

ASSIGNMENT 1

QUES 1 unsigned long long int num,origionalNum,remainder,n=0;

```
    unsigned long long int result=0;
```

```
    printf("enter an integer\n");
```

```
    scanf("%llu",&num);
```

```
    origionalNum=num;
```

```
    while(origionalNum!=0){
```

```
        origionalNum /=10;
```

```
        ++n;
```

```
    }
```

```
    origionalNum=num;
```

```
    while(origionalNum!=0){
```

```
        remainder=origionalNum%10;
```

```
        unsigned long long int power=1;
```

```
        for(unsigned long long int i=0;i<n;i++){
```

```
            power*=remainder;
```

```
        }
```

```
        result+=power;
```

```
        origionalNum/=10;
```

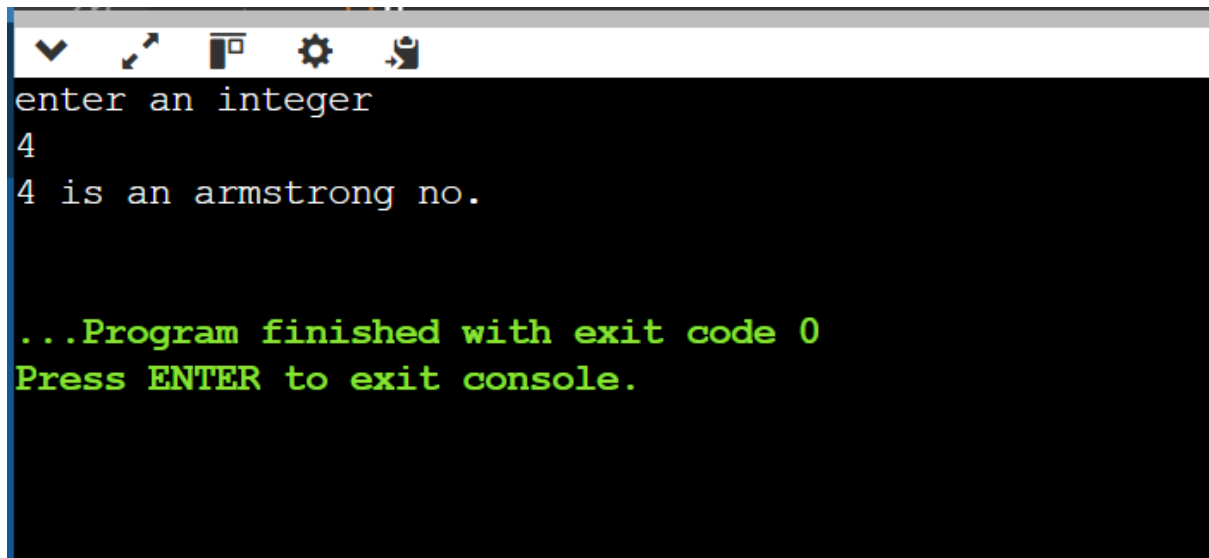
```
    }
```

```
    if(result==num)
```

```
        printf("%llu is an armstrong no.\n",num);
```

```
    else
```

```
        printf("%llu is not an armstong no.\n",num);
```



```
enter an integer
4
4 is an armstrong no.

...Program finished with exit code 0
Press ENTER to exit console.
```

QUES 2

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

```
int main()
```

```
{
```

```
    int n1,n2,i,hcf;
```

```
    printf("enter the integers n1 and n2\n");
```

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

```
    for(i=1;i<=n1 || i<=n2;i++){
```

```
        if(n1%i==0 && n2%i==0)
```

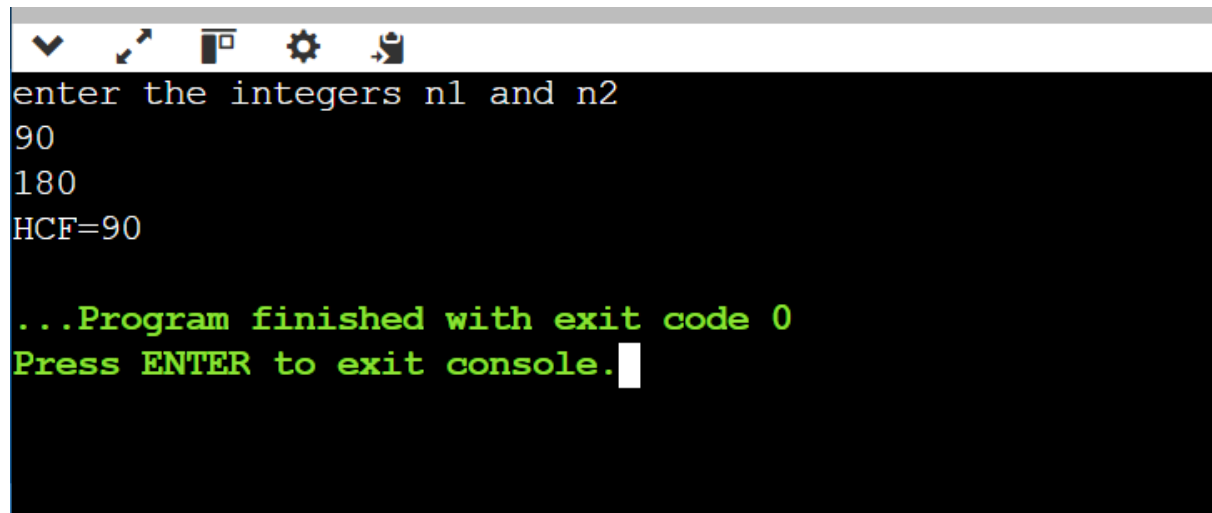
```
            hcf=i;
```

```
    }
```

```
    printf("HCF=%d",hcf);
```

```
    return 0;
```

```
}
```



```
enter the integers n1 and n2
90
180
HCF=90

...Program finished with exit code 0
Press ENTER to exit console.
```

