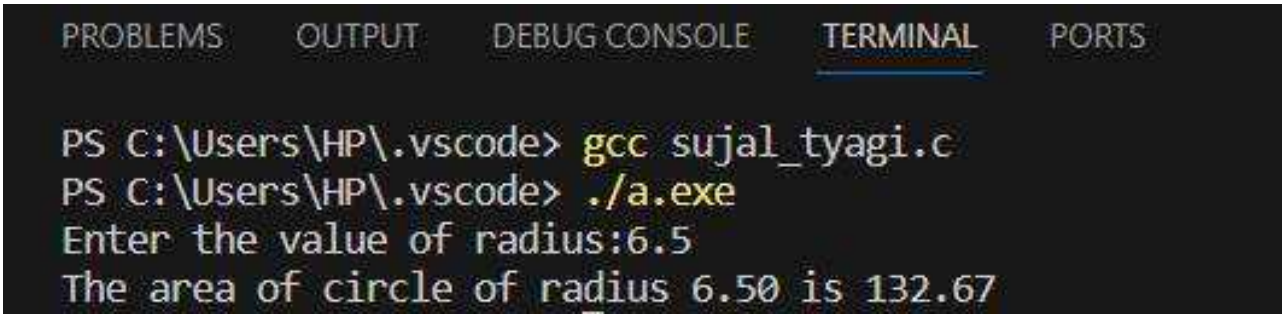
Program 2: WAP to print Hello World

```
#include<stdio.h>

int main(){
printf(“Hello World”);

return 0;
```



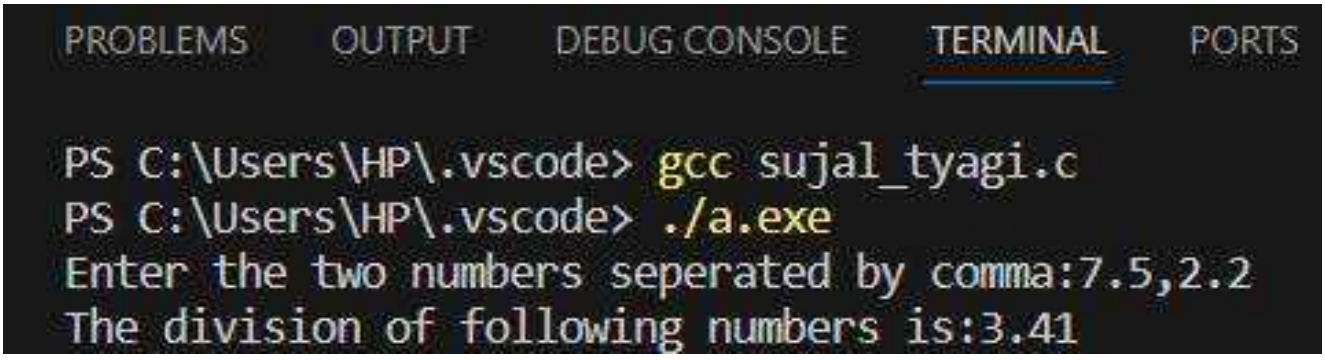
Program 3: WAP to find the Area of Circle.

```
#include<stdio.h>
int main(){ float
r,area; float
pi=3.14;
printf(“Enter the value of radius:”);
scanf(“%f”,&r); area= pi*r*r;
printf(“The area of circle of radius %0.2f is: %0.2f”,r,area);
return 0;
}
```



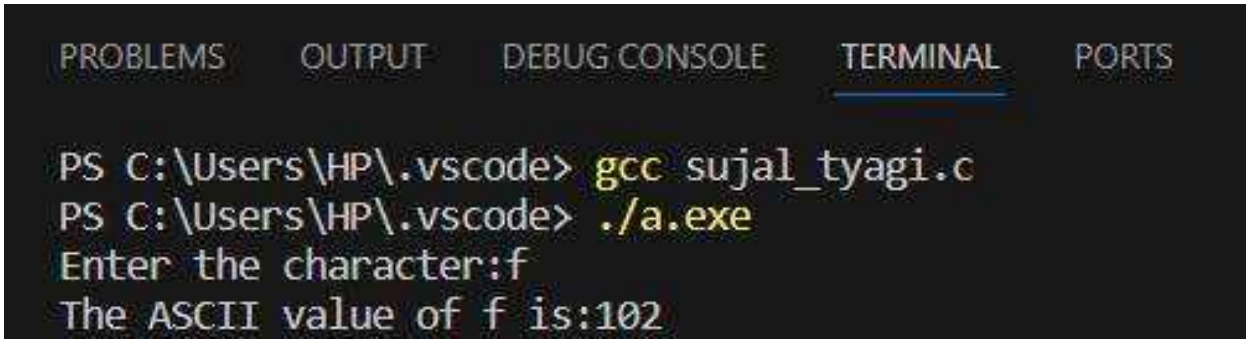
Program 4: WAP to divide two numbers.

```
#include<stdio.h>
int main(){ float
n1,n2; float div;
printf(“Enter the two numbers separated by comma:”);
scanf(“%f,%f”,&n1,&n2);

div=n1/n2;

printf(“The division of following numbers is:%0.2f”,div);

return 0;
}
```



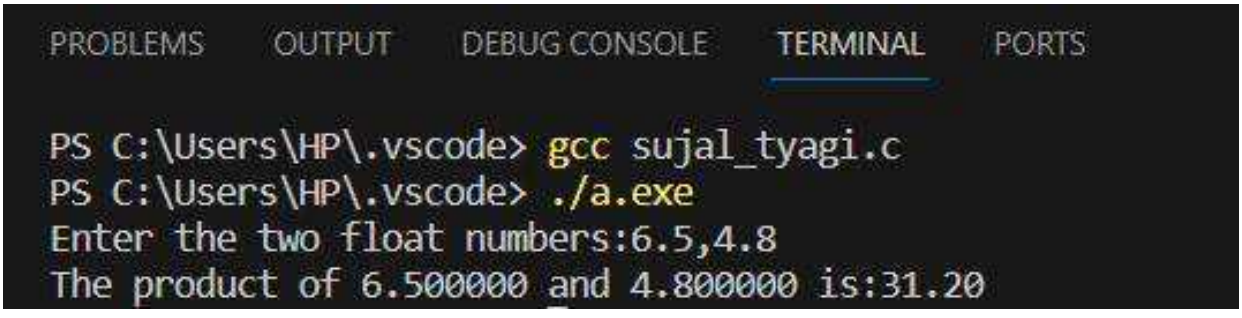
Program 5: WAP to print the ASCII value of a character

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

char c;
printf(“Enter the character:”); scanf(“%c”,c);

printf(“The ASCII value of %c is: %d”,c,c);

return 0;
}
```



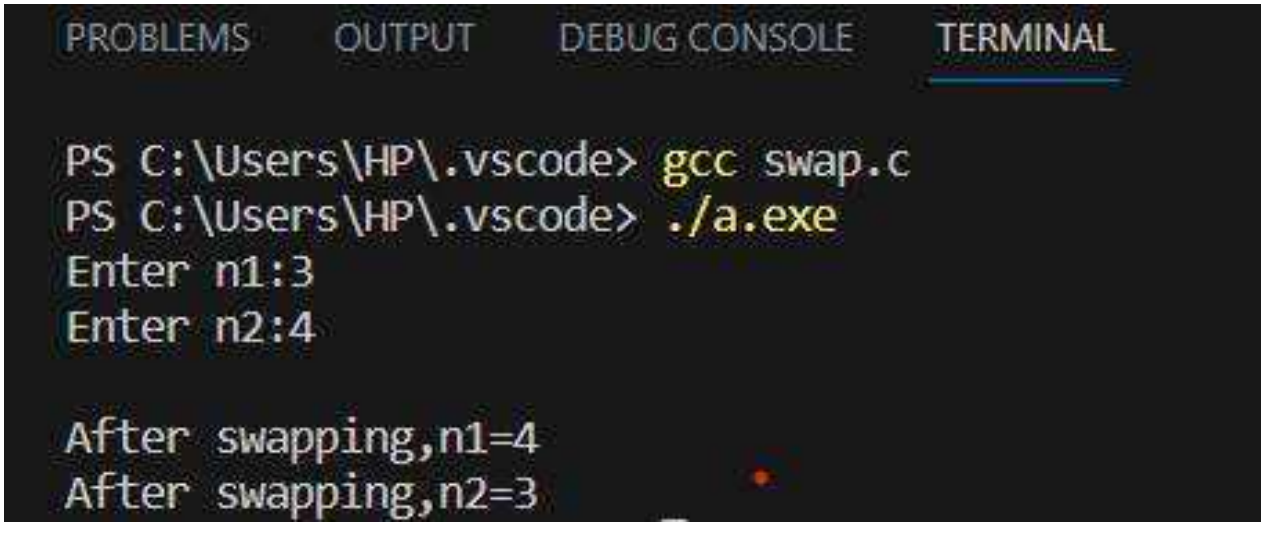
Program 6: WAP to show the product of two floating numbers.

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

float n1,n2;
float prod;

printf(“Enter the two float numbers:”);
scanf(“%f,%f”,&n1,&n2);

prod=n1*n2;

printf(“The product of %f and %f is :%0.2f\n”,n1,n2,prod);

return 0;
}
```



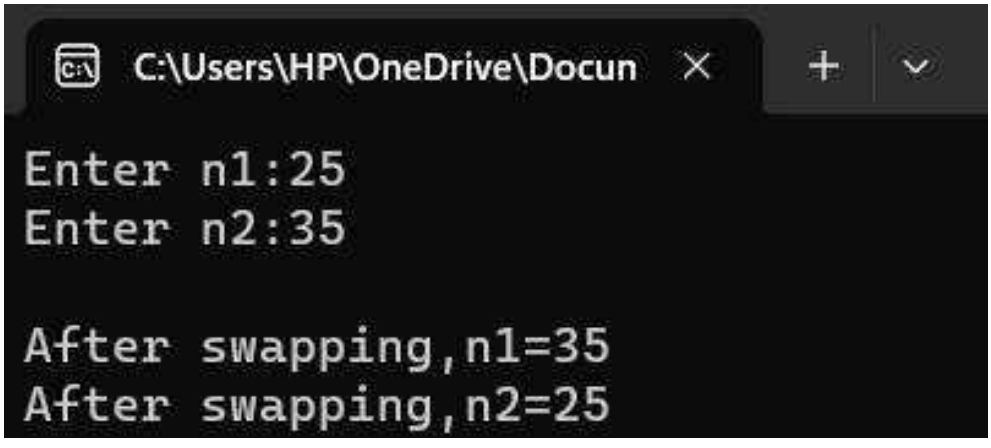
Program 7: WAP to swap two variable numbers using third variable.

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

int n1,n2,temp;
printf("Enter n1:");
scanf("%d",&n1);

printf("Enter n2:);
scanf("%d",&n2);

temp=n1; n1=n2;
n2=temp;

printf("\nAfter swapping,n1=%d\n",n1); printf("\nAfter
swapping,n2=%d\n,n2);

return 0;
}
```



Program 8: WAP to swap the two variable numbers without using third variable

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

int n1,n2;

printf("Enter n1:"); scanf("%d",&n1);

printf("Enter n2:"); scanf("%d",&n2);

n2=n1-n2;
n1=n1+n2;

printf("\nAfter swapping, n1=%d\n",n1);
printf("After swapping ,n2=%d\n",n2); return
0;
}
```

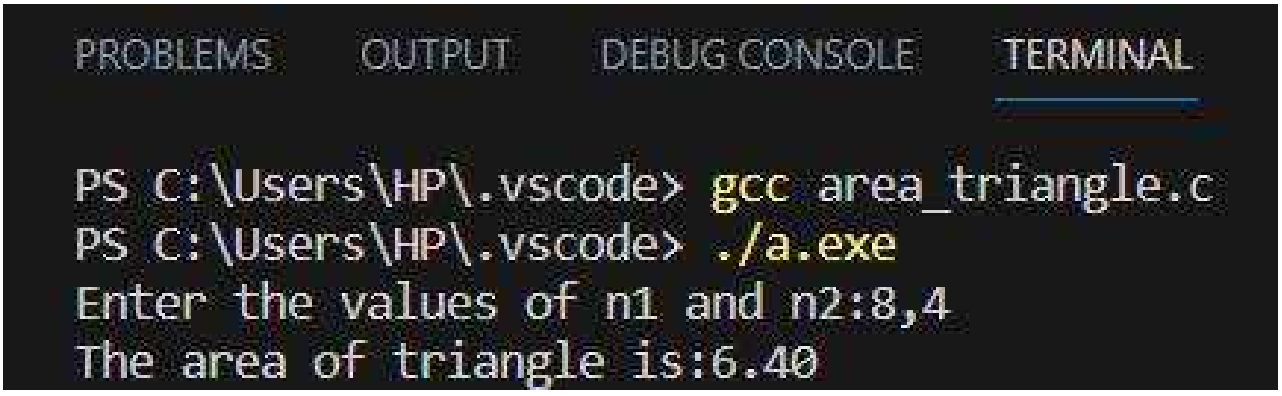


Program 9: WAP to swap three numbers without using any variable.

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

int n1,n2,n3; printf(“Enter n1:”);
scanf(“%d”,&n1); printf(“Enter n2:”);
scanf(“%d”,&n2); printf(“Enter n3:”);
scanf(“%d”,&n3); n2=n1-(n2+n3);
n3=n1-(n2+n3); n1=n1-(n2+n3);
printf(“\nAfter swapping,n1=%d\n”,n1);
printf(“After swapping,n2=%d\n”n2);
printf(“After swapping,n3=%d”,n3);}
```

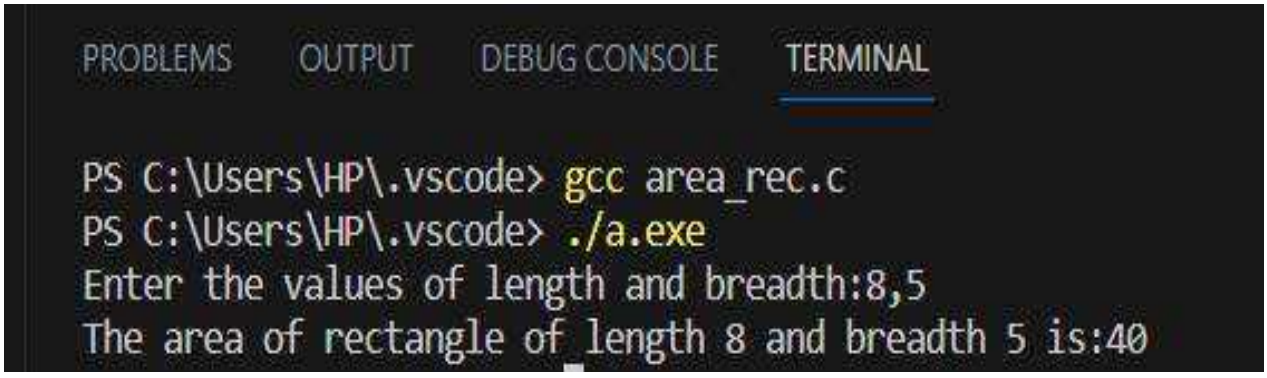
Program 10: WAP to find the Area of Triangle.

```
#include<stdio.h>
int   main(){   float
b,h; double area;

printf(“Enter the base and height:”); scanf(“%f,%f”,&b,&h);

area=0.2*b*h;

printf(“The area of right angled triangle is: %f\n”,b,h,area);
return 0;
}
```



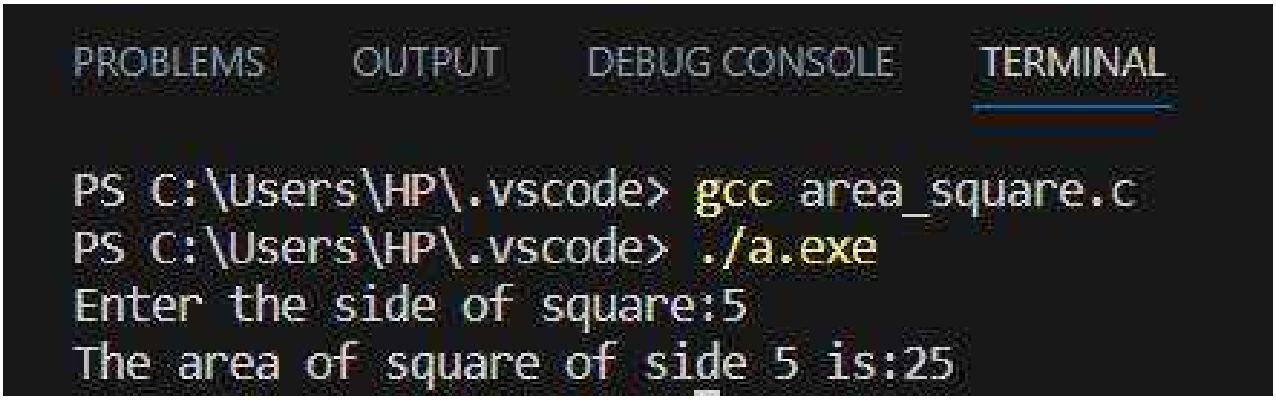
Program 11: WAP to find the area of rectangle.

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

int l,b; int
area;

printf(“Enter the values of length and breadth:”);
scanf(“%d,%d”,&l,&b);

area=l*b;

printf(“The area of rectangle of length %d and breadth %d
is:%d\n”l,b,area);

return 0;
}
```



Program 12: WAP to find the area of square.

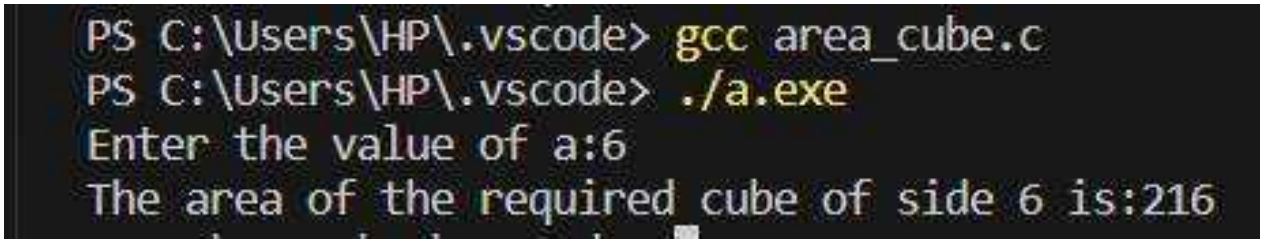
```
#include<stdio.h> int
main(){

int a; int
area;

printf("Enter the side of square:"); scanf("%d",
&a);

area=a*a;

printf("The area of square of side %d is:%d", a, area);
return 0;
}
```



Program 13: WAP to find the area and volume of cube.

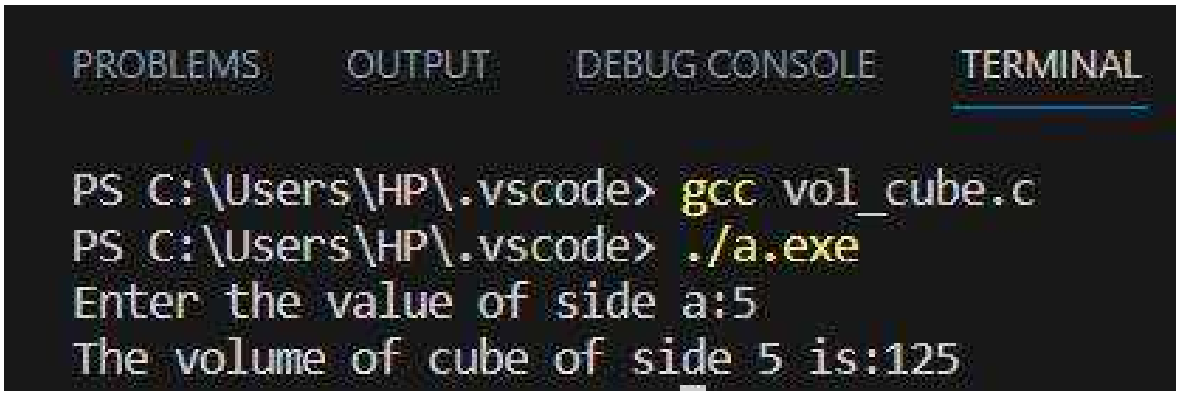
Area of cube:

```
#include<stdio.h>
//area of cube
int main(){
int a; int area; printf("Enter the value of a:"); scanf("%d",
&a); area=6*a*a; printf("The area of the required cube of
side %d is:%d", a, area); return 0;
}
```



Volume of cube:

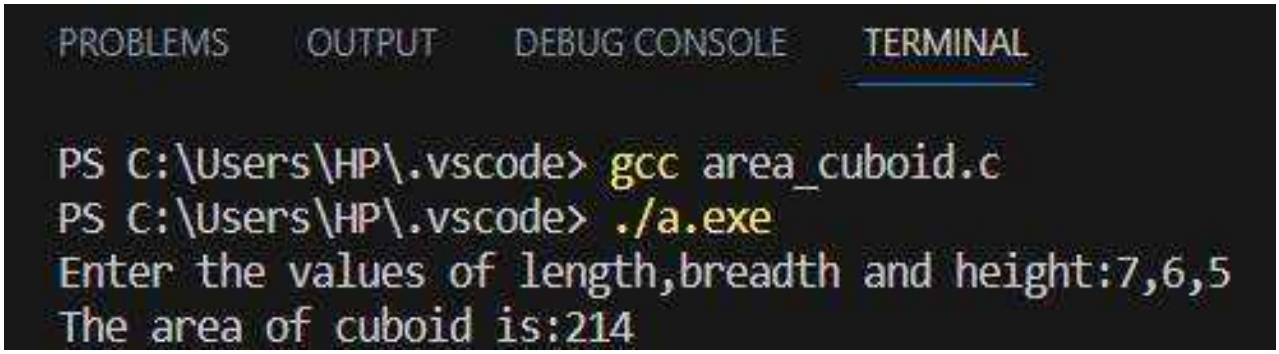
```
#include<stdio.h> int main(){ int a; int vol; printf("Enter
the value of side a:"); scanf("%d" , &a); vol=a*a*a;
printf("The volume of cube of side %d is:%d\n" , a ,vol);
return 0;
}
```



Program 14: WAP to find the Area and Volume of cuboid.

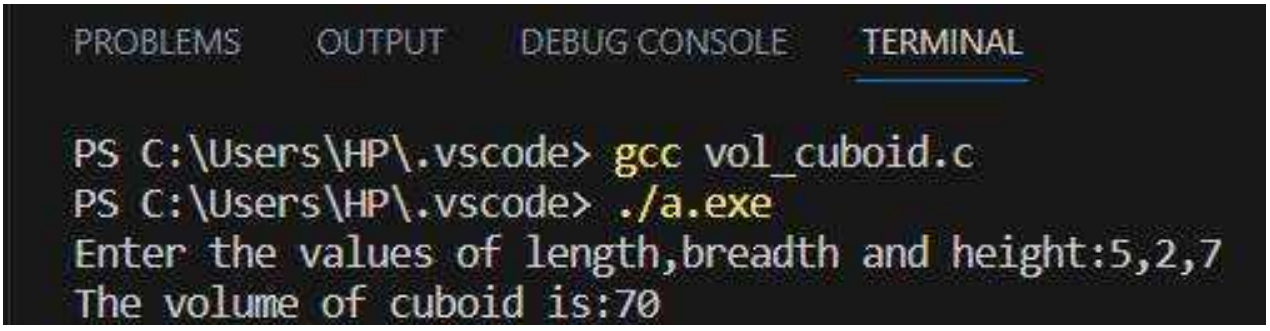
Area of Cuboid:

```
#include<stdio.h> int
main(){
   int l , b , h;     int area;     printf("Enter the values of
length , breadth and height:");     scanf("%d ,%d ,%d ",&l,
&b , &h);     area=2*(l*b +b* h + h*l);     printf("The area of
cuboid is:%d\n" , area);     return 0;
}
```



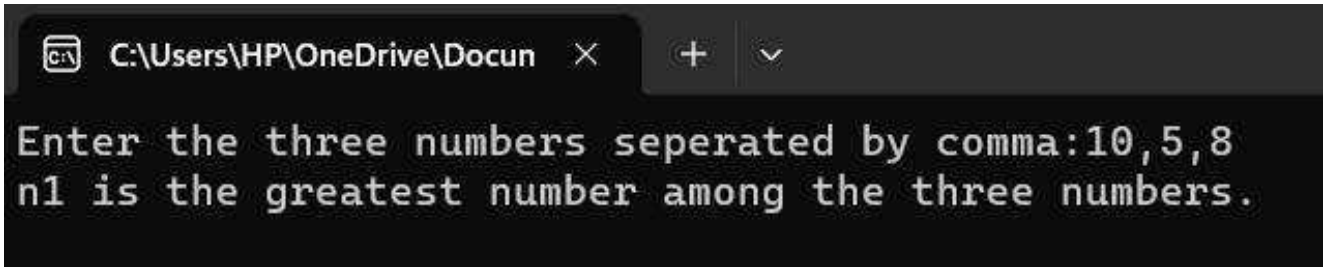
Volume of Cuboid:

```
#include<stdio.h>
int main(){ int l,b,h;
int vol;
printf("Enter the values of length,breadth and height:");
scanf("%d,%d,%d",&l,&b,&h);
vol=l*b*h;
printf("The volume of cuboid is:%d\n",vol);
return 0;
}
```



Program 15: WAP to find the greatest no. using && operator.

