



SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)

Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai

Accredited by NAAC-UGC with 'A++' Grade (Cycle III) &

Accredited by NBA (B.E - CSE, EEE, ECE, Mech & B.Tech.IT)

COIMBATORE-641 035, TAMIL NADU



UNIT V – Physical Storage and MongoDB

Data Storage and Indexes – RAID- File organization-Indexing and Hashing –Ordered Indices – B+ tree Index Files – B tree Index Files – Static Hashing – Dynamic Hashing. Query Processing Overview-Algorithms for Selection and Sorting Basics of MongoDB, Procedural Language

Procedural Language

Procedural programming is a software development method that is executed step by step in a certain manner. The sequence of tasks to be carried out in order to find a solution is of primary importance. Procedural languages are encoded as algorithms, so that, in addition, the programmer not only specifies what the program should do but how to execute it. This method of construction of the data enables faster operation of software applications, especially those that contain repetitive motions, by separating the code into reusable programs and functions.

What is Procedural Programming?

Procedural Language is also known as 3GL which means third generation language. It is a type of programming language that follows a procedure; set of commands or guidelines that must be followed for smooth execution of the program. It works on step by step basis. It requires the user to tell not only What to do but also How to do it. Its basic idea is to have a program specify the sequence of steps that implements a particular algorithm. Hence, Procedural languages are based on algorithms.

In these developers use variables, loops, and functions to create a program performing a specific task which does calculations and displays a desired output.

It follows a top-down approach. It is carried out in a fixed sequence with a start and end point. The entire program is divided into functions and its main focus is on functions only. The program's code executes linearly with logical steps. In this, the code is written first and executed with some conditions. The procedure calls to decide the conditions.

There are no data-hiding features in procedural language. It is command command-driven language. It is operated by means of commands keyed in by the user or issued by

the program. In procedural language, both iterative and recursive calls are used. It works through the state of the machine. It returns only restricted data types and allowed values. It is highly efficient despite the fact the size of the program is quite large and is not suitable for critical applications with complex code. It takes a lot of time but it needs very less memory.

In procedural language, no access specifiers are used. For eg: In structure all the members are public.

Features of Procedural Programming Language

- **Local Variables:** A local variable is a variable that is limited to a specific part of a program and is announced locally in the procedural language, local on the specific function, as the only place to access it.
- **Global Variables:** A global variable is a variable that is declared outside a function and is able to be accessed by any function of the program. It is also known as the opposite of the local variable.
- **Modularity:** The practice of splitting a program into modules or functions so that each function is devoted to a certain task is referred to as modularity.
- **Pre-Defined Functions:** Pre-defined functions are the amplification of functions which are already defined by the user and don't need the programmer to define them again. A built-in function is already defined in the system libraries, so it is also called a library function.
- **Parameter Passing:** Parameter passing is a mechanism that allows the transfer of data between different functions of the program. The parameters are passed between the called and the calling function, thus allowing data exchange.

Types of Procedural Language

- **FORTTRAN:** FORTRAN is a short form of FORMula TRANslation. It is an application in critical engineering calculations and high-performance computing.
- **C:** It is a middle-level language. It is basically designed to write System software and requires advanced programming skills to read and write the desired code.
- **BASIC:** BASIC is the short form of Beginner All Purpose Symbolic Instruction Code. It is a high-level programming language that is simple to use.
- **Pascal:** Pascal is easy to learn. It produces transparent, efficient and reliable programs.
- **ALGOL:** ALGOL stands for Algorithmic Language. It is mostly used for scientific calculations.

- COBOL: COBOL stands for COmmon Business Oriented Language. It is easy to read, write and understand. It is basically designed for Business Applications.
- Java: Java is a platform independent language. It generates a machine code from source code with the help of Just In Time compiler.

Advantages of Procedural Language

- Easy to Understand: Procedural programming stops the programmer from writing more lines of code and depicts the code in very simple steps that can be easily followed by the programmer to understand it.
- Reusability: It paves way for easy code reusability.
- Modularity: It divides the programs into modules or functions and these functions use different parts of the memory.
- Simplification: It simplifies the algorithm and makes it understandable by the programmer.
- Top-Down Approach: The program flows in linear direction.
- Versatile: Developers can use Procedural language for most basic programming projects.

Disadvantages of Procedural Language

- One can't solve real world problem.
- Encapsulation, Inheritance, Abstraction etc can't be performed.
- It is less secure as there is no security of data.
- Its semantics are tough and difficult to understand.
- It returns only restricted data types and allowed values.