QUES 3

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

```
int main()
```

```
{
```

```
int a,b,sum;
```

```
printf("enter any two no.\n");
```

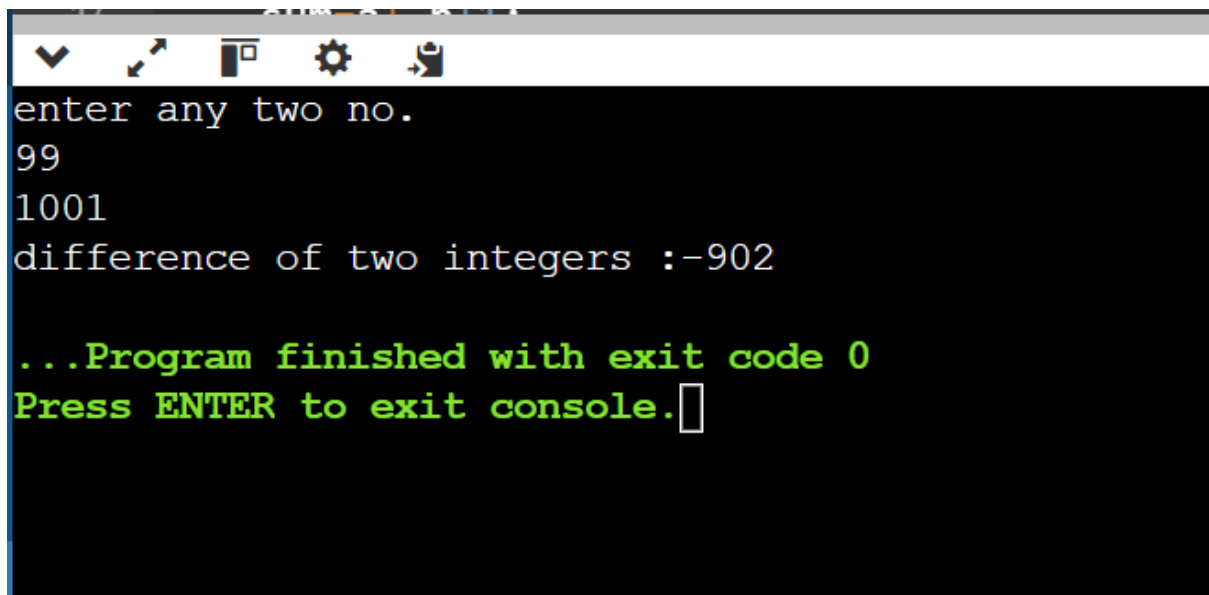
```
scanf("%d %d",&a,&b);
```

```
sum=a+~b+1;
```

```
printf("difference of two integers :%d",sum);
```

```
return 0;
```

```
}
```



```
enter any two no.  
99  
1001  
difference of two integers :-902  
  
...Program finished with exit code 0  
Press ENTER to exit console.
```

