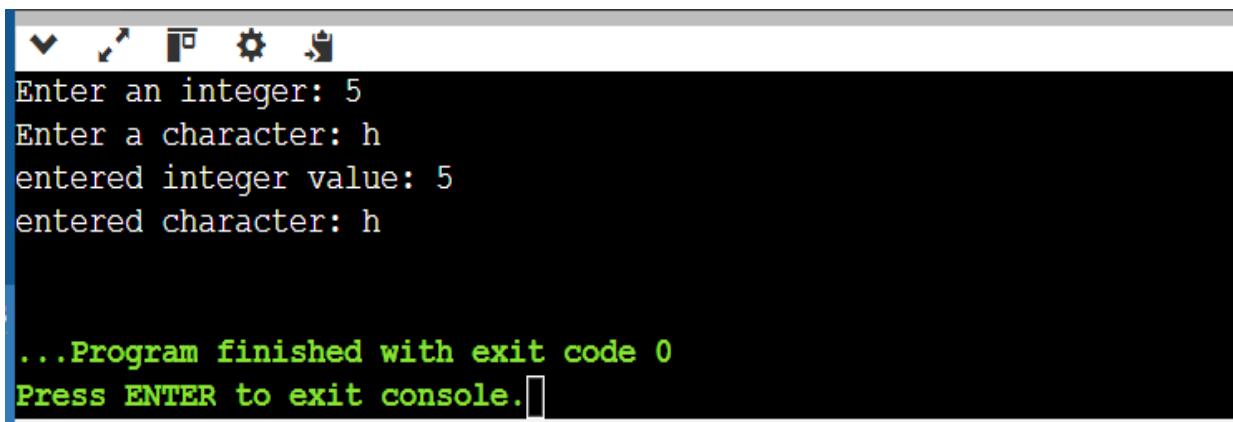


Q) Write a ‘C’ Program to Print an Integer and Character entered By the User.

SOURCE CODE:

```
main.c
1 #include <stdio.h>
2
3 int main() {
4     int num;
5     char ch;
6
7     printf("Enter an integer: ");
8     scanf("%d", &num);
9
10    getchar();
11
12    printf("Enter a character: ");
13    scanf("%c", &ch);
14
15    printf("entered integer value: %d\n", num);
16    printf("entered character: %c\n", ch);
17
18    return 0;
19 }
20
```

Input & Output:



```
Enter an integer: 5
Enter a character: h
entered integer value: 5
entered character: h

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

Q) Write a ‘C’ Program to Multiply two Floating-Point Numbers.

SOURCE CODE:

```
main.c
1 #include<stdio.h>
2
3 int main()
4 {
5     float num1, num2 ;
6
7     printf("Enter two floating-point numbers:\n ");
8     scanf("%f %f", &num1, &num2);
9
10    printf("Product = %.2f\n", num1*num2);
11
12    return 0;
13 }
```

Input & Output:

```
Enter two floating-point numbers:
17.4 21.6
Product = 375.84

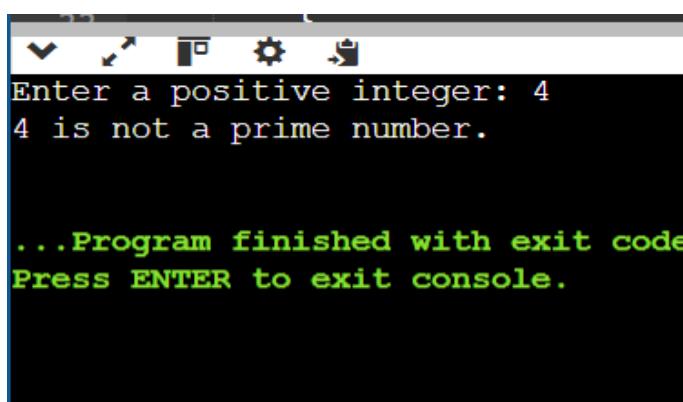
...Program finished with exit code 0
Press ENTER to exit console.
```

Q) Write a ‘C’ Program to Print to Check Whether a Number is Prime or Not.

SOURCE CODE:

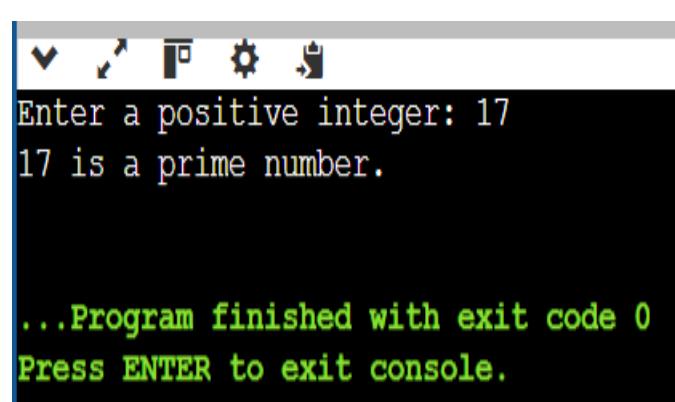
```
1 #include<stdio.h>
2
3 int main() {
4     int num, i, isPrime = 1;
5
6     printf("Enter a positive integer: ");
7     scanf("%d", &num);
8
9     if (num <= 1) {
10         isPrime = 0;
11     } else if (num == 2) {
12         isPrime = 1;
13     } else if (num % 2 == 0) {
14         isPrime = 0;
15     } else {
16
17         for (i = 3; i * i <= num; i += 2) {
18             if (num % i == 0) {
19                 isPrime = 0;
20                 break;
21             }
22         }
23     }
24     if (isPrime) {
25         printf("%d is a prime number.\n", num);
26     } else {
27         printf("%d is not a prime number.\n", num);
28     }
29     return 0;
30 }
```

Input & Output:



```
Enter a positive integer: 4
4 is not a prime number.

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



```
Enter a positive integer: 17
17 is a prime number.

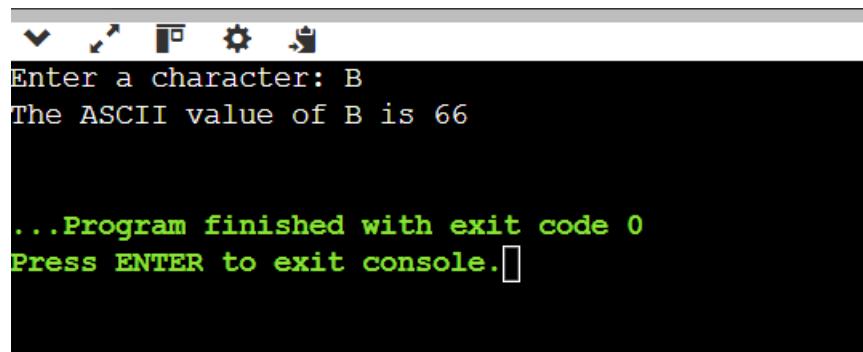
...Program finished with exit code 0
Press ENTER to exit console.
```

Q) Write a ‘C’ Program to Print C Program to Print the ASCII Value of a Character.

SOURCE CODE:

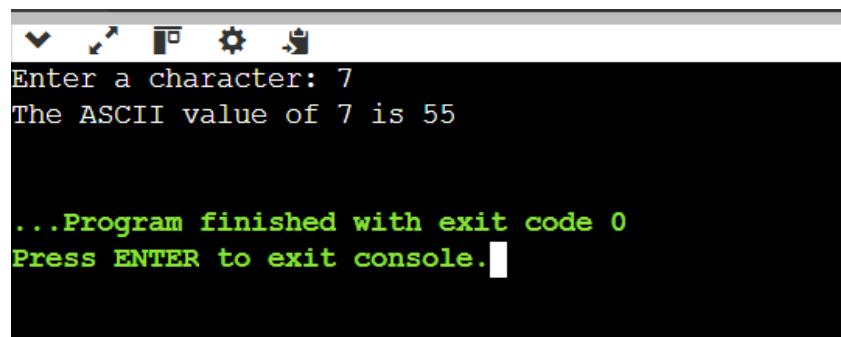
```
1 #include <stdio.h>
2
3 int main() {
4     char ch;
5
6     printf("Enter a character: ");
7     scanf("%c", &ch);
8
9     printf("The ASCII value of %c is %d\n", ch, ch);
10
11    return 0;
12 }
```

Input & Output:



```
Enter a character: B
The ASCII value of B is 66

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



```
Enter a character: 7
The ASCII value of 7 is 55

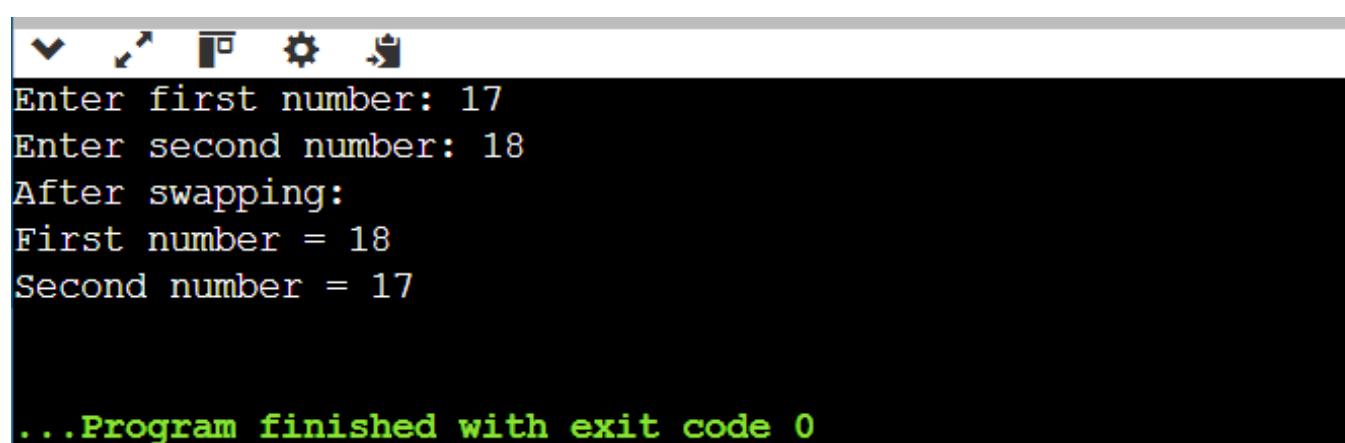
...Program finished with exit code 0
Press ENTER to exit console.█
```

Q) Write a ‘C’ Program to Swap Two Numbers.

SOURCE CODE:

```
1 #include <stdio.h>
2
3 int main() {
4     int a, b, temp;
5
6     printf("Enter first number: ");
7     scanf("%d", &a);
8
9     printf("Enter second number: ");
10    scanf("%d", &b);
11
12    temp = a;
13    a = b;
14    b = temp;
15
16    printf("After swapping:\n");
17    printf("First number = %d\n", a);
18    printf("Second number = %d\n", b);
19
20    return 0;
21 }
```

Input & Output:



```
Enter first number: 17
Enter second number: 18
After swapping:
First number = 18
Second number = 17

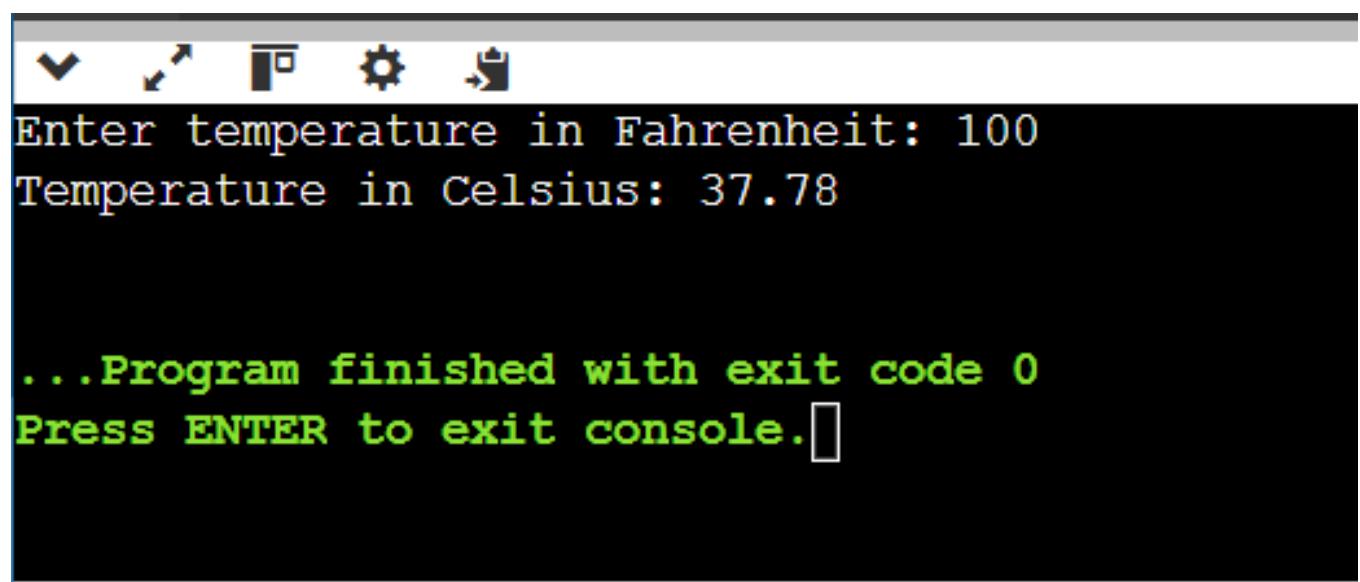
...Program finished with exit code 0
```

Q) Write a ‘C’ Program to Calculate Fahrenheit to Celsius.

SOURCE CODE:

```
1 #include <stdio.h>
2
3 int main() {
4     float fahrenheit, celsius;
5
6     printf("Enter temperature in Fahrenheit: ");
7     scanf("%f", &fahrenheit);
8
9     celsius = (fahrenheit - 32) * 5 / 9;
10
11    printf("Temperature in Celsius: %.2f\n", celsius);
12
13    return 0;
14 }
15
```

Input & Output:



```
Enter temperature in Fahrenheit: 100
Temperature in Celsius: 37.78

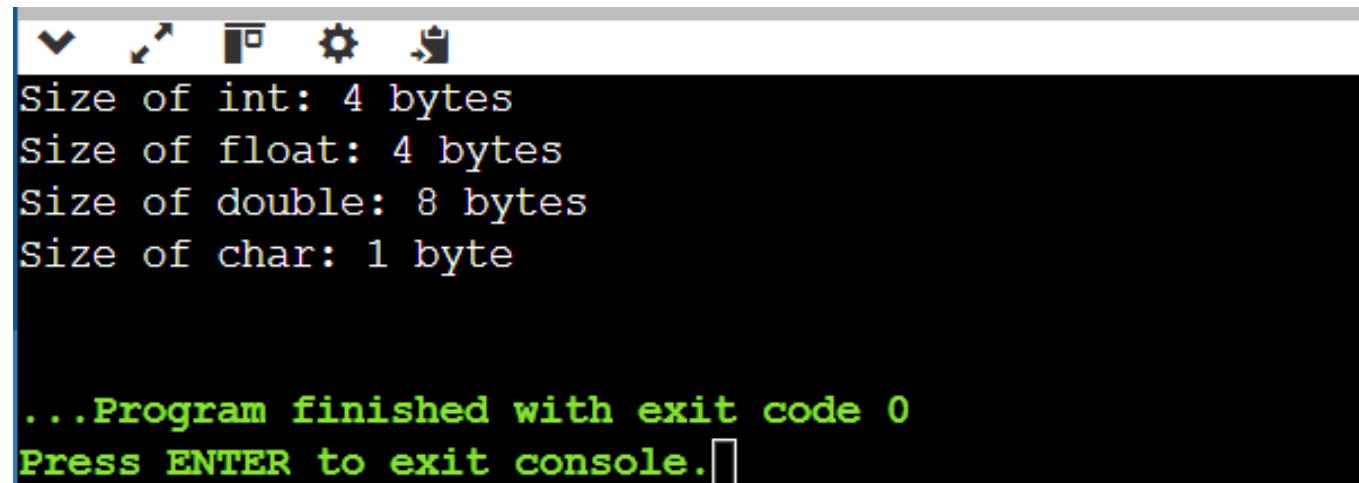
...Program finished with exit code 0
Press ENTER to exit console.
```

Q) Write a ‘C’ to Find the Size of int, float, double, and char.

SOURCE CODE:

```
1 #include <stdio.h>
2
3 int main()
4 {
5     printf("Size of int: %lu bytes\n", sizeof(int));
6     printf("Size of float: %lu bytes\n", sizeof(float));
7     printf("Size of double: %lu bytes\n", sizeof(double));
8     printf("Size of char: %lu byte\n", sizeof(char));
9     return 0;
10 }
11
```

Input & Output:



```
Size of int: 4 bytes
Size of float: 4 bytes
Size of double: 8 bytes
Size of char: 1 byte

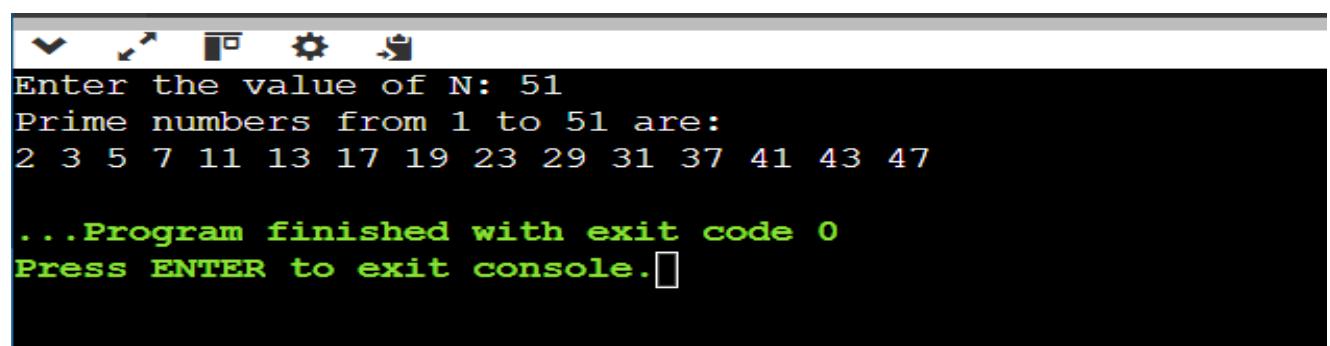
...Program finished with exit code 0
Press ENTER to exit console.[]
```

Q) Write a ‘C’ to Print Prime Numbers From 1 to N.

SOURCE CODE:

```
1 #include <stdio.h>
2
3 int main() {
4     int n, i, j, isPrime;
5     printf("Enter the value of N: ");
6     scanf("%d", &n);
7
8     printf("Prime numbers from 1 to %d are:\n", n);
9
10    for(i = 2; i <= n; i++) {
11        isPrime = 1; // Assume i is prime
12        for(j = 2; j <= i/2; j++) {
13            if(i % j == 0) {
14                isPrime = 0; // i is not prime
15                break;
16            }
17        }
18        if(isPrime == 1) {
19            printf("%d ", i);
20        }
21    }
22
23    return 0;
24 }
25
```

Input & Output:



```
Enter the value of N: 51
Prime numbers from 1 to 51 are:
2 3 5 7 11 13 17 19 23 29 31 37 41 43 47

