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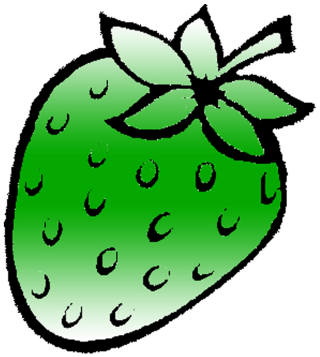

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Overview of C

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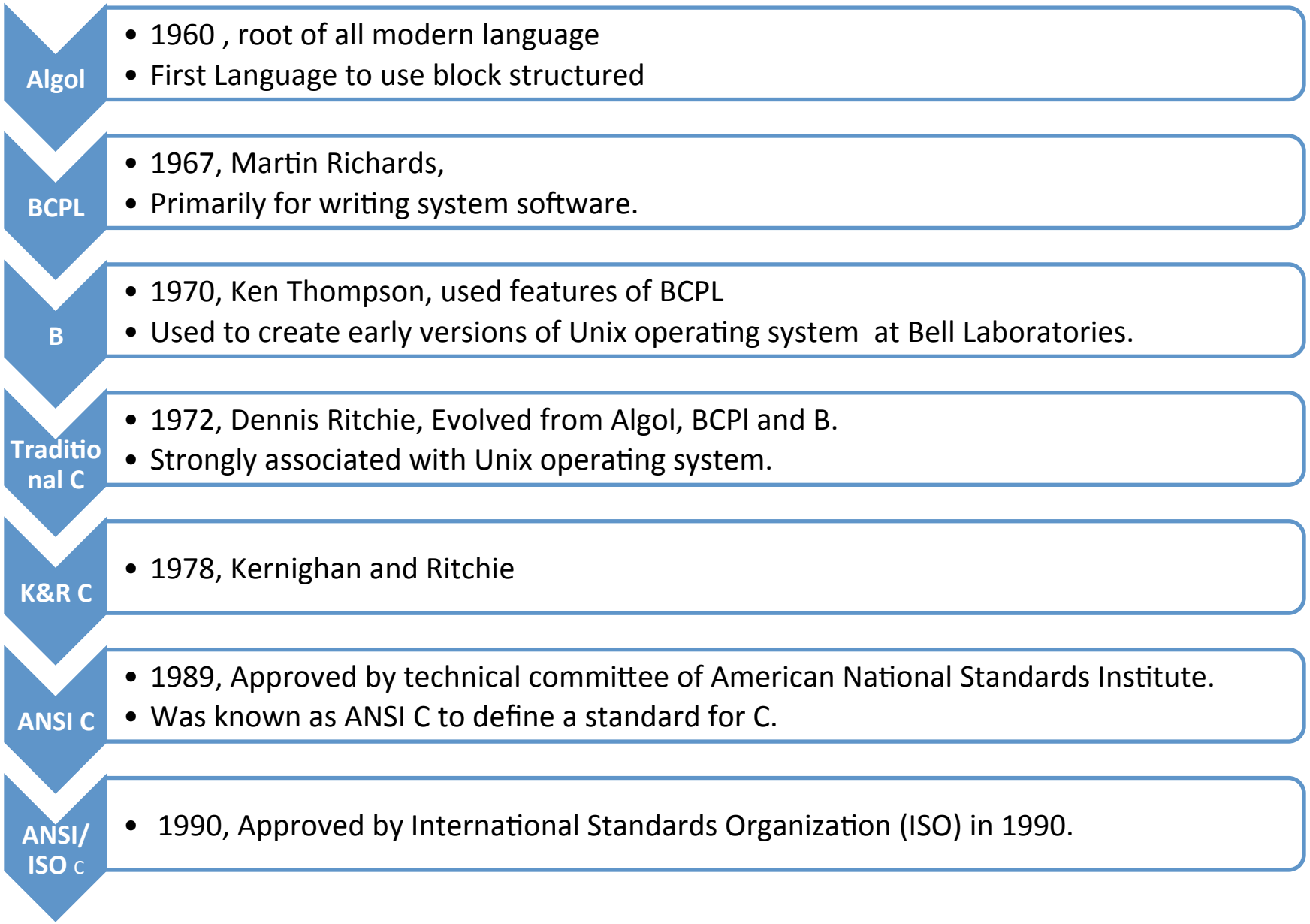
Introduction