QUES 4

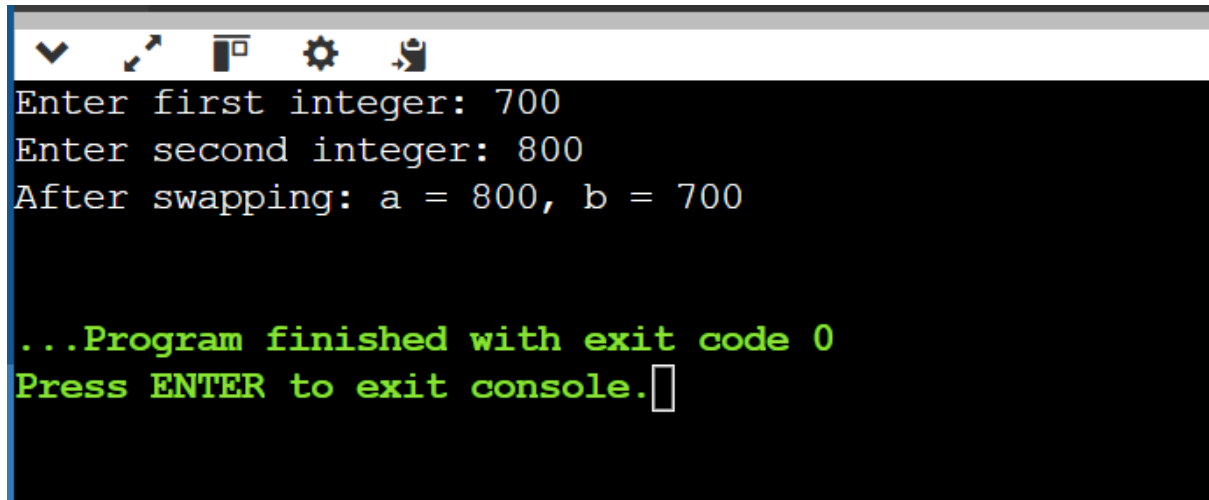
PART 1

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

```
void swap_with_temp(int *a, int *b) {  
    int temp = *a;  
    *a = *b;  
    *b = temp;  
}
```

```
int main() {  
    int a, b;  
    printf("Enter first integer: ");  
    scanf("%d", &a);  
    printf("Enter second integer: ");  
    scanf("%d", &b);  
  
    swap_with_temp(&a, &b);  
    printf("After swapping: a = %d, b = %d\n", a, b);  
}
```

```
    return 0;
}
```

A screenshot of a terminal window with a dark background. The window has a title bar with standard icons (checkmark, cursor, window, gear, and a document with an arrow). The text inside the terminal is as follows:
Enter first integer: 700
Enter second integer: 800
After swapping: a = 800, b = 700

...Program finished with exit code 0
Press ENTER to exit console.
The last line has a white cursor character (a small rectangle) at the end.

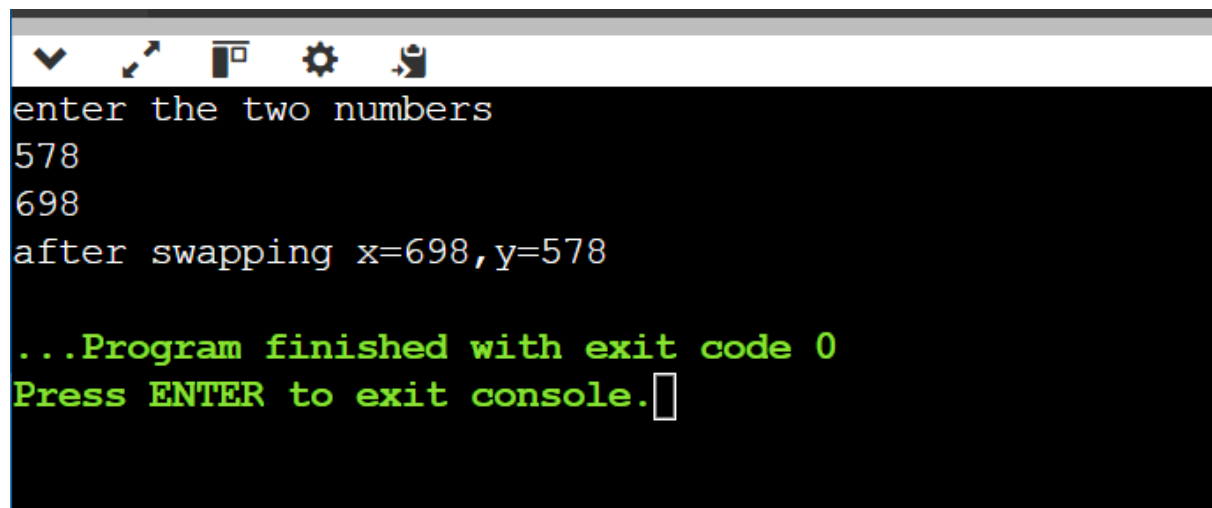
PART 2

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

```
int main()
{
    int x,y;
    printf("enter the two numbers\n");
    scanf("%d %d",&x,&y);

    x = x + y;
    y = x - y;
    x = x - y;
    printf("after swapping x=%d,y=%d",x,y);

    return 0;
}
```

A terminal window with a dark background and a light gray title bar. The title bar contains five icons: a checkmark, a cursor, a window, a gear, and a document. The terminal text is as follows:

```
enter the two numbers
578
698
after swapping x=698,y=578

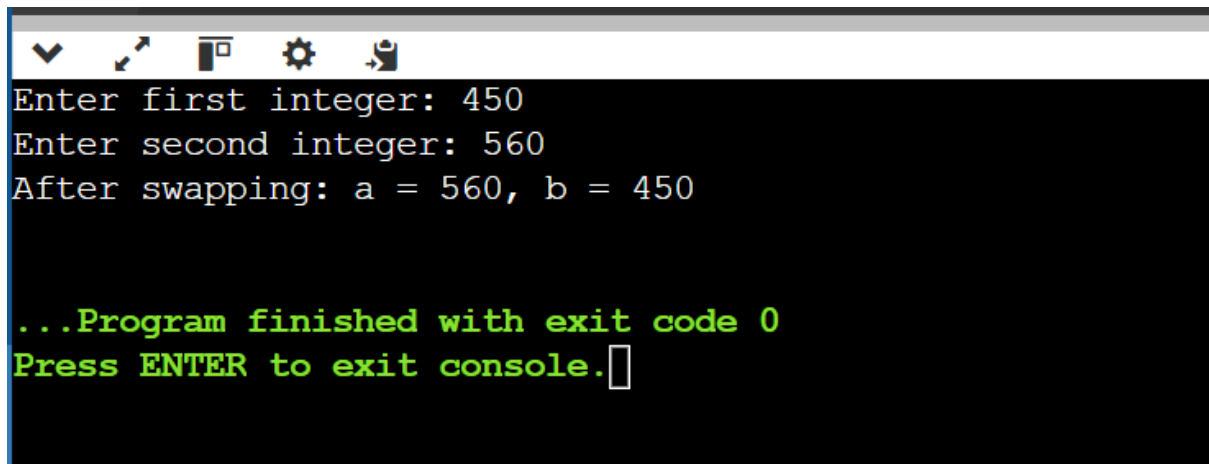
...Program finished with exit code 0
Press ENTER to exit console.
```