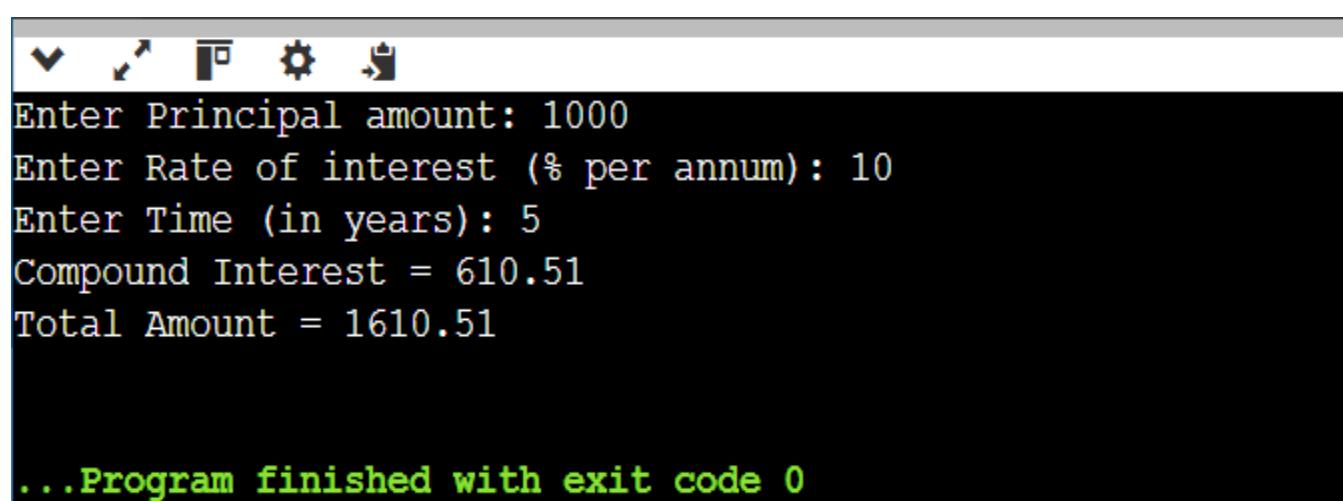
...Program finished with exit code 0
Press ENTER to exit console.[]
```

Q) Write a 'C' to Find Compound Interest.

SOURCE CODE:

```
1 #include<stdio.h>
2 #include<math.h>
3
4 int main()
5 {
6     float principal, rate, time, compoundInterest, amount;
7
8     printf("Enter Principal amount: ");
9     scanf("%f", &principal);
10
11    printf("Enter Rate of interest (% per annum): ");
12    scanf("%f", &rate);
13
14    printf("Enter Time (in years): ");
15    scanf("%f", &time);
16
17    amount = principal * pow((1 + rate / 100), time);
18    compoundInterest = amount - principal;
19
20    printf("Compound Interest = %.2f\n", compoundInterest);
21    printf("Total Amount = %.2f\n", amount);
22
23    return 0;
24 }
25
```

Input & Output:



The screenshot shows a terminal window with the following interaction:

```
Enter Principal amount: 1000
Enter Rate of interest (% per annum): 10
Enter Time (in years): 5
Compound Interest = 610.51
Total Amount = 1610.51

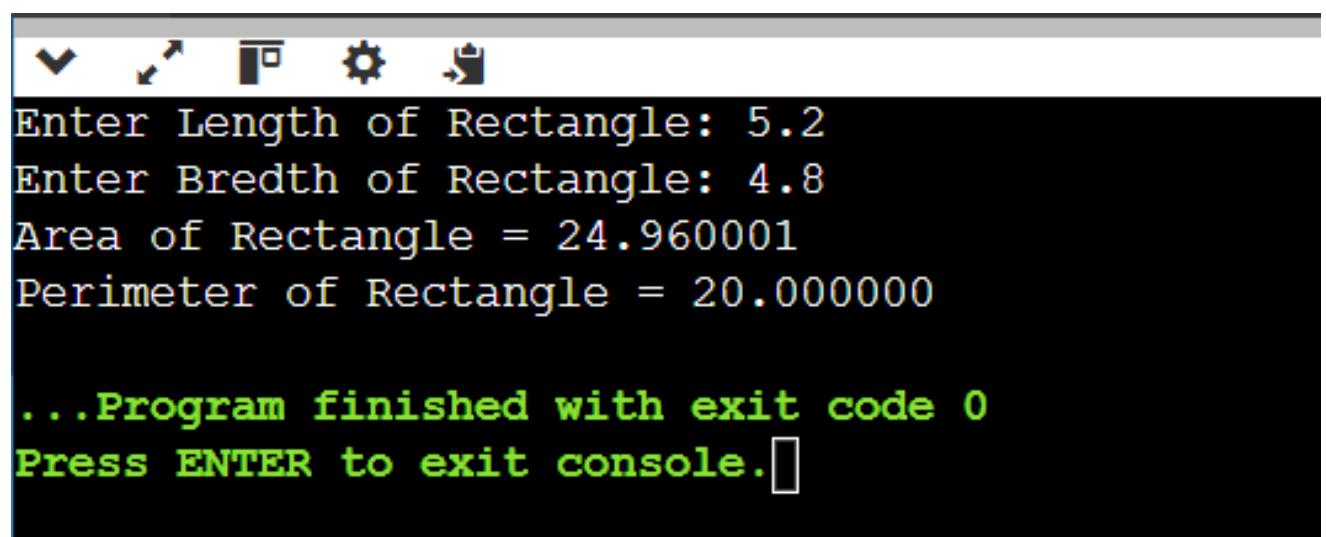
...Program finished with exit code 0
```

Q) Write a ‘C’ for Area and Perimeter of Rectangle.

SOURCE CODE:

```
1 #include<stdio.h>
2
3 int main()
4 {
5     float length, breadth;
6
7     printf("Enter Length of Rectangle: ");
8     scanf("%f", &length);
9
10    printf("Enter Breadth of Rectangle: ");
11    scanf("%f", &breadth);
12
13    printf("Area of Rectangle = %f \n", length*breadth);
14
15    printf("Perimeter of Rectangle = %f", 2*(length+breadth));
16
17    return 0;
18
19 }
```

Input & Output:



The screenshot shows a terminal window with the following text output:

```
Enter Length of Rectangle: 5.2
Enter Breadth of Rectangle: 4.8
Area of Rectangle = 24.960001
Perimeter of Rectangle = 20.000000

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

Q) Write a ‘C’ Program to Check Whether a Number is Positive, Negative, or Zero.

SOURCE CODE:

```
#include<stdio.h>

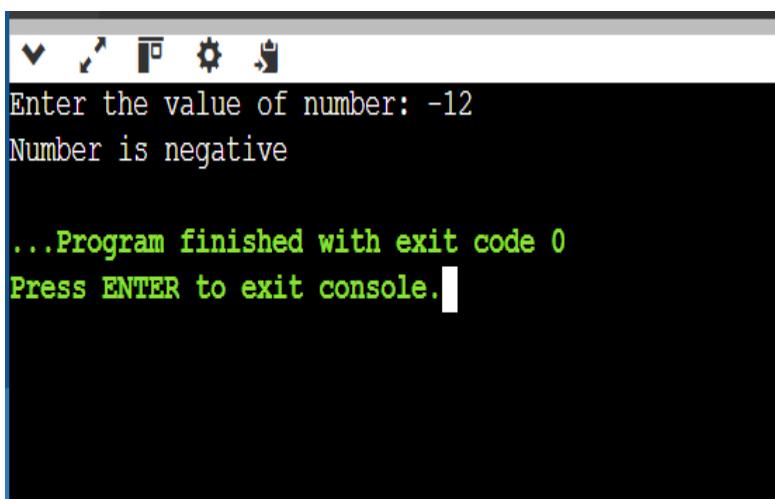
int main()
{
    int num;

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

    if(num>0){
        printf("Number is positive");
    }
    else if(num<0){
        printf("Number is negative");
    }
    else {
        printf("Number is Zero");
    }

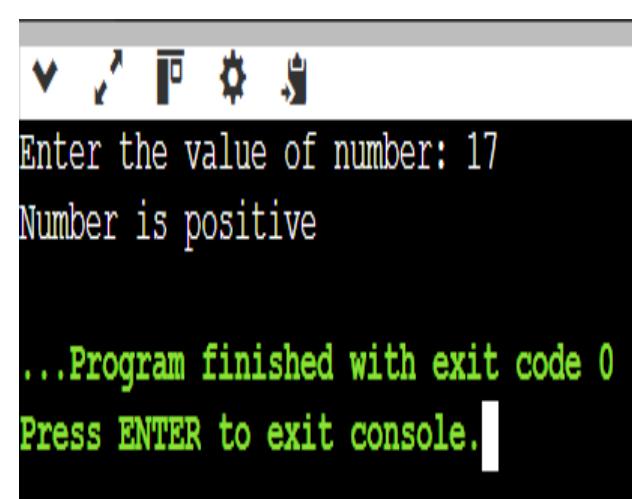
    return 0;
}
```

Input & Output:



```
Enter the value of number: -12
Number is negative

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



