



Noida International University

Presentation On C Language

Submitted By : Team SPARTANS

Team members : Shiv Sharma (NIU-24-17587)

Sahil Kumar (NIU-24-13571)

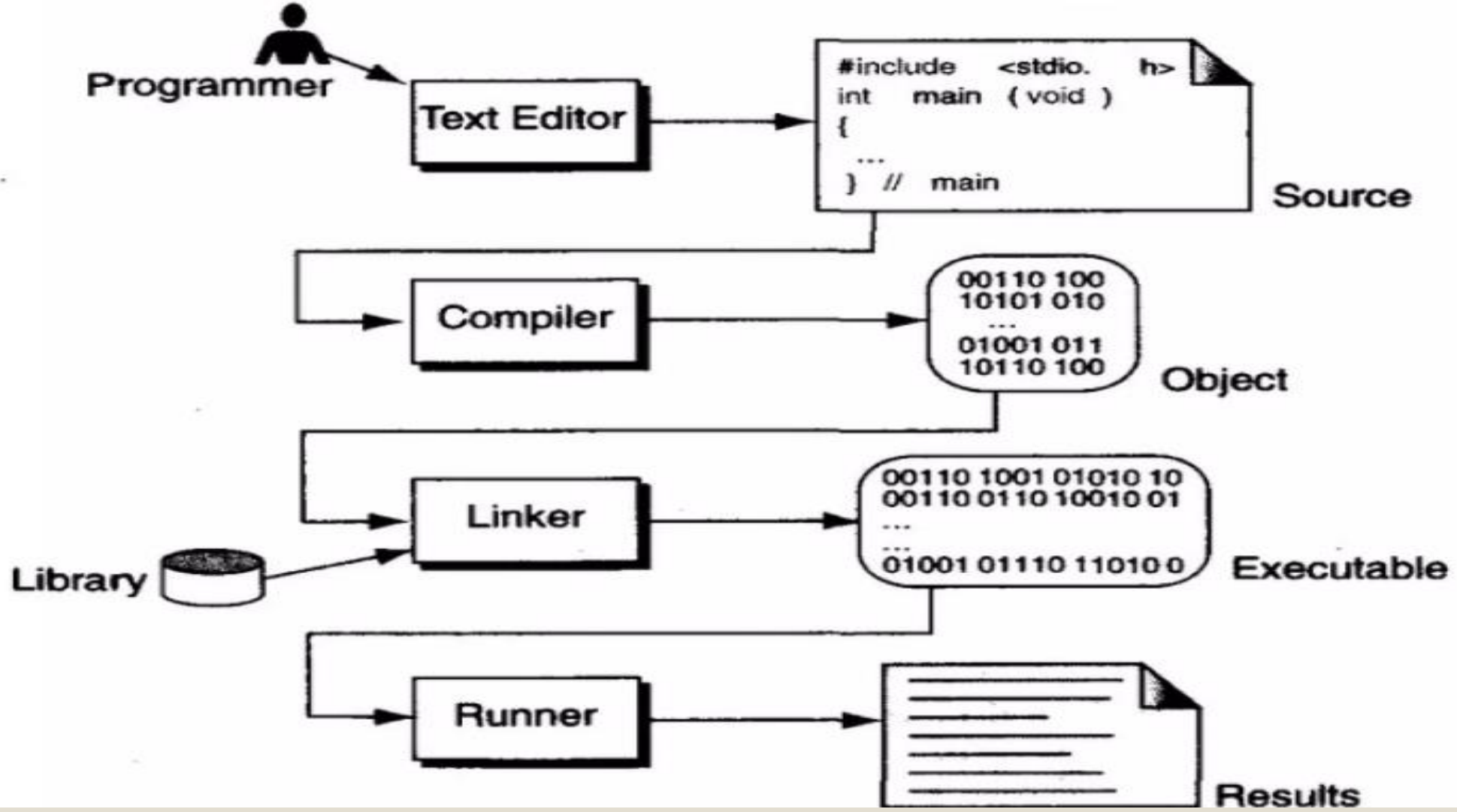
Prashant Kumar (NIU-24-14913)

Manasi Bachchan (NIU-24-23858)