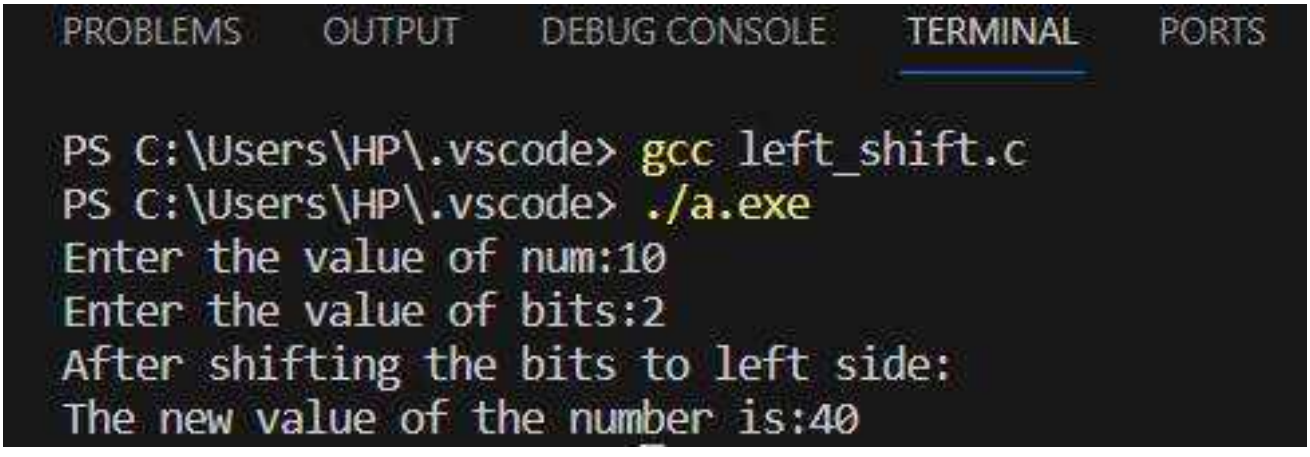
```
#include<stdio.h>
 int main(){
 int n1,n2,n3;
printf("Enter the three numbers seperated by comma:");
scanf("%d,%d,%d",&n1,&n2,&n3);
if(n1>n2 && n1>n3){
printf("n1 is the greatest number among the three
numbers.\n");
}
else if(n2>n1 && n2>n3){
printf("n2 is the greatest number among the three
numbers.\n);
}
else if(n3>n1 && n3>n2){
printf("n3 is the greatest number among the three
numbers.\n");
}
else{ printf("Not valid
task.\n");
}
}
```



Program 16: WAP to validate the username and password entered by the user is correct or not.

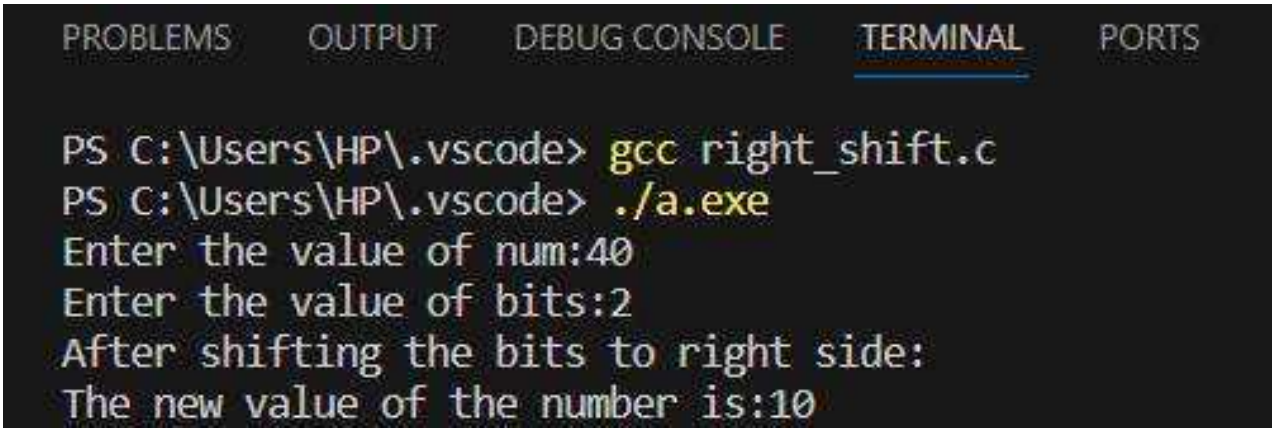
Program 17: WAP to input the positive number from user to perform left shift operator.

```
#include<stdio.h>
 int main(){
int num,bit;
 printf("Enter the value of no.:);
scanf("%d",&num);
printf("Enter the value of bits:");
scanf("%d",&bit);
num=(num<<bit);
printf("After shifting the bits to left side:\n");
printf("The new value of the number is:%d",num);
}
```



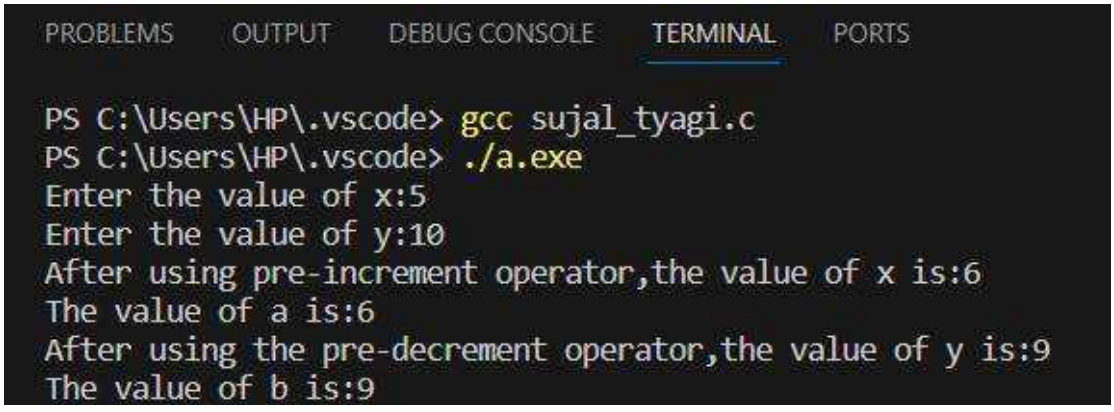
Program 18: WAP to input the positive number from user to perform right shift operator.

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

int num,bit;
printf("Enter the value of num:");
scanf("%d",&num);
printf("Enter the value of bits:");
scanf("%d",&bit);

num=(num>>bit);
printf("After shifting the bits to right side:\n");
printf("The new value of the number is:%d",num);
}
```



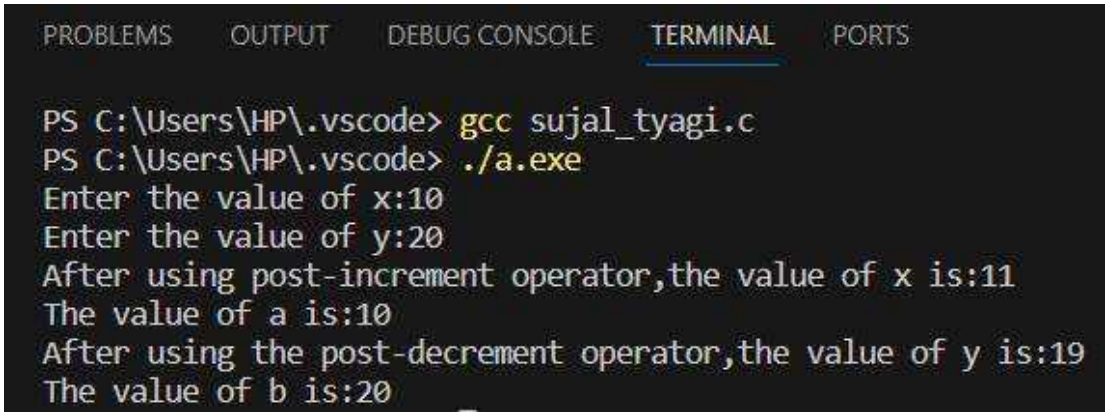
Program 19: WAP to perform pre increment and pre decrement operators on two values.

```
#include <stdio.h>
int main (){
int x,y,a,b;
printf ("Enter the value of x:");
scanf ("%d", &x);
printf ("Enter the value of y:");
scanf ("%d", &y);
a= ++x;
printf ("After using pre-increment operator,the value of x
is:%d\n",x);
printf ("The value of a is:%d\n",a);
b= --y;
printf ("After using the pre-decrement operator,the value of y
is:%d\n",y);
printf ("The value of b is:%d\n",b);
return 0;
}
```



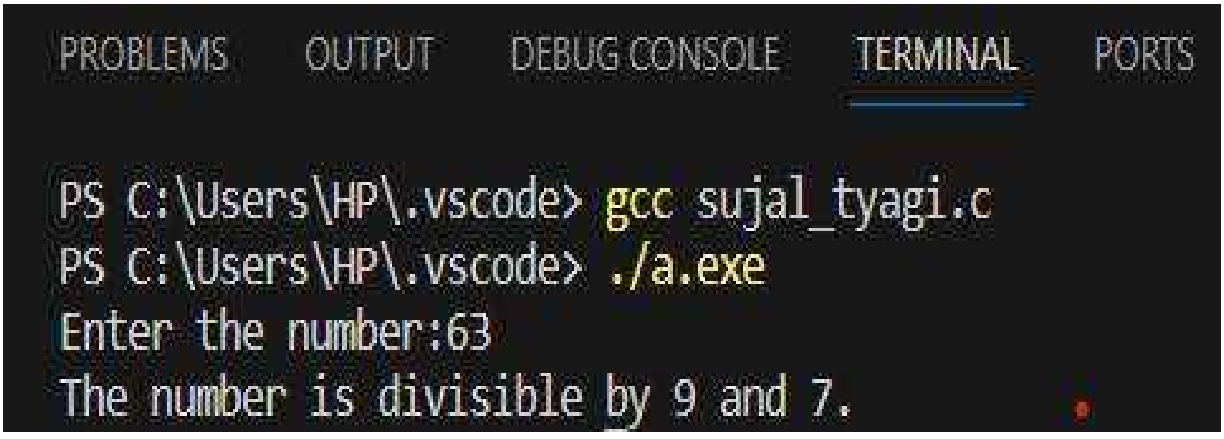
Program 20: WAP to perform post increment and post decrement operators on two values.

```
#include <stdio.h>
int main (){
int x,y,a,b;
printf ("Enter the value of x:");
scanf ("%d", &x);
printf ("Enter the value of y:");
scanf ("%d", &y);
a= x++;
printf ("After using post-increment operator,the value of x is:%d\n",x);
printf ("The value of a is:%d\n",a);
b= y--;
printf ("After using the post-decrement operator,the value of y is:%d\n",y);
printf ("The value of b is:%d\n",b);
return 0;
}
```



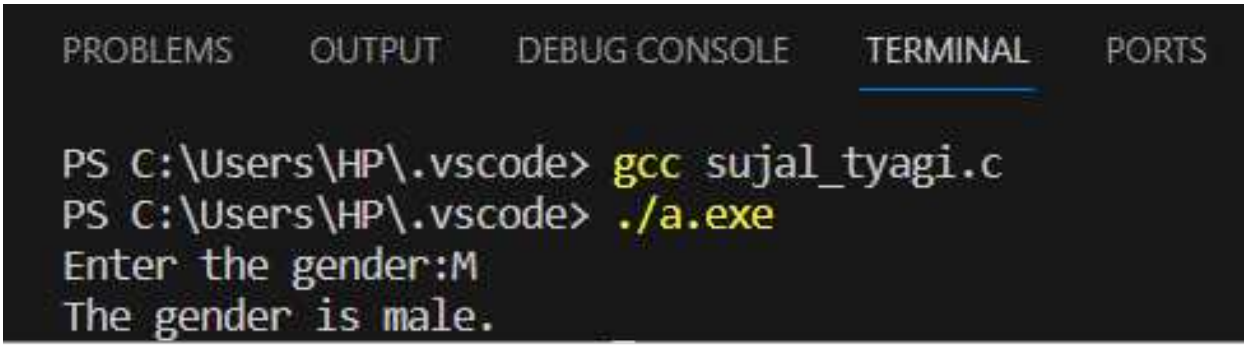
Program 21: WAP for an integer to check whether it is divisible by 9 or 7 using || operator.

```
#include <stdio.h>
int main (){
int num;
printf("Enter the number:");
scanf("%d",&num);
if(num%9==0 || num%7==0){
printf("The number is divisible by 9 and 7.\n");
}
return 0;
}
```



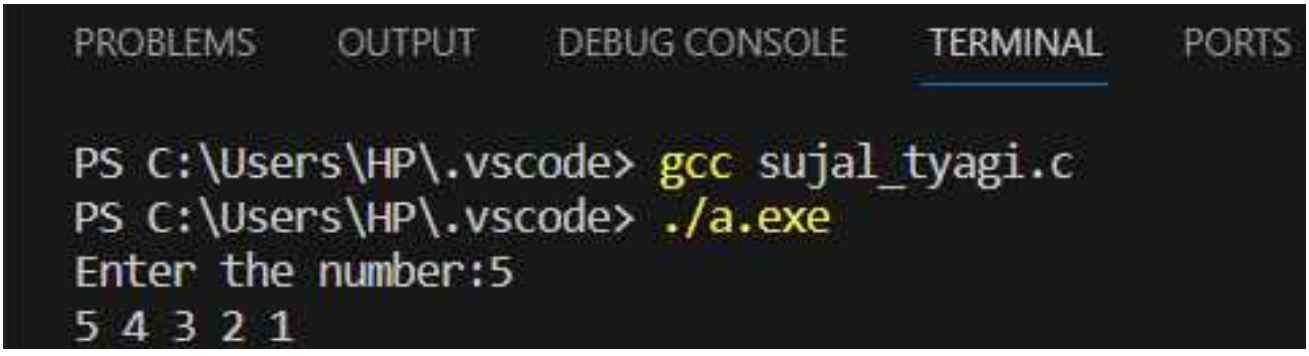
Program 22: WAP to identify gender in single character and print full gender.

```
#include<stdio.h>
int main(){
char gen;
printf("Enter the gender:");
scanf("%c",&gen);
if(gen='M' || gen=='m'){
      printf("The gender is male.\n");
   }
else{
printf("The gender is female.\n");
   }
}
```



Program 23: WAP to print all the numbers from n to 1.

```
#include <stdio.h>
void main()
{
   int n, i;
   printf("Enter the number:");
   scanf("%d", &n);
   for (i = n; i >= 1; i--)
   {
      printf("%d ", i);
   }
}
```

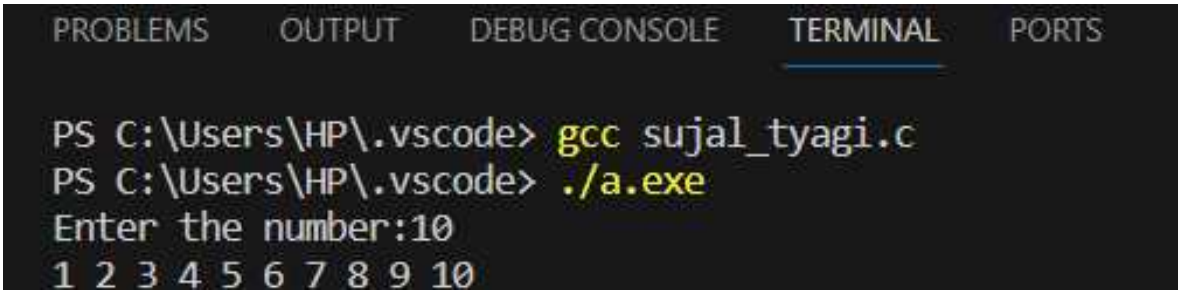


Program 24: WAP to print all alphabets from ‘a’ to ‘z’.

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

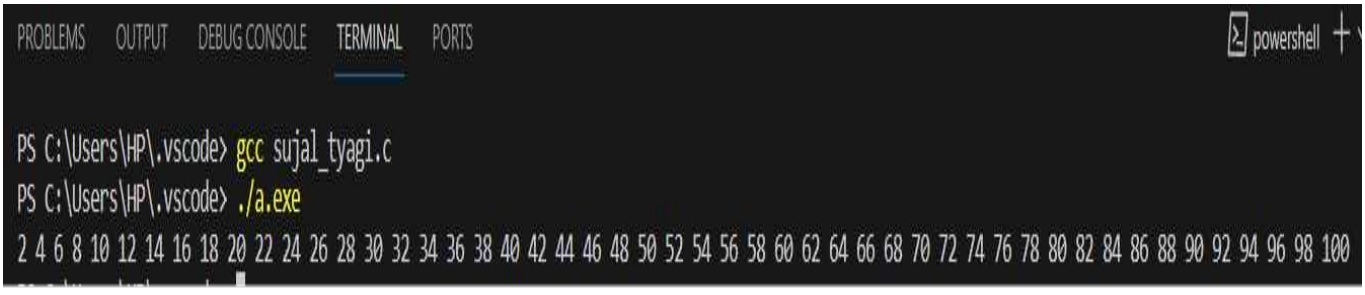
Program 25: WAP to print all the numbers from 1 to n.

```
#include <stdio.h>
void main()
{
   int n, i;
   printf("Enter the number:");
   scanf("%d", &n);
   for (i = 1; i <=n; i++)
   {
      printf("%d ", i);
   }
}
```



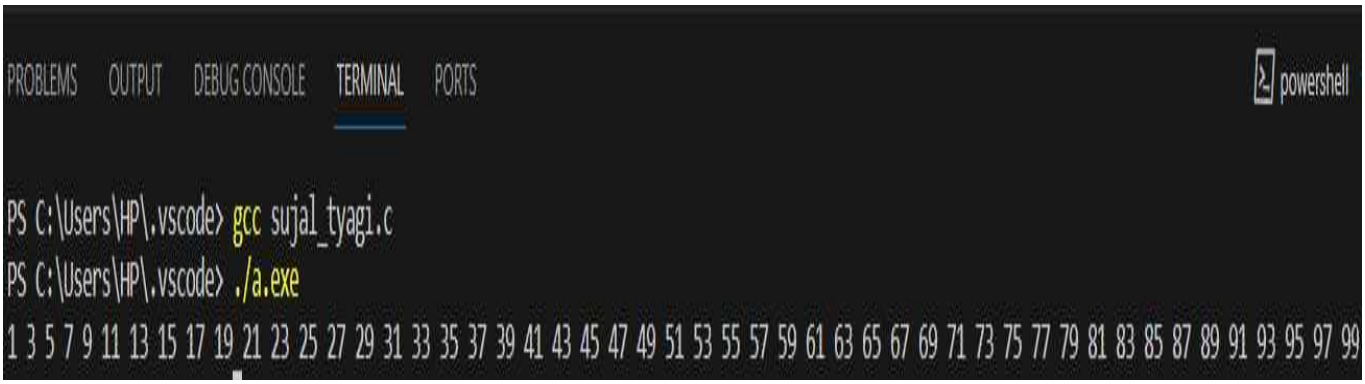
Program 26: WAP to print all the even numbers from 1 to 100.

```
#include <stdio.h>
void main()
{
   int i;
   for(i=1;i<=100;i++){
      if(i%2==0){
         printf("%d ",i);
      }
   }
}
```



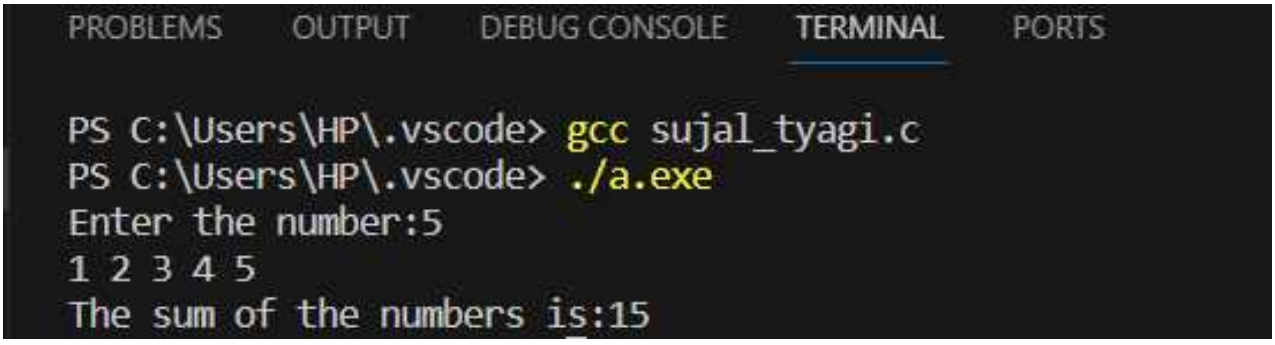
Program 27: WAP to print all the odd numbers from 1 to 100.

```
#include <stdio.h>
void main()
{
   int i;
   for(i=1;i<=100;i++){
      if(i%2!=0){
         printf("%d ",i);
      }
   }
}
```



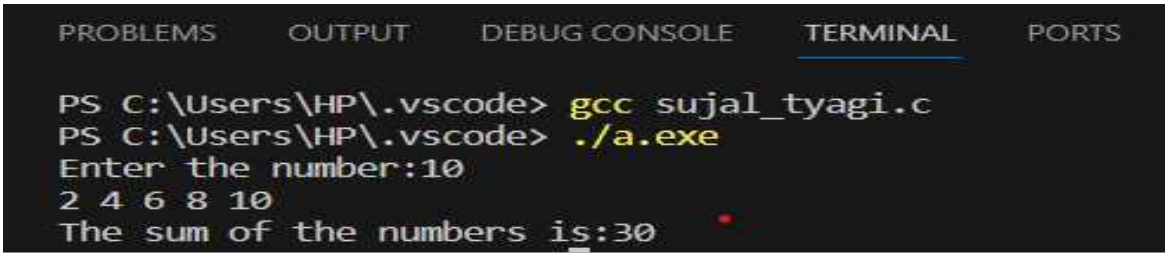
Program 27: WAP to print the sum of numbers between 1 to n.

```
#include <stdio.h>
void main()
{
   int i, n, sum = 0;
   printf("Enter the number:");
   scanf("%d", &n);
   for (i = 1; i <= n; i++)
   {
      printf("%d ", i);
      sum += i;
   }
   printf("\nThe sum of the numbers is:%d\n", sum);
}
```



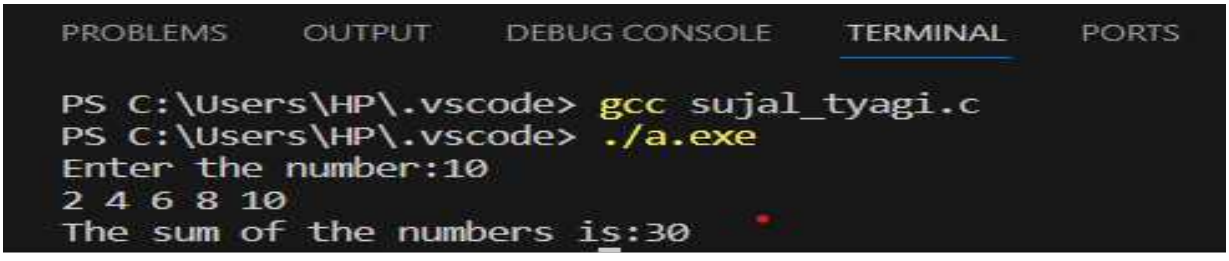
Program 29: WAP to print the sum of all even numbers between 1 to n.

```
#include <stdio.h>
void main()
{
   int i, n, sum = 0;
   printf("Enter the number:");
   scanf("%d", &n);
   for (i = 1; i <= n; i++)
   {
      if (i % 2 == 0)
      {
         printf("%d ", i);
         sum += i;
      }
   }
   printf("\nThe sum of the numbers is:%d\n", sum);
}
```



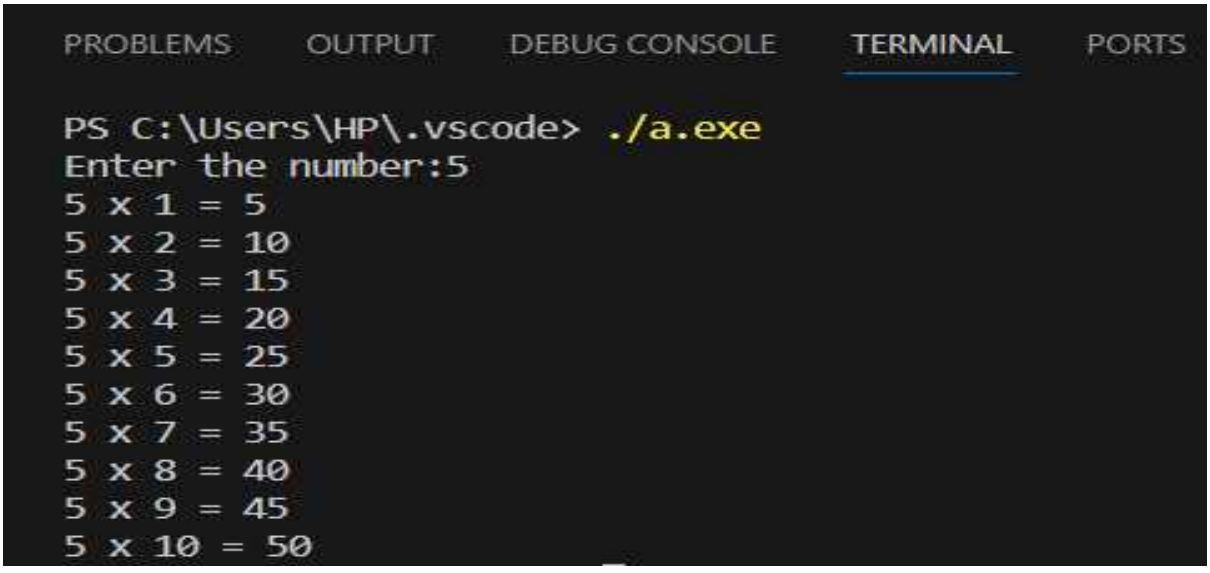
Program 30: WAP to print the sum of all odd numbers between 1 to n.

```
#include <stdio.h>
void main()
{
   int i, n, sum = 0;
   printf("Enter the number:");
   scanf("%d", &n);
   for (i = 1; i <= n; i++)
   {
      if (i % 2 != 0)
      {
         printf("%d ", i);
         sum += i;
      }
   }
   printf("\nThe sum of the numbers is:%d\n", sum);
}
```



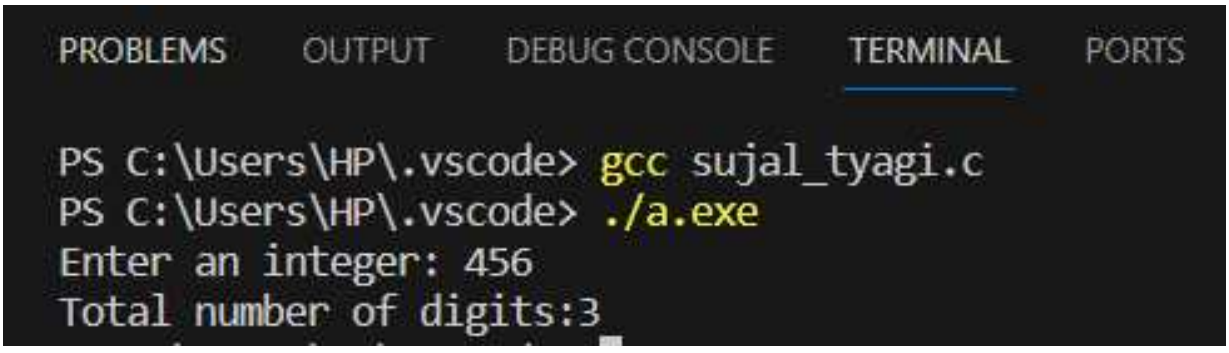
Program 31: WAP to print the multiplication table of any number.

