C-Programming Language

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❖ Definition:

- It is highly efficient programming language which is very easy to understand. It has both the properties of high level programming language and low level language, so it is known as middle level programming language. It is very powerful and effective programming language because it is used to prepare application software and system software.

❖ Features:

- It is highly portable programming language.
- It is structured programming language.
- It is general purposed high level programming language.
- It has both the features of high level programming language and low level programming language.

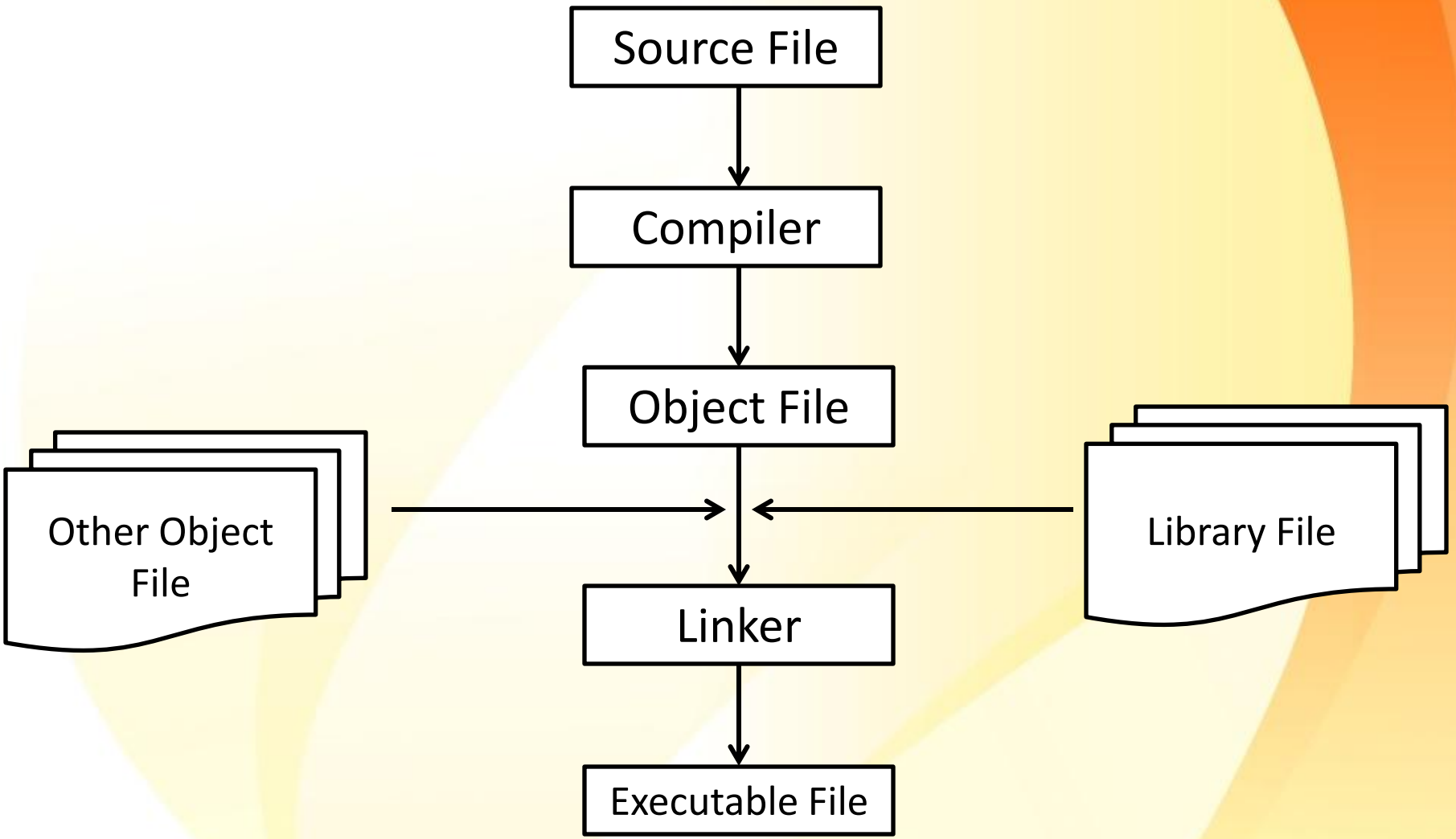
❖ Advantages:

- It is easy for compiling, testing and maintaining.
- It is fast for executing.
- Its compiler is easily available.
- It has ability to extend itself.
- It has 32 keywords so that easy to remember.
- It is general purposed and portable programming language.
- It is easy to understand.

