

Q.4] Explain SCM version control in detail.

Ans]

Software Configuration Management (SCM)

- It is a software engineering discipline consisting of standard processes and techniques often used by organizations to manage the changes introduced to its software products. SCM helps in identifying individual elements and configurations, tracking changes and version selection.
- SCM is known as software control management. SCM aims to control changes introduced to large complex software systems through reliable version selection and version control.

Version Control.

- Software version control is a system or tool that captures the changes to a source code element: files, folders, images or binaries.
- A version control system (also known as a Revision Control system) is a repository of files, often the files for the source code of computer programs, with monitored access. Every change made to the source is tracked, along with who made the change, why they made it, and references to problems fixed, or enhancements introduced, by the change.
- Version control systems are essential for any form of distributed, collaborative development. Whether it is the history of a wiki page or large software development project, the ability to track each change as it was made, and to reverse changes when necessary can make all the difference between well managed and controlled process and an uncontrolled 'first come, first served' system.

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- Combines procedures and tools to manage the different versions of configuration objects created during the software process.
- Version control systems require the following capabilities.
 - ① Project Repository
 - Stores all relevant configuration objects.
 - ② Version Management Capability
 - Stores all versions of a configuration object.
(enables any version to be built from past versions.)
 - ③ Make facility
 - Enables collection of all relevant configuration objects and construct a specific software version.
 - ④ Issues (bug) tracking capability
 - Enables team to record and track status of outstanding issues for each configuration object.
- Uses a system modeling approach (template - includes component hierarchy and component build order, construction rules, verification rules).

Q6A]

Risk

- Risk is an expectation of a loss, a potential problem that may or may not occur in the future. It is generally caused due to lack of information control or time.
- A possibility of suffering from loss in software development process is called a software risk.

Risk Analysis

- Risk analysis is process that helps you to identify and manage potential problem that could undermine key business initiatives or projects.
However, it can also be applied to other projects outside of business such as organising event or buying home.
- To carry out risk analysis you must first identify the possible threat that you face. Then estimate their likely impacts if they were to happen and finally estimate likelihood that these threats will materialize.
- Risk analysis can be complex as you will need to draw on detail information such as project plans, financial data, security protocol and other relevant information.
However it is essential planning tool and one that could save time, money and reputation.

Q.6] Differentiate between white box and black box testing.

Ans:

| White Box Testing | Black Box Testing |
|---|--|
| <p>① It is a way of testing the software in which the tester has knowledge about the internal structure or the code or the program of the software.</p> | <p>① It is a way of software testing in which the internal structure or the program or the code is hidden and nothing is known about it.</p> |
| <p>② It is mostly done by software developers.</p> | <p>② It is mostly done by software testers.</p> |
| <p>③ Knowledge of implementation is required.</p> | <p>③ No knowledge of implementation is needed.</p> |
| <p>④ It is the inner or the internal software testing.</p> | <p>④ It can be referred as outer or external software testing.</p> |
| <p>⑤ It is structural test of the software.</p> | <p>⑤ It is functional test of the software.</p> |
| <p>⑥ This type of testing of software is started after detail design document.</p> | <p>⑥ This testing can be initiated on the basis of requirement specifications documents.</p> |

⑦ It is mandatory to have knowledge of programming

⑦ No knowledge of programming is required

⑧ It is the logic testing of the software

⑧ It is the behavior testing of the software

⑨ It is generally applicable to the lower levels of software testing

⑨ It is applicable to higher levels of software testing

⑩ It is also called as clear box testing

⑩ It is also called as closed testing

⑪ It is most time consuming

⑪ It is least time consuming

⑫ It is suitable for algorithm testing

⑫ It is not suitable or preferred for algorithm testing

⑬ Data domains along with inner or internal boundaries can be better tested

⑬ Can be done by trial and error ways and method.

⑭ Example: by input to check and verify loops

⑭ Example: Search something on google using keyword.

⑮ Types of White Box Testing
A. Path Testing
B. Loop Testing
C. Condition Testing

⑮ Types of Black Box Testing
A. Functional Testing
B. Non-functional Testing
C. Regression Testing