

CS118
Programming
Fundamentals

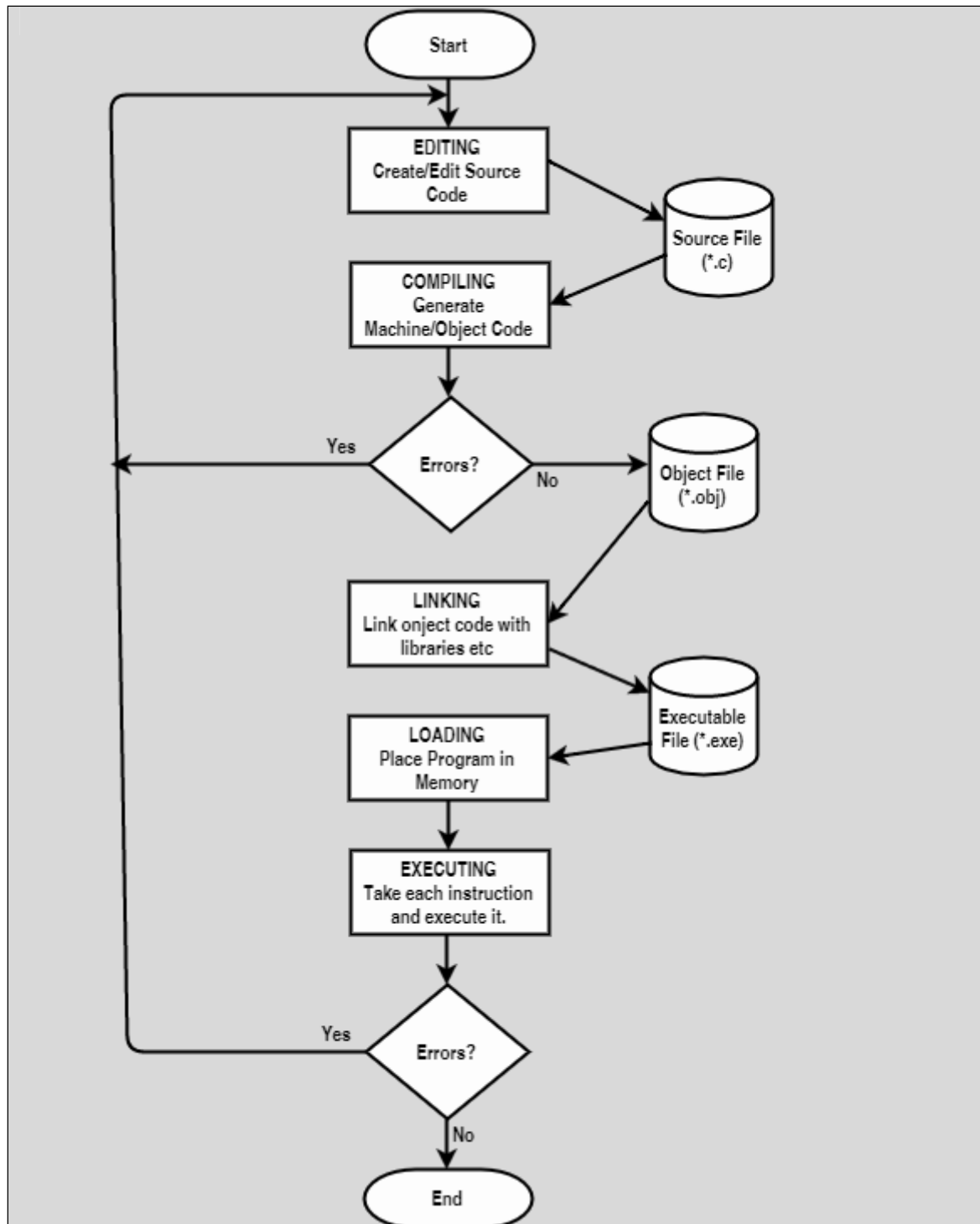
LAB 03
Introduction to C Programming

NATIONAL UNIVERSITY OF COMPUTER AND EMERGING SCIENCES

C-LANGUAGE

C is a high-level programming language developed in 1972 by Dennis Ritchie at AT&T Bell Laboratories. C is a powerful general-purpose language. It is fast, portable (i.e. they can be run on any Computer with Little or no Modification) and available in all platforms.

TYPICAL C PROGRAM DEVELOPMENT ENVIRONMENT



COMPILER VSIDE

IDE - Integrated Development Environment

IDE is the software that helps to write code, provides code completion, code suggestions and other neat stuff. Therefore, Dev-C++ is an IDE and not a compiler but it lets us compile code too by using something else.

Compiler

Compiler is also software or program. It doesn't do the neat stuff that the IDE does but it is very important. Without it, IDE won't be able to produce the executable programs from the source codes. The most common reason for wanting to transform source code is to create an executable program.

EXAMPLE

Dev-C++ is a full-featured Integrated Development Environment (IDE) for the C/C++ programming language. It uses MinGW (Minimalist GNU for Windows) port of GCC (GNU Compiler Collection) as its compiler.

C - DATATYPES:

Already Discussed in Lab 01.

Variables are classified according to their data type, which determines the kind of information that may be stored in them.