```
Enter the value of number: 17
Number is positive

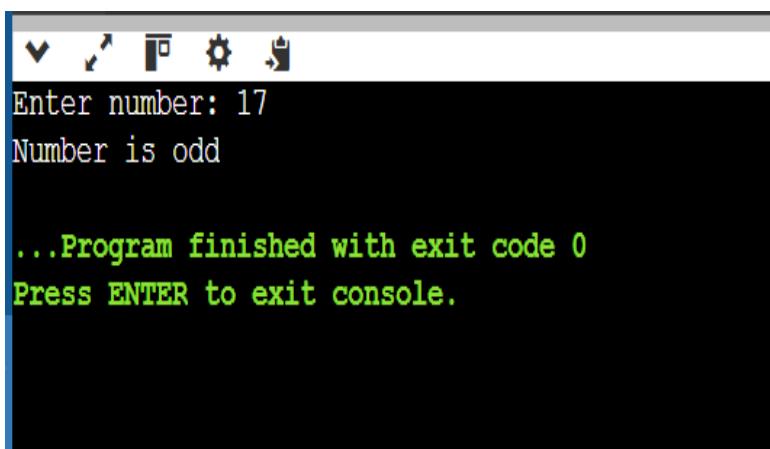
...Program finished with exit code 0
Press ENTER to exit console.
```

Q) Write a ‘C’ Program to Check Whether Number is Even or Odd.

SOURCE CODE:

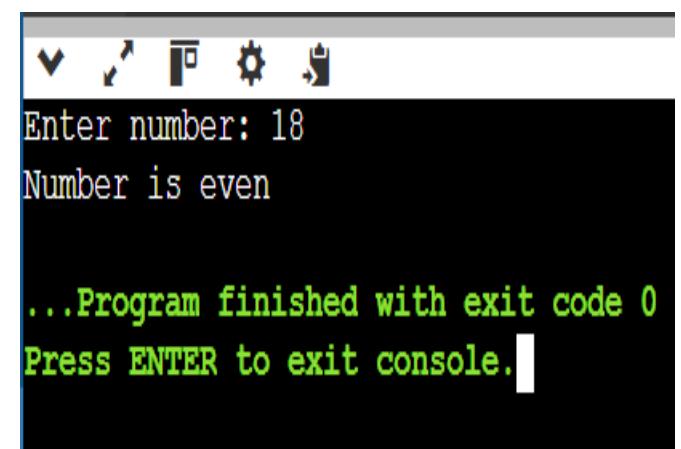
```
1 #include<stdio.h>
2
3 int main()
4 {
5     int num;;
6
7     printf("Enter number:| ");
8     scanf("%d", &num);
9
10    if(num%2==0){
11        printf("Number is even");
12    }
13    else{
14        printf("Number is odd");
15    }
16
17    return 0;
18 }
```

Input & Output:



```
Enter number: 17
Number is odd

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



```
Enter number: 18
Number is even

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

Q) Write a ‘C’ Program to Check Whether a Character is Vowel or Consonant.

SOURCE CODE:

```
1 #include <stdio.h>
2
3 int main() {
4     char ch;
5     printf("Enter a character: ");
6     scanf("%c", &ch);
7
8     if (ch == 'A' || ch == 'E' || ch == 'I' || ch == 'O' || ch == 'U' ||
9         ch == 'a' || ch == 'e' || ch == 'i' || ch == 'o' || ch == 'u') {
10        printf("%c is a vowel.\n", ch);
11    } else if ((ch >= 'A' && ch <= 'Z') || (ch >= 'a' && ch <= 'z')) {
12        printf("%c is a consonant.\n", ch);
13    } else {
14        printf("%c is not an alphabet character.\n", ch);
15    }
16
17    return 0;
18 }
19
```

Input & Output:

```
Enter a character: A
A is a vowel.

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

```
Enter a character: B
B is a consonant.

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

```
Enter a character: 8
8 is not an alphabet character.

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

Q) Write a ‘C’ Program to Find Largest Number Among Three Numbers.

SOURCE CODE:

```
#include <stdio.h>

int main() {
    int a, b, c;

    printf("Enter value of a: ");
    scanf("%d", &a);

    printf("Enter value of b: ");
    scanf("%d", &b);

    printf("Enter value of c: ");
    scanf("%d", &c);

    if (a >= b && a >= c) {
        printf("%d is the largest number.\n", a);
    }
    else if (b >= a && b >= c) {
        printf("%d is the largest number.\n", b);
    }
    else {
        printf("%d is the largest number.\n", c);
    }

    return 0;
}
```

Input & Output:

```
v ↻ ⌂ ⚙ 🗑
Enter value of a: 17
Enter value of b: 21
Enter value of c: 20
21 is the largest number among all

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

```
v ↻ ⌂ ⚙ 🗑
Enter value of a: 44
Enter value of b: 54
Enter value of c: 98
98 is the largest number among all

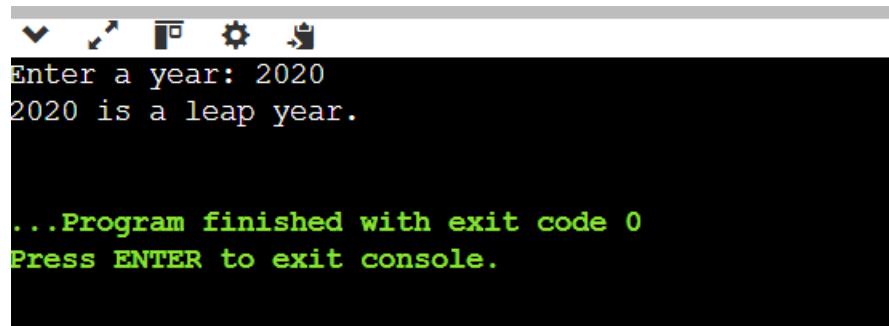
...Program finished with exit code 0
Press ENTER to exit console. █
```

Q) Write a ‘C’ Program to Check Leap Year.

SOURCE CODE:

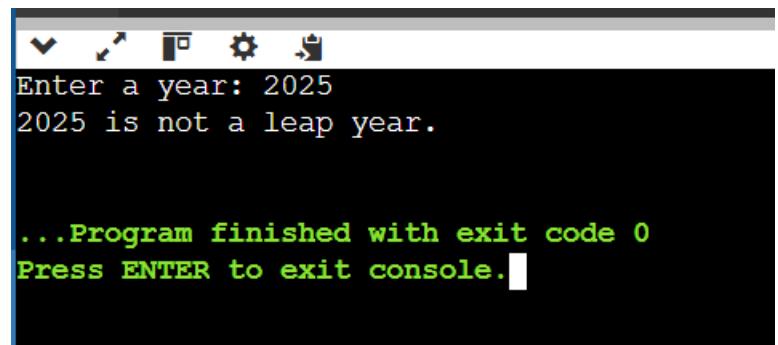
```
main.c
1 #include <stdio.h>
2
3 int main() {
4     int year;
5
6     printf("Enter a year: ");
7     scanf("%d", &year);
8
9     if ((year % 4 == 0 && year % 100 != 0) || (year % 400 == 0)) {
10         printf("%d is a leap year.\n", year);
11     } else {
12         printf("%d is not a leap year.\n", year);
13     }
14
15     return 0;
16 }
17
```

INPUT & OUTPUT



```
Enter a year: 2020
2020 is a leap year.

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



```
Enter a year: 2025
2025 is not a leap year.

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

Q) Write a ‘C’ Program to Find Factorial of a Number.

SOURCE CODE:

```
#include <stdio.h>

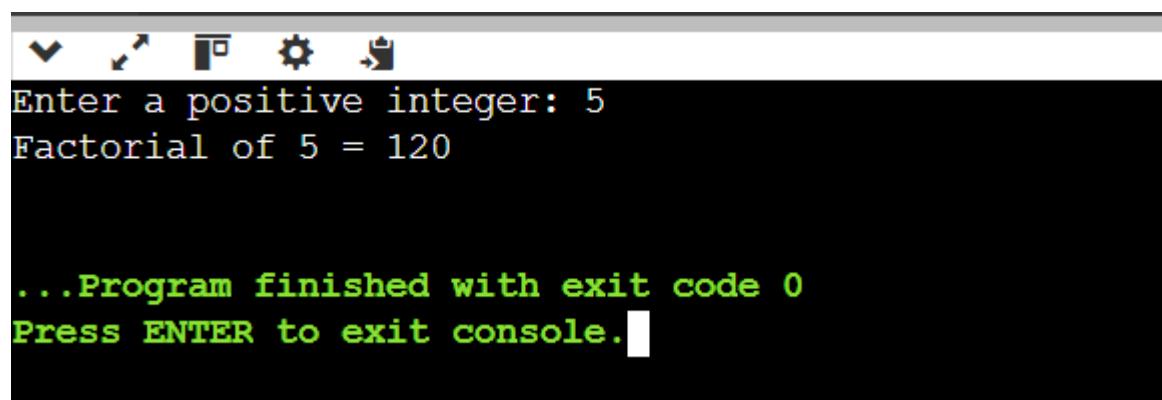
int main() {
    int n, i;
    unsigned long long factorial = 1;

    printf("Enter a positive integer: ");
    scanf("%d", &n);

    if (n < 0) {
        printf("Factorial is not defined for negative numbers.\n");
    } else {
        for (i = 1; i <= n; ++i) {
            factorial *= i; // Multiply and store result
        }
        printf("Factorial of %d = %llu\n", n, factorial);
    }

    return 0;
}
```

INPUT & OUTPUT:



The screenshot shows a terminal window with the following output:

```
Enter a positive integer: 5
Factorial of 5 = 120

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

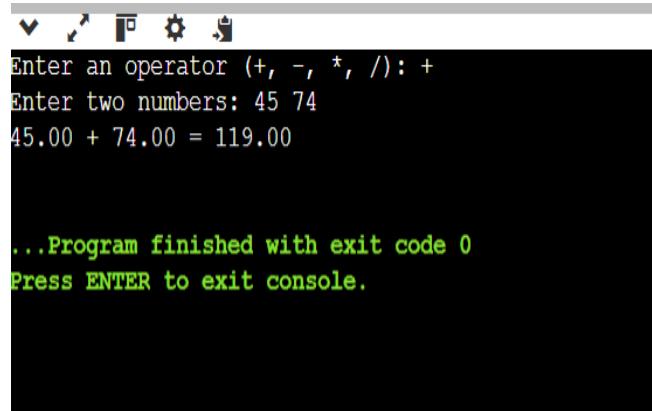
The terminal interface includes standard icons for file operations (New, Open, Save, Cut, Copy, Paste, Find, Settings, Help) at the top.

Q) Write a ‘C’ Program to Make a Simple Calculator.