```
#include <stdio.h>
void main()
{
   int i, n, prod = 1;
   printf("Enter the number:");
   scanf("%d", &n);
   for (i = 1; i <= 10; i++)
   {
      prod = n * i;
      printf("%d x %d = %d\n", n, i, prod);
   }
}
```



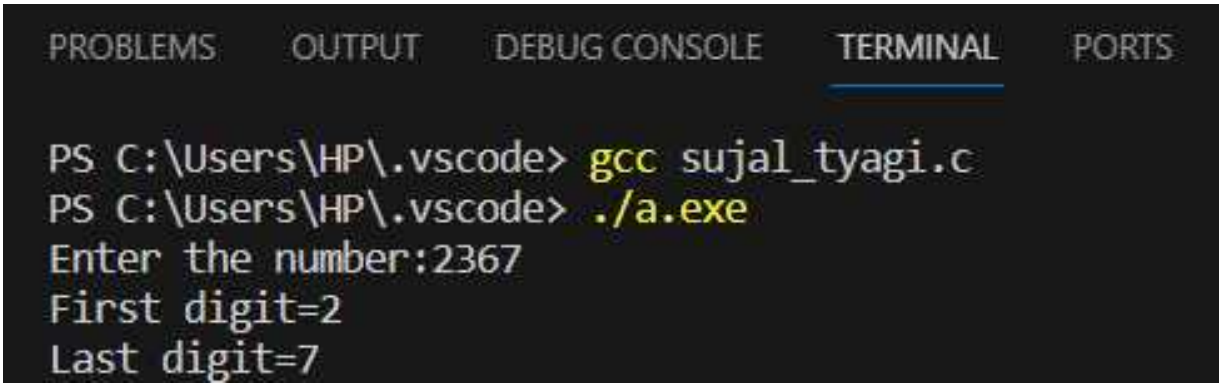
Program 32: WAP to count the digits of a number.

```
#include <stdio.h>
void main()
{
   int i,n;
   int count = 0;
  printf("Enter an integer: ");
  scanf("%d", &n);

  while(n>0){
    n=n/10;
    count++;
  }
  printf("Total number of digits:%d\n", count);
}
```



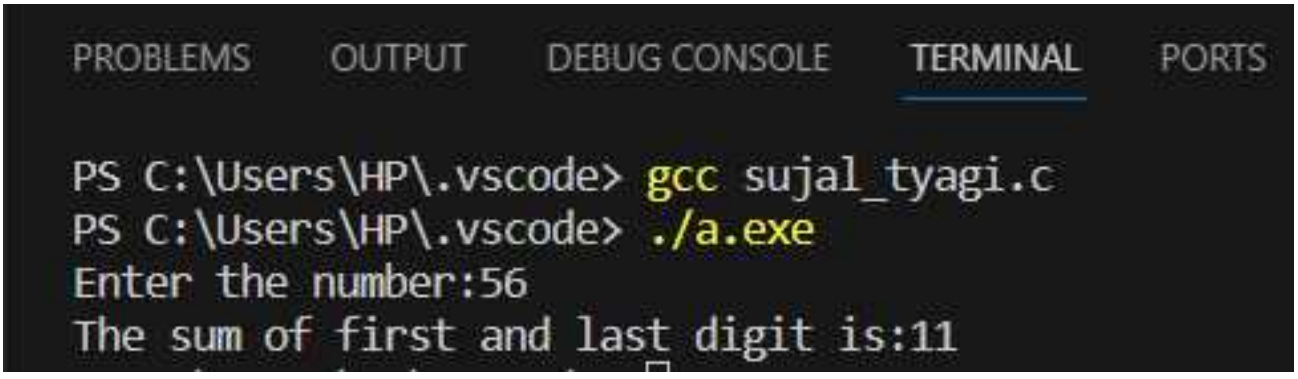
Program 33: WAP to print the first and last digits of a number.

```
#include <stdio.h>
void main()
{
   int n, sum = 0, frstdig, lstdig;
   printf("Enter the number:");
   scanf("%d", &n);

   lstdig = n % 10;

   while (n >= 10)
   {
      n = n / 10;
   }
   frstdig = n;
   printf("First digit=%d\nLast digit=%d\n", frstdig, lstdig);
}
```



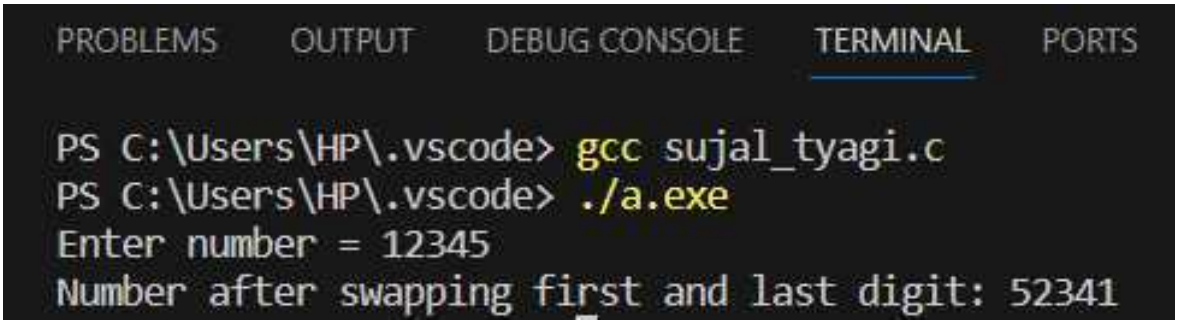
Program 34: WAP to print the sum of first and last digit of a number.

```
#include <stdio.h>
void main()
{
   int n, sum = 0, frstdig, lstdig;
   printf("Enter the number:");
   scanf("%d", &n);

   lstdig = n % 10;

   while (n >= 10)
   {
      n = n / 10;
   }
   frstdig = n;
   sum = frstdig + lstdig;
   printf("The sum of first and last digit is:%d\n", sum);
}
```



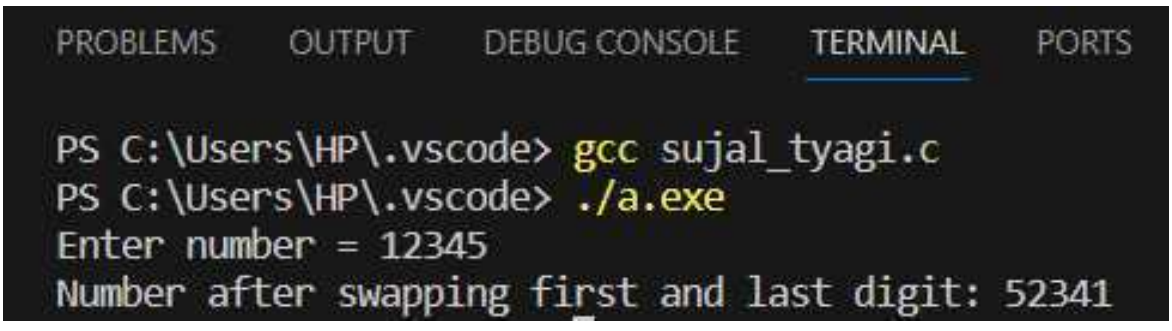
Program 35: WAP to swap first and last digit of a number.

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

int main()
{
   int n, firstDigit, lastDigit, digits, swappedNum;
   printf("Enter number = ");
   scanf("%d", &n);

   lastDigit = n % 10;

   digits = (int)log10(n);

   firstDigit = (int)(n / pow(10, digits));
   swappedNum = lastDigit;
   swappedNum *= (int)round(pow(10, digits));
   swappedNum += n % ((int)round(pow(10, digits)));
   swappedNum -= lastDigit;
   swappedNum += firstDigit;
   printf("Number after swapping first and last digit: %d", swappedNum);

   return 0;
}
```



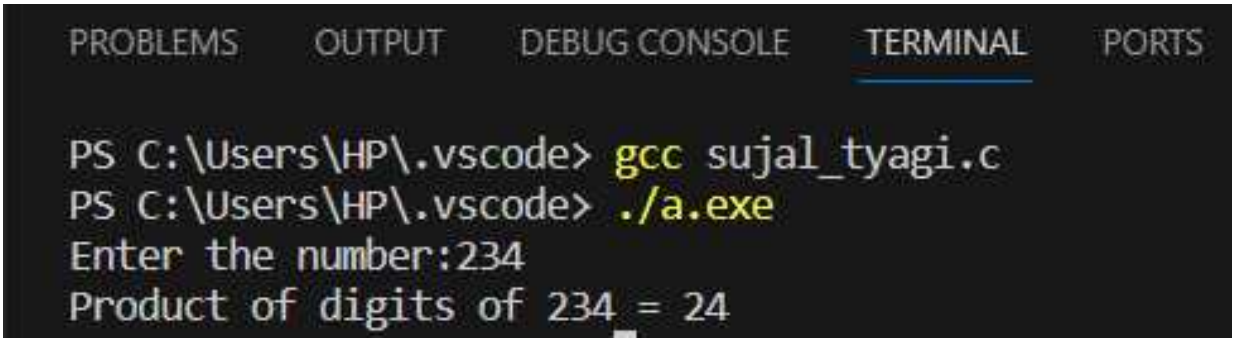
Program 36: WAP to calculate sum of digits of a number.

```
#include <stdio.h>
int main()
{
   int n, t, sum = 0, remainder;

   printf("Enter the number:");
   scanf("%d", &n);

   t = n;

   while (t != 0)
   {
      remainder = t % 10;
      sum = sum + remainder;
      t = t / 10;
   }

   printf("Sum of digits of %d = %d\n", n, sum);

   return 0;
}
```



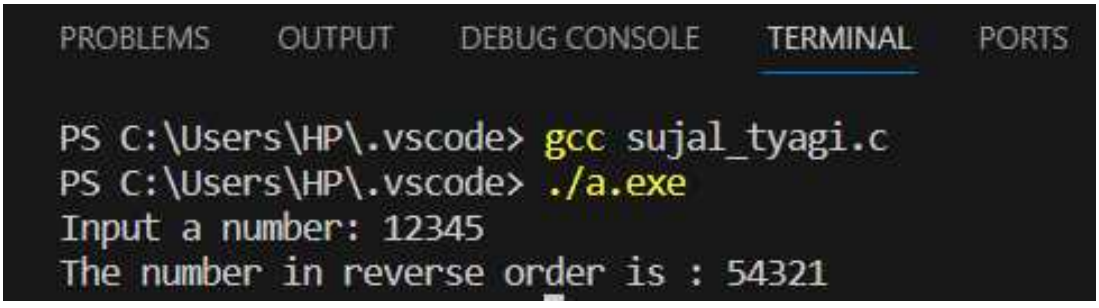
Program 37: WAP to calculate product of digits of a number.

```
#include <stdio.h>
int main()
{
   int n, t, product = 1, remainder;

   printf("Enter the number:");
   scanf("%d", &n);

   t = n;

   while (t != 0)
   {
      remainder = t % 10;
      product = product *  remainder;
      t = t / 10;
   }

   printf("Product of digits of %d = %d\n", n, product);

   return 0;
}
```



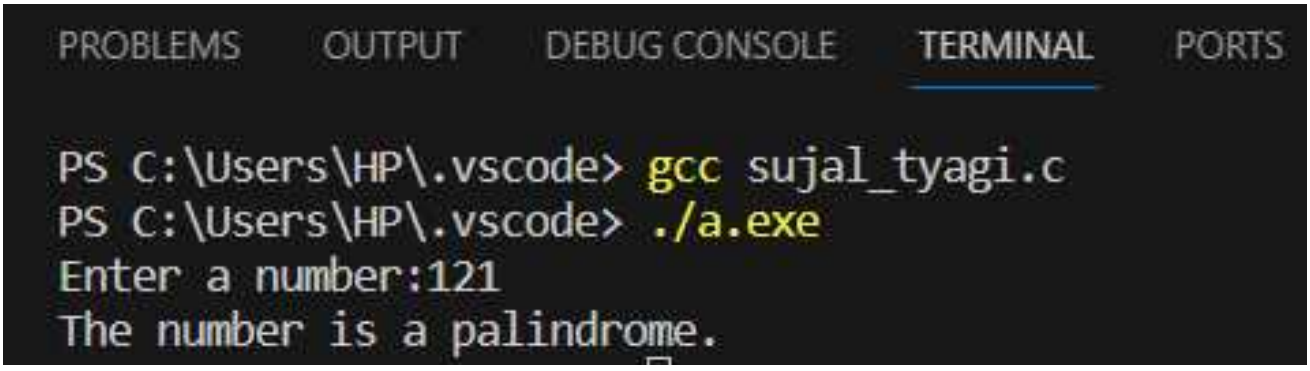
Program 38: WAP to enter a number and print its reverse.

```
#include <stdio.h>

void main(){
   int num,r,sum=0,t;

   printf("Input a number: ");
   scanf("%d",&num);

   for(t=num;num!=0;num=num/10){
       r=num % 10;
       sum=sum*10+r;
   }
printf("The number in reverse order is : %d \n",sum);
}
```



Program 39: WAP to check whether a number is palindrome or not.

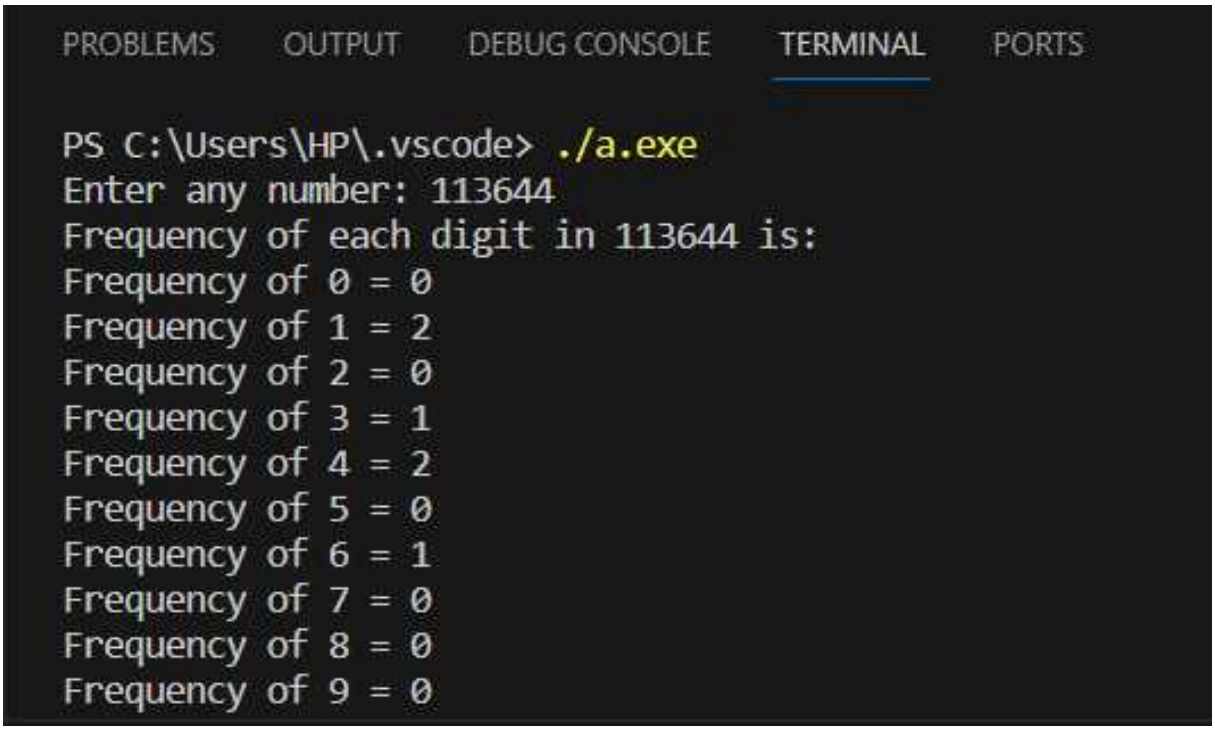
```
#include <stdio.h>

void main(){
   int c,n,s=0,r;
   printf("Enter a number:");
   scanf("%d",&n);
   c=n;
   while(n>0){
    r=n%10;
    s=r+(s*10);
    n=n/10;
   }if(c==s){
    printf("The number is a palindrome.\n");
   }else{
    printf("The number is not a palindrome.\n");
   }
}
```



Program 40: WAP to find the frequency of digits in a number.

```
#include <stdio.h>
#define BASE 10

int main()
{
   long num, n;

   int i, lastDigit;

   int freq[BASE];

   printf("Enter any number: ");
   scanf("%lld", &num);

   for(i=0; i<BASE; i++)
   {
      freq[i] = 0;
   }
   n = num;
   while(n != 0)
   {
      lastDigit = n % 10;

      n /= 10;

      freq[lastDigit]++;
   }
```

```
    printf("Frequency of each digit in %lld is: \n", num);

    for(i=0; i<BASE; i++)
    {
        printf("Frequency of %d = %d\n", i, freq[i]);
    }

    return 0;
}
```



Program 41: WAP to find the frequency of digits in a number.

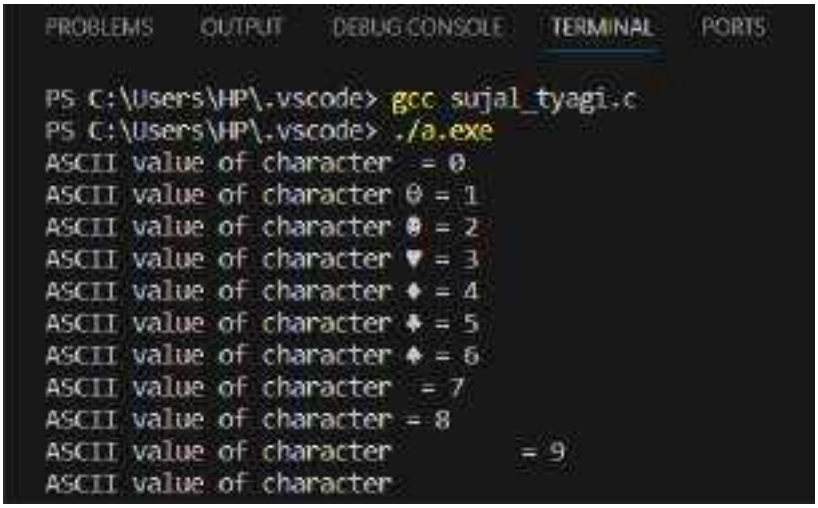
```
#include <stdio.h>
#include <math.h>
int main()
{
   int data, num = 0, digits;
   printf("Enter any number to print in words: ");
   scanf("%d", &data);
   digits = (int) log10(data);
   while(data != 0)
   {
      num = (num * 10) + (data % 10);
      data /= 10;
   }
   digits =  digits - ((int) log10(num));

   while(num != 0)
   {
      switch(num % 10)
      {
      case 0:
         printf("Zero ");
         break;
      case 1:
         printf("One ");
         break;
      case 2:
         printf("Two ");
         break;
```

```
        case 3:
            printf("Three ");
            break;
        case 4:
            printf("Four ");
            break;
        case 5:
            printf("Five ");
            break;
        case 6:
            printf("Six ");
            break;
        case 7:
            printf("Seven ");
            break;
        case 8:
            printf("Eight ");
            break;
        case 9:
            printf("Nine ");
            break;
        }
        num /= 10;
    }
    // Print all trailing 0
    while(digits)
    {
        printf("Zero ");
        digits--;
    }
    return 0;
}
```

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS

PS C:\Users\HP\.vscode> gcc sujal_tyagi.c
PS C:\Users\HP\.vscode> ./a.exe
Enter any number to print in words: 6737
Six Seven Three Seven
```

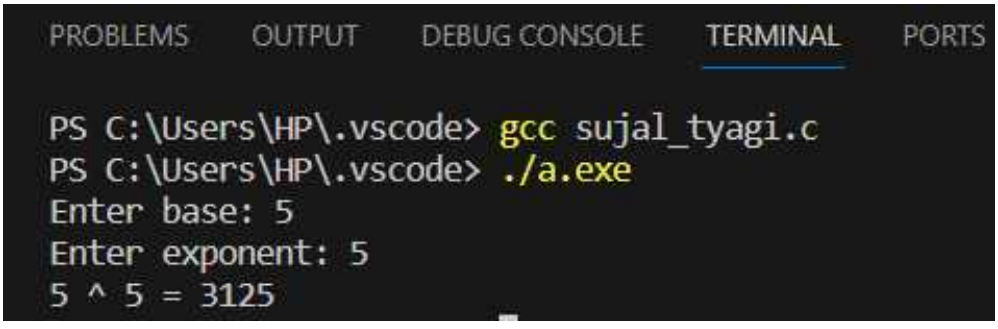
Program 42: WAP to print all the ASCII characters with their values.

```
#include<stdio.h>

int main(){
     int i;

   for(i=0; i<=255; i++)
   {
      printf("ASCII value of character %c = %d\n", i, i);
   }
   return 0;
}
```



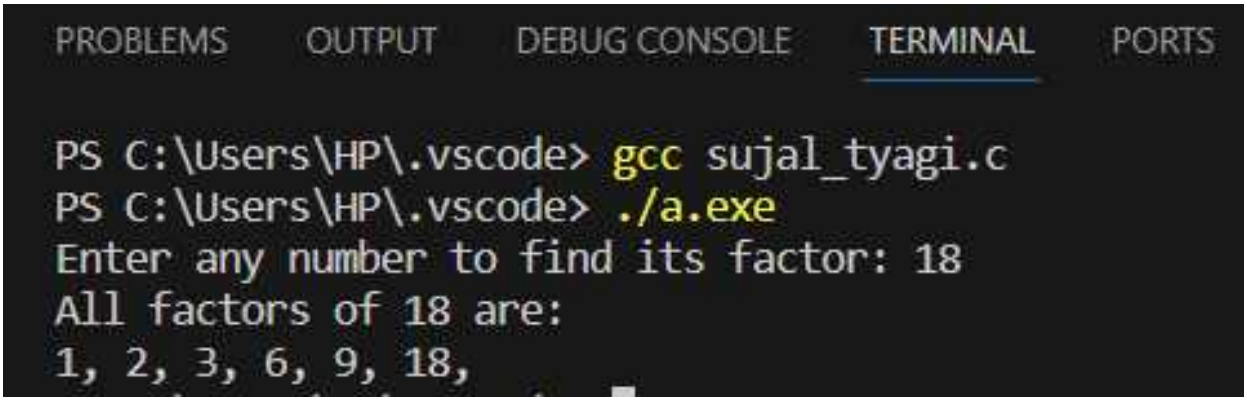
Program 43: WAP to find the power of a number using for loop.

```
#include <stdio.h>

int main()
{
   int base, exponent;
   long power = 1;
   int i;

   printf("Enter base: ");
   scanf("%d", &base);
   printf("Enter exponent: ");
   scanf("%d", &exponent);

   for(i=1; i<=exponent; i++)
   {
      power = power * base;
   }

   printf("%d ^ %d = %lld", base, exponent, power);

   return 0;
}
```



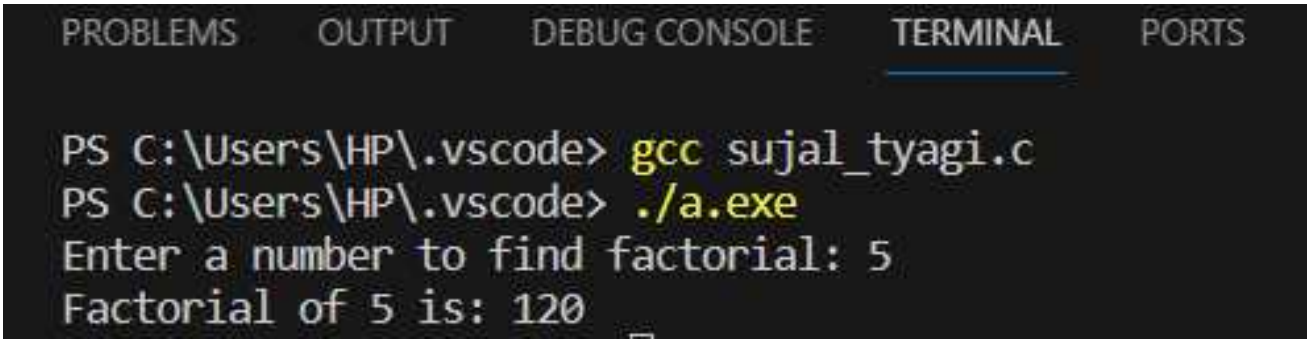
Program 44: WAP to find all factors of a number.