PART 3

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

```
void swap_xor(int *a, int *b) {  
    *a = *a ^ *b;  
    *b = *a ^ *b;  
    *a = *a ^ *b;  
}
```

```
int main() {  
    int a, b;  
    printf("Enter first integer: ");  
    scanf("%d", &a);  
    printf("Enter second integer: ");  
    scanf("%d", &b);  
  
    swap_xor(&a, &b);  
    printf("After swapping: a = %d, b = %d\n", a, b);  
    return 0;  
}
```

A terminal window with a dark background and a light gray title bar. The title bar contains several icons: a checkmark, a cursor, a square, a gear, and a document. The terminal text is as follows:

```
Enter first integer: 450
Enter second integer: 560
After swapping: a = 560, b = 450

...Program finished with exit code 0
Press ENTER to exit console.
```

PART 4

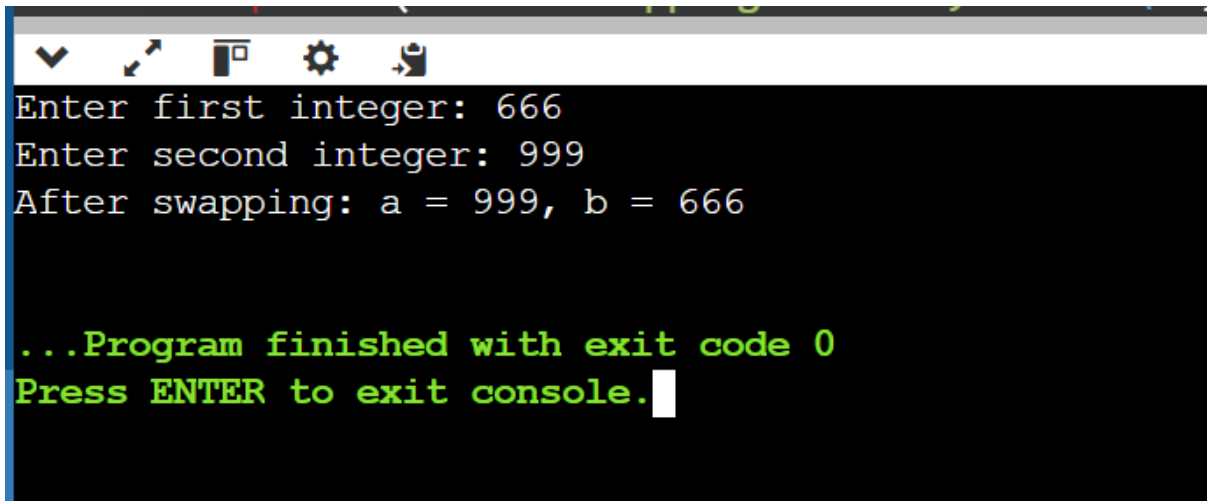
```
#include <stdio.h>
```

```
void swap_multiply_divide(int *a, int *b) {
    if (*a != 0 && *b != 0) {
        *a = *a * *b;
        *b = *a / *b;
        *a = *a / *b;
    } else {
        printf("Error: Cannot swap when one of the numbers is zero!\n");
    }
}
```

```
int main() {
    int a, b;
    printf("Enter first integer: ");
    scanf("%d", &a);
    printf("Enter second integer: ");
    scanf("%d", &b);

    swap_multiply_divide(&a, &b);
    printf("After swapping: a = %d, b = %d\n", a, b);
}
```

```
    return 0;
}
```



```
Enter first integer: 666
Enter second integer: 999
After swapping: a = 999, b = 666

...Program finished with exit code 0
Press ENTER to exit console.
```

QUES 5

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

```
int is_perfect_number(int num) {
```

```
    int sum = 0;
```

```
    for (int i = 1; i <= num / 2; i++) {
```

```
        if (num % i == 0) {
```

```
            sum += i;
```

```
        }
```

```
    }
```

```
    if (sum == num) {
```

```
        return 1;
```

```
    } else {
```

```
        return 0;
```

```
    }
```

```
}
```

```
int main() {
```

```
    int num;
```