SOURCE CODE:

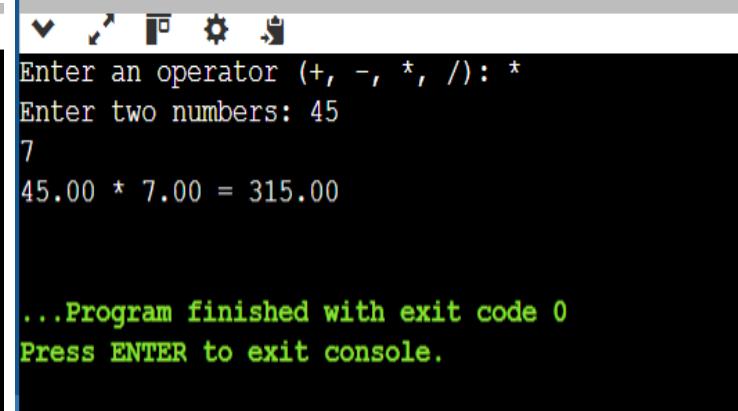
```
1 #include <stdio.h>
2
3 int main() {
4     char operator;
5     double num1, num2, result;
6
7     printf("Enter an operator (+, -, *, /): ");
8     scanf("%c", &operator);
9     printf("Enter two numbers: ");
0     scanf("%lf %lf", &num1, &num2);
1
2     switch (operator) {
3         case '+':
4             result = num1 + num2;
5             printf("%.2lf + %.2lf = %.2lf\n", num1, num2, result);
6             break;
7         case '-':
8             result = num1 - num2;
9             printf("%.2lf - %.2lf = %.2lf\n", num1, num2, result);
0             break;
1         case '*':
2             result = num1 * num2;
3             printf("%.2lf * %.2lf = %.2lf\n", num1, num2, result);
4             break;
5         case '/':
6             if (num2 != 0) {
7                 result = num1 / num2;
8                 printf("%.2lf / %.2lf = %.2lf\n", num1, num2, result);
9             } else {
0                 printf("Error! Division by zero is not allowed.\n");
1             }
2             break;
3         default:
4             printf("Invalid operator.\n");
5     }
6
7     return 0;
8 }
```

INPUT & OUTPUT:



```
Enter an operator (+, -, *, /): +
Enter two numbers: 45 74
45.00 + 74.00 = 119.00

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



```
Enter an operator (+, -, *, /): *
Enter two numbers: 45
7
45.00 * 7.00 = 315.00

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

Q) Write a ‘C’ Program to Print Fibonacci Series

SOURCE CODE:

```
#include <stdio.h>

int main() {
    int n, i;
    int first = 0, second = 1, next;

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

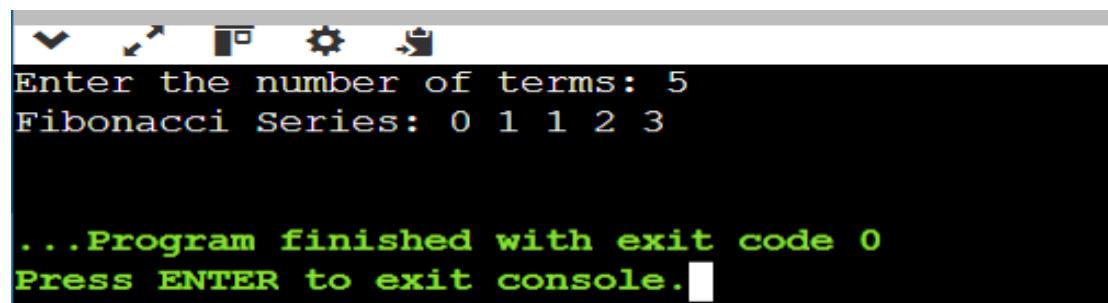
    printf("Fibonacci Series: ");

    for (i = 0; i < n; i++) {
        if (i == 0) {
            printf("%d ", first);
        } else if (i == 1) {
            printf("%d ", second);
        } else {
            next = first + second;
            printf("%d ", next);
            first = second;
            second = next;
        }
    }

    printf("\n");

    return 0;
}
```

INPUT & OUTPUT:



The screenshot shows a terminal window with the following text output:

```
Enter the number of terms: 5
Fibonacci Series: 0 1 1 2 3

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

Q) .Write a ‘C’ Program to Check Whether a Number is Prime or Not.

SOURCE CODE:

```
#include <stdio.h>

int main() {
    int n, i, isPrime = 1;

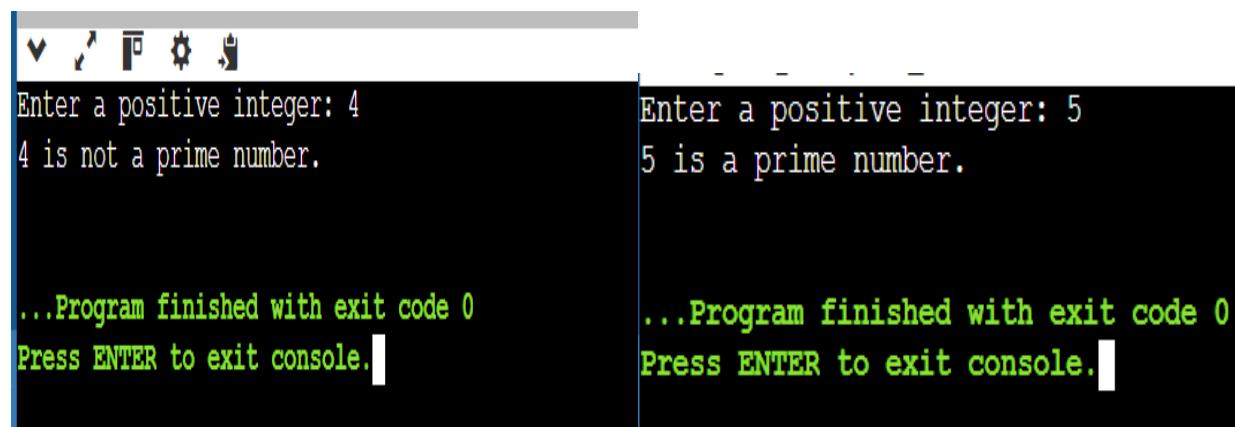
    printf("Enter a positive integer: ");
    scanf("%d", &n);

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

    if (isPrime)
        printf("%d is a prime number.\n", n);
    else
        printf("%d is not a prime number.\n", n);

    return 0;
}
```

INPUT & OUTPUT:



The image shows two separate terminal sessions side-by-side. Both sessions begin with the prompt "Enter a positive integer:". The user inputs "4" in the left session and "5" in the right session. The program then outputs whether the number is prime or not. In the left session, it says "4 is not a prime number.". In the right session, it says "5 is a prime number.". At the bottom of each session, there is a message "...Program finished with exit code 0" followed by "Press ENTER to exit console.".

Enter a positive integer: 4	Enter a positive integer: 5
4 is not a prime number.	5 is a prime number.
...Program finished with exit code 0	...Program finished with exit code 0
Press ENTER to exit console.	Press ENTER to exit console.

Q) Write a ‘C’ Program to Print a 2D Array elements

SOURCE CODE:

```
#include <stdio.h>

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

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

    int arr[rows][cols];

    printf("Enter elements of the array:\n");
    for (i = 0; i < rows; i++) {
        for (j = 0; j < cols; j++) {
            printf("Element at [%d][%d]: ", i, j);
            scanf("%d", &arr[i][j]);
        }
    }

    printf("The 2D array is:\n");
    for (i = 0; i < rows; i++) {
        for (j = 0; j < cols; j++) {
            printf("%d ", arr[i][j]);
        }
        printf("\n");
    }

    return 0;
}
```

INPUT & OUTPUT:

```
Enter the number of rows: 2
Enter the number of columns: 2
Enter elements of the array:
Element at [0][0]: 2
Element at [0][1]: 3
Element at [1][0]: 4
Element at [1][1]: 5
The 2D array is:
2 3
4 5

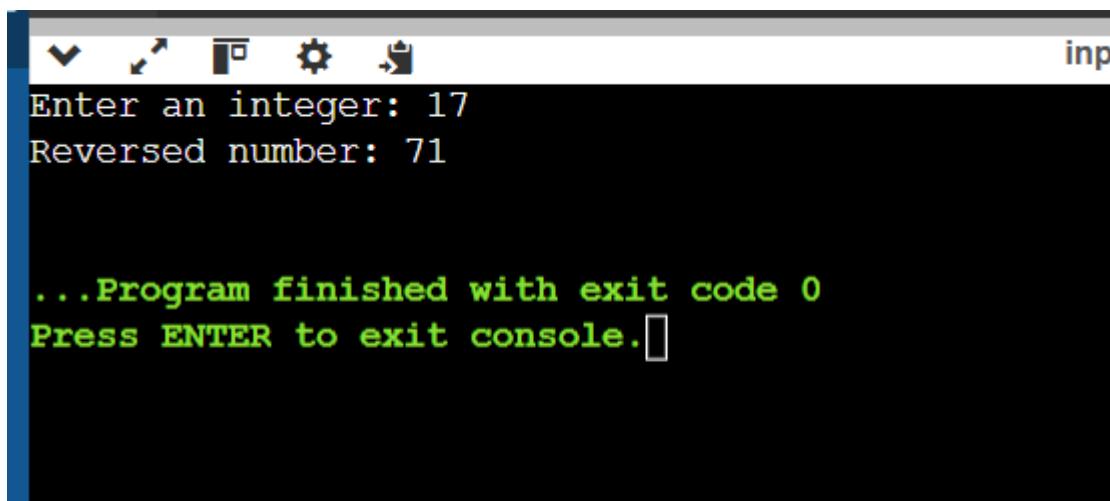
...Program finished with exit code 0
Press ENTER to exit console.
```

Q) Write a ‘C’ program to print the reverse of a given number

SOURCE CODE

```
#include <stdio.h>
int main() {
    int num, rev = 0, rem;
    printf("Enter an integer: ");
    scanf("%d", &num);
    while (num != 0) {
        rem = num % 10;
        rev = rev * 10 + rem;
        num = num / 10;
    }
    printf("Reversed number: %d\n", rev);
    return 0;
}
```

INPUT & OUTPUT:



```
inp
Enter an integer: 17
Reversed number: 71

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

Q) Write a ‘C’ Program to Find All Factors of a Natural Number.