❖ Disadvantages:

- It has no runtime checking.
- It has no strict types checking.
- While extending program, it is difficult to fix bugs.
- It doesn’t support modern programming approaches like object oriented programming.

Compiling Process



Steps for Compiling Process

- Step 1: Use text editor like notepad to write source code and save it using dot c extension. For eg: text.c
- Step 2: Compiling the program using compiler. If compiler doesn't find any error, it produces object file with dot obj extension in same name of source file. (For eg: text.c compiles to test.obj) If the compiler finds errors, it reports them and we must return to step 1 to correct it.
- Step 3: Link the program using a linker. If no error occurs, the linker produces an executable file with dot exe extension in the same name of object file. (for eg: test.obj is linked to create test.exe)
- Step 4: Execute the program. We should test it to determine whether it function correctly or not. If not, we must return to step 1 for modifying the errors.

Fundamentals of C

1. Character set: It is a character which is used to form word, numbers and symbols depending upon computer in which program run.

   Example:

   Alphabets: Upper case=A,B,C,……Z

   Lower case =a, b, c,…….z

   Number : 0,1,2,3,4,5,6,7,8,9

   Symbols : *,/,-,+,etc

2. C Token: The smallest part of C programming language from which other parts are formed is known as C Token. There are six types of C Token. They are as follow:

   a. Keywords: The special words which are reserved by C compiler, these words are keywords. There are 32 keywords such as auto, int, double, float, char, struct, etc.

b. Identifier: It is a name given to program unit such as structure, function, etc.

c. Variable: it is a name of storage location in computer's memory in which we can store different values.

   Example: x=a, y=b, z=c, etc

d. Constant: It is a special data type whose value remain same during program execution time.

   Example : x=5, y=10 ,z=7, etc

f. String : It is a set of character, digits and symbols. It is also defined as array of characters.

g. Operator : it is a special symbols which is used to perform various operation such as arithmetic and logical operation.

Some commonly used operators are as follows:

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i. Arithmetic operator :

The operator which is used to perform or calculate mathematical operation such as addition, subtraction, division, multiplication, etc is known as arithmetic operator. For eg:

Operator	Meaning	Example
-	Subtraction	a-b
+	Addition	a+b
*	Multiplication	a*b
/	Division	a/b

ii. Relational operator :

The operator which is used to compare two or more than two values is called relational operator. For eg:

Operator	Meaning	Example
<	Less than	a<b
<=	Less than or equal to	a<=b
>	Greater than	a>b
>=	Greater than or equal to	a>=b
==	Equal to	a==b
!=	Not equal to	a!=b

iii. Logical operator :

The operator which is used to combine two or more expression is called logical operator. For eg:

Operator	Meaning	Example
&&	Logical AND	(a+b) & & (a-b)
||	Logical OR	(a+b) || (a-b)

iv. Assignment operator :

The operator which is used to assign the expression to variable called assignment operator. For eg: x=a+b, x=z, etc

v. Unary operator :

The operator which is used to increase or decrease the value of variable in program is called unary operator. For eg: x=m++, y=m--, etc.

A. Questions: (03/15/2077)

1. Define C-Programming. Write down features, advantages and disadvantages. [5]
2. Write down steps of compiling process with suitable diagram. [5]
3. Define C-Token. Explain its types. [1+4]
4. Define Operator. Explain its types with examples. [1+4]
5. Define C-Programming. Explain the data types of C-Programming.[1+4]