**Basic Maintenance Types**

There are four types of maintenance, namely, corrective, adaptive, perfective, and preventive.

* Corrective Maintenance: Corrective maintenance deals with the repair of faults or defects found in day-today system functions. A defect can result due to errors in software design, logic, and coding. Design errors occur when changes made to the software are incorrect, incomplete, wrongly communicated, or the change request is misunderstood. Logical errors result from invalid tests and conclusions, incorrect implementation of design specifications, faulty logic flow, or incomplete test of data. All these errors, referred to as residual errors, prevent the software from conforming to its agreed specifications. Note that the need for corrective maintenance is usually initiated by bug reports drawn by the users.
* Adaptive Maintenance: Adaptive maintenance is the implementation of changes in a part of the system, which has been affected by a change that occurred in some other part of the system. Adaptive maintenance consists of adapting software to changes in the environment such as the hardware or the operating system.
* Perfective Maintenance: Perfective maintenance mainly deals with implementing new or changed user requirements. Perfective maintenance involves making functional enhancements to the system in addition to the activities to increase the system's performance even when the changes have not been suggested by faults. This includes enhancing both the function and efficiency of the code and changing the functionalities of the system as per the users' changing needs.

Examples of perfective maintenance include modifying the payroll program to incorporate a new union settlement and adding a new report in the sales analysis system. Perfective maintenance accounts for 50%, that is, the largest of all the maintenance activities.

* Preventive maintenance involves performing activities to prevent the occurrence of errors. It tends to reduce the software complexity thereby improving program understandability and increasing software maintainability. It comprises documentation updating, code optimization, and code restructuring. Documentation updating involves modifying the documents affected by the changes in order to correspond to the present state of the system. Code optimization involves modifying the programs for faster execution or efficient use of storage space. Code restructuring involves transforming the program structure for reducing the complexity in source code and making it easier to understand.
* Preventive maintenance is limited to the maintenance organization only and no external requests are acquired for this type of maintenance. Preventive maintenance accounts for only 5% of all the maintenance activities.

COMPUTER PROCEDURES

A procedure is a set of coded instructions that tell a computer how to run a program or calculation. Many different types of programming languages can be used to build a procedure. Depending on the programming language, a procedure may also be called a subroutine, subprogram or function.