SOURCE CODE:

```
#include <stdio.h>

int main() {
    int num, i;
    printf("Enter a natural number: ");
    scanf("%d", &num);

    printf("Factors of %d are: ", num);
    for(i = 1; i <= num; i++) {
        if(num % i == 0) {
            printf("%d ", i);
        }
    }
    return 0;
}
```

INPUT & OUTPUT:

```
Enter a natural number: 8
Factors of 8 are: 1 2 4 8

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

Q) .Write a ‘C’ Program to Reverse a Number

SOURCE CODE:

```
#include <stdio.h>

int main() {
    int num, reversed = 0, remainder;
    printf("Enter an integer: ");
    scanf("%d", &num);

    while(num != 0) {
        remainder = num % 10;
        reversed = reversed * 10 + remainder;
        num = num / 10;
    }

    printf("Reversed number: %d\n", reversed);
    return 0;
}
```

INPUT & OUTPUT:



The screenshot shows a terminal window with the following text output:

```
Enter an integer: 45
Reversed number: 54

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

Q) Write a ‘C’Program to Find the Largest Element in an Array.

SOURCE CODE:

```
#include <stdio.h>

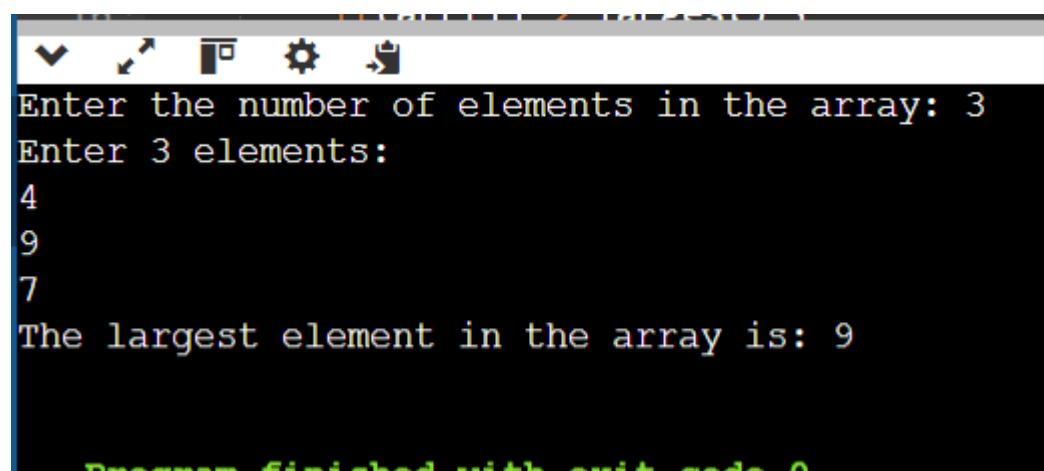
int main() {
    int n, i, largest;
    printf("Enter the number of elements in the array: ");
    scanf("%d", &n);

    int arr[n];
    printf("Enter %d elements:\n", n);
    for(i = 0; i < n; i++) {
        scanf("%d", &arr[i]);
    }

    largest = arr[0];
    for(i = 1; i < n; i++) {
        if(arr[i] > largest) {
            largest = arr[i];
        }
    }

    printf("The largest element in the array is: %d\n", largest);
    return 0;
}
```

INPUT & OUTPUT:



The screenshot shows a terminal window with the following interaction:

```
Enter the number of elements in the array: 3
Enter 3 elements:
4
9
7
The largest element in the array is: 9
Program finished with exit code 0
```

Q) Write a ‘C’ program to calculate the quotient and remainder of a number.

SOURCE CODE:

```
#include <stdio.h>

int main() {
    int dividend, divisor, quotient, remainder;

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

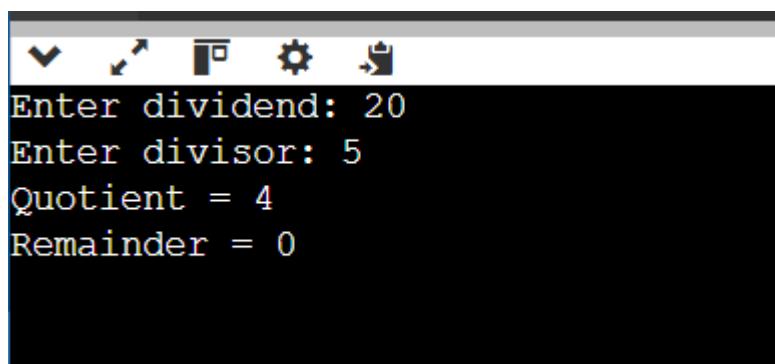
    printf("Enter divisor: ");
    scanf("%d", &divisor);

    quotient = dividend / divisor;
    remainder = dividend % divisor;

    printf("Quotient = %d\n", quotient);
    printf("Remainder = %d\n", remainder);

    return 0;
}
```

INPUT & OUTPUT:



```
Enter dividend: 20
Enter divisor: 5
Quotient = 4
Remainder = 0
```

Q) Write a ‘C’ program for swapping two numbers either using a temporary variable or without a temporary variable.

SOURCE CODE:

```
#include <stdio.h>

int main() {
    int a, b, temp;

    printf("Enter two numbers (swap using temp variable): ");
    scanf("%d %d", &a, &b);

    temp = a;
    a = b;
    b = temp;

    printf("After swapping (using temp variable): a = %d, b = %d\n", a, b);

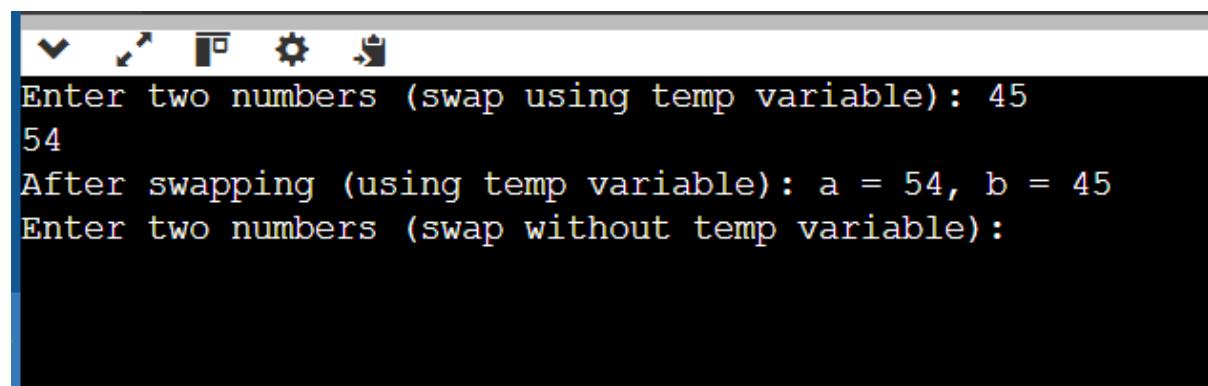
    printf("Enter two numbers (swap without temp variable): ");
    scanf("%d %d", &a, &b);

    a = a + b;
    b = a - b;
    a = a - b;

    printf("After swapping (without temp variable): a = %d, b = %d\n", a, b);

    return 0;
}
```

INPUT & OUTPUT:



The screenshot shows a terminal window with a dark background and light-colored text. At the top, there are several small icons. The main area contains the following text:

```
Enter two numbers (swap using temp variable): 45
54
After swapping (using temp variable): a = 54, b = 45
Enter two numbers (swap without temp variable):
```

Q) Write a ‘C’ program to print the ASCII code of a character.

SOURCE CODE:

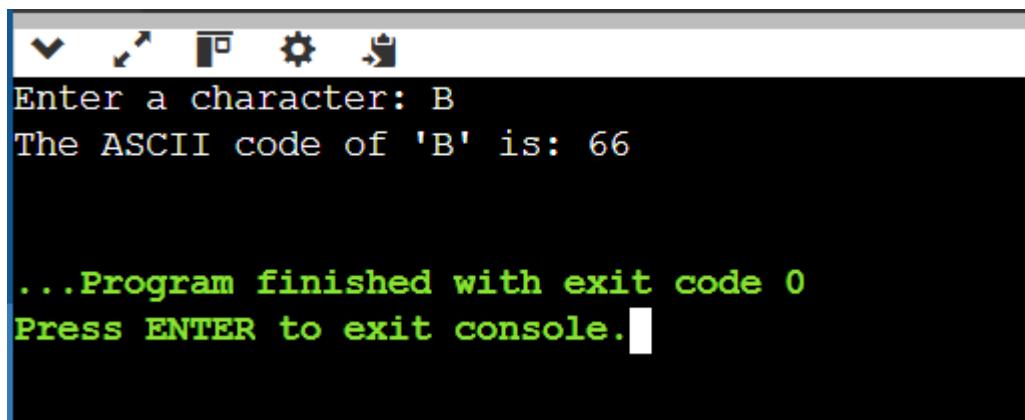
```
#include <stdio.h>

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

    printf("The ASCII code of '%c' is: %d\n", ch, ch);

    return 0;
}
```

INPUT & OUTPUT:



```
Enter a character: B
The ASCII code of 'B' is: 66

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

Q) Write a ‘C’ program to convert degree Celsius to degree Fahrenheit.

SOURCE CODE:

```
#include <stdio.h>

int main() {
    float celsius, fahrenheit;