- "C" seems a strange name for programming language.
- C was an offspring of the 'Basic Combined Programming Language' (BCPL) called B.
- B was developed in the 1960's at Cambridge University.
- B language was modified by Dennis Ritchie and was implemented at Bell Laboratories in 1972.
- The New Language was named C.


Algol
• 1960 , root of all modern language
• First Language to use block structured
BCPL
• 1967, Martin Richards,
• Primarily for writing system software.
B
• 1970, Ken Thompson, used features of BCPL
• Used to create early versions of Unix operating system at Bell Laboratories.
Traditio nal C
• 1972, Dennis Ritchie, Evolved from Algol, BCPl and B.
• Strongly associated with Unix operating system.
K&R C
• 1978, Kernighan and Ritchie
ANSI C
• 1989, Approved by technical committee of American National Standards Institute.
• Was known as ANSI C to define a standard for C.
ANSI/ ISO C
• 1990, Approved by International Standards Organization (ISO) in 1990.

Importance of C

- Includes rich set of built-in functions and operators that can be used to write any complex programs.

- The C compiler includes capabilities of an assembly language with the features of a high level language therefore it is well suited for writing both system software and of a business packages.

Importance of C

- Programs written in C are efficient and fast due to it's variety of data types and powerful operators.

- It is faster than BASIC.

- There are only 32 keywords and several built in functions which can be used for developing programs.

Importance of C

- C is highly portable. C program written on one computer can be run on another with little or no modification.

- Suited for Structured programming. Program is divided into functions modules or blocks which makes debugging, testing and maintenance easier.
- We can extend C to itself. New functions can be added to library files.

Sample C Program

Sample Program 1 : Printing a Message

```
Main( )
{
/* ..... Printing Begins .....*/
printf("Hello Class");
/* ..... Printing Ends .....*/
}
```

Output : Hello Class

Basic Structure of C Program

Documentation Section
Link Section
Definition Section
Global Declaration Section
Main( ) Function Section { Declaration Part Executable Part }
Subprogram Section User defined functions Function1 Function 2 . Function n

