QUIZ: 04

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Ans to the Ques No.1

In software engineering, software configuration management (SCM) is the task of tracking and controlling changes in the software. SCM practices include revision control and the establishment of baselines. In configuration management, a baseline is an agreed description of the attributes of a product, at a point in time, which serves as a basis for defining change. SCM items that comprise all information produced as part of the software development process. The primary goals of SCM are to control and track changes to software assets, ensure the integrity and consistency of those assets and facilitate collaboration among team members working on the software project. SCM encompasses various activities including version control, build management, release management and configuration management. Here are some key aspects of Software Configuration Management—

- Version Control: Version control is the process of managing changes to source code and other software assets over time.
- Build Management: Build management involves automating the process of compiling source code, resolving dependencies and producing executable software artifacts.
- Release Management: Release Management focuses on planning, coordinating and deploying software releases.
- Configuration Management: Configuration management involves managing the configuration of software system including their hardware, software and documentation components.
- Change Management: Change Management involves controlling and tracking changes to software assets including source code, configuration files and documentation.
- Branching and Merging: It are used to manage parallel lines of development in version control systems.

Effective Software Configuration Management is essential for ensuring the quality, reliability and maintainability of software system particularly in large and complex development environments with multiple contributors and frequent changes.

Ans to the Ques NO. 2

A database that acts as the center for both accumulation and storage of software engineering information. The SCM repository in the set of mechanism and data structures that allow a software team to manage change in an effective manner.

The contents of a Software Configuration Management (SCM) repository can very depending on the specific project and the SCM tool being used. However, typically an SCM repository contains —
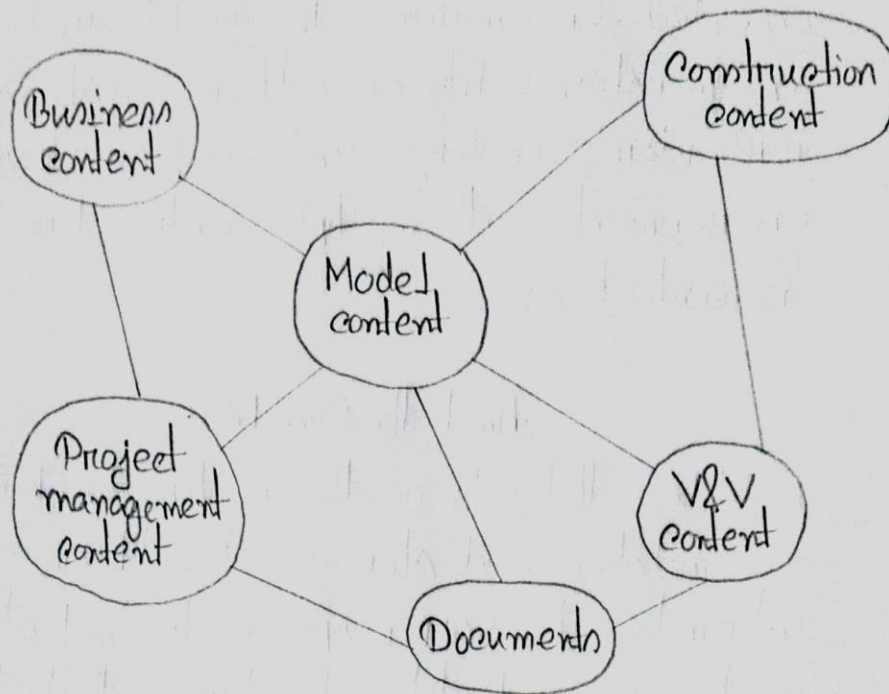
Figure: Content of SCM Repository

•Model content: This content criteria are use cases, analysis model, design model and technical metrics. Analysis model diagrams are scenario-based, flow-oriented, class-based, behavioral diagram. Design model diagrams are architectural, interface, component-level diagram.

- Construction content: This content criteria are source code, object code, system build instruction
- V&V content: This content criteria are test cases, test scripts, test results, quality metrics.
- Documents: This content criteria are project plan, SCM/SQA plan, system spec, requirements spec, design document, test plan and procedure, support documents, user manual.
- Project management content: This content criteria are project estimates, project schedule, SCM requirements, change requests, change reports, SQA requirements, project reports/audit reports, project metrics.
- Business content: This content criteria are business rules, business functions, organization structure, information architecture.

The primary content of most SCM repositories is the source code of the software project. This includes all the files and directories necessary to build and run the software. SCM maintain metadata about changes made to

the source code overtime. Configuration files necessary for building, testing and deploying the software may be stored in the repository. Documentation related to the project such as design documents, user manuals, release notes may be stored alongside the source code in the repository. Scripts used to automate the build process, run tests and perform other tasks related to building and deploying the software may be included in the repository.

There are some common contents but the specific contents of an SCM repository can vary widely depending on factors such as the size and complexity of the project, the development workflow and the preferences of the development team.