Data Type	Description	C-language Keyword	Format Specifier
Integer	Integers are whole numbers that can have both positive and negative values but no decimal values.	int	%d
Float	Floating type variables can hold real numbers precision of 6 digits	float	%f
Double	can hold real numbers with precision of 14 digits	double	%f
Character	Character data type allows a variable to store only one character.	char	%c

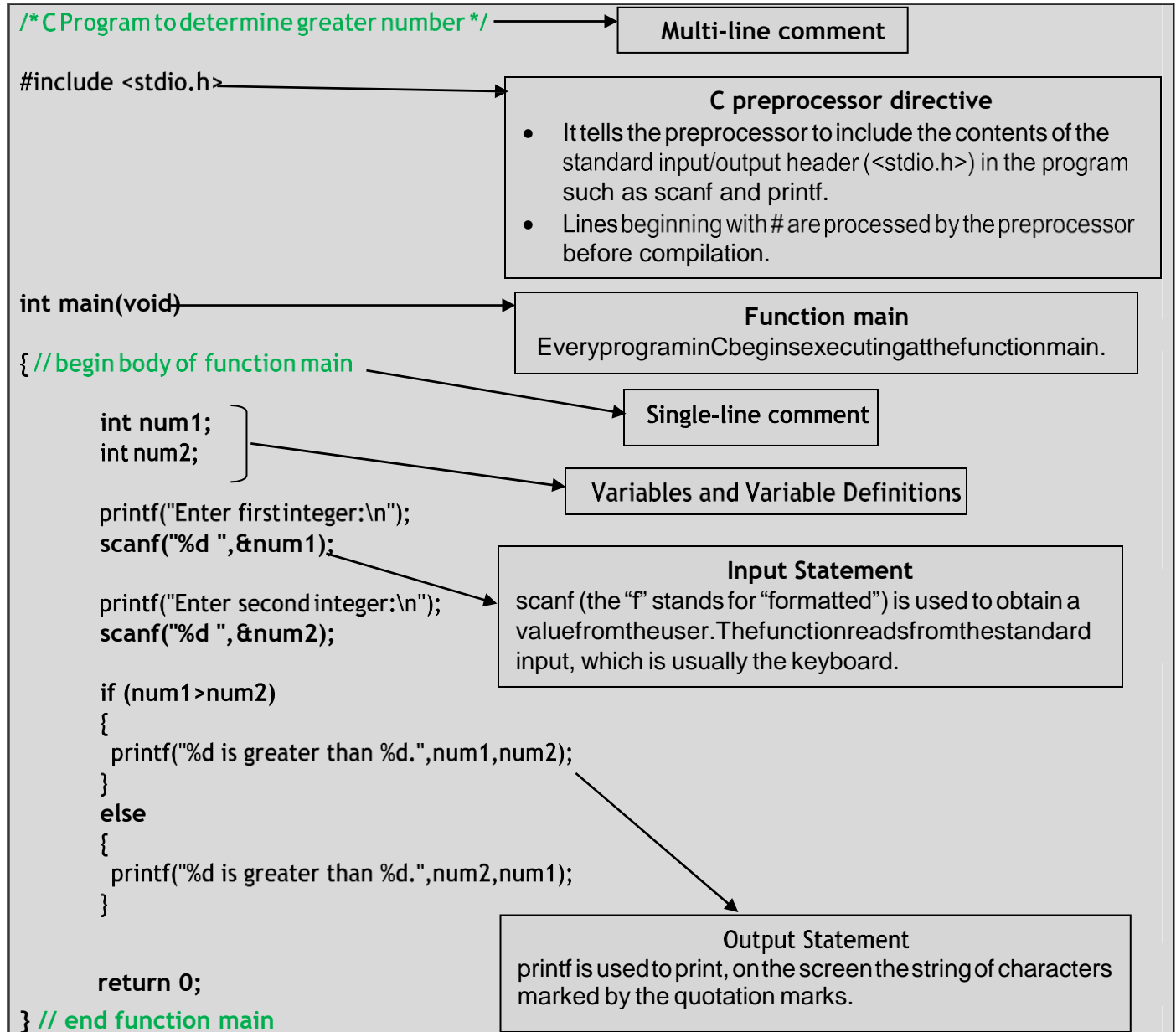
C -OPERATORS:

Already Discussed in Lab 01.

There are many operators in C for manipulating data which include arithmetic Operators, Relational Operators, Logical operators and many more which will be discussed accordingly. Some of the fundamental operators are:

Operator	Description
+	Addition
-	Subtraction
*	Multiplication
/	Division
%	Modulo
=	Assignment Operator
==	Equal to
!=	Not equal to
<	Less than
<=	Less than or equal to
&&	Logical AND Operator
	Logical OR Operator
!	NOT Operator

C - EXAMPLE PROGRAM



COMMON ESCAPE SEQUENCES:

The backslash (\) is called an escape character. When encountering a backslash in a string, the compiler looks ahead at the next character and combines it with the backslash to form an escape sequence.

Escape Sequence	Name	Description
\n	Newline	Newline. Position the cursor at the beginning of the next line.
\t	Horizontal tab	Horizontal tab. Move the cursor to the next tab stop.
\\	Backslash	Backslash. Insert a backslash character in a string.
\"	Double quote	Double quote. Insert a double-quote character in a string.