Submitted to : Dr Vivek Kumar Sinha



Introduction To C Programming



SUBTITLES

- ➡ INTRODUCTION
- ➡ INPUT/OUTPUT STATEMENTS
- ➡ DATA TYPES
- ➡ C - DATA TYPES
- ➡ TYPES OF C CONSTANT
- ➡ C - OPERATORS AND EXPRESSIONS
- ➡ TYPES OF C OPERATORS
- ➡ C - DECISION CONTROL STATEMENT
- ➡ C - CASE CONTROL STATEMENTS
- ➡ C - ARRAY

Introduction:

C Programming is an ANSI/ISO standard and powerful programming language for developing real time applications. C programming language was invented by Dennis Ritchie at the Bell Laboratories in 1972. It was invented for implementing UNIX operating system. C is most widely used programming language even today. All other programming languages were derived directly or indirectly from C programming concepts. This tutorial explains all basic concepts in C like history of C language, data types, keywords, constants, variables, operators, expressions, control statements, array, pointer, string, library functions, structures and unions etc.

I/O Statements:

printf() and scanf() functions are inbuilt library functions in C programming language which are available in C library by default. These functions are declared and related macros are defined in “stdio.h” which is a header file in C language. We have to include “stdio.h” file as shown in below C program to make use of these printf() and scanf() library functions in C language.

Data Types:

C data types are defined as the data storage format that a variable can store a data to perform a specific operation.

Data types are used to define a variable before to use in a program.

Size of variable, constant and array are determined by data types.

C – DATA TYPES:

There are four data types in C language. They are,

Types	Data Types
Basic data types	int, char, float, double
Enumeration data type	enum
Derived data type	pointer, array, structure, union
Void data type	void

C Constants

C Constants are also like normal variables. But, only difference is, their values can not be modified by the program once they are defined.

Constants refer to fixed values. They are also called as literals

Constants may be belonging to any of the data type.

Syntax:

```
const data_type variable_name; (or) const data_type  
*variable_name;
```

TYPES OF CONSTANTS IN C :

1. Integer constants
2. Real or Floating point constants
3. Octal & Hexadecimal constants
4. Character constants
5. String constants
6. Backslash character constants

C – Operators and Expressions

The symbols which are used to perform logical and mathematical operations in a C program are called C operators.

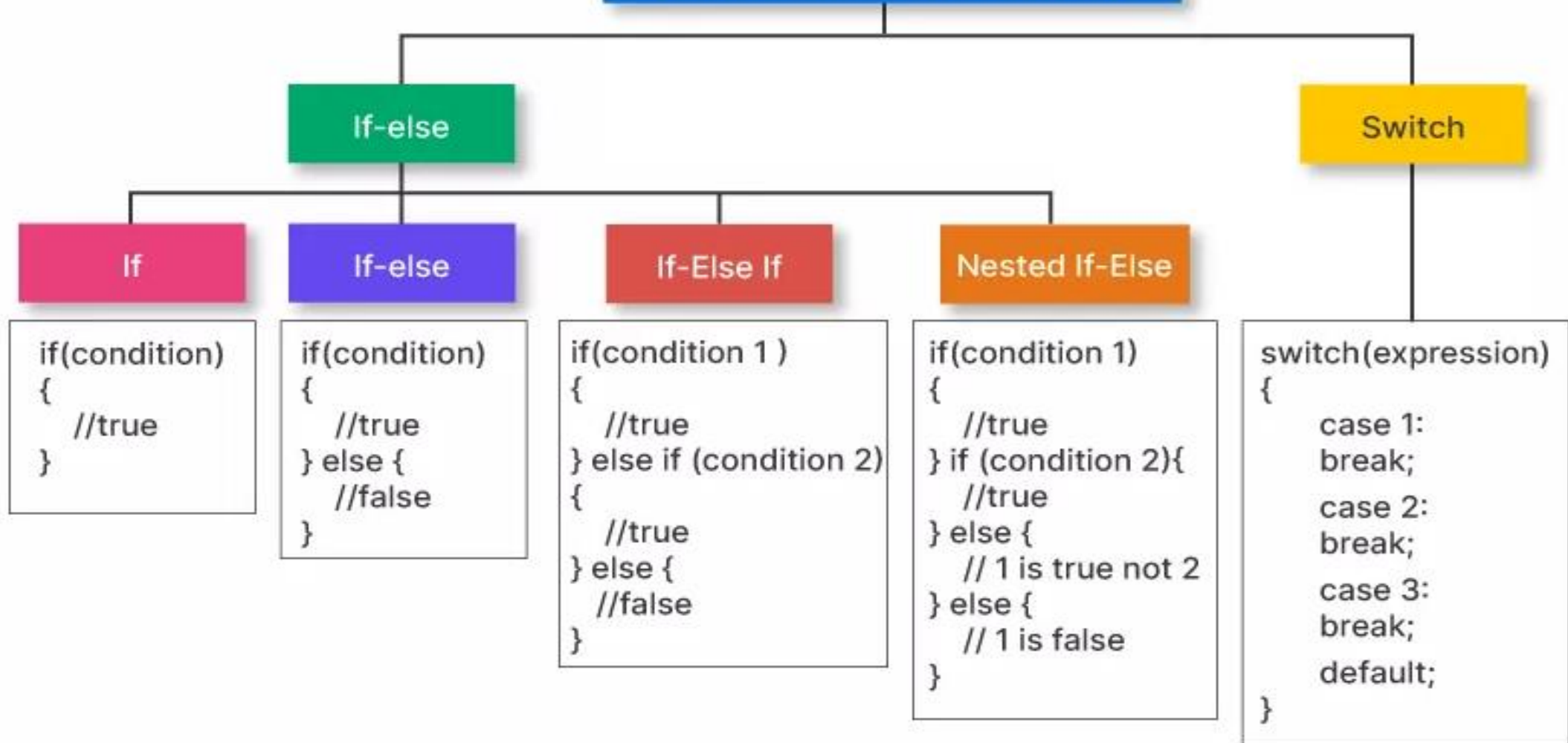
These C operators join individual constants and variables to form expressions.