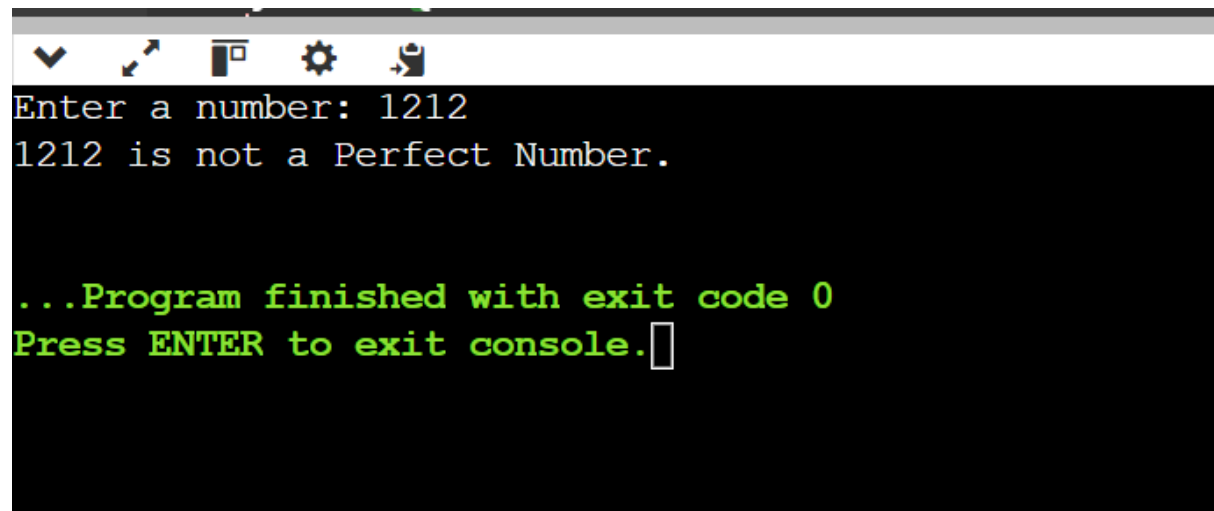
```
    printf("Enter a number: ");
```



```

scanf("%d", &num);
if (is_perfect_number(num)) {
    printf("%d is a Perfect Number.\n", num);
} else {
    printf("%d is not a Perfect Number.\n", num);
}
return 0;
}

```



```

Enter a number: 1212
1212 is not a Perfect Number.

...Program finished with exit code 0
Press ENTER to exit console.

```

QUES 6

```

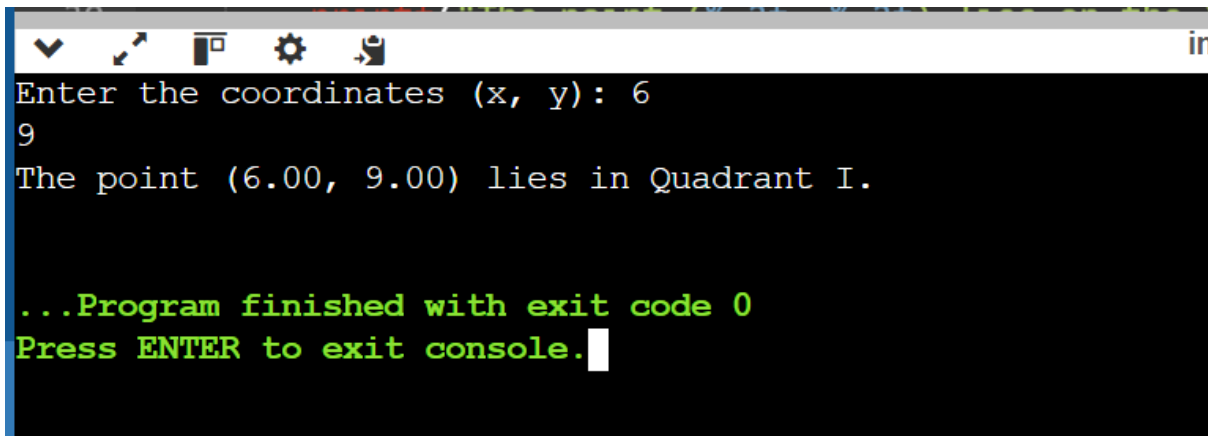
int main() {
    float x, y;
    printf("Enter the coordinates (x, y): ");
    scanf("%f %f", &x, &y);
    if (x > 0 && y > 0) {
        printf("The point (%.2f, %.2f) lies in Quadrant I.\n", x, y);
    }
    else if (x < 0 && y > 0) {
        printf("The point (%.2f, %.2f) lies in Quadrant II.\n", x, y);
    }
    else if (x < 0 && y < 0) {
        printf("The point (%.2f, %.2f) lies in Quadrant III.\n", x, y);
    }
}

```

```

}
else if (x > 0 && y < 0) {
    printf("The point (%.2f, %.2f) lies in Quadrant IV.\n", x, y);
}
else if (x == 0 && y != 0) {
    printf("The point (%.2f, %.2f) lies on the Y-axis.\n", x, y);
}
else if (y == 0 && x != 0) {
    printf("The point (%.2f, %.2f) lies on the X-axis.\n", x, y);
}
else {
    printf("The point (%.2f, %.2f) lies at the origin.\n", x, y);
}

```



```

Enter the coordinates (x, y): 6
9
The point (6.00, 9.00) lies in Quadrant I.

...Program finished with exit code 0
Press ENTER to exit console.