```
#include <stdio.h>

int main()
{
  int i, num;

   printf("Enter any number to find its factor: ");
   scanf("%d", &num);

   printf("All factors of %d are: \n", num);

   for(i=1; i<=num; i++)
   {
      if(num % i == 0)
      {
         printf("%d, ",i);
      }
   }

   return 0;
}
```



Program 45: WAP to find all factorial of a number.

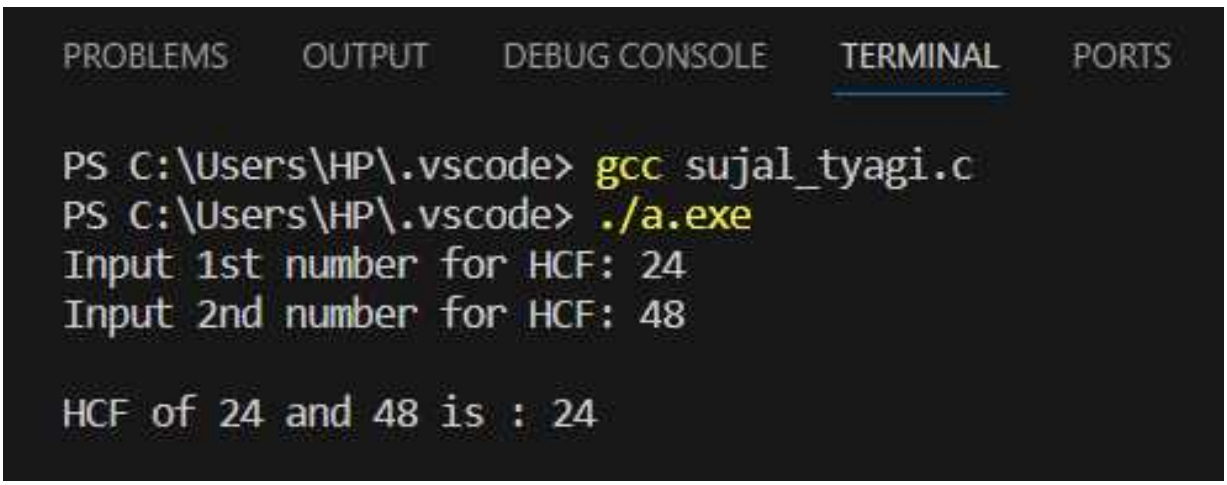
```
#include <stdio.h>

int main()
{
   int x,fact=1,n;

    printf("Enter a number to find factorial: ");

    scanf("%d",&n);

    for(x=1;x<=n;x++)

        fact=fact*x;

    printf("Factorial of %d is: %d",n,fact);

    return 0;
}
```



Program 46: WAP to find the HCF of a given number.

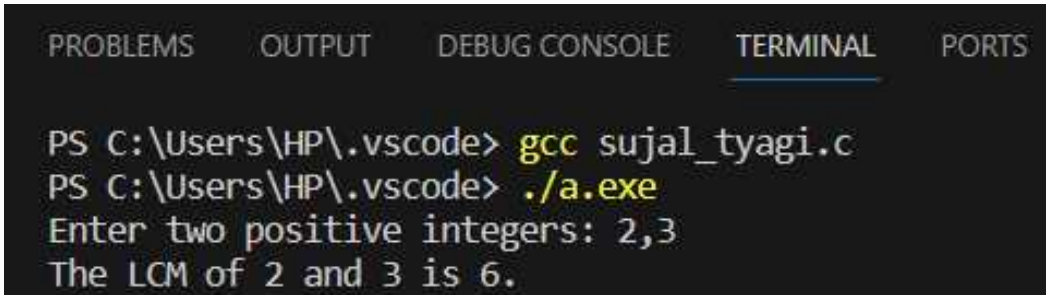
```
#include <stdio.h>


int main()
{
  int i, n1, n2, j, hcf=1;


   printf("Input 1st number for HCF: ");
   scanf("%d", &n1);
   printf("Input 2nd number for HCF: ");
   scanf("%d", &n2);


   j = (n1<n2) ? n1 : n2;


   for(i=1; i<=j; i++)
   {


      if(n1%i==0 && n2%i==0)
      {
         hcf = i;
```

```
    }
  }

  printf("\nHCF of %d and %d is : %d\n\n", n1, n2, hcf);

  return 0;
}
```



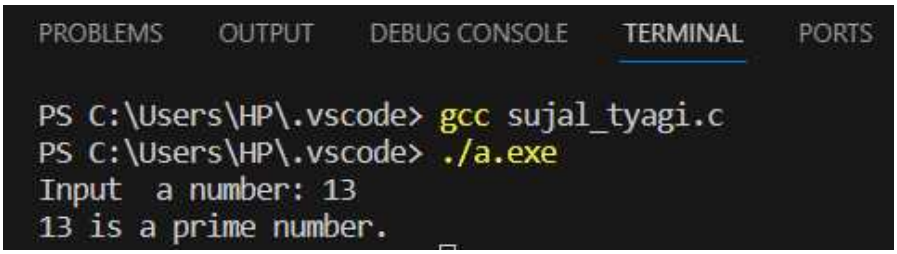
Program 47: WAP to find the LCM of a number.

```
#include <stdio.h>
int main()
{
  int n1, n2, max;
   printf("Enter two positive integers: ");
   scanf("%d,%d", &n1, &n2);
   max = (n1 > n2) ? n1 : n2;
   while (1) {
      if ((max % n1 == 0) && (max % n2 == 0)) {
         printf("The LCM of %d and %d is %d.", n1, n2, max);
         break;
      }
      ++max;
   }
   return 0
}
```



Program 48: WAP to check whether a number is prime or not.

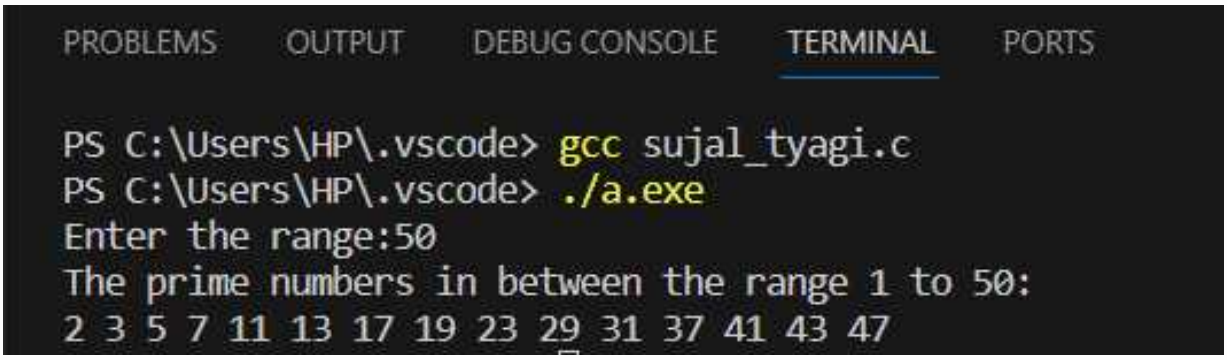
```
#include <stdio.h>


int main()
{
   int num,i,ctr=0;
    printf("Input  a number: ");
    scanf("%d",&num);
    for(i=2;i<=num/2;i++){
        if(num % i==0){
         ctr++;
            break;
        }
    }
   if(ctr==0 && num!= 1)
        printf("%d is a prime number.\n",num);
   else
     printf("%d is not a prime number",num);
    return 0;
}
```



Program 49: WAP to print all prime numbers from 1 to n.

```
#include<stdio.h>
void main(){
  int i, num, n, count;
  printf("Enter the range:");
  scanf("%d", &n);
  printf("The prime numbers in between the range 1 to %d:\n", n);
  for(num = 1;num<=n;num++){
    count = 0;
    for(i=2;i<=num/2;i++){
      if(num%i==0){
        count++;
      break;
    }
  }
  if(count==0 && num!= 1)
```

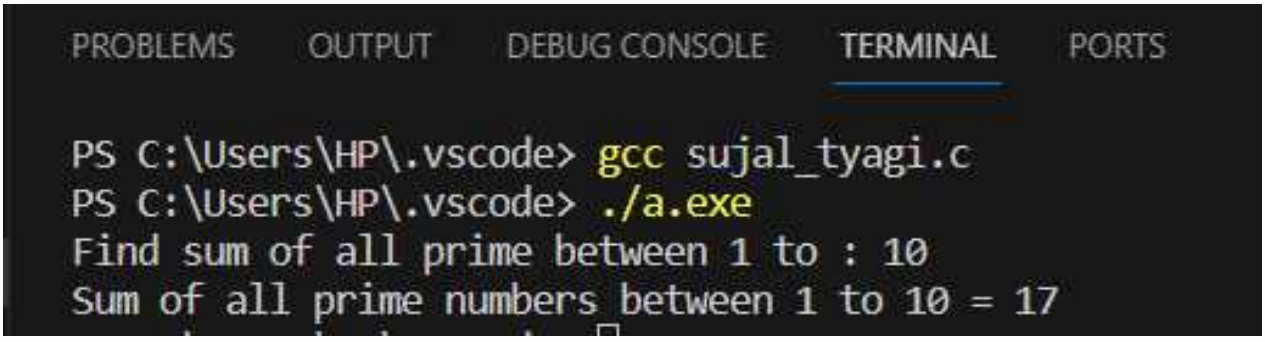
```
    printf("%d ",num);
  }
}
```


PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
PS C:\Users\HP\.vscode> gcc sujal_tyagi.c
PS C:\Users\HP\.vscode> ./a.exe
Enter the range:50
The prime numbers in between the range 1 to 50:
2 3 5 7 11 13 17 19 23 29 31 37 41 43 47

Program 50: WAP to find sum of all prime numbers from 1 to n.

```
#include<stdio.h>
int main(){
   int i, j, end, isPrime, sum=0;

   printf("Find sum of all prime between 1 to : ");
   scanf("%d", &end);

   for(i=2; i<=end; i++)
   {

      isPrime = 1;
      for(j=2; j<=i/2 ;j++)
      {
         if(i%j==0)
         {
            isPrime = 0;
            break;
         }
      }
```

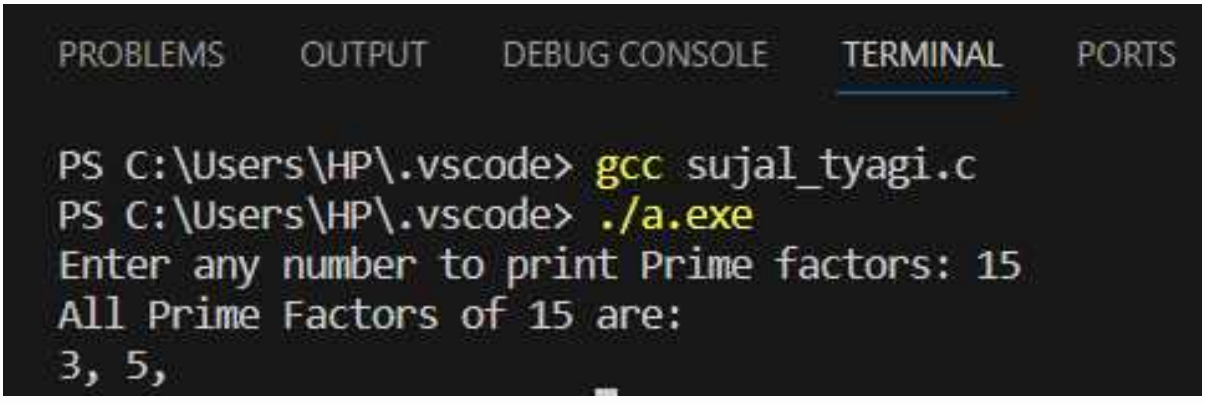
```
        if(isPrime==1)
        {
            sum += i;
        }
    }

    printf("Sum of all prime numbers between 1 to %d = %d", end, sum);

    return 0;
}
```



Program 51: WAP to find prime factors of a number.

```
#include <stdio.h>

int main()
{
   int i, j, num, isPrime;

   printf("Enter any number to print Prime factors: ");
   scanf("%d", &num);

   printf("All Prime Factors of %d are: \n", num);

   for(i=2; i<=num; i++)
   {
      if(num%i==0)
      {
         isPrime = 1;
         for(j=2; j<=i/2; j++)
         {
            if(i%j==0)
```

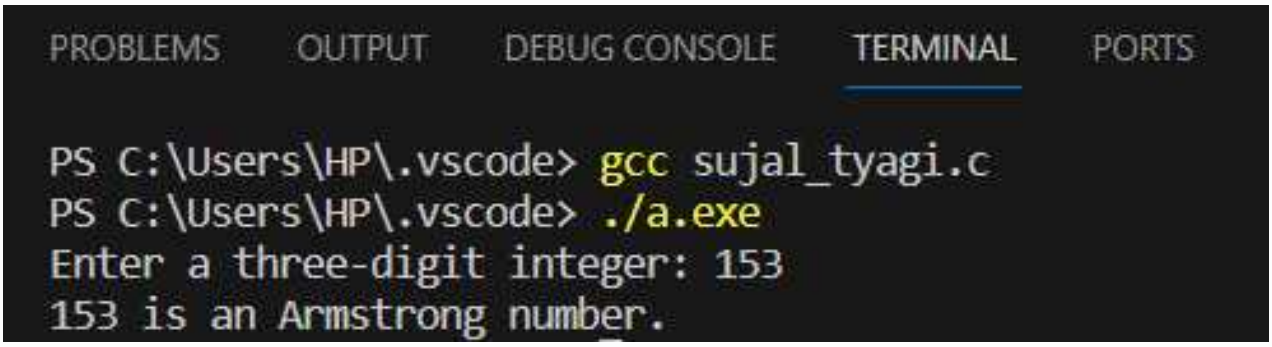
```
        {
            isPrime = 0;
            break;
          }
        }
        if(isPrime==1)
        {
          printf("%d, ", i);
        }
      }
   }
   return 0;
}
```



Program 52: WAP to check whether a number is an Armstrong number or not.

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

   int num, originalNum, remainder, result = 0;

   printf("Enter a three-digit integer: ");
   scanf("%d", &num);
   originalNum = num;

   while (originalNum != 0) {

      remainder = originalNum % 10;

     result += remainder * remainder * remainder;


     originalNum /= 10;
   }
```

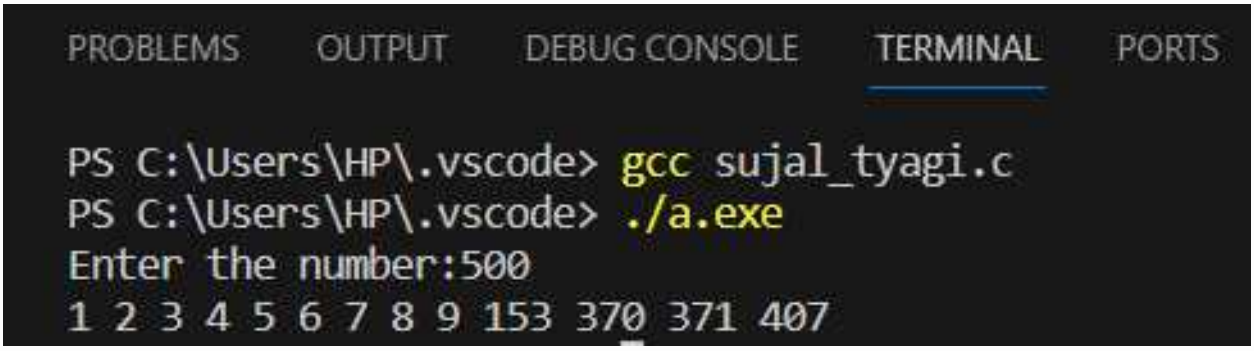
```
    if (result == num)
        printf("%d is an Armstrong number.", num);
    else
        printf("%d is not an Armstrong number.", num);

    return 0;
}
```



Program 53: WAP to print all the Armstrong numbers from 1 to n.

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

int main() {
  int i,n,sum,num,count = 0;
    printf("Enter the number:");
    scanf("%d",&n);

    for (i = 1; i <=n; i++) {
        num = i;

        while (num != 0) {
            num /= 10;
            count++;
        }
        num = i;
        sum = pow(num % 10, count)
              + pow((num % 100 - num % 10) / 10, count)
              + pow((num % 1000 - num % 100) / 100, count);
```

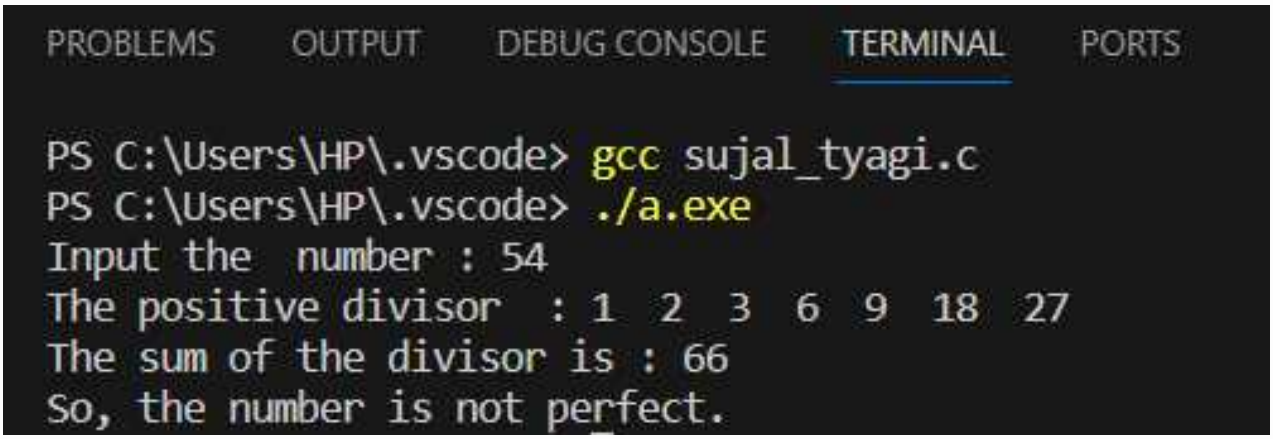
```
        if (sum == i) {
            printf("%d ", i);
        }
        count = 0;
    }
    return 0;
}
```



Program 54: WAP to check whether a number is a perfect number or not.

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

int main()
{
   int n, i, sum;
   int mn, mx;

   printf("Input the  number : ");
   scanf("%d", &n);
   sum = 0;
   printf("The positive divisor  : ");
   for (i = 1; i < n; i++)
   {
      if (n % i == 0)
      {
         sum = sum + i;
         printf("%d  ", i);
      }
```

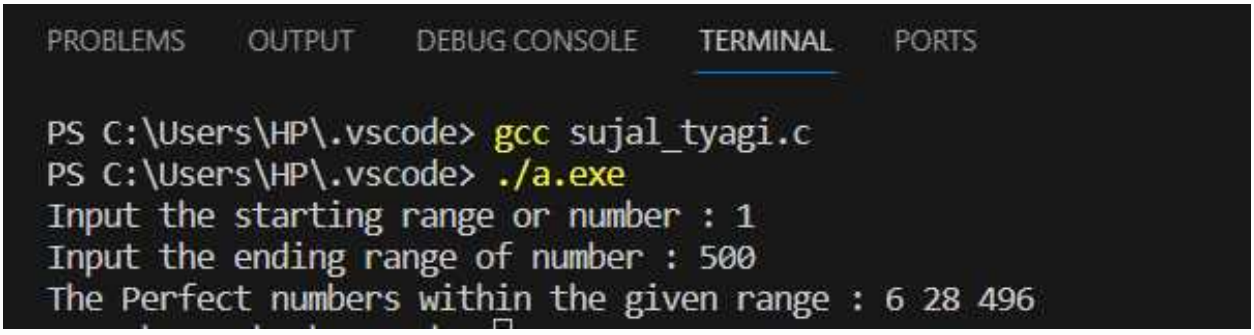
```
    }
    printf("\nThe sum of the divisor is : %d", sum);
    if (sum == n)
        printf("\nSo, the number is perfect.");
    else
        printf("\nSo, the number is not perfect.");
    printf("\n");
    return 0;
}
```



Program 55: WAP to print all the perfect numbers from 1 to n.

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

int main() {
int n,i,sum,mn,mx;
 printf("Input the starting range or number : ");
 scanf("%d",&mn);
 printf("Input the ending range of number : ");
 scanf("%d",&mx);
 printf("The Perfect numbers within the given range : ");
 for(n=mn;n<=mx;n++){
  i=1;
  sum = 0;
  while(i<n){
   if(n%i==0)
       sum=sum+i;
      i++;
  }
  if(sum==n)
```

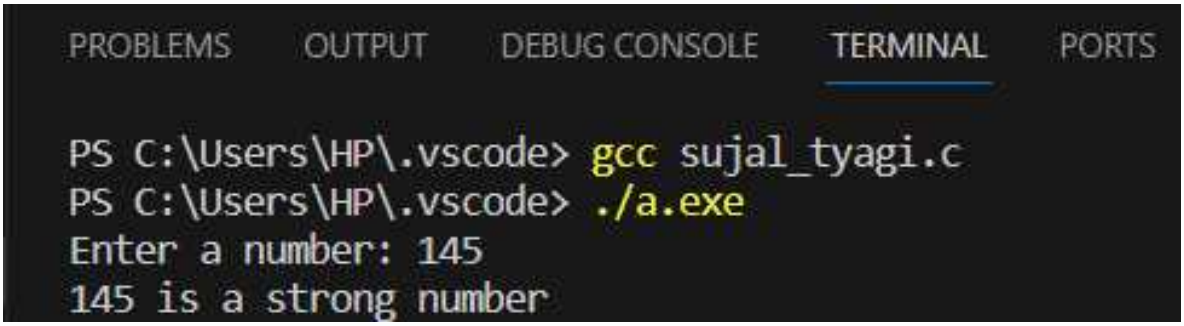
```
    printf("%d ",n);
  }
    printf("\n");
   return 0;
}
```



Program 56: WAP to check whether a number is a strong number or not.

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

int main()
{
   int num, i, f, r, sum = 0, temp;
   printf("Enter a number: ");
   scanf("%d", &num);
   temp = num;
   while (num)
   {
      i = 1, f = 1;
      r = num % 10;
      while (i <= r)
      {
         f = f * i;
         i++;
      }
      sum = sum + f;
```

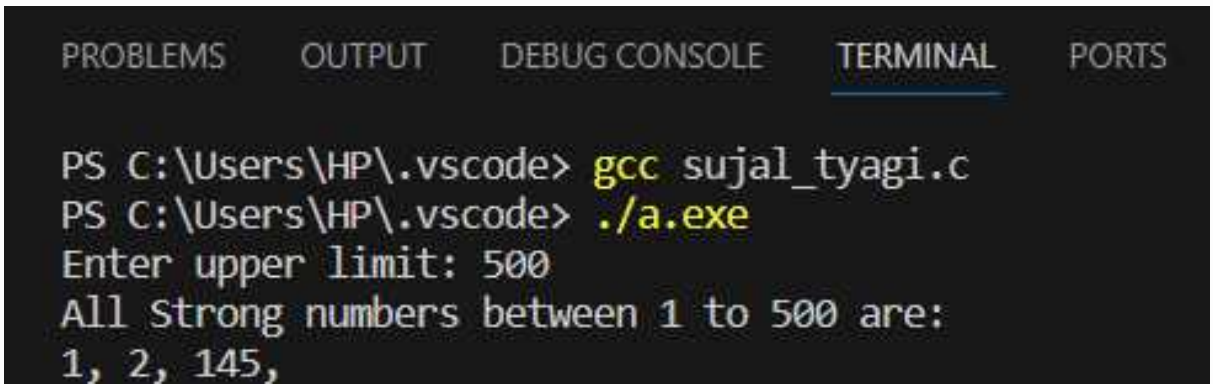
```
        num = num / 10;
    }
    if (sum == temp)
        printf("%d is a strong number", temp);
    else
        printf("%d is not a strong number", temp);

    return 0;
}
```



Program 57: WAP to print all the strong numbers from 1 to n.

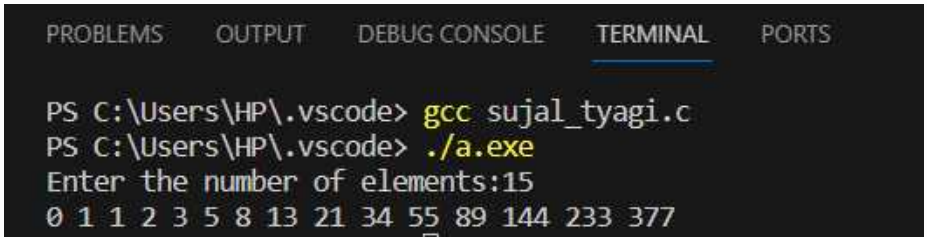
```
#include <stdio.h>
int main()
{
   int i, j, cur, lastDigit, end;
   long long fact, sum;

   printf("Enter upper limit: ");
   scanf("%d", &end);

   printf("All Strong numbers between 1 to %d are:\n", end);

   for (i = 1; i <= end; i++)
   {
      cur = i;
sum = 0;

      while (cur > 0)
      {
         fact = 1ll;
```

```
        lastDigit = cur % 10;


        for (j = 1; j <= lastDigit; j++)
        {
           fact = fact * j;
        }
        sum += fact;
        cur /= 10;
     }
     if (sum == i)
     {
        printf("%d, ", i);
     }
   }
  return 0;
}
```



Program 58: WAP to print Fibonacci terms upto n.

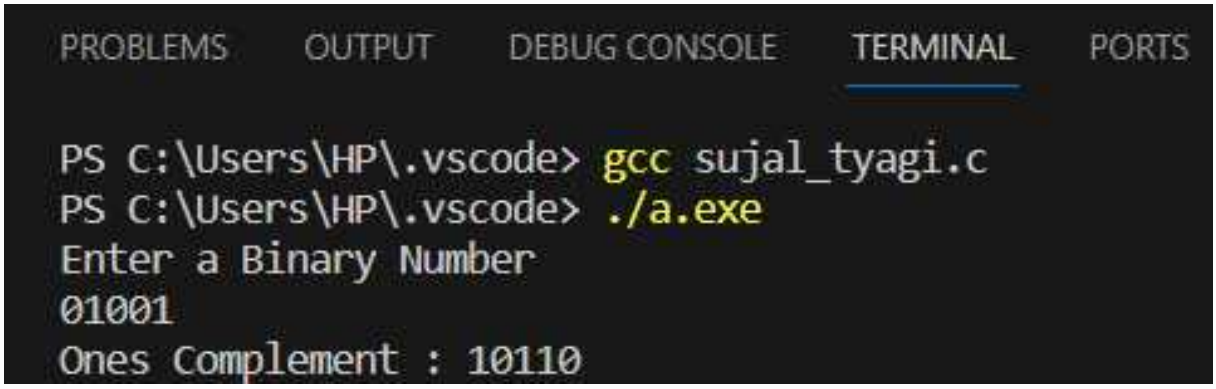
```
#include <stdio.h>

int main()

{

 int n1=0,n2=1,n3,i,number;

 printf("Enter the number of elements:");

 scanf("%d",&number);

 printf("\n%d %d",n1,n2);

 for(i=2;i<number;++i)

 {

  n3=n1+n2;

  printf(" %d",n3);

  n1=n2;

  n2=n3;

 }

    return 0;

}
```



Program 59: WAP to find the one's complement of a binary number.