Operators, functions, constants and variables are combined together to form expressions.

Consider the expression $A + B * 5$. where, $+$, $*$ are operators, A , B are variables, 5 is constant and $A + B * 5$ is an expression.

	Operators	Type
Unary Operator →	++, --	Unary Operator
Binary Operator {	+, -, *, /, %	Arithmetic Operator
	<, <=, >, >=, ==, !=	Rational Operator
	&&, , !	Logical Operator
	&, , <<, >>, ~, ^	Bitwise Operator
	=, +=, -=, *=, /=, %=	Assignment Operator
Ternary Operator →	?:	Ternary or Conditional Operator

Conditional Statement In C



array



C Array is a collection of variables belonging to the same data type. You can store group of data of same data type in an array.

Array might be belonging to any of the data types

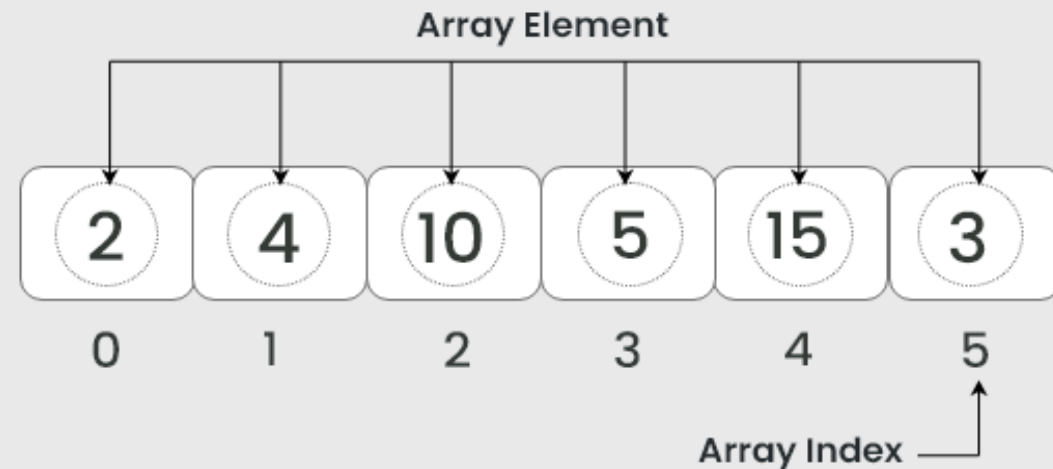
Array size must be a constant value.

Always, Contiguous (adjacent) memory locations are used to store array elements in memory.

It is a best practice to initialize an array to zero or null while declaring, if we don't assign any values to array.

