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Software configuration and Management

Software Configuration Management:

Content :

1. **Change Control**
2. **Process of change control**
3. **Software Reuse**
4. **Software Re-engineering**
5. **Software Revers engineering**

Change Control: It is the method that aorganization uses to contract, identify and authorize changes to an IT environment. It decreases the chances of unauthorized alterations, disruption and errors in the system.

Process of Change Control

Change Log: It is a document that list the details about all the Change Requests like project number, PCR (project change request) ID, priority, Owner details, Target date, status and status date, raised by, date when raised etc.

Change Request Form: It is used to contract details required to manage the decision making process like type of change, benefits of change, name of resource requesting the change, time and estimate cost, change request status etc.

Version Control: It is also known asrevision control. It is a class of systems responsible for managing changes to computer programs, documents, large web sites, or other collections of information.

It is a method that records changes to a file or group of files over time so that user can recall specific versions later.

Git is a free and open source assign version control system designed to handle all from small to very large projects with speed and efficiency.Itis easy to remember and has a small footprint with lightning fast performance.

Software Reuse: It is the method of creating systems from preplanned software components.

The advantage of software reuse:

- The systematic development of reusable components.
- The structured reuse these components as building blocks to create new systems.
- Increase software productivity.
- Shorten software development time.
- Produce more standardized software.

Software Re-engineering: It is a method of software development which is done to improve the maintainability of a software system. Itis the study and modification of a system to reconstitute it in a new form.

Advantages of Re-engineering:

- **Reduced Risk:**
  Software is existing, the risk is less as compared to new software development. Staffing problems and specification problems are many of problems which may create in new software development.

- **Reduced Cost:**
  The cost of this is less than the costs of developing new software.

Re-engineering Cost Factors:

- The quality of the software to be re-arranged
- The tool support available for re-engineering
- The extent of the required data conversion
- The availability of expert staff for re-engineering

Objectives of Re-engineering:

- To relate a cost-cutting option for system evolution.
- To relate the activities involved in the software maintenance process.
- To identify between software and data re-engineering and to explain the problems of data re- arranged.

Reverse Engineering: Itis also known as back engineering, it is the process by which a man-made object is deconstructed to reveal its designs, architecture, code or to extract knowledge from the object; related to scientific research, the difference being that scientific research is about a natural phenomenon.

Steps for Reverse Engineering are:

1. **Collection Information:**
   This pivot on collecting every possible information (i.e., source design documents etc.) about the software.

2. **Examining the information:**
   The information collected as to get familiar with the system.

3. **Extracting the structure:**
   This step worry with identification of program structure in the form of structure chart where each node corresponds to some routine.

4. **Recording the functionality:**
   During this step details of individual module of the structure, charts are recorded using structured language like decision table, etc.

5. **Recording data flow:**
   Group of data flow diagrams are derived to show the flow of data among the processes.
6. **Recording control flow:**
   Increase level control structure of the software is recorded.
7. **Review extracted design:**
   Design document remove is showed several times to certify consistency and correctness. It also ensures that the design represents the program.

8. **Generate documentation:** The complete documentation including SRS, design document, history, overview, etc. are recorded for future use.

Difference between Re Engineering and Reverse Engineering

Re Engineering	Reverse Engineering
It is to examine the finished product and build it again, but better.	It is finding out how a product works from the finished product.
It means in which we used own knowledge for make batter that previous technology what ever we use in first time.	It means using a other country knowledge for worked on them process and we change something in that technology is called reverse engineering.
It means to make the previous product again to get better output.	It means restart the whole.
It means developing a new system from an old system or r existing system	It is basically gathering inform from implementation and design
It is a process of software development which is done to improve the maintainability of a software system	It is the process by which a man-made object is deconstructed to reveal its designs, architecture, code or to extract knowledge from the object;

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