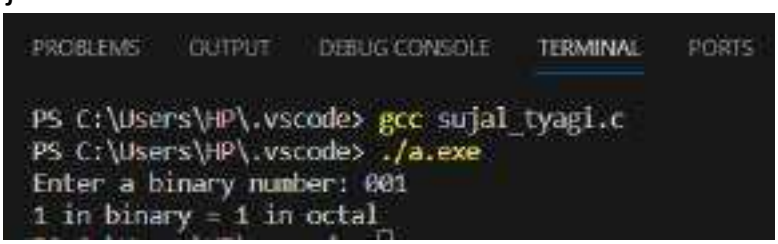
```
#include <stdio.h>
#include<string.h>

int main()
{
 char binaryNumber[100], onesComplement[100];
   int counter, error=0, digitCount;

   printf("Enter a Binary Number\n");
   scanf("%s", binaryNumber);

   digitCount = strlen(binaryNumber);

   for(counter=0; counter < digitCount; counter++) {
      if(binaryNumber[counter]=='1') {
         onesComplement[counter] = '0';
      } else if(binaryNumber[counter]=='0') {
         onesComplement[counter] = '1';
      } else {
```

```
            printf("Error :( ");
            return 1;
        }
    }
    onesComplement[digitCount] = '\0';

    printf("Ones Complement : %s", onesComplement);
    return 0;
}
```



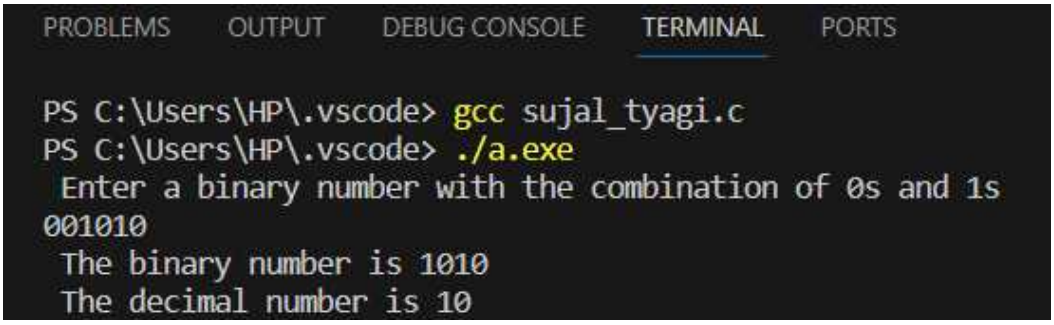
Program 61: WAP to convert binary to octal number system.

```
#include <math.h>
#include <stdio.h>
int convert(long long bin);
int main() {
   long long bin;
   printf("Enter a binary number: ");
   scanf("%lld", &bin);
   printf("%lld in binary = %d in octal", bin, convert(bin));
   return 0;
}

int convert(long long bin) {
   int oct = 0, dec = 0, i = 0;
   while (bin != 0) { dec += (bin % 10) * pow(2, i);
      ++i;
      bin /= 10;
   }
   i = 1;
   while (dec != 0) { oct += (dec % 8) * i;
      dec /= 8;
      i *= 10;
   }
   return oct;
}
```



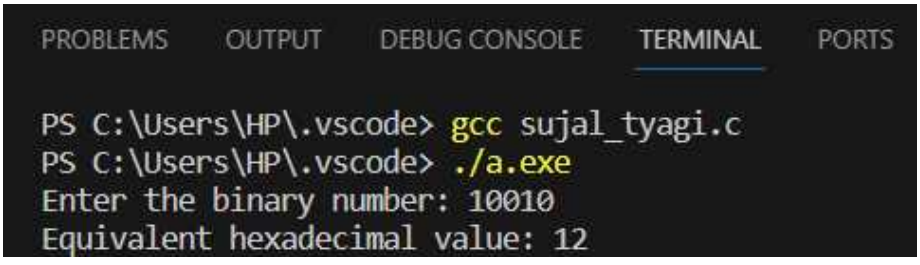
Program 62: WAP to convert binary to decimal number system.

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

int main() {
   int num, binary_num, decimal_num = 0, base = 1, rem;
   printf (" Enter a binary number with the combination of 0s and 1s \n");
   scanf (" %d", &num);

   binary_num = num;
   while ( num > 0)
   {
      rem = num % 10;
      decimal_num = decimal_num + rem * base;
      num = num / 10;
      base = base * 2;
   }

   printf ( " The binary number is %d \t", binary_num);
   printf (" \n The decimal number is %d \t", decimal_num);
   }
```



Program 63: WAP to convert binary to hexadecimal number system.

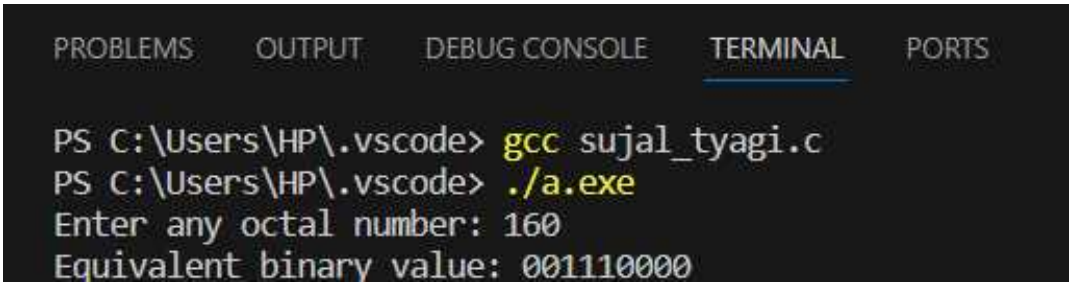
```
#include <stdio.h>
int main()
{
   long int binaryval, hexadecimalval = 0, i = 1, remainder;
   printf("Enter the binary number: ");
   scanf("%ld", &binaryval);
   while (binaryval != 0)
   {
      remainder = binaryval % 10;
      hexadecimalval = hexadecimalval + remainder * i;
      i = i * 2;
      binaryval = binaryval / 10;
   }
   printf("Equivalent hexadecimal value: %lX", hexadecimalval);
   return 0;
}
```



Program 64: WAP to convert octal to binary number system.

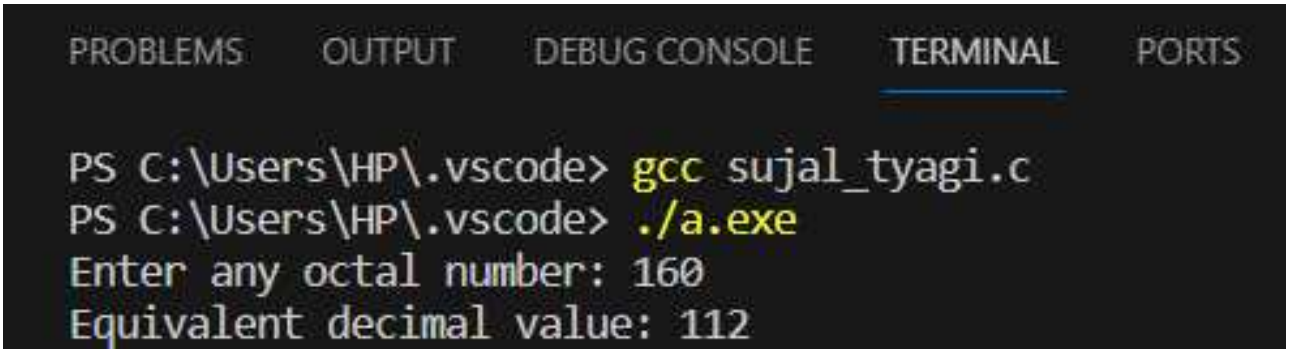
```
#include <stdio.h>
#define MAX 1000

int main()
{
   char octalnum[MAX];
   long i = 0;

   printf("Enter any octal number: ");
   scanf("%s", octalnum);

   printf("Equivalent binary value: ");
   while (octalnum[i])
   {
      switch (octalnum[i])
      {
      case '0':
         printf("000"); break;
      case '1':
         printf("001"); break;
      case '2':
         printf("010"); break;
      case '3':
         printf("011"); break;
      case '4':
         printf("100"); break;
      case '5':
         printf("101"); break;
```

```
        case '6':
            printf("110"); break;
        case '7':
            printf("111"); break;
        default:
            printf("\n Invalid octal digit %c ", octalnum[i]);
            return 0;
        }
        i++;
    }
    return 0;
}
```



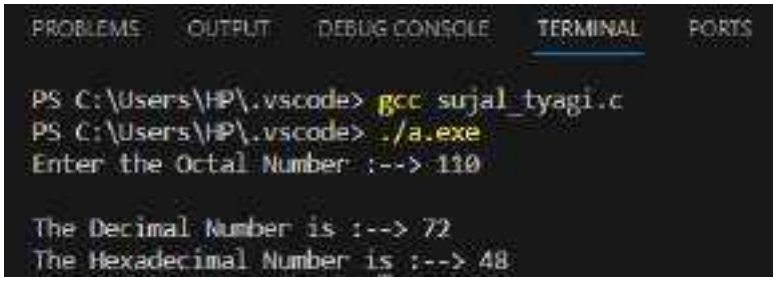
Program 65: WAP to convert octal to decimal number system.

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

int main()
{

   long int octal, decimal = 0;
   int i = 0;

   printf("Enter any octal number: ");
   scanf("%ld", &octal);
   while (octal != 0)
   {
      decimal =  decimal +(octal % 10)* pow(8, i++);
      octal = octal / 10;
   }
   printf("Equivalent decimal value: %ld",decimal);
   return 0;
}
```



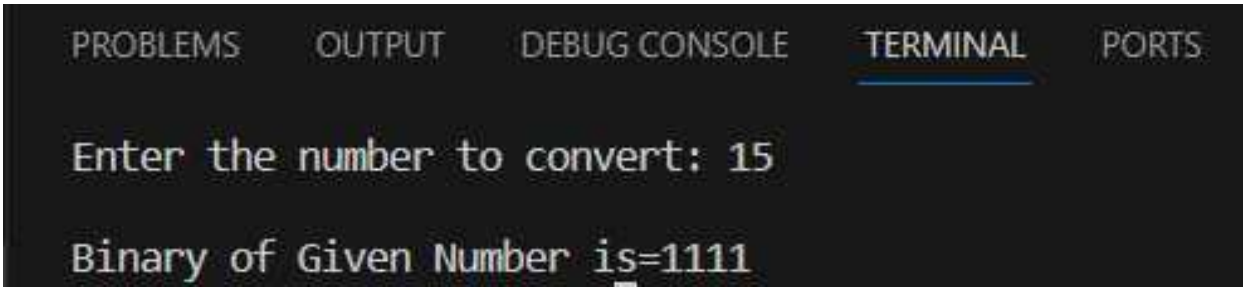
Program 66: WAP to convert octal to hexadecimal number system.

```
#include <stdio.h>
#include <math.h>
int main()
{
    int n, sum = 0;
    printf("Enter the Octal Number :--> ");
    scanf("%d", &n);
    int i = 0;
    while(n != 0)
    {
        int digit = n % 10;
        sum = sum + (digit * pow(8,i));
        n = n / 10;
        i++;
    }
    printf("\nThe Decimal Number is :--> %d",sum);
    int ans = 0,j = 0;
    while(sum != 0)
    {
        int digit = sum % 16;
        ans = ans + (digit * pow(10, j));
        sum = sum / 16;         j++;
    } printf("\nThe Hexadecimal Number is :--> %d",ans);
}
```



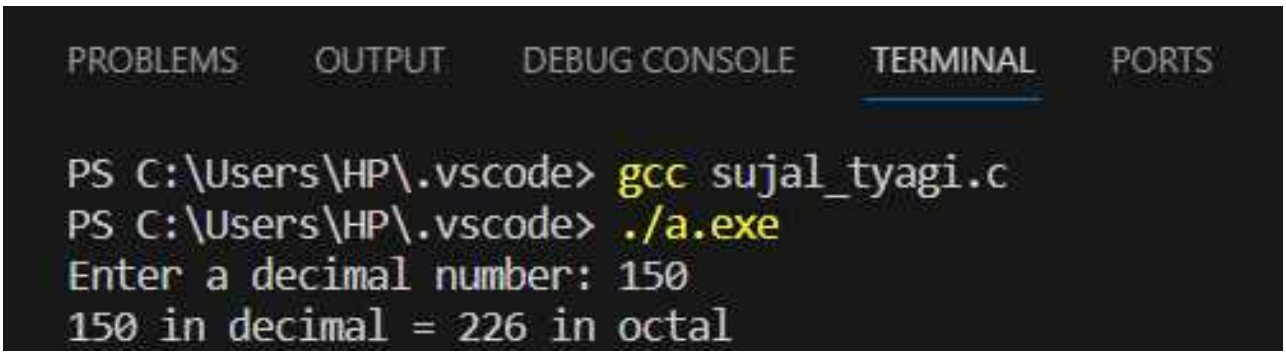
Program 67: WAP to convert decimal to binary number system.

```
#include <stdio.h>
#include <math.h>
int main()
{
   int a[10],n,i;
system ("cls");
printf("Enter the number to convert: ");
scanf("%d",&n);
for(i=0;n>0;i++)
{
a[i]=n%2;
n=n/2;
}
printf("\nBinary of Given Number is=");
for(i=i-1;i>=0;i--)
{
printf("%d",a[i]);
}
    return 0;
}
```



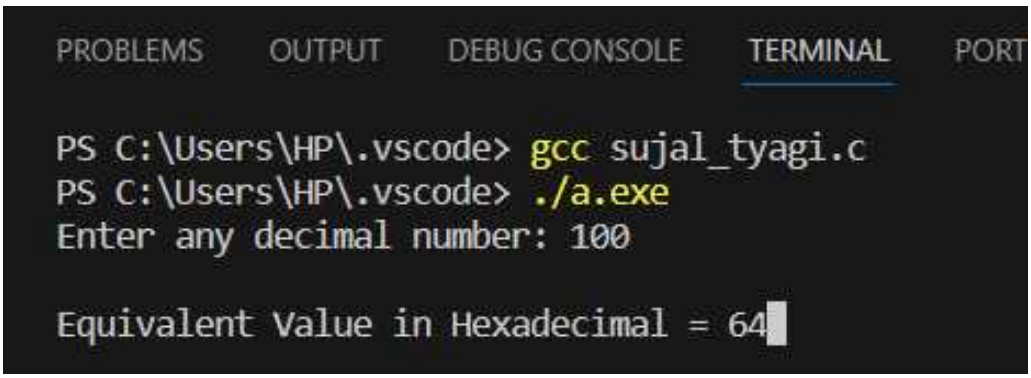
Program 68: WAP to convert decimal to octal number system.

```
#include <stdio.h>
#include <math.h>
int main()
{
   int a[10],n,i;
system ("cls");
printf("Enter the number to convert: ");
scanf("%d",&n);
for(i=0;n>0;i++)
{
a[i]=n%2;
n=n/2;
}
printf("\nBinary of Given Number is=");
for(i=i-1;i>=0;i--)
{
printf("%d",a[i]);
}
    return 0;
}
```



Program 69: WAP to convert decimal to hexadecimal number system.

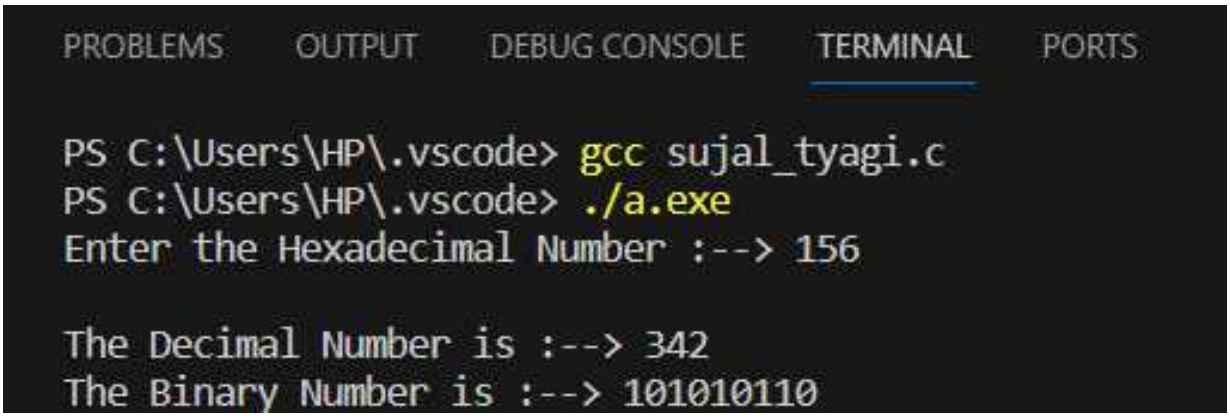
```
#include<stdio.h>
int main()
{
   int decnum, rem, i=0;
   char hexnum[50];
   printf("Enter any decimal number: ");
   scanf("%d", &decnum);
   while(decnum!=0)
   {
      rem = decnum%16;
      if(rem<10)
         rem = rem+48;
      else
         rem = rem+55;
      hexnum[i] = rem;
      i++; decnum = decnum/16;
   }
   printf("\nEquivalent Value in Hexadecimal = ");
   for(i=i-1; i>=0; i--)
      printf("%c", hexnum[i]);
}
```



Program 70: WAP to convert hexadecimal to binary number system.

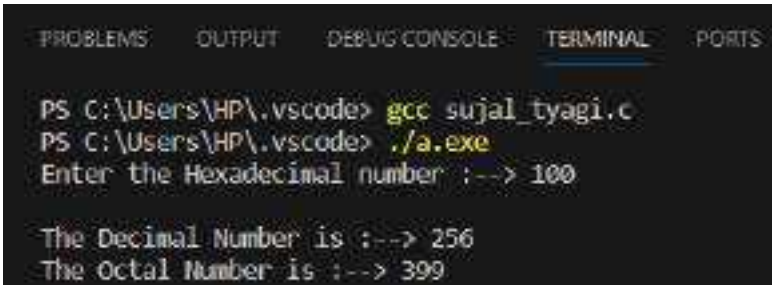
```
#include <stdio.h>
#include <math.h>
int main()
{
    int n, ans = 0, B[100];

    printf("Enter the Hexadecimal Number :--> ");
    scanf("%d", &n);

    int i = 0;
    while(n != 0)
    {
        int digit = n % 10;
        ans = ans + (digit * pow(16, i));
        n = n / 10;
        i++;
    }

    printf("\nThe Decimal Number is :--> %d", ans);

    int j = 0, k;
    while(ans > 0)
    {
        B[j] = ans % 2;             //to store the remainder in array
        ans = ans >> 1;
        j++;
    }
```

```
    printf("\nThe Binary Number is :--> ");

    for(k = j - 1; k >= 0; k--)
    {
        printf("%d",B[k]);
    }
    return 0;
}
```



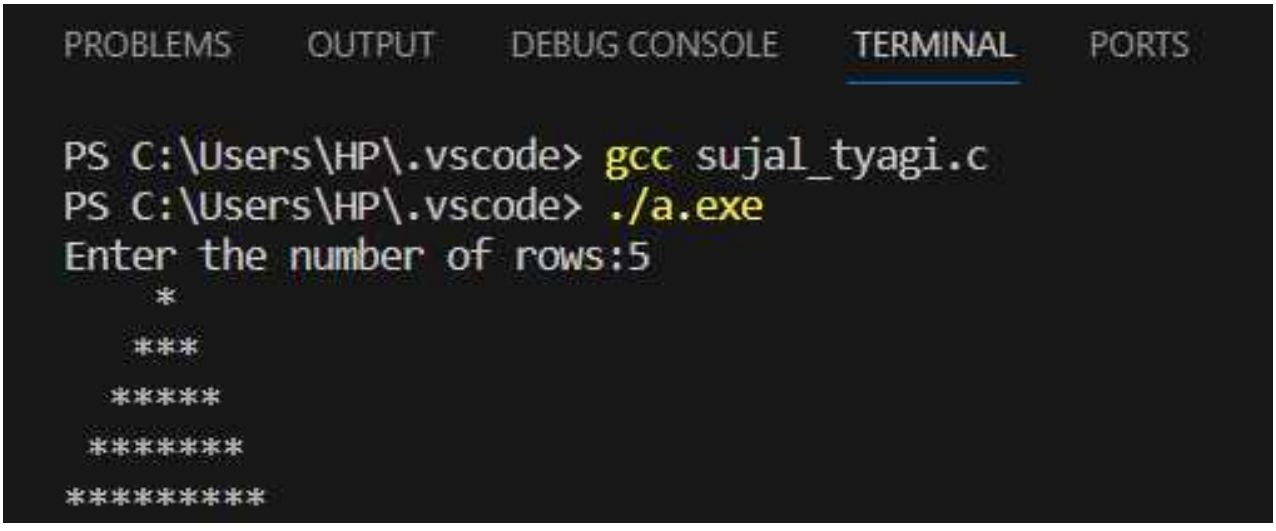
Program 71: WAP to convert hexadecimal to octal and decimal number system.

```
#include <stdio.h>
#include <math.h>
int main()
{
    int n, ans = 0;
    printf("Enter the Hexadecimal number :--> ");
    scanf("%d", &n);
    int i = 0;
    while(n != 0)
    {
        int digit = n % 10;
        ans = ans + (digit * pow(16, i));
        n = n / 10;         i++;
    }
    printf("\nThe Decimal Number is :--> %d", ans);
    int j = 0, ans2 = 0;
    while(ans != 0)
    {
        int digit = ans%8;
        ans2 = ans2 + (digit * pow(10, j));
        ans = ans / 8;         j++;

    } printf("\nThe Octal Number is :--> %d", ans2); }
```



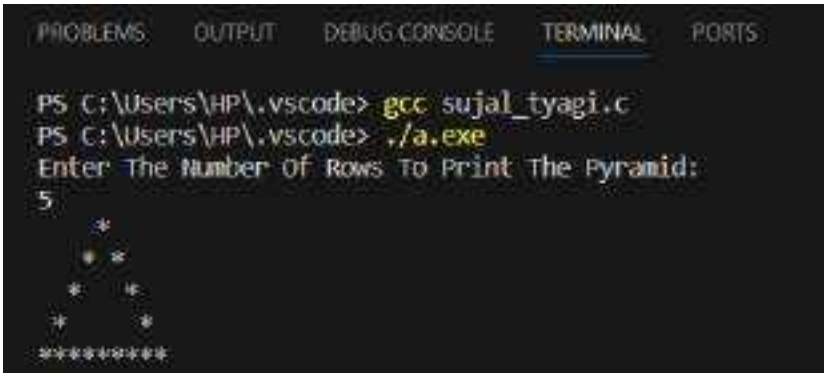
Program 73: Star Patter 1.

```
#include<stdio.h>
int main(){
   int i,j,rows,space;

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

   for(i=1;i<=rows;i++){
      for(space=1;space<=rows-i;space++){
         printf(" ");
      }for(j=1;j<=2*i-1;j++){
         printf("*");
      }printf("\n");
   }
}
```



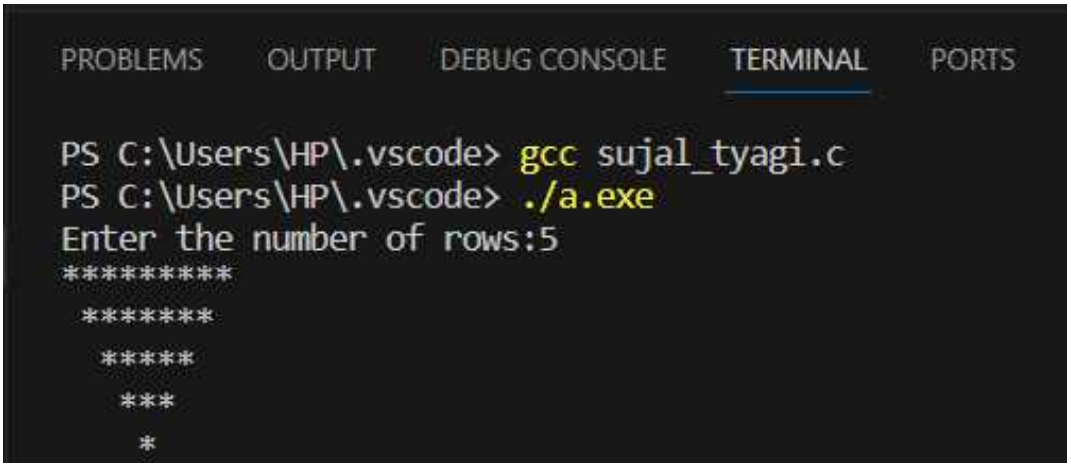
Program 74: Star Patter 2.

```
#include<stdio.h>

int main() {
int i, space, rows, star=0;
printf("Enter The Number Of Rows To Print The Pyramid: \n");
scanf("%d",&rows);
for(i = 0; i < rows-1; i++) {
for(space = 1; space < rows-i; space++) {
printf(" ");
}
for (star = 0; star <= 2*i; star++) {
if(star==0 || star==2*i)
printf("*");
else
printf(" ");
}
printf("\n");
}
for(i=0; i<2*rows-1; i++){
printf("*");
}
return 0;
}
```



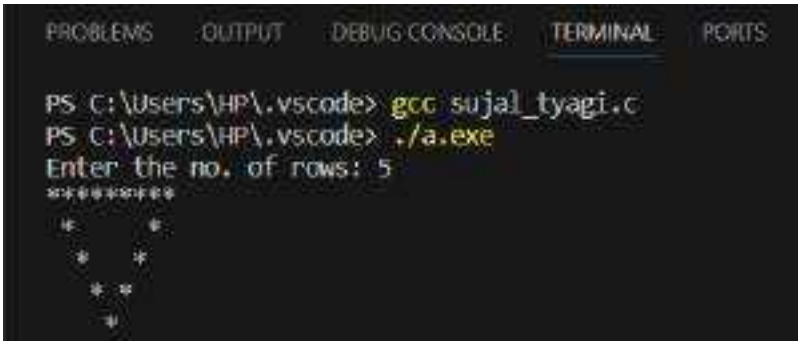
Program 75: Star Patter 3.

```
#include<stdio.h>

int main() {

int i, space, rows,j;

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

for(i=rows;i>=1;i--){
   for(space=1;space<=rows-i;space++){
      printf(" ");
   }for(j=1;j<=2*i-1;j++){
      printf("*");
   }printf("\n");
}

return 0;
}
```



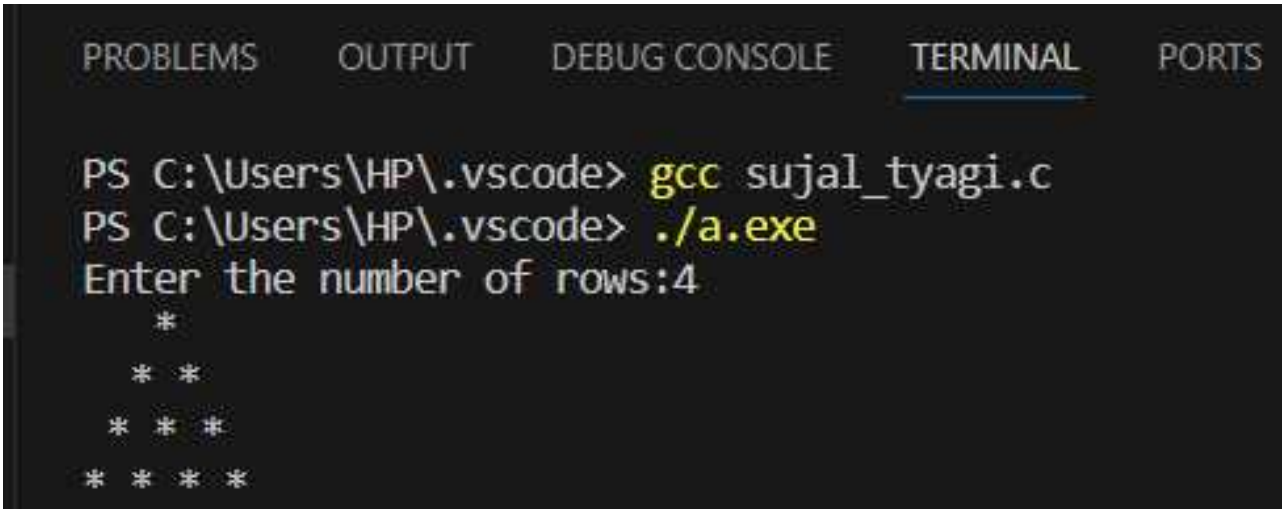
Program 76: Star Patter 4.

```
#include <stdio.h>
int main()
{
  int i, j, k, m = 1, rows;
  printf("Enter the no. of rows: ");
  scanf("%d", &rows);

  for (i = rows; i >= 1; i--)
  {
    for (j = 1; j < m; j++)
      printf(" ");

    for (k = 1; k <= 2 *i - 1; k++)
    {
      if (k == 1 || k == 2 *i - 1 || i == rows)
        printf("*");
      else
        printf(" ");
    }
    m++;
    printf("\n");
  }
}
```



