EXPT 3 Basics of C Programming

C programming is a popular programming language that is widely used for system programming, embedded systems, and application development. It is a high-level language that can be used for writing operating systems, network drivers, and compilers.

1. Variables: Variables are used to store data in C. A variable is declared with a data type and a name. Some common data types include int, float, and char.

2. Operators: C supports a wide range of operators, such as arithmetic, logical, and bitwise operators. Operators are used to perform mathematical or logical operations on variables.

3. Control Structures: Control structures are used to control the flow of execution in a program. C supports three types of control structures: if-else statements, loops, and switch statements.

4. Functions: Functions are used to group related statements together and perform a specific task. C allows the creation of user-defined functions, which can be called from anywhere in the program.

5. Pointers: Pointers are used to store the memory address of a variable. They are used to manipulate memory directly, which can be useful for low-level programming.

6. Arrays: Arrays are used to store multiple values of the same data type. They can be one-dimensional or multi-dimensional.

7. Strings: Strings are a sequence of characters. In C, strings are represented as arrays of characters.

8. Input and Output: C provides a variety of functions for input and output. The most commonly used functions are printf() and scanf().

9. Libraries: C has a large number of libraries that provide additional functionality. Some common libraries include math.h, string.h, and stdio.h.

10. Memory Management: C allows for manual memory management using functions like malloc() and free(). This can be useful for optimizing memory usage in large programs.

EXPT 4 Introduction to Decision Making and Branching in C Programming

C programming language provides a variety of constructs to control the flow of the program. One of the most important constructs is decision making, which is used to make decisions based on certain conditions. The decision-making constructs in C are based on the Boolean logic, which allows for logical comparisons and decisions.

Decision Making Constructs in C Programming

There are two types of decision-making constructs in C programming language:

1. The if statement: The if statement is used to execute a block of code if a certain condition is true. The syntax of the if statement is as follows:

if (condition)

{

// Block of code to be executed if the condition is true

}

2. The switch statement: The switch statement is used to execute a block of code based on the value of a variable. The syntax of the switch statement is as follows:

switch (expression)

{

case value1:

// Block of code to be executed if expression equals value1

break;

case value2:

// Block of code to be executed if expression equals value2

break;

.

.

default:

// Block of code to be executed if none of the above cases are true

}

Branching Constructs in C Programming

Branching constructs are used to change the normal flow of execution in a program. There are two types of branching constructs in C programming language:

1. The break statement: The break statement is used to exit a loop or a switch statement.

2. The continue statement: The continue statement is used to skip the current iteration of a loop and continue with the next iteration.