Programming Style

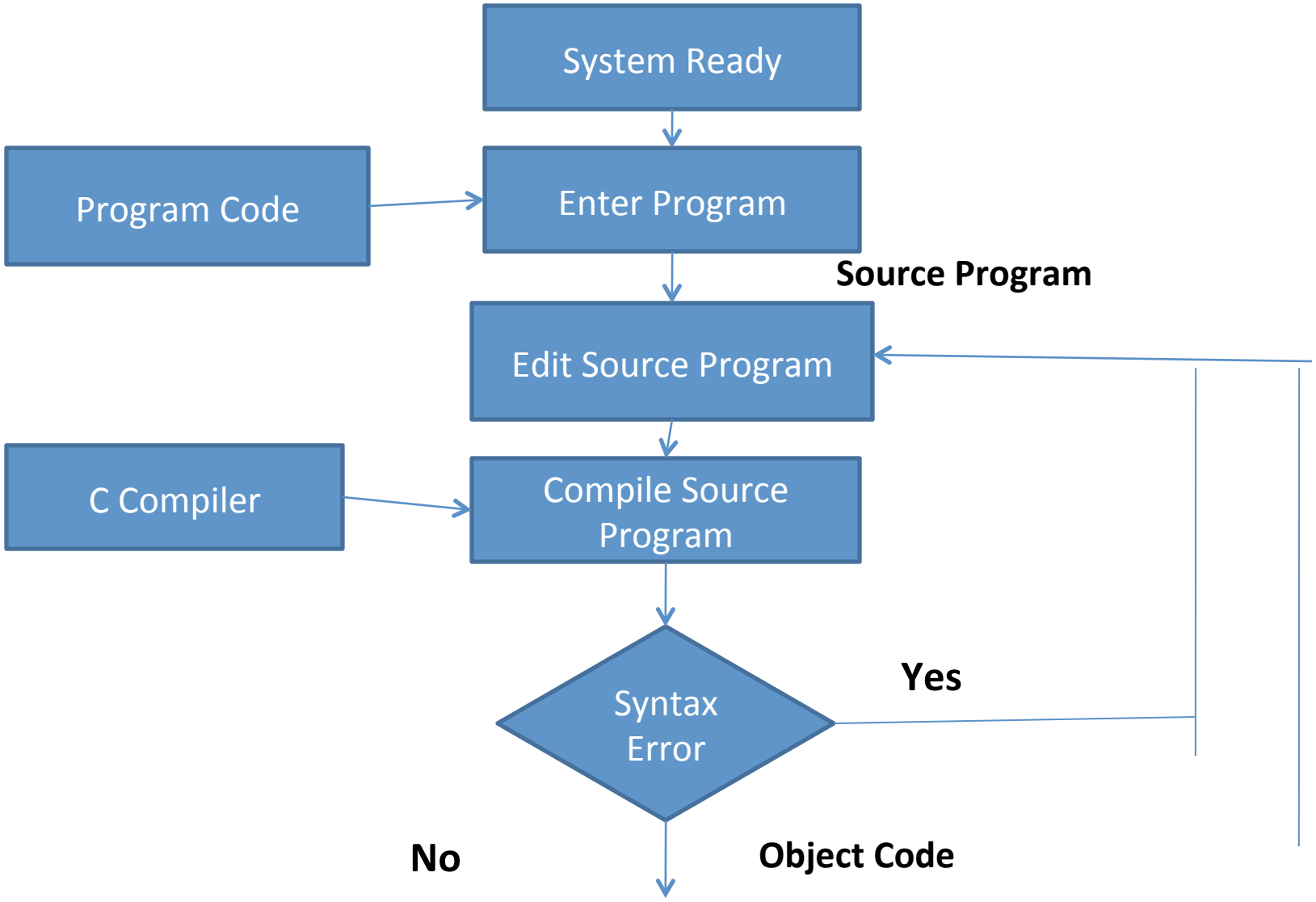
- C is a free form language that is C compiler does not care, where on the line we begin typing.
- C program Statements are written in lower case letters.
- Upper case letters are used only for symbolic constants.
- Braces group program statements together and mark the beginning and the end of functions.