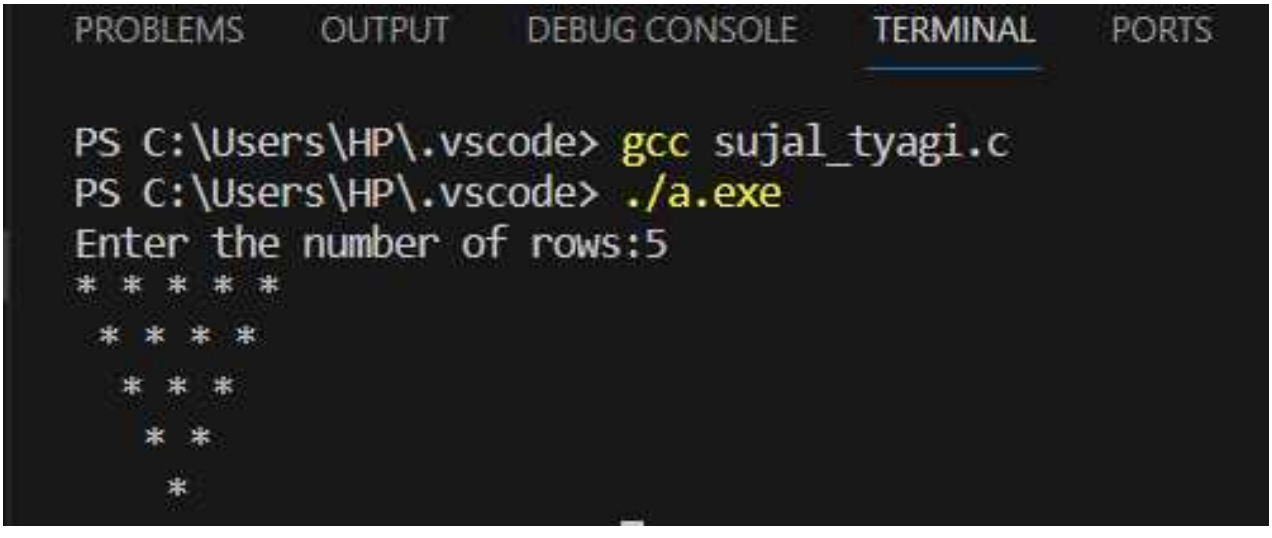
Program 77: Star Patter 5.

```
#include<stdio.h>

int main(){

   int i,j,rows,space;

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

   for(i=1;i<=rows;i++){
      for(space=1;space<=rows-i;space++){
         printf(" ");
      }for(j=1;j<=i;j++){
         printf("* ");
      }printf("\n");
   }
}
```



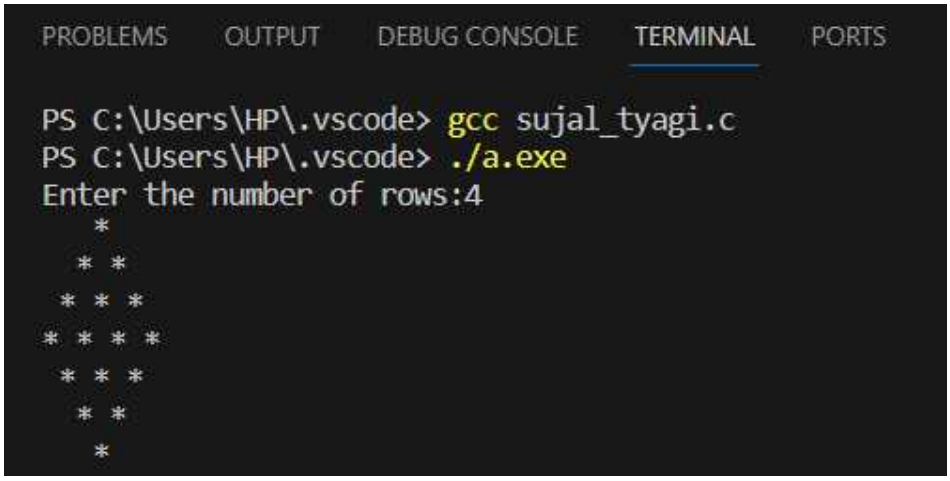
Program 78: Star Patter 6.

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

   int i,j,rows,space;

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

   for(i=rows;i>=1;i--){
      for(space=1;space<=rows-i;space++){
         printf(" ");
      }for(j=1;j<=i;j++){
         printf("* ");
      }printf("\n");
   }
}
```



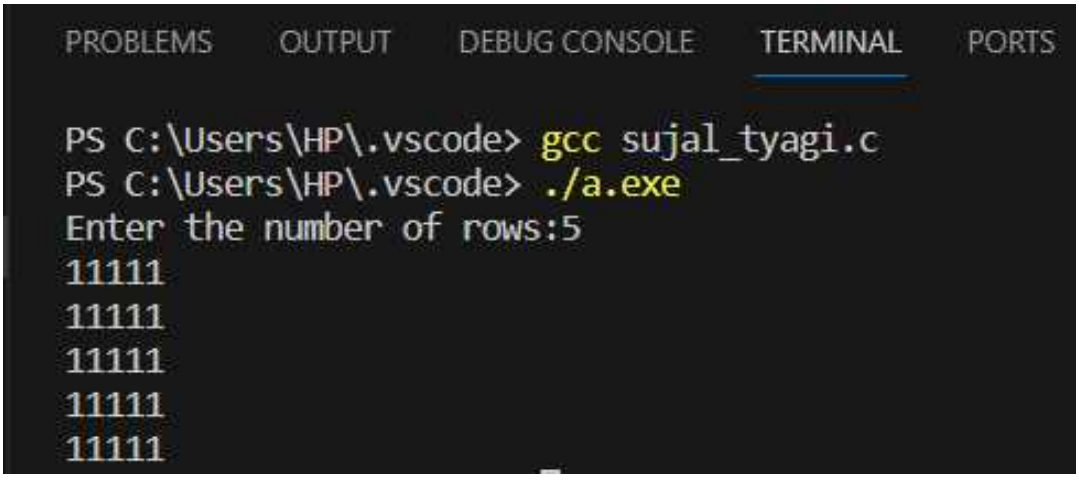
Program 79: Star Patter 7.

```
#include<stdio.h>
int main(){
   int i,j,rows,space;
   printf("Enter the number of rows:");
   scanf("%d",&rows);
    for(i=1;i<=rows;i++){
      for(space=1;space<=rows-i;space++){
         printf(" ");
      }for(j=1;j<=i;j++){
         printf("* ");
      }printf("\n");
   }
   for(i=rows-1;i>=1;i--){
      for(space=1;space<=rows-i;space++){
         printf(" ");
      }for(j=1;j<=i;j++){
         printf("* ");
      }printf("\n");
   }
}
```



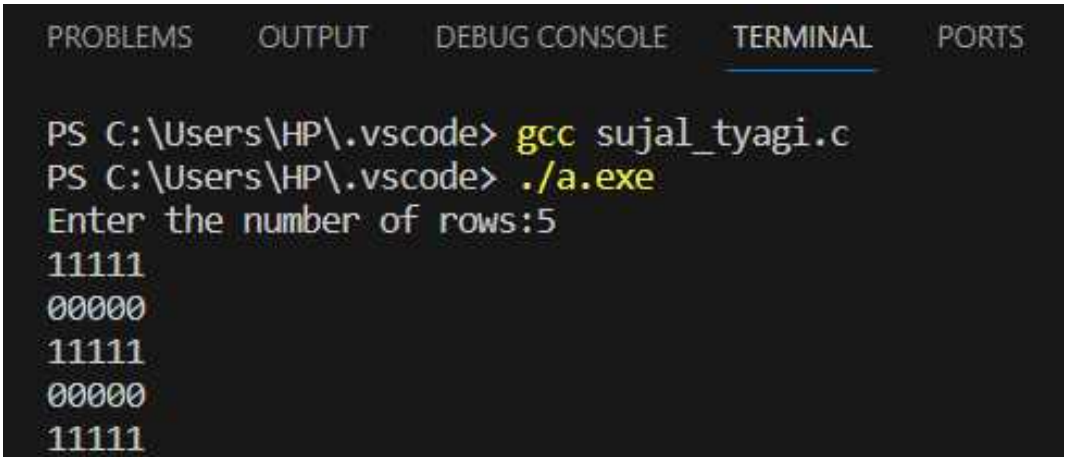
Program 80: Square Pattern 1.

```
#include<stdio.h>
int main(){
   int i,j,rows,space;
   printf("Enter the number of rows:");
   scanf("%d",&rows);
   for(i=1;i<=rows;i++){
      for(j=1;j<=rows;j++){
         printf("1");
      }printf("\n");
   }
}
```



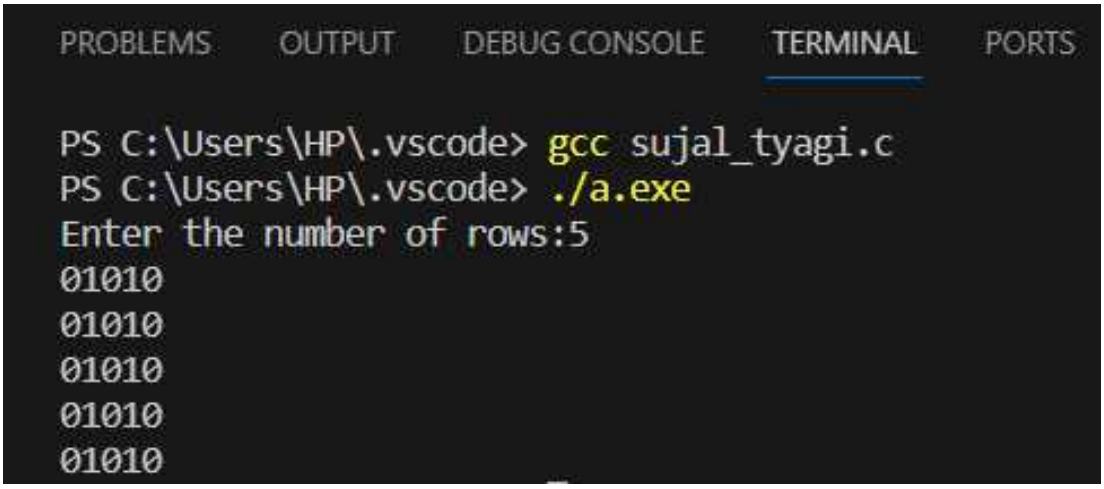
Program 81: Square Pattern 2.

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

   int i,j,rows,space;

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

   for(i=1;i<=rows;i++){
      for(j=1;j<=rows;j++){
         if(i%2==0){
            printf("0");
         }else{
            printf("1");
         }
      }printf("\n");
   }
}
```



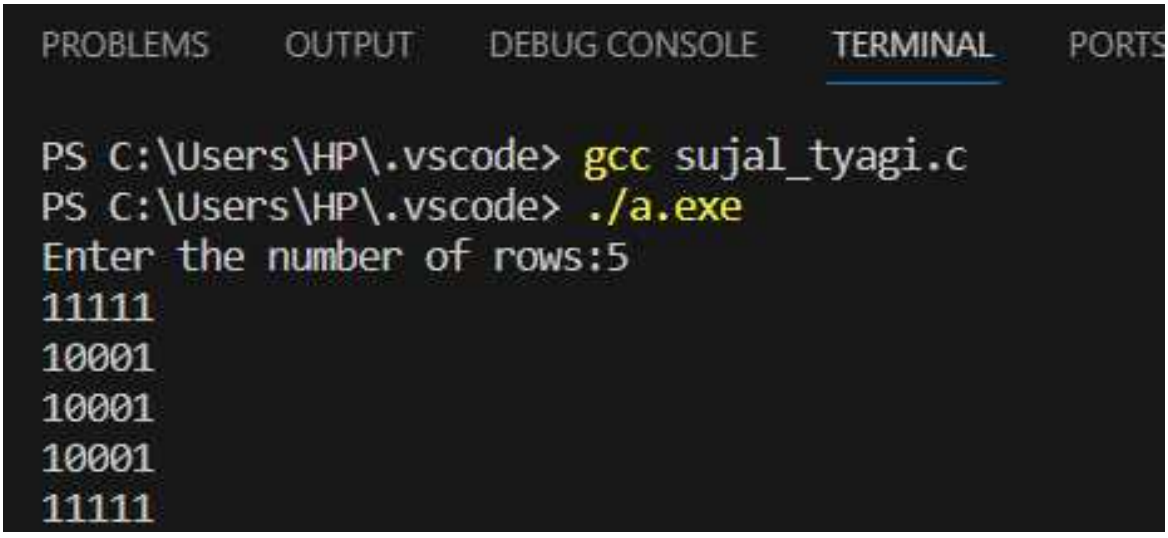
Program 82: Square Pattern 3.

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

   int i,j,rows,space;

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

   for(i=1;i<=rows;i++){
      for(j=1;j<=rows;j++){
         if(j%2==1){
            printf("0");
         }else{
            printf("1");
         }
      }printf("\n");
   }
}
```



Program 83: Square Pattern 4.

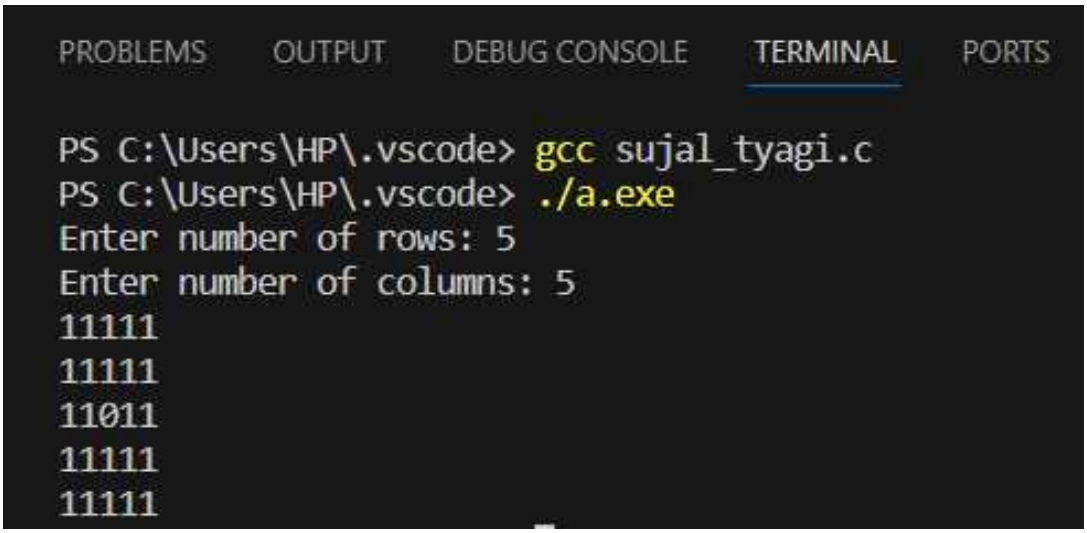
```
#include<stdio.h>
int main(){

   int i,j,rows,space;

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

   for(i=1;i<=rows;i++){
      for(j=1;j<=rows;j++){
         if(i==1 || i==rows || j==1 || j==rows){
            printf("1");
         }else{
            printf("0");
         }
      }printf("\n");
   }
}
```



Program 84: Square Pattern 5.

```
#include <stdio.h>

int main()
{
   int rows, cols, i, j;
   int centerRow, centerCol;

   /* Input rows and columns from user */
   printf("Enter number of rows: ");
   scanf("%d", &rows);
   printf("Enter number of columns: ");
   scanf("%d", &cols);

   /* Find center row and column */
   centerRow = (rows + 1) / 2;
   centerCol = (cols + 1) / 2;

   for(i=1; i<=rows; i++)
   {
      for(j=1; j<=cols; j++)
      {
         if(centerCol == j && centerRow == i)
         {
            printf("0");
         }
         else if(cols%2 == 0 && centerCol+1 == j)
         {
            if(centerRow == i || (rows%2 == 0 && centerRow+1 == i))
               printf("0");
            else
```

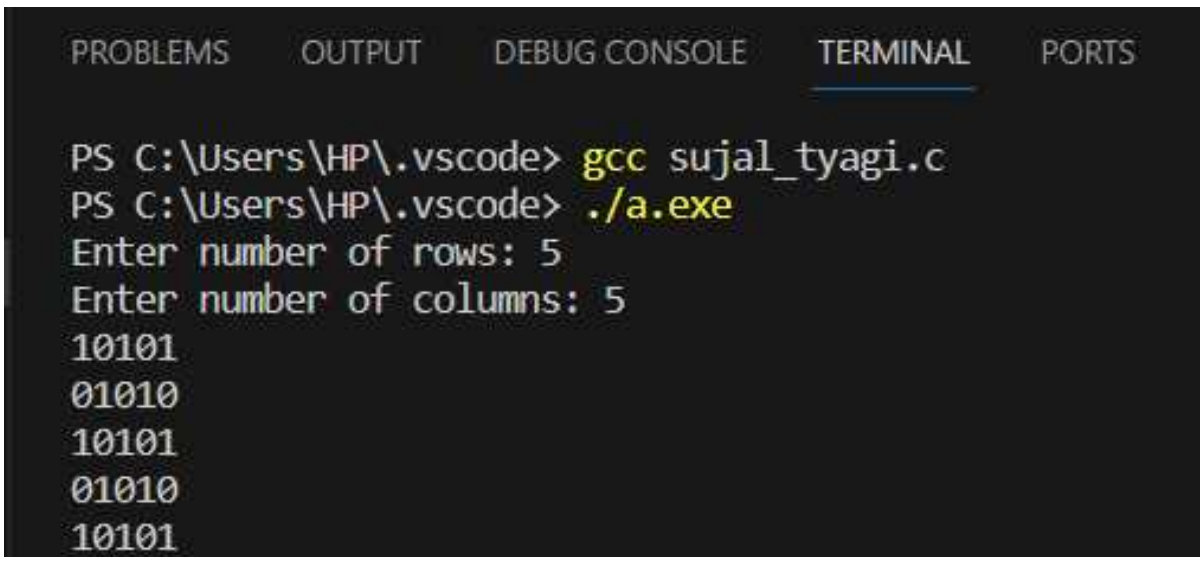
```
            printf("1");
        }
        else if(rows%2 == 0 && centerRow+1 == i)
        {
            if(centerCol == j || (cols%2 == 0 && centerCol+1 == j))
                printf("0");
            else
                printf("1");
        }
        else
        {
            printf("1");
        }
    }

    printf("\n");
  }

  return 0;
}
```



Program 85: Square Pattern 6.

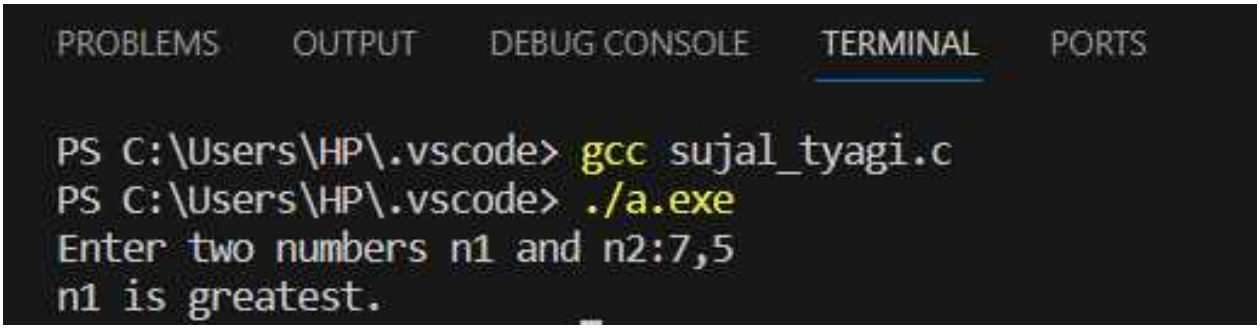
```
#include <stdio.h>

int main()
{
   int rows, cols, i, j, k;

   /* Input rows and columns from user */
   printf("Enter number of rows: ");
   scanf("%d", &rows);
   printf("Enter number of columns: ");
   scanf("%d", &cols);

   k = 1;

   for(i=1; i<=rows; i++)
   {
      for(j=1; j<=cols; j++)
      {
         if(k == 1)
         {
            printf("1");
         }
         else
         {
            printf("0");
         }

         // If k = 1  then k *= -1 => -1
         // If k = -1 then k *= -1 =>  1
         k *= -1;
```

```
        }

        if(cols % 2 == 0)
        {
            k *= -1;
        }

        printf("\n");
    }

    return 0;
}
```



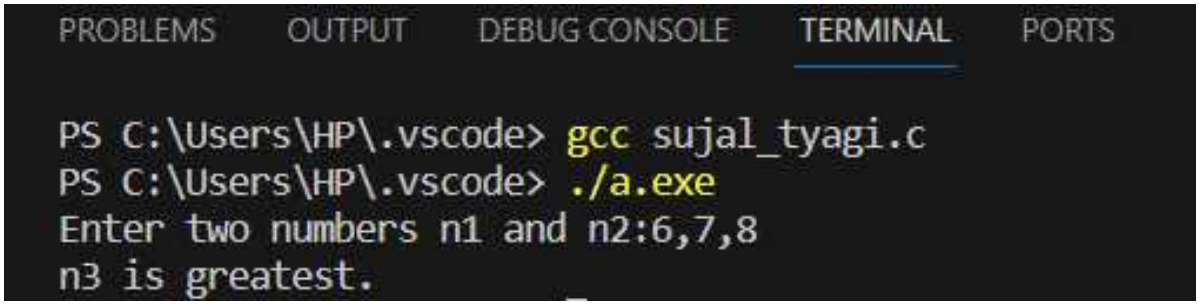
Program 86: Write a C program to find maximum between two numbers.

```
#include<stdio.h>
int main(){
   int n1,n2;

   printf("Enter two numbers n1 and n2:");
   scanf("%d,%d",&n1,&n2);

   if((n1>n2) && (n2<n1)){
      printf("n1 is greatest.");
   }
else if((n2>n1) && (n1<n2)){
      printf("n2 is greatest.");
   }
}
```



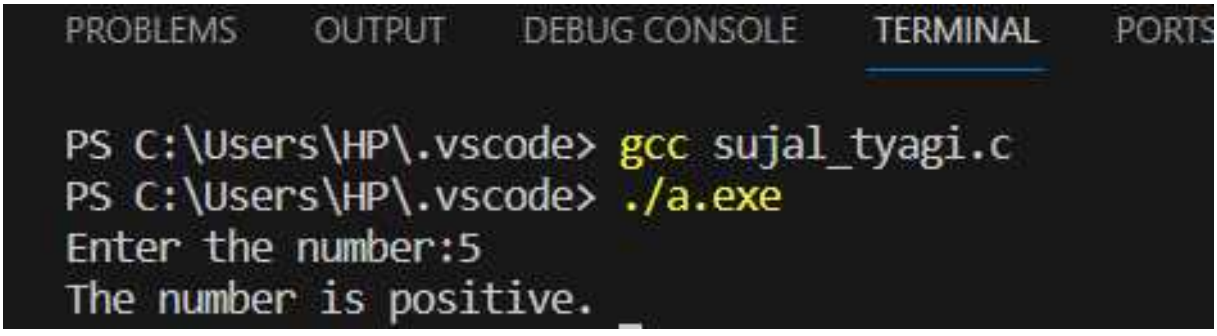
Program 87: Write a C program to find maximum between three numbers.

```
#include<stdio.h>
int main(){
   int n1,n2,n3;

   printf("Enter two numbers n1 and n2:");
   scanf("%d,%d,%d",&n1,&n2,&n3);

   if((n1>n2) && (n1>n3)){
      printf("n1 is greatest.");
   }
else if((n2>n1) && (n2>n3)){
      printf("n2 is greatest.");
   }
else if((n3>n1) && (n3>n2)){
      printf("n3 is greatest.");
   }
}
```



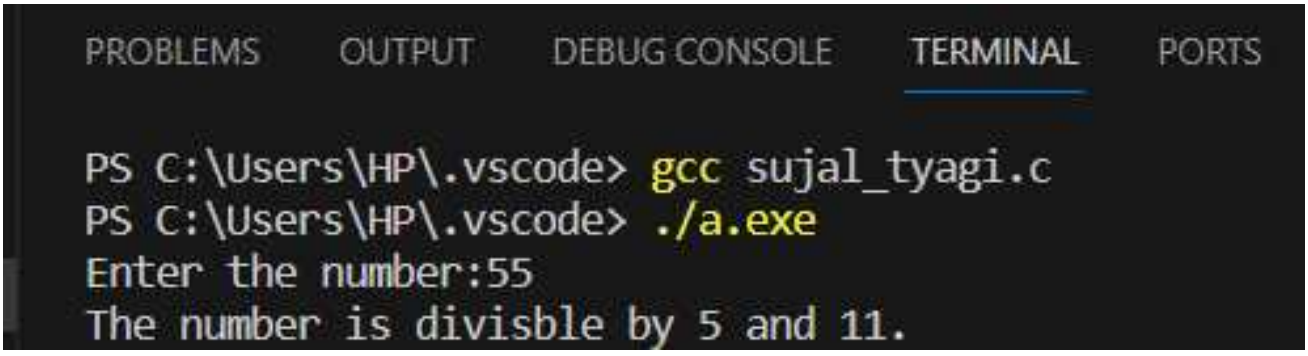
Program 88: Write a C program to check whether a number is negative, positive or zero.

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

   printf("Enter the number:");
   scanf("%d",&num);

   if(num>0){
      printf("The number is positive.");
   }
   else if(num<0){
      printf("The number is negative.");
   }
   else if(num==0){
      printf("The number is zero.");
   }
}
```



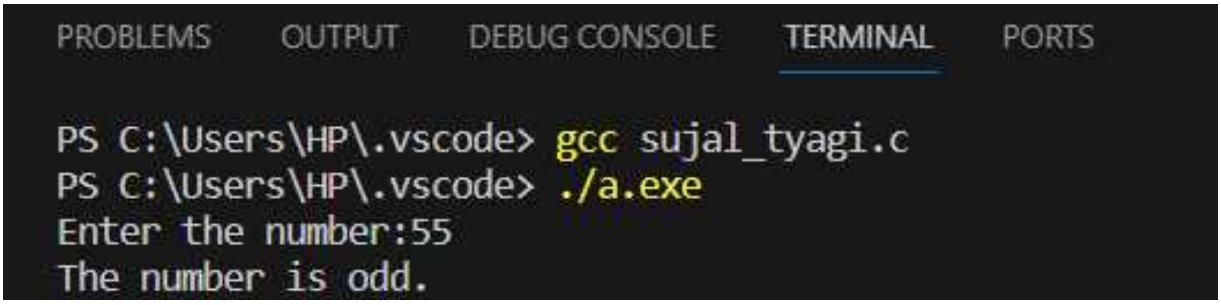
Program 89: Write a C program to check whether a number is divisible by 5 and 11 or not.