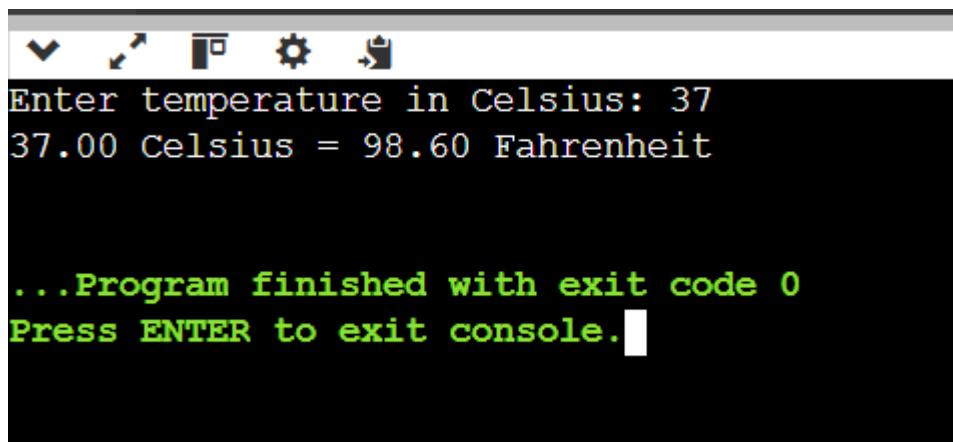
    printf("Enter temperature in Celsius: ");
    scanf("%f", &celsius);

    fahrenheit = (celsius * 9 / 5) + 32;

    printf("%.2f Celsius = %.2f Fahrenheit\n", celsius, fahrenheit);

    return 0;
}
```

INPUT & OUTPUT:



```
Enter temperature in Celsius: 37
37.00 Celsius = 98.60 Fahrenheit

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

Q) Write a ‘C’ program to convert temperature in fahrenheit into degree Celsius

SOURCE CODE:

```
#include <stdio.h>

int main() {
    float fahrenheit, celsius;

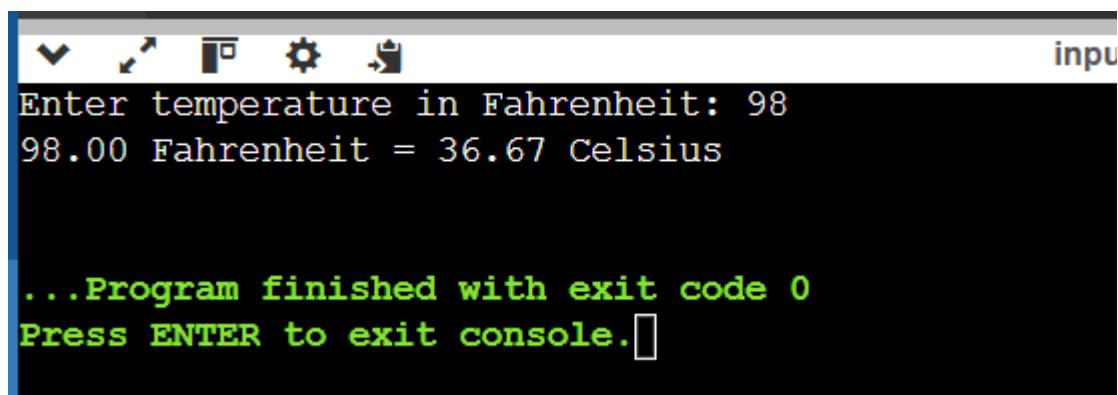
    printf("Enter temperature in Fahrenheit: ");
    scanf("%f", &fahrenheit);

    celsius = (fahrenheit - 32) * 5 / 9;

    printf("%.2f Fahrenheit = %.2f Celsius\n", fahrenheit, celsius);

    return 0;
}
```

INPUT & OUTPUT:



```
Enter temperature in Fahrenheit: 98
98.00 Fahrenheit = 36.67 Celsius

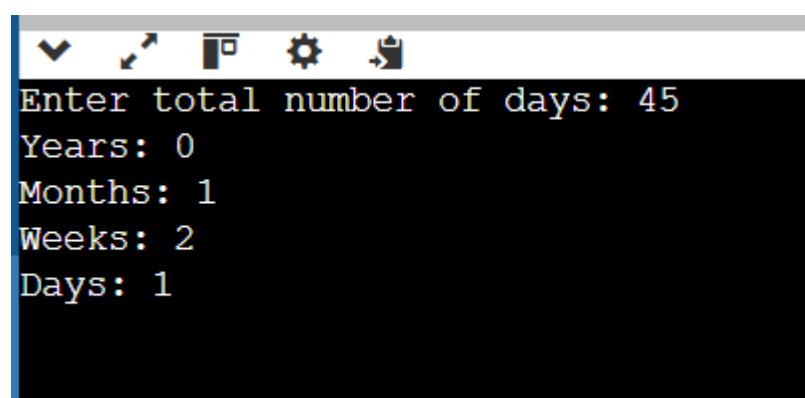
...Program finished with exit code 0
Press ENTER to exit console.
```

Q) Write a ‘C’ program to convert days into years , months, weeks and left days

SOURCE CODE:

```
1 #include <stdio.h>
2
3 int main() {
4     int days, years, months, weeks, remaining_days;
5
6     printf("Enter total number of days: ");
7     scanf("%d", &days);
8
9     years = days / 365;
10    days = days % 365;
11
12    months = days / 30;
13    days = days % 30;
14
15    weeks = days / 7;
16    remaining_days = days % 7;
17
18    printf("Years: %d\n", years);
19    printf("Months: %d\n", months);
20    printf("Weeks: %d\n", weeks);
21    printf("Days: %d\n", remaining_days);
22
23    return 0;
24 }
```

INPUT & OUTPUT:



```
Enter total number of days: 45
Years: 0
Months: 1
Weeks: 2
Days: 1
```

Q) Write a ‘C’ program to convert seconds into hours , minutes and seconds.

SOURCE CODE:

```
#include <stdio.h>

int main() {
    int total_seconds, hours, minutes, seconds;

    printf("Enter total seconds: ");
    scanf("%d", &total_seconds);

    hours = total_seconds / 3600;
    total_seconds = total_seconds % 3600;

    minutes = total_seconds / 60;
    seconds = total_seconds % 60;

    printf("Hours: %d\n", hours);
    printf("Minutes: %d\n", minutes);
    printf("Seconds: %d\n", seconds);

    return 0;
}
```

INPUT & OUTPUT:

```
Enter total seconds: 45000
Hours: 12
Minutes: 30
Seconds: 0

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

Q) Write a ‘C’ program to calculate the total salary where HRA=40% of basic salary and DA=20% of basic salary.

SOURCE CODE:

```
#include <stdio.h>

int main() {
    float basic_salary, hra, da, total_salary;

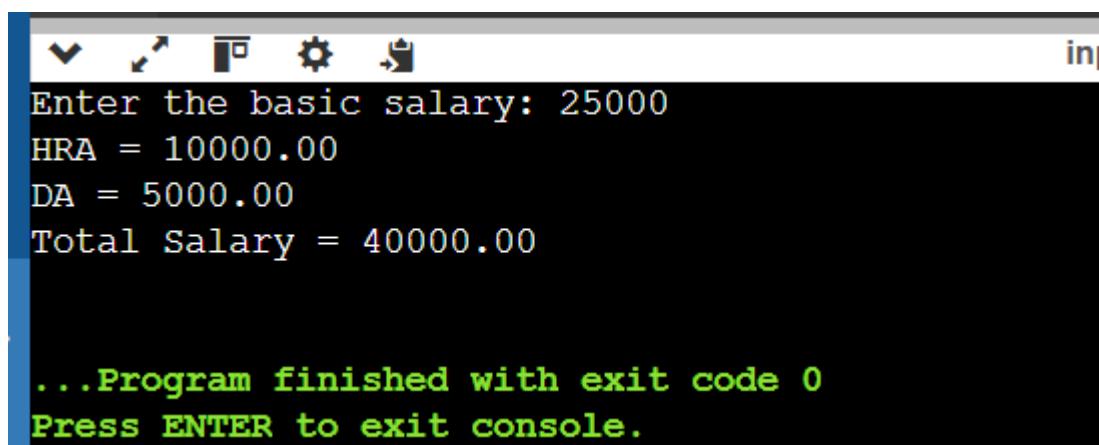
    printf("Enter the basic salary: ");
    scanf("%f", &basic_salary);

    hra = 0.40 * basic_salary;
    da = 0.20 * basic_salary;
    total_salary = basic_salary + hra + da;

    printf("HRA = %.2f\n", hra);
    printf("DA = %.2f\n", da);
    printf("Total Salary = %.2f\n", total_salary);

    return 0;
}
```

INPUT & OUTPUT:



```
Enter the basic salary: 25000
HRA = 10000.00
DA = 5000.00
Total Salary = 40000.00

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

Q) Write a ‘C’ Program to Find the Transpose

SOURCE CODE:

```
#include <stdio.h>

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

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

    int matrix[rows][cols], transpose[cols][rows];

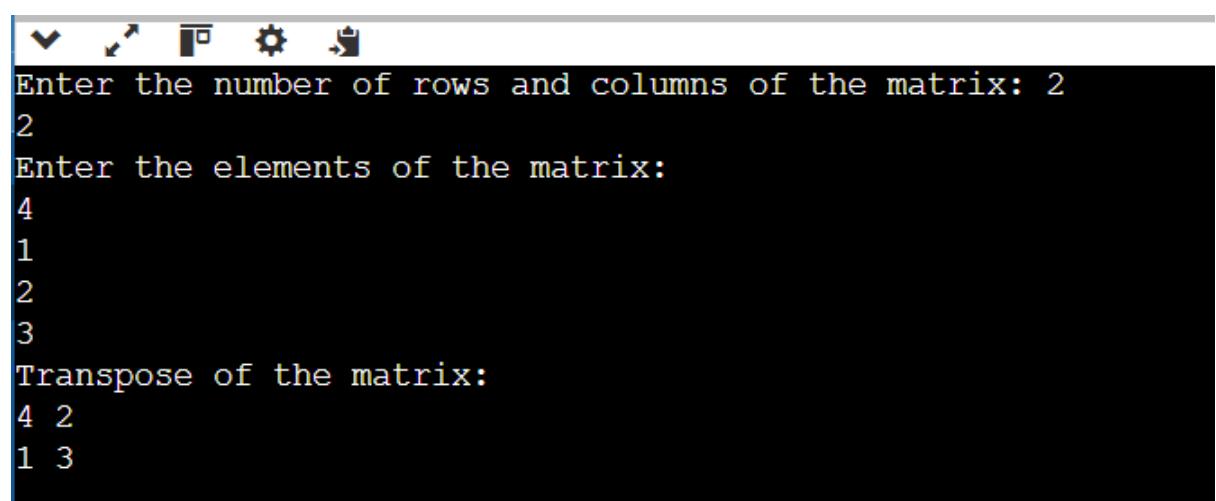
    printf("Enter the elements of the matrix:\n");
    for(i = 0; i < rows; i++) {
        for(j = 0; j < cols; j++) {
            scanf("%d", &matrix[i][j]);
        }
    }

    for(i = 0; i < rows; i++) {
        for(j = 0; j < cols; j++) {
            transpose[j][i] = matrix[i][j];
        }
    }

    printf("Transpose of the matrix:\n");
    for(i = 0; i < cols; i++) {
        for(j = 0; j < rows; j++) {
            printf("%d ", transpose[i][j]);
        }
        printf("\n");
    }

    return 0;
}
```