```

QUES 7

```

#include <stdio.h>

#include <math.h>

int binaryToDecimal(int binary) {
    int decimal = 0, i = 0, remainder;

    while (binary != 0) {
        remainder = binary % 10;
        decimal += remainder * pow(2, i);
    }
}

```

```

        binary /= 10;

        i++;
    }
    return decimal;
}

void decimalToBinary(int decimal) {
    int binary[32], i = 0;

    if (decimal == 0) {
        printf("Binary: 0\n");
        return;
    }

    while (decimal > 0) {
        binary[i] = decimal % 2;
        decimal /= 2;
        i++;
    }
    printf("Binary: ");
    for (int j = i - 1; j >= 0; j--) {
        printf("%d", binary[j]);
    }
    printf("\n");
}

int main() {
    int choice, number;

    printf("Choose an option:\n");
    printf("1. Binary to Decimal\n");
    printf("2. Decimal to Binary\n");

```

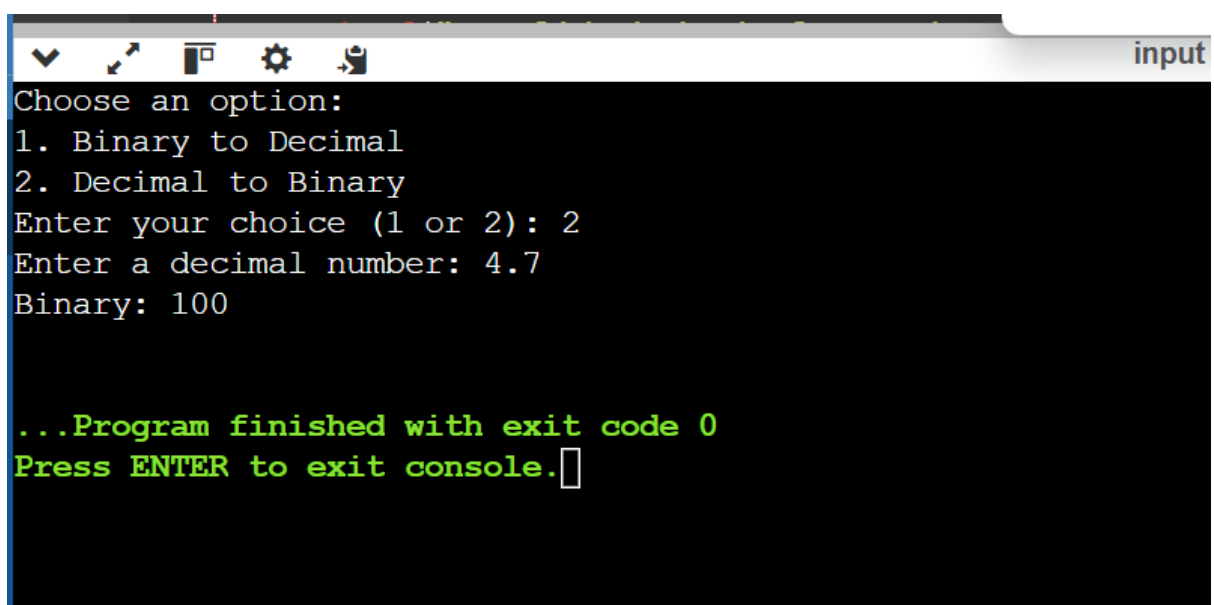
```

printf("Enter your choice (1 or 2): ");
scanf("%d", &choice);

if (choice == 1) {
    printf("Enter a binary number: ");
    scanf("%d", &number);
    printf("Decimal: %d\n", binaryToDecimal(number));
}
else if (choice == 2) {
    printf("Enter a decimal number: ");
    scanf("%d", &number);
    decimalToBinary(number);
}
else {
    printf("Invalid choice! Please choose 1 or 2.\n");
}

return 0;
}

