**BASIC C PROGRAMS**

**Program 1: Arithmetic Operations.**

#include <stdio.h>

int main() {

int num1, num2;

printf("Enter two integers: ");

scanf("%d %d", &num1, &num2);

printf("Addition: %d + %d = %d\n", num1, num2, num1 + num2);

printf("Subtraction: %d - %d = %d\n", num1, num2, num1 - num2);

printf("Multiplication: %d \* %d = %d\n", num1, num2, num1 \* num2);

if(num2 != 0) {

printf("Division: %d / %d = %d\n", num1, num2, num1 / num2);

printf("Modulus: %d %% %d = %d\n", num1, num2, num1 % num2);

} else {

printf("Division and modulus by zero is not allowed.\n");

}

return 0;

}

**Output:**Enter two integers: 2

3

Addition: 2 + 3 = 5

Subtraction: 2 - 3 = -1

Multiplication: 2 \* 3 = 6

Division: 2 / 3 = 0

Modulus: 2 % 3 = 2

**Program 2: Program to understand Conditional statements.**

#include <stdio.h>

int main() {

int num;

printf("Enter an integer: ");

scanf("%d", &num);

if (num > 0) {

printf("The number %d is positive.\n", num);

} else if (num < 0) {

printf("The number %d is negative.\n", num);

} else {

printf("The number is zero.\n");

}

return 0;

}

**Output:**

Enter an integer: 5

The number 5 is positive.

**Program 3: Program for understanding the Increment and decrement operators.**

#include <stdio.h>

int main() {

int num;

printf("Enter an integer: ");

scanf("%d", &num);

printf("Original value: %d\n", num);

num++;

printf("After increment (num++): %d\n", num);

num--;

printf("After decrement (num--): %d\n", num);

printf("Pre-increment (++num): %d\n", ++num);

printf("Pre-decrement (--num): %d\n", --num);

return 0;

}

**Output:**

Enter an integer: 4

Original value: 4

After increment (num++): 5

After decrement (num--): 4

Pre-increment (++num): 5

Pre-decrement (--num): 4

**Program 4: Program to understand Recursive Function.**

#include <stdio.h>

int factorial(int n) {

if (n == 0)

return 1;

else

return n \* factorial(n - 1);

}

int main() {

int num;

printf("Enter a non-negative integer: ");

scanf("%d", &num);

if (num < 0) {

printf("Factorial is not defined for negative numbers.\n");

} else {

printf("Factorial of %d is %d\n", num, factorial(num));

}

return 0;

}

**Output:**

Enter a non-negative integer: 4

Factorial of 4 is 24

**Program 5: For Understanding the operations of String.**

#include <stdio.h>

// Recursive function to calculate factorial

int factorial(int n) {

if (n == 0) // Base case

return 1;

else

return n \* factorial(n - 1); // Recursive call

}

int main() {

int num;

printf("Enter a non-negative integer: ");

scanf("%d", &num);

if (num < 0) {

printf("Factorial is not defined for negative numbers.\n");

} else {

printf("Factorial of %d is %d\n", num, factorial(num));

}

return 0;

}

**Output:**

Enter a non-negative integer: 5

Factorial of 5 is 120