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

   printf("Enter the number:");
   scanf("%d", &num);

   if (num / 5 && num / 11)
   {
      printf("The number is divisble by 5 and 11.");
   }
   else
   {
      printf("The number is not divisible by 5 and 11 both.");
   }
}
```



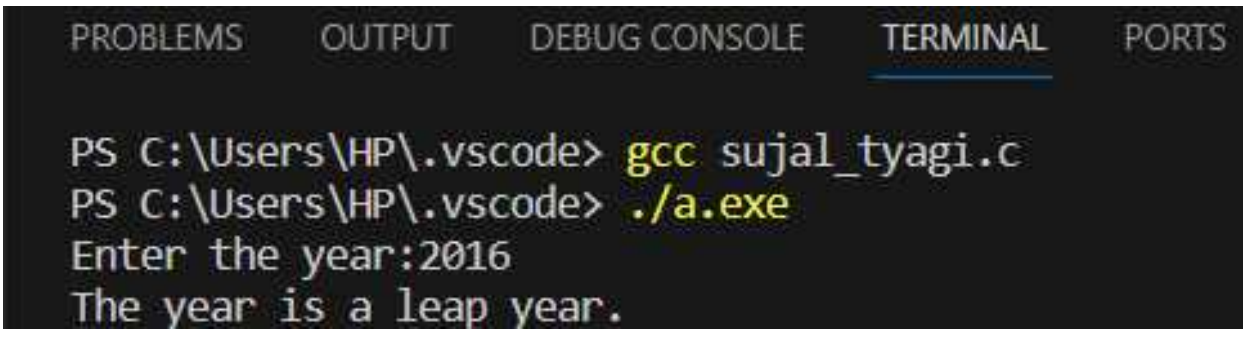
Program 90: Write a C program to check whether a number is even or odd.

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

   printf("Enter the number:");
   scanf("%d", &num);

   if (num % 2 == 0)
   {
      printf("The number is even.");
   }
   else
   {
      printf("The number is odd.");
   }
}
```



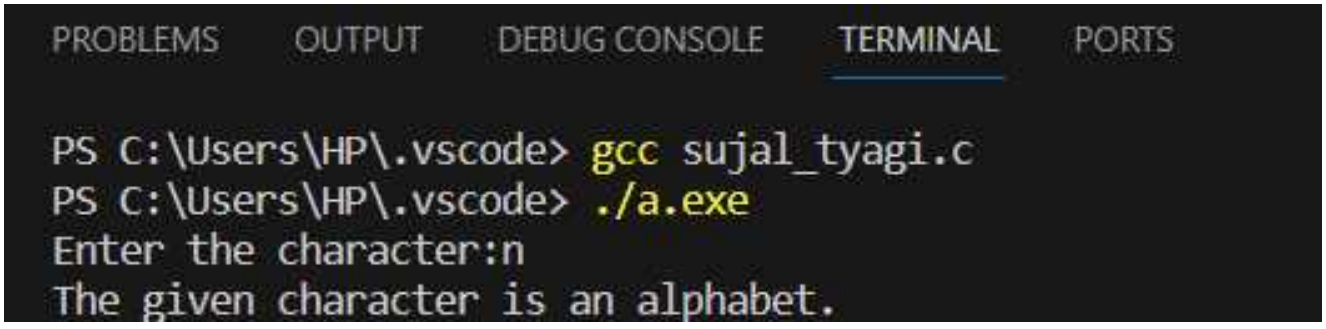
Program 91: Write a C program to check whether year is leap year or not.

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

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

   if (year % 400 == 0)
   {
      printf("The year is a leap year.");
   }
   else if (year % 100 == 0)
   {
      printf("The year is not a leap year.");
   }
   else if (year % 4 == 0)
   {
      printf("The year is a leap year.");
   }
}
```



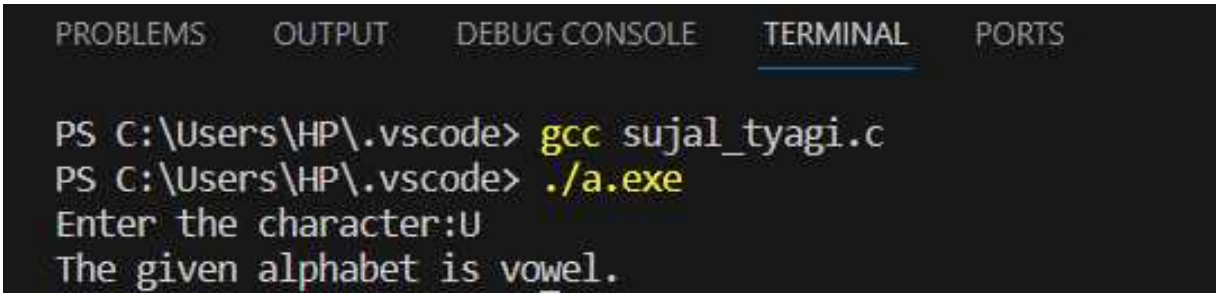
Program 92: Write a C program to check whether alphabet is or not.

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

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

   if ((ch >= 'a' && ch <= 'z') || (ch >= 'A' && ch <= 'Z'))
   {
      printf("The given character is an alphabet.");
   }
   else
   {
      printf("The given character is not an alphabet.");
   }
}
```



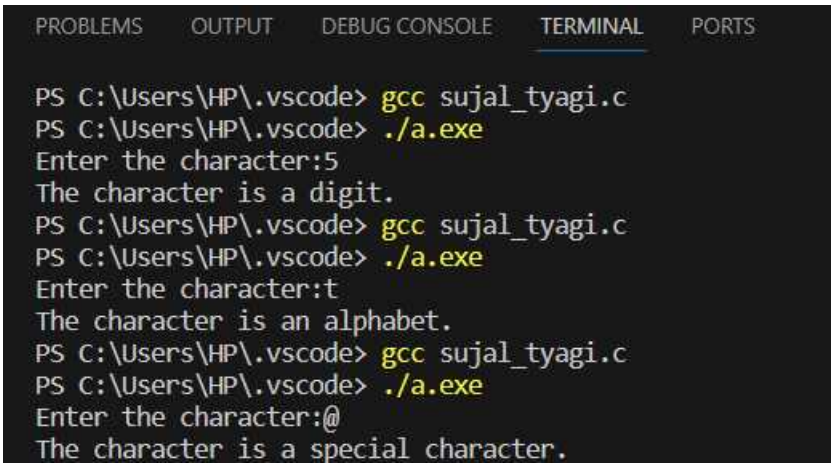
Program 93: Write a C program to check whether an alphabet is vowel or consonant.

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

   printf("Enter the 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("The given alphabet is vowel.");
   }
   else
   {
      printf("The alphabet is a consonant.");
   }
}
```



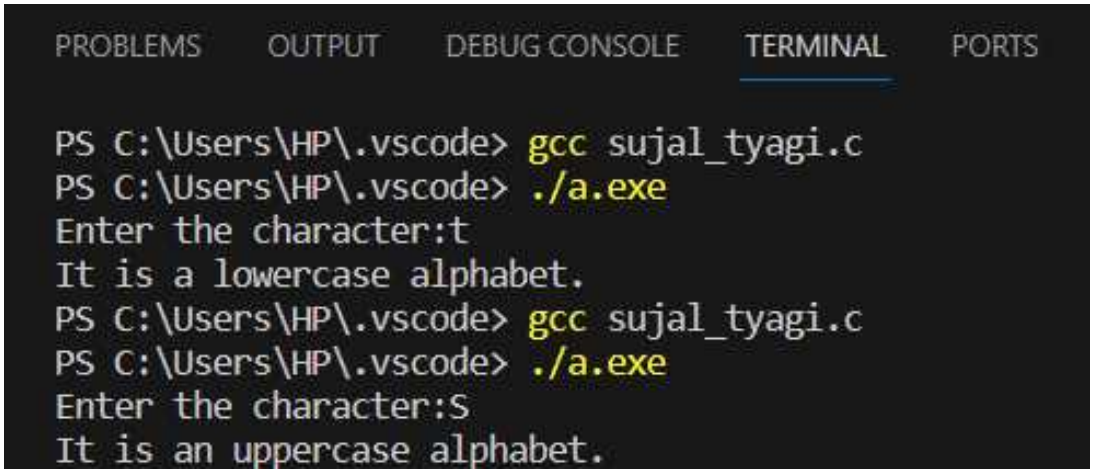
Program 94: Write a C program to input any character and check whether it is an alphabet, digit or a special character.

```
#include <stdio.h>
int main()
{
   char ch;
   printf("Enter the character:");
   scanf("%c", &ch);
if ((ch >= 'a' && ch <= 'z') || (ch >= 'A' && ch <= 'Z'))
   {
      printf("The character is an alphabet.\n");
   }
   else if (ch >= '0' && ch <= '9')
   {
      printf("The character is a digit.\n");
   }
   else
   {
      printf("The character is a special character.\n");
   }
}
```



Program 95: Write a C program to check whether an alphabet is uppercase or lowercase letter.

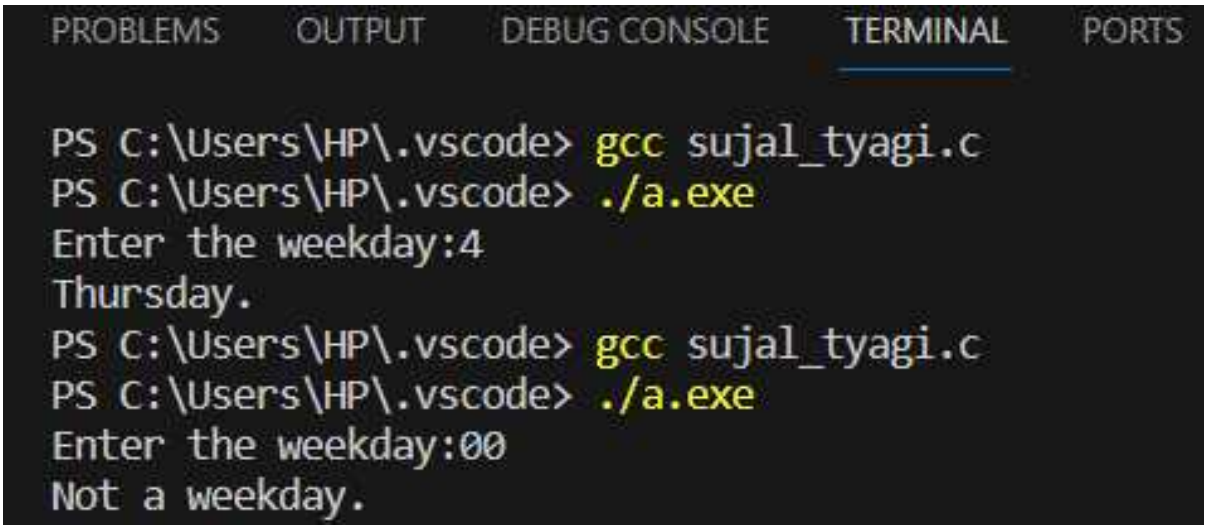
```
#include <stdio.h>
int main()
{
   char ch;

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

   if (ch >= 'a' && ch <= 'z')
   {
      printf("It is a lowercase alphabet.");
   }
   else if (ch >= 'A' && ch <= 'Z')
   {
      printf("It is an uppercase alphabet.");
   }
}
```



Program 96: Write a C program to input week and print day.

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

   printf("Enter the weekday:");
   scanf("%d", &week);

   switch (week)
   {
   case 1:
      printf("Monday.\n");
      break;
   case 2:
      printf("Tuesday.\n");
      break;
   case 3:
      printf("Wednesday.\n");
      break;
   case 4:
      printf("Thursday.\n");
      break;
   case 5:
      printf("Friday.\n");
      break;
   case 6:
      printf("Saturday.\n");
      break;
```

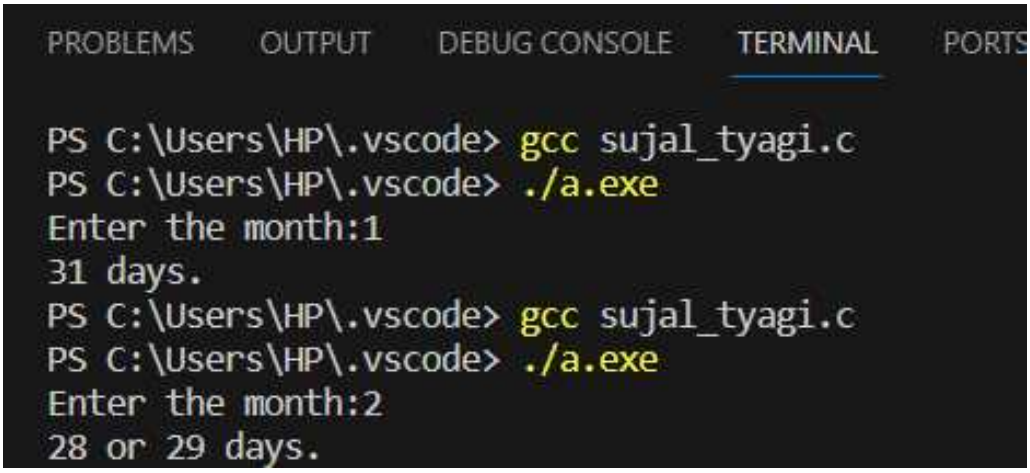
```
    case 7:
        printf("Sunday.\n");
        break;
    default:
        printf("Not a weekday.\n");
    }
}
```



Program 97: Write a C program to input month number and print number of days in that month.

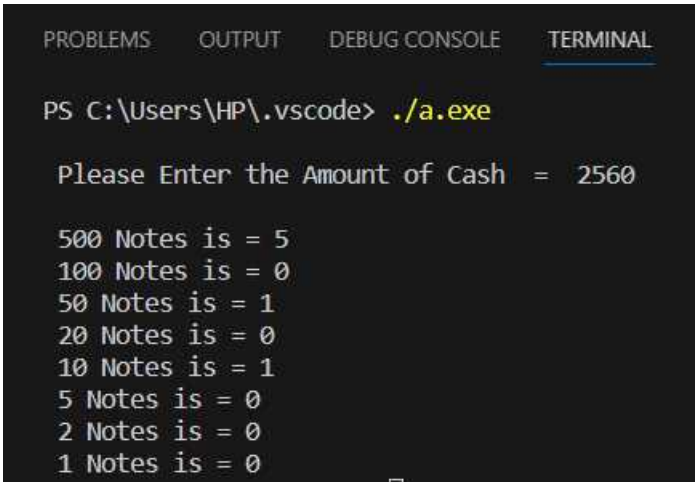
```
#include <stdio.h>
int main()
{
   int month;

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

   switch (month)
   {
   case 1:
      printf("31 days.\n");
      break;
   case 2:
      printf("28 or 29 days.\n");
      break;
   case 3:
      printf("31 days.\n");
      break;
   case 4:
      printf("30 days.\n");
      break;
   case 5:
      printf("31 days.\n");
      break;
   case 6:
      printf("30 days.\n");
      break;
```

```
    case 7:
        printf("31 days.\n");
        break;
    case 8:
        printf("31 days.\n");
        break;
    case 9:
        printf("30 days.\n");
        break;
    case 10:
        printf("31 days.\n");
        break;
    case 11:
        printf("30 days.\n");
        break;
    case 12:
        printf("31 days.\n");
        break;
    default:
        printf("Invalid month.\n");
    }
}
```



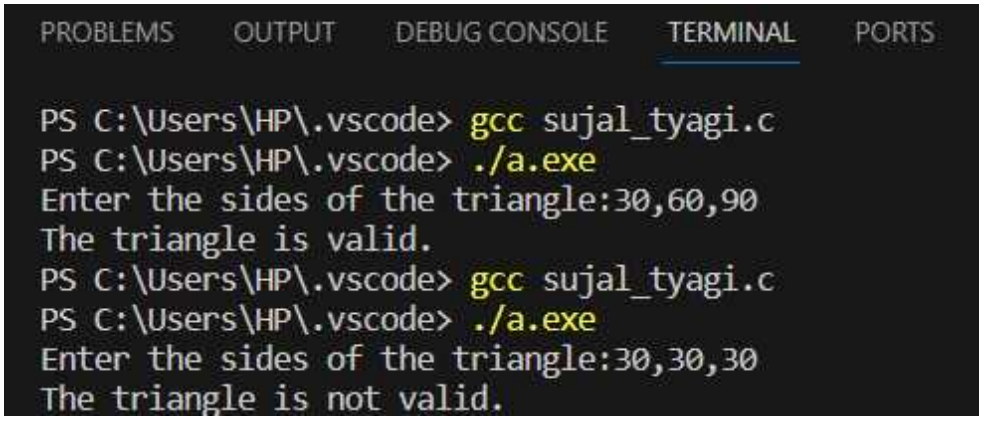
Program 98: Write a C program to count notes in given amount.

```
#include<stdio.h>

int main()
{
 int a[8] = {500, 100, 50, 20, 10, 5, 2, 1};
 int Amount, i, temp;

 printf("\n Please Enter the Amount of Cash  =  ");
 scanf("%d", &Amount);

 temp = Amount;

 for(i = 0; i < 8; i++)
 {
        printf("\n %d Notes is = %d", a[i], temp / a[i]);
        temp = temp % a[i];
 }

 return 0;
}
```



Program 99: Write a C program to input three angles of triangle and check whether it is valid or not.

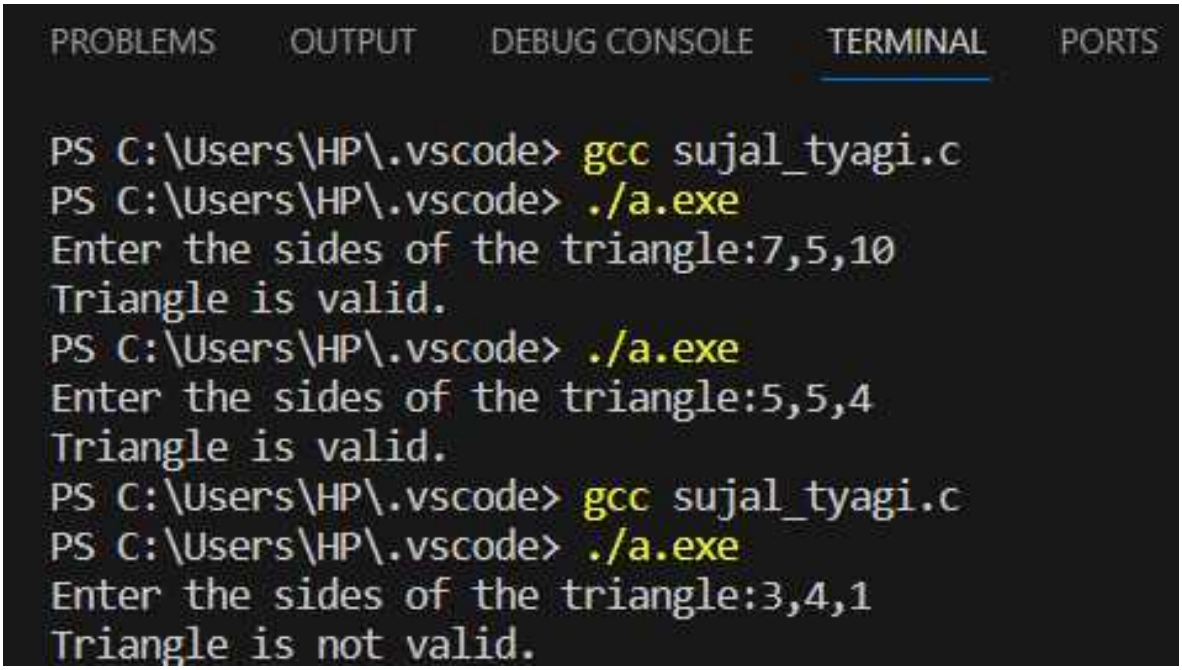
```
#include <stdio.h>

int main()
{
   int s1, s2, s3, sum;
   printf("Enter the sides of the triangle:");
   scanf("%d,%d,%d", &s1, &s2, &s3);

   sum = s1 + s2 + s3;
   if (sum == 180 && s1 > 0 && s2 > 0 && s3 > 0)
   {
      printf("The triangle is valid.\n");
   }
   else
   {
      printf("The triangle is not valid.\n");
   }
   return 0;
}
```



Program 100: Write a C program to input three sides of triangle and check whether it is valid or not.

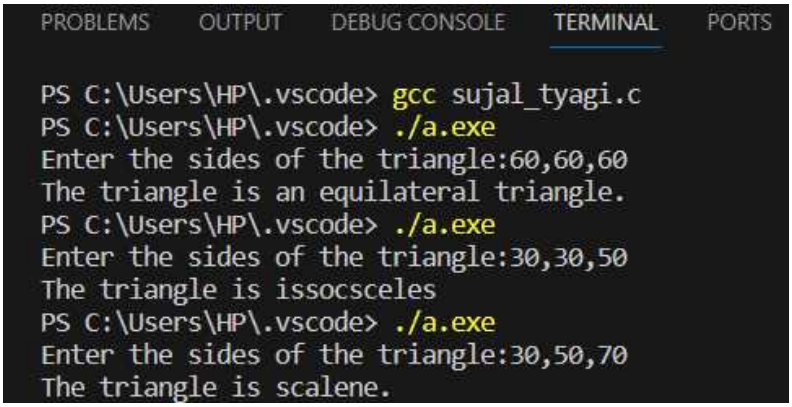
```
#include <stdio.h>

int main()
{
   int s1, s2, s3;
   printf("Enter the sides of the triangle:");
   scanf("%d,%d,%d", &s1, &s2, &s3);

   if ((s1 + s2) > s3)
   {
      if ((s2 + s3) > s1)
      {
         if ((s1 + s3) > s2)
         {
            printf("Triangle is valid.");
         }
         else
         {
            printf("Triangle is not valid.");
         }
      }
      else
      {
         printf("Triangle is not valid.");
      }
   }
   else
```

```
    {
        printf("Triangle is not valid.");
    }

    return 0;
}
```



Program 101: Write a C program to check whether triangle is equilateral, isosceles or scalene.

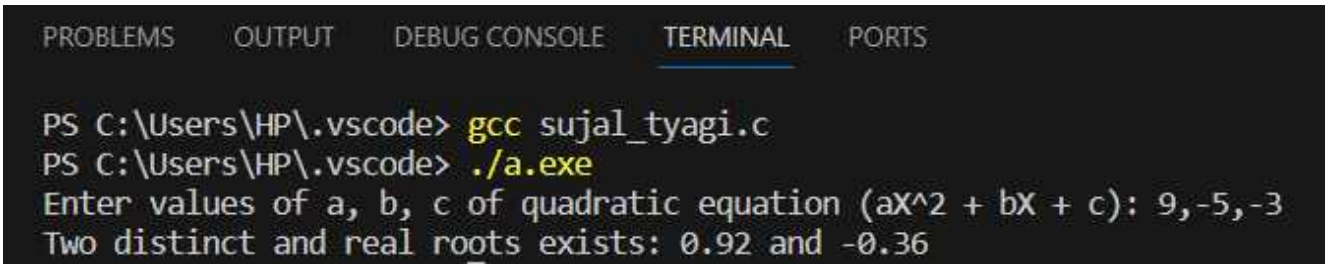
```
#include <stdio.h>

int main()
{
   int s1, s2, s3;
   printf("Enter the sides of the triangle:");
   scanf("%d,%d,%d", &s1, &s2, &s3);
if (s1 == s2 && s2 == s3)
   {
      printf("The triangle is an equilateral triangle.\n");
   }
   else if (s1 == s2 || s1 == s3 || s2 == s3)
   {
      printf("The triangle is issocsceles");
   }
   else if (s1 != s2 != s3)
   {
      printf("The triangle is scalene.\n");
   }
}
```



Program 102: Write a C program to find the roots of a quadratic equation.

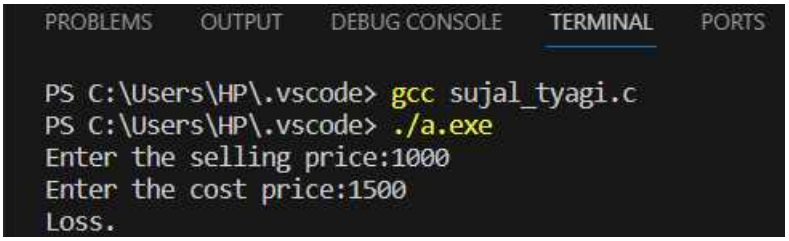
```
#include <stdio.h>
#include <math.h>

int main()
{
   float a, b, c;
   float root1, root2, imaginary;
   float discriminant;

   printf("Enter values of a, b, c of quadratic equation (aX^2 + bX + c): ");
   scanf("%f,%f,%f", &a, &b, &c);

   discriminant = (b * b) - (4 * a * c);

   if(discriminant > 0)
   {
      root1 = (-b + sqrt(discriminant)) / (2*a);
      root2 = (-b - sqrt(discriminant)) / (2*a);

      printf("Two distinct and real roots exists: %.2f and %.2f", root1, root2);
   }
   else if(discriminant == 0)
   {
      root1 = root2 = -b / (2 * a);

      printf("Two equal and real roots exists: %.2f and %.2f", root1, root2);
   }
   else if(discriminant < 0)
```

```
    {
        root1 = root2 = -b / (2 * a);
        imaginary = sqrt(-discriminant) / (2 * a);

        printf("Two distinct complex roots exists: %.2f + i%.2f and %.2f - i%.2f",
               root1, imaginary, root2, imaginary);
    }

    return 0;
}
```



Program 103: Write a C program to find the profit or loss.