```



```

input
Choose an option:
1. Binary to Decimal
2. Decimal to Binary
Enter your choice (1 or 2): 2
Enter a decimal number: 4.7
Binary: 100

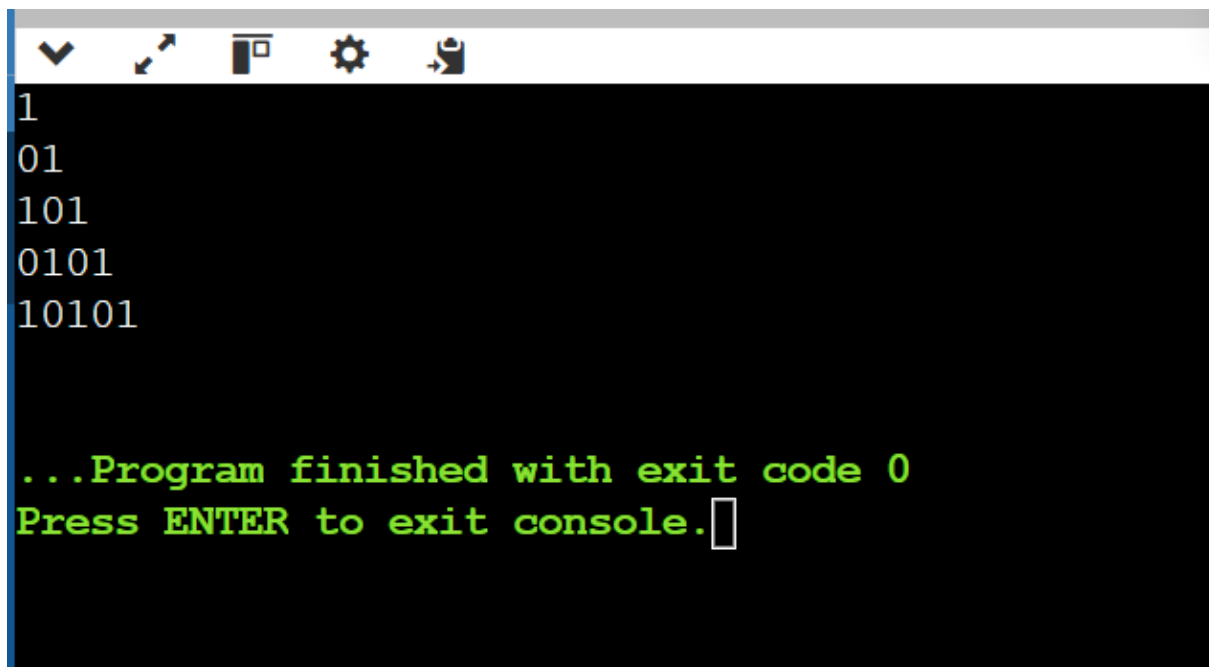
...Program finished with exit code 0
Press ENTER to exit console.

```

```
#include <stdio.h>

int main() {
    int i, j;
    for (i = 1; i <= 5; i++) {
        for (j = 1; j <= i; j++) {
            if ((i + j) % 2 == 0) {
                printf("1");
            } else {
                printf("0");
            }
        }
        printf("\n");
    }

    return 0;
}
```



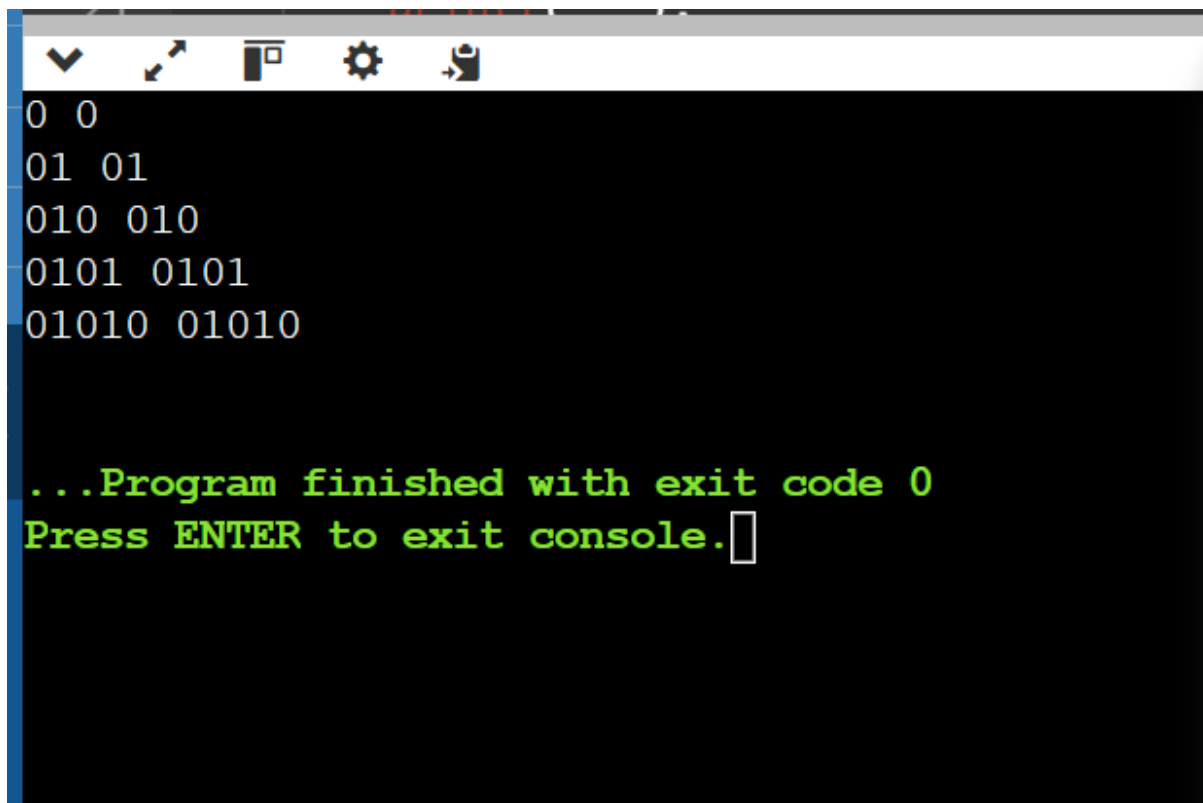
```
1
01
101
0101
10101

...Program finished with exit code 0
Press ENTER to exit console.
```