Executing a ‘C’ Program

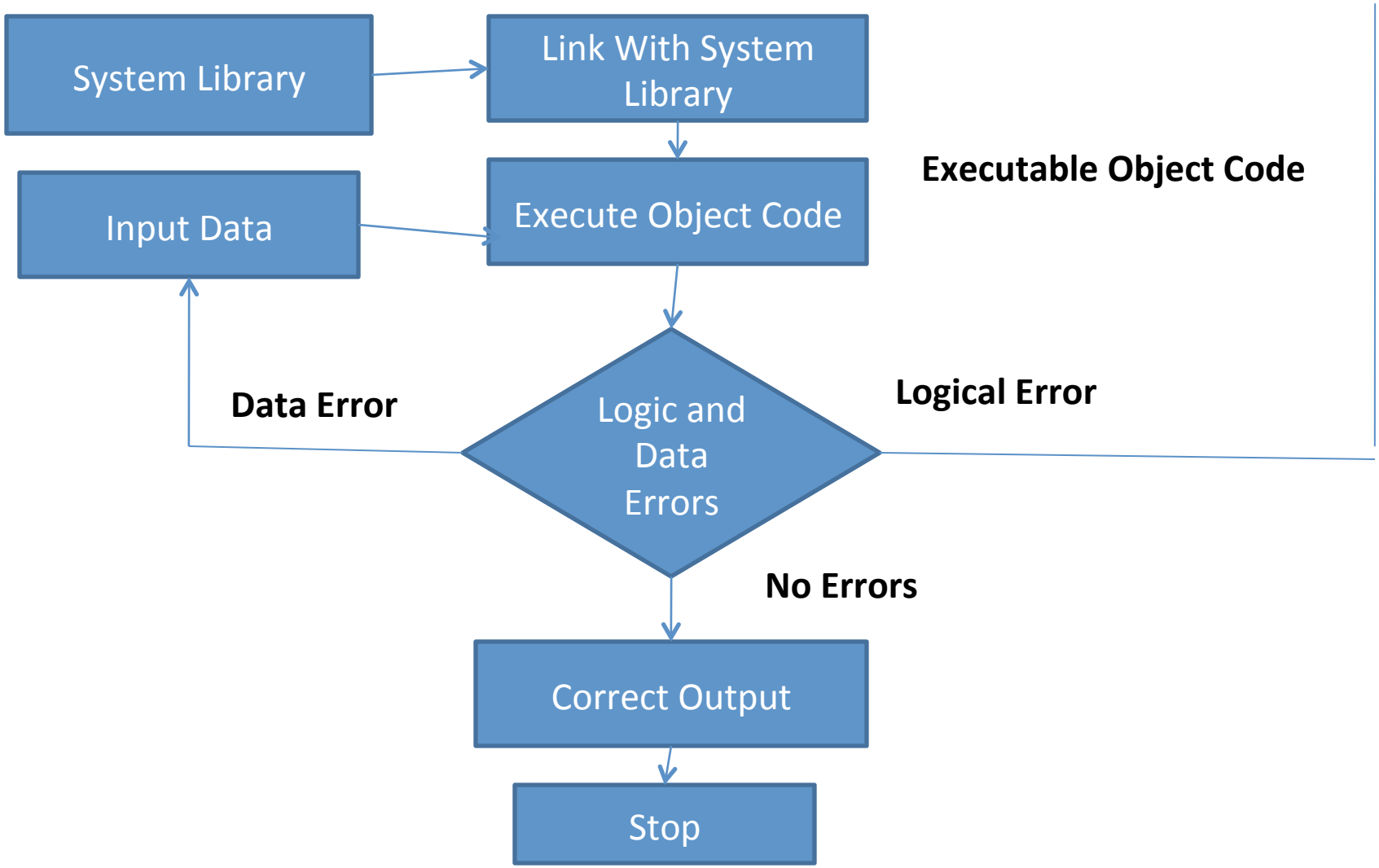
Executing a program in C involves a series of steps. These are:

1. Creating a program
2. Compiling a program
3. Linking the program with functions that are needed from the C library files.
4. Executing the program.

Process of compiling and running a C Program



Process of compiling and running a C Program



Process of Compiling and running

- An Operating system is a program that controls the entire operation of a computer system.
- All input/output operations are channeled through operating system.
- First Program will be compiled.
- Compilation process will check each statement and translate it into a code which is understood by computer that is object code.

Process of Compiling and running

- The translation is done after checking each line for errors.
- The translated program will be stored in a file with extension.o
- Linking is the process of putting together other program files and functions that are required by the program.

Process of Compiling and running

- Once linking is done your program is ready for execution.
- Linking process will generate a code which is known as executable object code.
- Which will be executed and output will be given.

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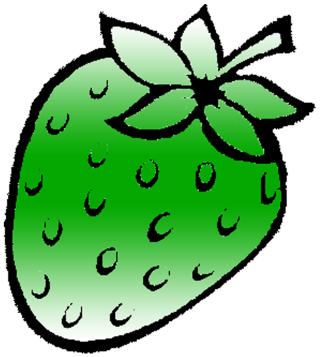

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