Array

Data Structure



EXAMPLE FOR C ARRAYS:

```
int a[10];    // integer array
char b[10];   // character array i.e. string
```

TYPES OF C ARRAYS:

There are 2 types of C arrays. They are,
One dimensional array
Multi dimensional array

1. ONE DIMENSIONAL ARRAY IN C:

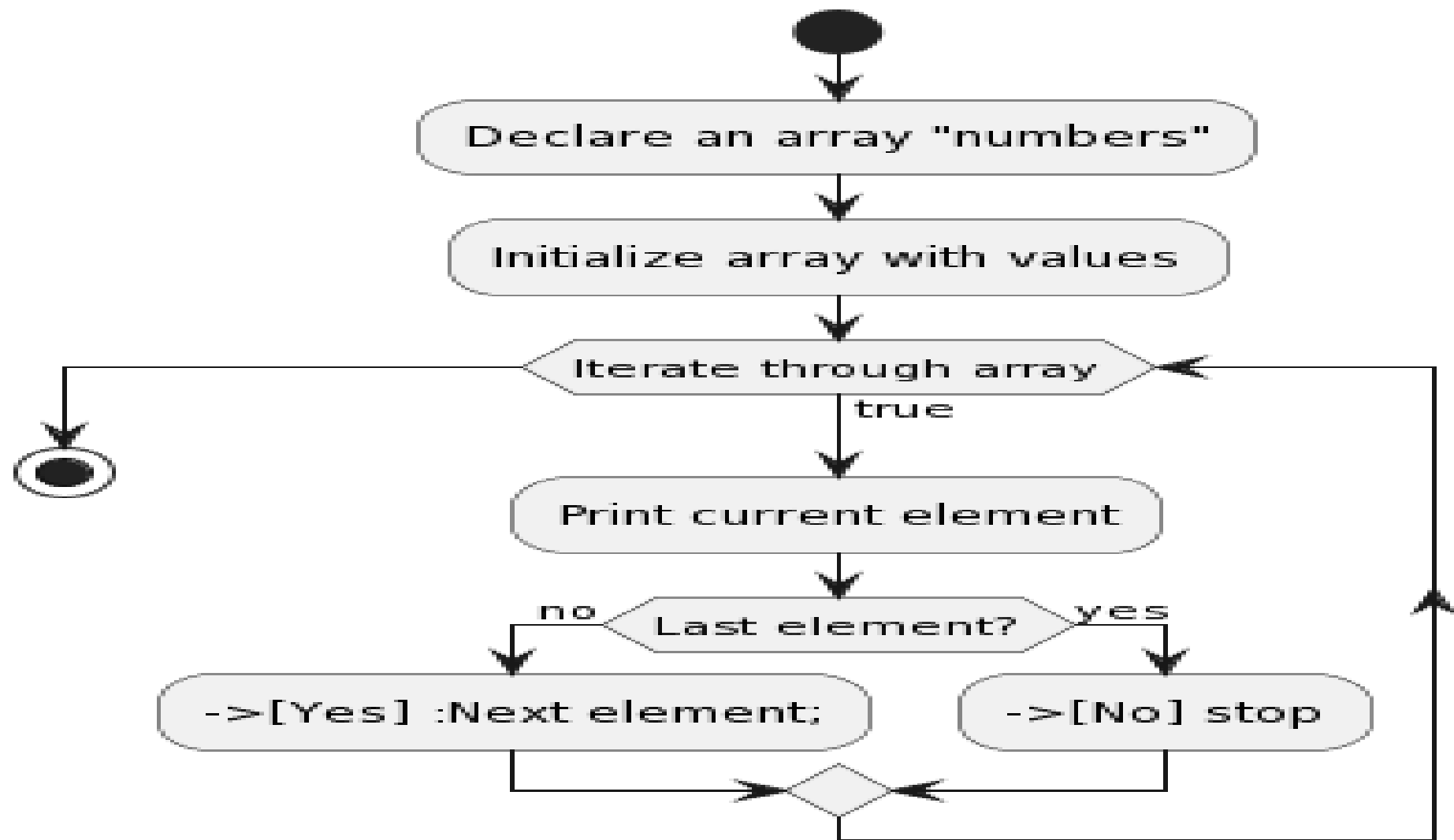
Syntax : data-type arr_name[array_size];

2. TWO DIMENSIONAL ARRAY IN C:

Two dimensional array is nothing but array of array.

syntax : data_type

array_name[num_of_rows][num_of_column];



Advantages

- Efficient Data Management
- Simplified Code
- Fast Access

Disadvantages

- Fixed Size
- Wasted Memory
- Insertion and Deletion