QUES 9

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

```
int main() {  
    int i, j;  
    for (i = 1; i <= 5; i++) {  
        for (j = 1; j <= i; j++) {  
            if (j % 2 == 1) {  
                printf("0");  
            } else {  
                printf("1");  
            }  
        }  
        printf(" ");  
        for (j = 1; j <= i; j++) {  
            if (j % 2 == 1) {  
                printf("0");  
            } else {  
                printf("1");  
            }  
        }  
        printf("\n");  
    }  
  
    return 0;  
}
```



```
0 0
01 01
010 010
0101 0101
01010 01010

...Program finished with exit code 0
Press ENTER to exit console.
```

QUES 10

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

```
int main() {
    int rows, i, j;

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

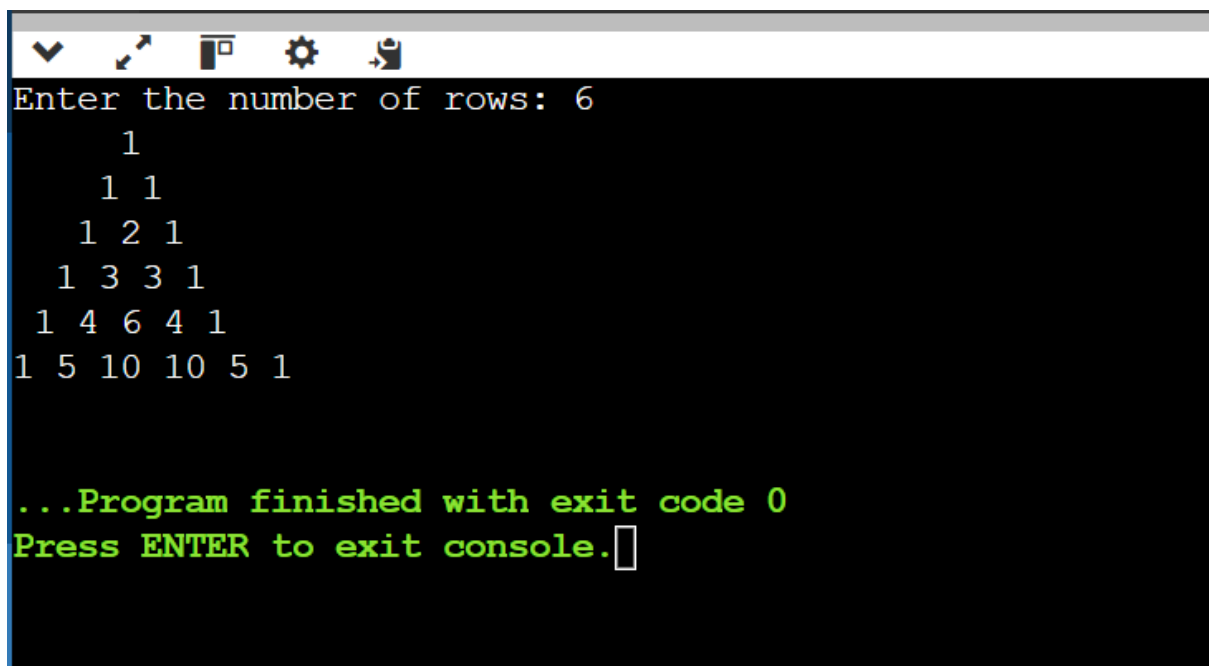
    int triangle[rows][rows];

    for (i = 0; i < rows; i++) {
        triangle[i][0] = triangle[i][i] = 1;

        for (j = 1; j < i; j++) {
            triangle[i][j] = triangle[i - 1][j - 1] + triangle[i - 1][j];
        }
    }

    for (i = 0; i < rows; i++) {
        for (j = 0; j < rows - i - 1; j++) {
            printf(" ");
        }
    }
}
```

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



The screenshot shows a terminal window with a dark background and light-colored text. At the top, there is a toolbar with icons for a dropdown menu, a cursor, a window, a gear, and a trash can. Below the toolbar, the text "Enter the number of rows: 6" is displayed. This is followed by the output of Pascal's triangle for 6 rows, with numbers aligned to the left of each row. At the bottom, the text "...Program finished with exit code 0" and "Press ENTER to exit console." is shown in a green color, with a cursor at the end of the second line.

```
Enter the number of rows: 6  
1  
1 1  
1 2 1  
1 3 3 1  
1 4 6 4 1  
1 5 10 10 5 1  
  
...Program finished with exit code 0  
Press ENTER to exit console.
```