INPUT & OUTPUT:



```
Enter the number of rows and columns of the matrix: 2
2
Enter the elements of the matrix:
4
1
2
3
Transpose of the matrix:
4 2
1 3
```

Q) Write a ‘C’ Program to Find the Determinant of a Matrix

SOURCE CODE:

```
#include <stdio.h>

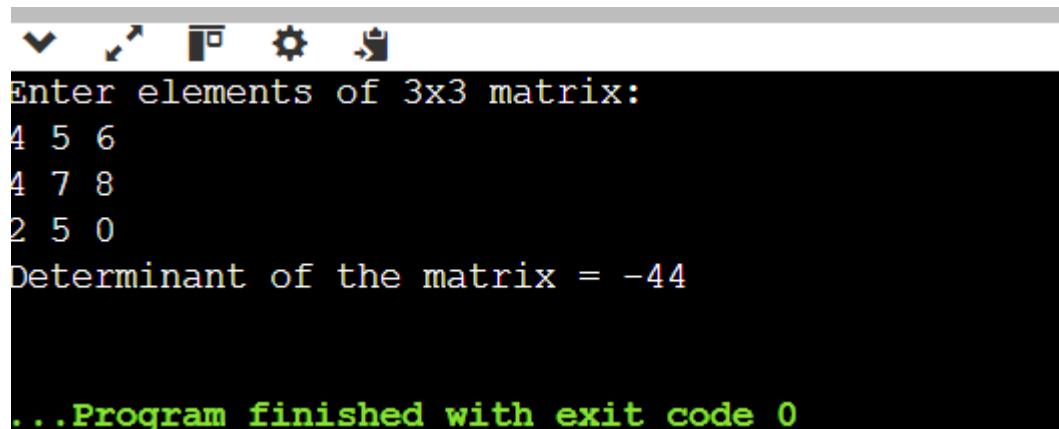
int main() {
    int i, j;
    int matrix[3][3];
    int determinant;

    printf("Enter elements of 3x3 matrix:\n");
    for(i = 0; i < 3; i++) {
        for(j = 0; j < 3; j++) {
            scanf("%d", &matrix[i][j]);
        }
    }
    determinant = matrix[0][0] * (matrix[1][1]*matrix[2][2] - matrix[1][2]*matrix[2][1])
                 - matrix[0][1] * (matrix[1][0]*matrix[2][2] - matrix[1][2]*matrix[2][0])
                 + matrix[0][2] * (matrix[1][0]*matrix[2][1] - matrix[1][1]*matrix[2][0]);

    printf("Determinant of the matrix = %d\n", determinant);

    return 0;
}
```

INPUT & OUTPUT:



The screenshot shows a terminal window with the following output:

```
Enter elements of 3x3 matrix:
4 5 6
4 7 8
2 5 0
Determinant of the matrix = -44
...Program finished with exit code 0
```

Q) Write a ‘C’ Program to Add Two Matrices

SOURCE CODE:

```
#include <stdio.h>

int main() {
    int rows, cols, i, j;
    printf("Enter the number of rows and columns of the matrices: ");
    scanf("%d %d", &rows, &cols);

    int matrix1[rows][cols], matrix2[rows][cols], sum[rows][cols];

    printf("Enter elements of first matrix:\n");
    for(i = 0; i < rows; i++) {
        for(j = 0; j < cols; j++) {
            scanf("%d", &matrix1[i][j]);
        }
    }

    printf("Enter elements of second matrix:\n");
    for(i = 0; i < rows; i++) {
        for(j = 0; j < cols; j++) {
            scanf("%d", &matrix2[i][j]);
        }
    }

    for(i = 0; i < rows; i++) {
        for(j = 0; j < cols; j++) {
            sum[i][j] = matrix1[i][j] + matrix2[i][j];
        }
    }

    printf("Sum of the two matrices:\n");
    for(i = 0; i < rows; i++) {
        for(j = 0; j < cols; j++) {
            printf("%d ", sum[i][j]);
        }
        printf("\n");
    }
}
```

INPUT & OUTPUT:

```
Enter the number of rows and columns of the matrices: 2 2
Enter elements of first matrix:
4 5
1 2
Enter elements of second matrix:
8 9
2 3
Sum of the two matrices:
12 14
3 5
```

Question:

Write a ‘C’ program that uses both pre-increment ($++a$) and post-increment ($a++$) operators.

Source code:

```
#include<stdio.h>
int main(){
    int a=5;
    int b;
    printf("initial the value of a:%d\n",a);
    //post increment
    b=a++;
    printf("value of b after b=a++: %d\n",b);
    printf("value of a after a++: %d\n",a);

    // reset a
    a=5;
    printf("\ninitial value of a :%d\n",a);
    //pre increment
    b=++a;
    printf("value of b after b=++a: %d\n",b);
    printf("value of a after ++a: %d\n",a);
    return 0;
}
```

Input and output:

```
initial value of a :5
value of b after b=++a: 6
value of a after ++a: 6

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

Question:

Write a ‘C’ program that performs BITWISE AND (&), OR (|), AND XOR (^), operations on two numbers and prints the results.

Source code:

```
#include<stdio.h>
int main() {
    int x = 12, y = 5;

    printf("x & y = %d\n", x & y);      // Bitwise AND
    printf("x | y = %d\n", x | y);      // Bitwise OR
    printf("x ^ y = %d\n", x ^ y);      // Bitwise XOR

    return 0;
}
```

Input and output:

```
x & y = 4
x | y = 13
x ^ y = 9

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

Question:

Write a ‘C’ program to implement bitwise shift operators (<<, >>).

Source code:

```
#include<stdio.h>
int main() {
    int num = 8;

    printf("Left Shift (num << 1): %d\n", num << 1); // 8 * 2 = 16
    printf("Right Shift (num >> 1): %d\n", num >> 1); // 8 / 2 = 4

    return 0;
}
```

Input and output:

```
Left Shift (num << 1): 16
Right Shift (num >> 1): 4

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

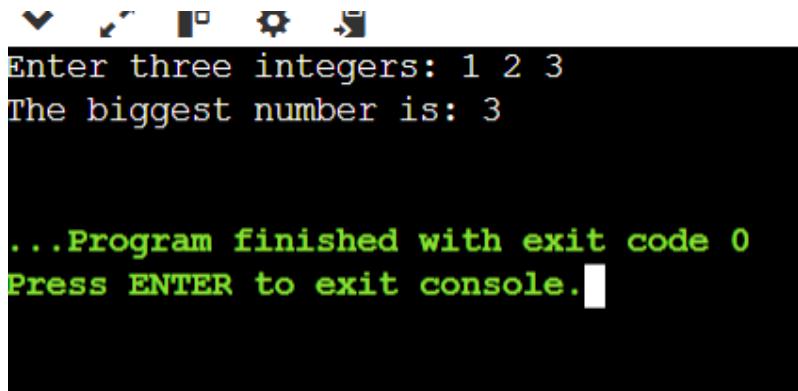
Question:

Write a ‘C’ program to perform a conditional Operator to find the biggest among three numbers.

Source code:

```
main.c
1 #include <stdio.h>
2
3 int main() {
4     int num1, num2, num3, biggest;
5
6     printf("Enter three integers: ");
7     scanf("%d %d %d", &num1, &num2, &num3);
8
9     // Using nested conditional operators to find the biggest number
10    biggest = (num1 > num2) ? ((num1 > num3) ? num1 : num3) : ((num2 > num3) ? num2 : num3);
11
12    printf("The biggest number is: %d\n", biggest);
13
14    return 0;
15 }
```

Input and output:



```
Enter three integers: 1 2 3
The biggest number is: 3

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

Question:

Write a 'C' program to implement relational and Logical operators.

Source code:

```
main.c
1 #include <stdio.h>
2
3 int main() {
4     int a = 10;
5     int b = 20;
6     int c = 10;
7     int d = 0; // Represents false
8     int e = 1; // Represents true
9
10    printf("--- Relational Operators ---\n");
11
12    // Equal to (==)
13    printf("a == b: %d\n", a == b); // 0 (false)
14    printf("a == c: %d\n", a == c); // 1 (true)
15
16    // Not equal to (!=)
17    printf("a != b: %d\n", a != b); // 1 (true)
18    printf("a != c: %d\n", a != c); // 0 (false)
19
20    // Greater than (>)
21    printf("a > b: %d\n", a > b); // 0 (false)
22    printf("b > a: %d\n", b > a); // 1 (true)
23
24    // Less than (<)
25    printf("a < b: %d\n", a < b); // 1 (true)
26    printf("b < a: %d\n", b < a); // 0 (false)
27}
```

Input and output:



```
d || d: 0
!d: 1
!e: 0
(a < b) && (a == c): 1
(a > b) || (a != c): 0

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