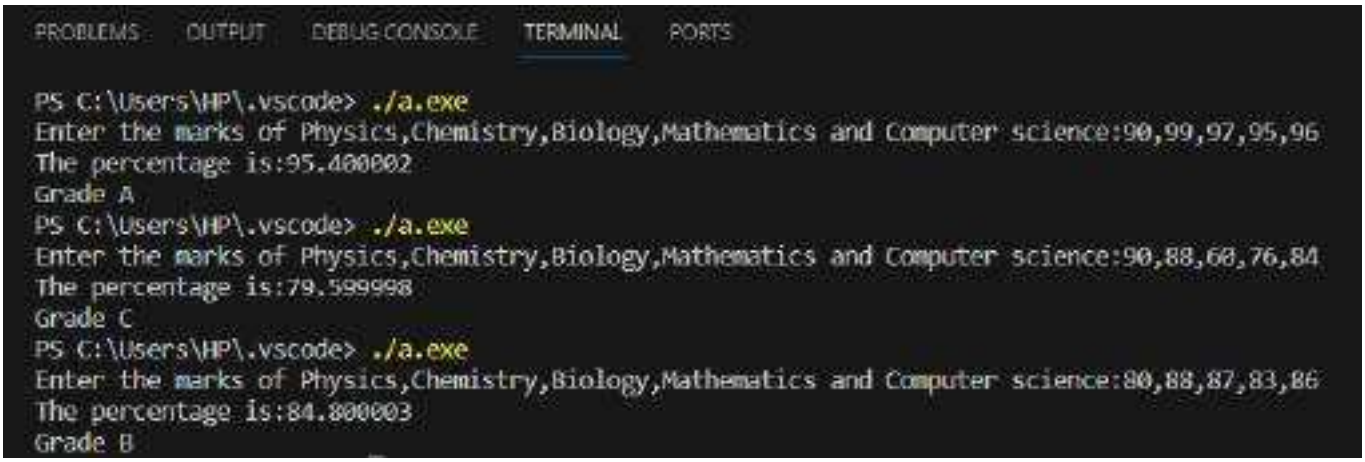
```
#include <stdio.h>
#include <math.h>

int main()
{
   int sellp, costp, amount;

   printf("Enter the cost price:");
   scanf("%d", &costp);
   printf("Enter the selling price:");
   scanf("%d", &sellp);
   amount = sellp - costp;
   if (sellp > costp)
   {
      printf("Profit.\n");
   }
   else if (costp > sellp)
   {
      printf("Loss.\n");
   }
   else
   { printf("Niether profit nor loss.\n");
   }
}
```



Program 104: Write a C program to give the grade.

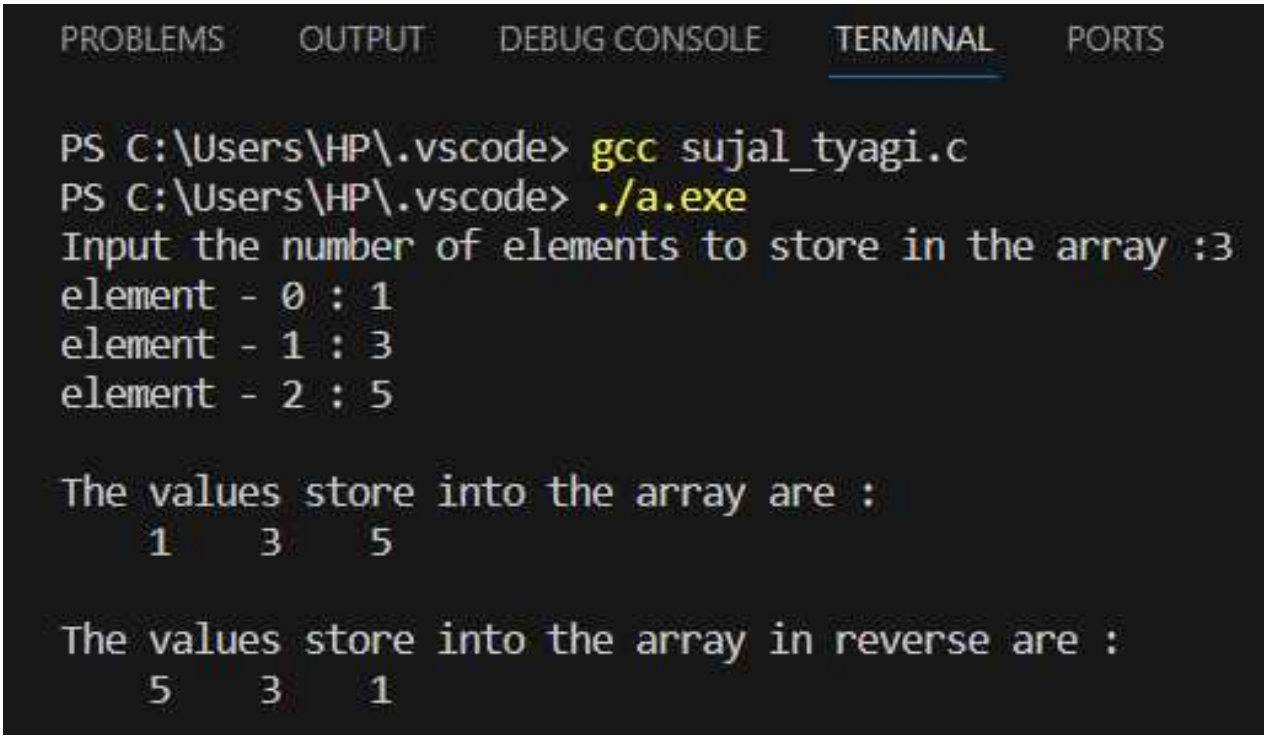
```
#include <stdio.h>

int main()
{
   int p, c, b, m, cs, tot, grade;
   float per;
   printf("Enter the marks of Physics,Chemistry,Biology,Mathematics and
Computer science:");
   scanf("%d,%d,%d,%d,%d", &p, &c, &b, &m, &cs);
   tot = p + c + b + m + cs;
   per = tot / 5.0;
   printf("The percentage is:%f\n", per);
   if (per >= 90)
   {
      printf("Grade A\n");
   }
   else if (per >= 80)
   {
      printf("Grade B\n");
   }
   else if (per >= 70)
   {
      printf("Grade C\n");
   }
   else if (per >= 60)
   {
      printf("Grade D\n");
   }
```

```
    else if (per >= 50)
    {
        printf("Grade E\n");
    }
    else if (per < 40)
    {
        printf("Grade F\n");
    }
    return 0;
}
```



Program 105: Write a C program to read n number of values in an array and display them in reverse order.

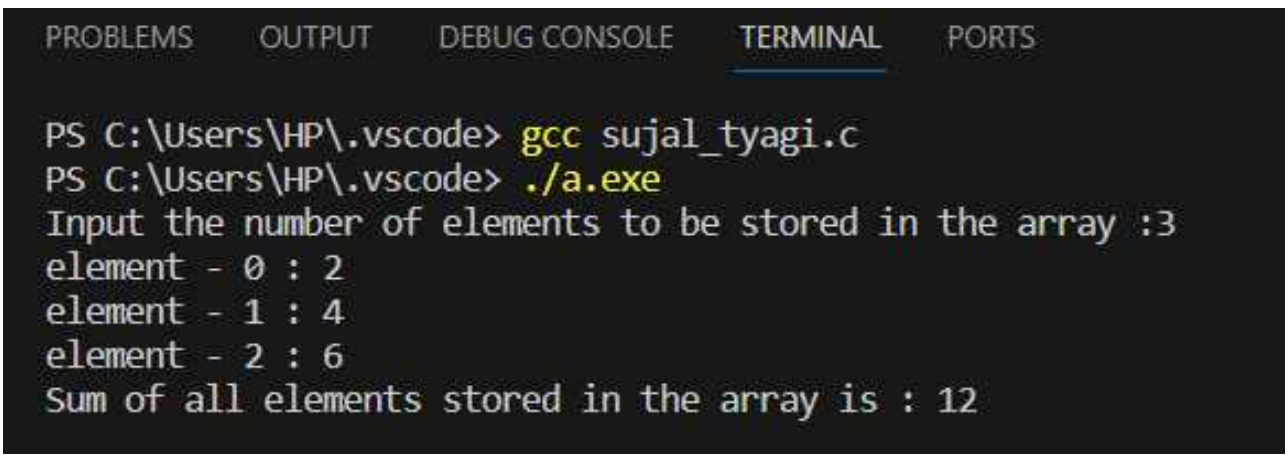
```
#include <stdio.h>

void main()
{
  int i,n,a[100];

  printf("Input the number of elements to store in the array :");
  scanf("%d",&n);
  for(i=0;i<n;i++)
    {
        printf("element - %d : ",i);
        scanf("%d",&a[i]);
        }

  printf("\nThe values store into the array are : \n");
  for(i=0;i<n;i++)
   {
        printf("% 5d",a[i]);
       }

  printf("\n\nThe values store into the array in reverse are :\n");
  for(i=n-1;i>=0;i--)
    {
        printf("% 5d",a[i]);
        }
  printf("\n\n");
}
```



Program 106: Write a C program to find the sum of all elements in an array.

```
#include <stdio.h>

void main()
{
   int a[100];
   int i, n, sum=0;

      printf("Input the number of elements to be stored in the array :");
      scanf("%d",&n);
      for(i=0;i<n;i++)
       {
            printf("element - %d : ",i);
```

```
            scanf("%d",&a[i]);
          }

   for(i=0; i<n; i++)
   {
      sum += a[i];
   }

   printf("Sum of all elements stored in the array is : %d\n\n", sum);
}
```



Program 107: Write a C program to copy the elements of one array to another array.

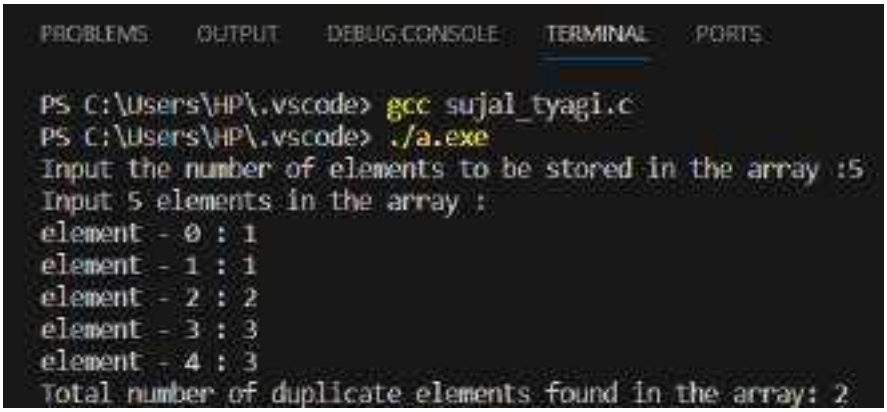
```
#include <stdio.h>

void main()
{
   int arr1[100], arr2[100];
   int i, n;


      printf("\n\nCopy the elements one array into another array :\n");
      printf("-------------------------------------------------\n");

      printf("Input the number of elements to be stored in the array :");
      scanf("%d",&n);

      printf("Input %d elements in the array :\n",n);
      for(i=0;i<n;i++)
       {
             printf("element - %d : ",i);
             scanf("%d",&arr1[i]);
           }
   for(i=0; i<n; i++)
   {
      arr2[i] = arr1[i];
   }

   printf("\nThe elements stored in the first array are :\n");
   for(i=0; i<n; i++)
```

```
    {
       printf("% 5d", arr1[i]);
    }

    printf("\n\nThe elements copied into the second array are :\n");
    for(i=0; i<n; i++)
    {
       printf("% 5d", arr2[i]);
    }
            printf("\n\n");
}
```

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS

------------------------------------------------
Input the number of elements to be stored in the array :3
Input 3 elements in the array :
element - 0 : 5
element - 1 : 7
element - 2 : 9

The elements stored in the first array are :
    5    7    9

The elements copied into the second array are :
    5    7    9
```

Program 108: Write a C program to count the total number of duplicates in an array.

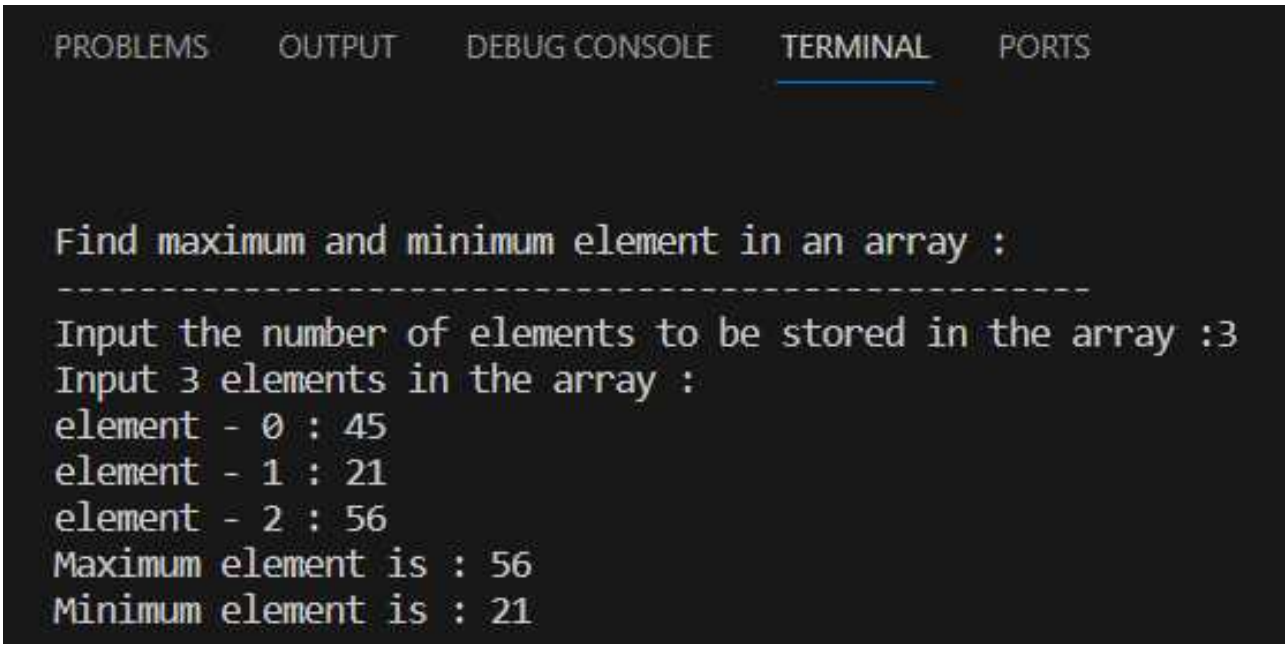
```
#include <stdio.h>
int main()
{
  int arr[100]; int n,mm=1,ctr=0; int i, j;
  printf("Input the number of elements to be stored in the array :");
  scanf("%d",&n);
  printf("Input %d elements in the array :\n",n);
  for(i=0;i<n;i++)
     {
          printf("element - %d : ",i);scanf("%d",&arr[i]);
        }
       for (i = 0; i < n; i++) {
    for (j = i + 1; j < n; j++) {
     if (arr[i] == arr[j]) {
       ctr++;
       break;
  }}}
 printf("Total number of duplicate elements found in the array: %d\n", ctr);
 return 0;
}
```



Program 109: Write a C program to find the maximum and minimum elements in an array.

```
#include <stdio.h>

void main()
{
   int arr1[100];
   int i, mx, mn, n;


     printf("\n\nFind maximum and minimum element in an array :\n");
     printf("-------------------------------------------------\n");

     printf("Input the number of elements to be stored in the array :");
     scanf("%d",&n);

     printf("Input %d elements in the array :\n",n);
     for(i=0;i<n;i++)
         {
           printf("element - %d : ",i);
           scanf("%d",&arr1[i]);
         }


   mx = arr1[0];
   mn = arr1[0];

   for(i=1; i<n; i++)
   {
```

```
        if(arr1[i]>mx)
        {
           mx = arr1[i];
        }


        if(arr1[i]<mn)
        {
           mn = arr1[i];
        }
    }
    printf("Maximum element is : %d\n", mx);

    printf("Minimum element is : %d\n\n", mn);

}
```



Program 110: Write a C program to sort the elements of an array in descending order.

```
#include <stdio.h>

void main()
{
   int arr1[100];
   int n, i, j, tmp;



     printf("\n\nsort elements of array in descending order :\n");
     printf("-----------------------------------------\n");

   printf("Input the size of array : ");
   scanf("%d", &n);

     printf("Input %d elements in the array :\n",n);
     for(i=0;i<n;i++)
         {
            printf("element - %d : ",i);
            scanf("%d",&arr1[i]);
          }
   for(i=0; i<n; i++)
   {
      for(j=i+1; j<n; j++)
      {
         if(arr1[i] < arr1[j])
         {
            tmp = arr1[i];
            arr1[i] = arr1[j];
```

```
            arr1[j] = tmp;
          }
        }
    }

     printf("\nElements of array is sorted in descending order:\n");

    for(i=0; i<n; i++)
    {
       printf("%d  ", arr1[i]);
    }
              printf("\n\n");
}
```

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS

sort elements of array in descending order :
------------------------------------------------
Input the size of array : 3
Input 3 elements in the array :
element - 0 : 5
element - 1 : 8
element - 2 : 6

Elements of array is sorted in descending order:
8  6  5
```

Program 111: Write a C program to separate odd and even integers from an array.

```
#include <stdio.h>

void main()
 {
   int arr1[10], arr2[10], arr3[10];
   int i,j=0,k=0,n;



     printf("\n\nSeparate odd and even integers in separate arrays:\n");
     printf("---------------------------------------------------\n");

     printf("Input the number of elements to be stored in the array :");
     scanf("%d",&n);

     printf("Input %d elements in the array :\n",n);
     for(i=0;i<n;i++)
         {
            printf("element - %d : ",i);
            scanf("%d",&arr1[i]);
          }

   for(i=0;i<n;i++)
   {
       if (arr1[i]%2 == 0)
       {
          arr2[j] = arr1[i];
          j++;
       }
```

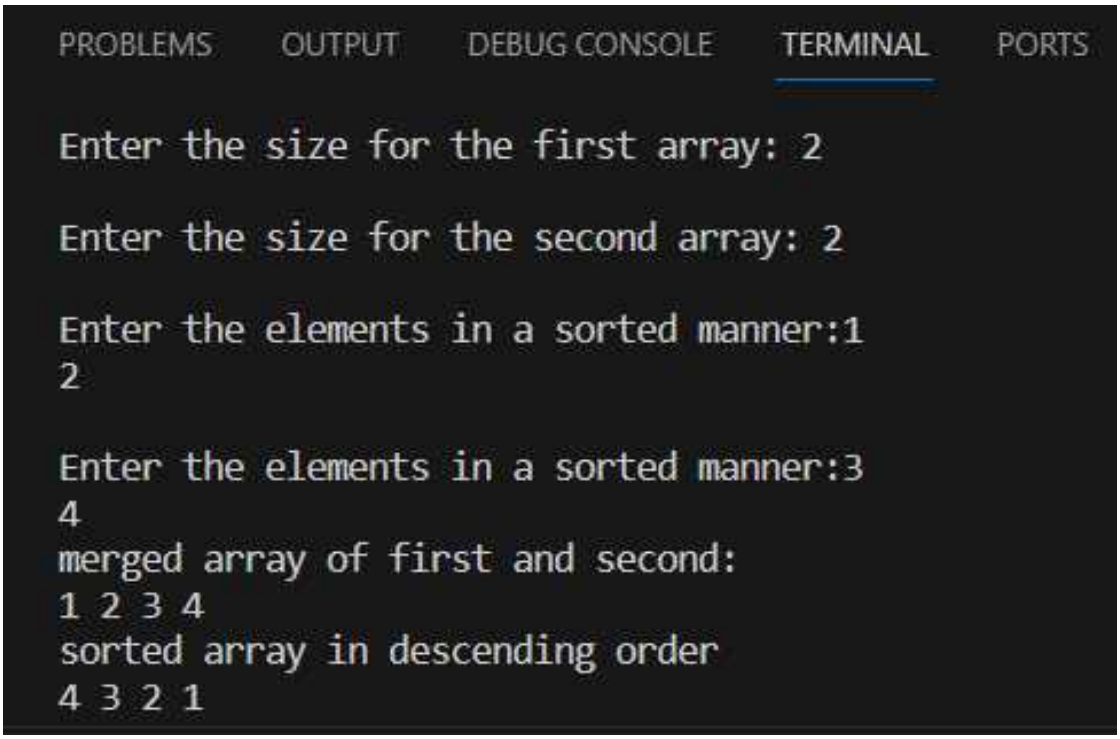
```
        else
        {
          arr3[k] = arr1[i];
          k++;
        }
    }

    printf("\nThe Even elements are : \n");
    for(i=0;i<j;i++)
    {
        printf("%d ",arr2[i]);
    }

    printf("\nThe Odd elements are :\n");
    for(i=0;i<k;i++)
    {
        printf("%d ", arr3[i]);
    }
    printf("\n\n");
}
```

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS

-----------------------------------------------------
Input the number of elements to be stored in the array :3
Input 3 elements in the array :
element - 0 : 1
element - 1 : 3
element - 2 : 4

The Even elements are :
4
The Odd elements are :
1 3
```

Program 112: Write a C program to merge two arrays of same size sorted in descending order.

```
#include <stdio.h>
int main() {
  int size1, size2, size3;
  printf("\nEnter the size for the first array: ");
  scanf("%d", & size1);
  printf("\nEnter the size for the second array: ");
  scanf("%d", & size2);

  size3 = size1 + size2;
  printf("\nEnter the elements in a sorted manner:");

  int array1[size1], array2[size2], array3[size3];
  for (int i = 0; i < size1; i++) {
    scanf("%d", & array1[i]);
    array3[i] = array1[i];
  }
  int k = size1;
  printf("\nEnter the elements in a sorted manner:");
  for (int i = 0; i < size2; i++) {
    scanf("%d", & array2[i]);
    array3[k] = array2[i];
    k++;
  }
  printf("merged array of first and second:\n");
  for (int i = 0; i < size3; i++)
    printf("%d ", array3[i]);

  printf("\nsorted array in descending order\n");
```

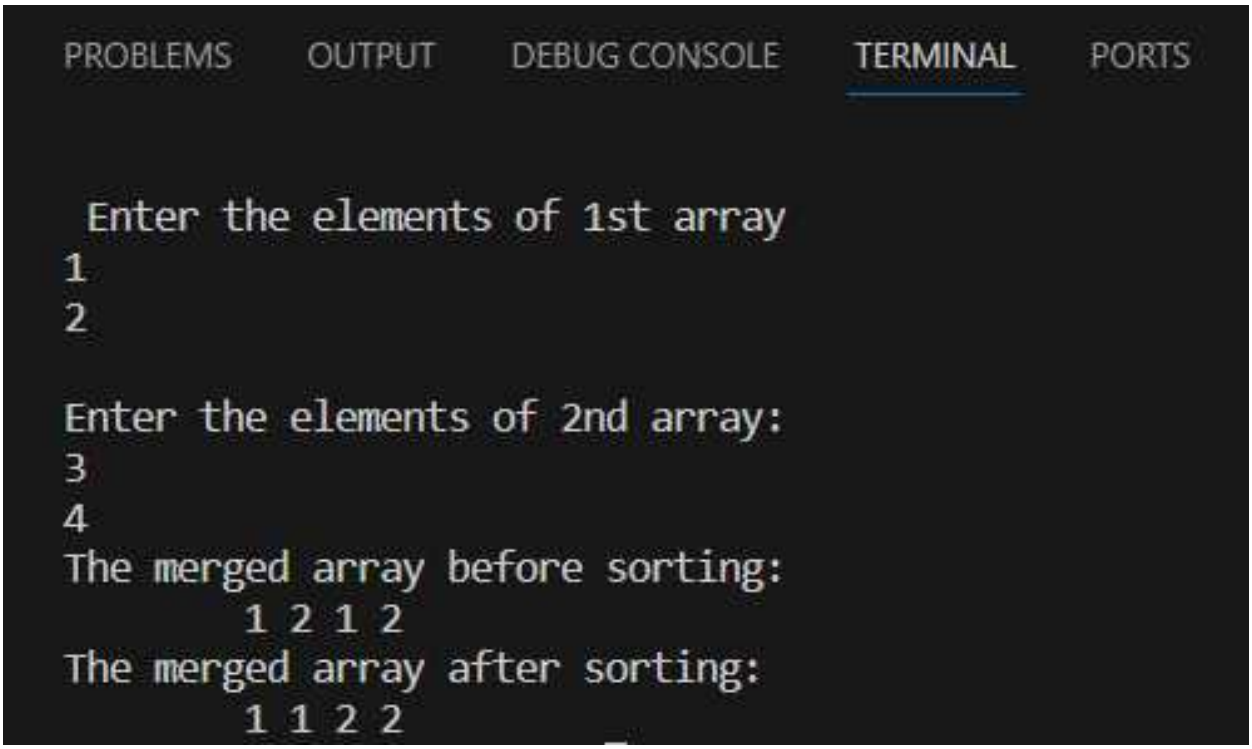
```
  for (int i = 0; i < size3; i++) {
    int temp;
    for (int j = i + 1; j < size3; j++) {
      if (array3[i] < array3[j]) {
        temp = array3[i];
        array3[i] = array3[j];
        array3[j] = temp;
      }
    }
  }
  for (int i = 0; i < size3; i++) {
    printf("%d ", array3[i]);
  }
  return 0;
}
```



Program 113: Write a C program to merge two arrays of same size sorted in ascending order.

```
#include <stdio.h>


int main() {
  int s1, s2, s3;
  printf("\n Enter the size of 1st array  ");
  scanf("%d", & s1);
  printf("\n Enter the size of 2nd array ");
  scanf("%d", & s2);



  s3 = s1 + s2;
  printf("\n Enter the elements of 1st array\n");
  int arr1[s1], arr2[s2], arr3[s3];
  for (int i = 0; i < s1; i++) {
    scanf("%d", & arr1[i]);
    arr3[i] = arr1[i];
  }
  int k = s1;
  printf("\nEnter the elements of 2nd array:\n");
  for (int i = 0; i < s2; i++)
  {
    scanf("%d", & arr2[i]);
    arr3[k] = arr3[i];
    k++;
  }
  printf("The merged array before sorting:\n\t");
  for (int i = 0; i < s3; i++)
```

```
    printf("%d ", arr3[i]);


  printf("\nThe merged array after sorting:\n\t");
  for (int i = 0; i < s3; i++)
  {
    int tem;
    for (int j = i + 1; j < s3; j++) {
      if (arr3[i] > arr3[j]) {
        tem = arr3[i];
        arr3[i] = arr3[j];
        arr3[j] = tem;
      }
    }
  }

  for (int i = 0; i < s3; i++)
  {
    printf("%d ", arr3[i]);
  }
}
```


PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
Enter the elements of 1st array
1
2
Enter the elements of 2nd array:
3
4
The merged array before sorting:
1 2 1 2
The merged array after sorting:
1 1 2 2