Case Study 7:

Task (1): Study Version Control System

Version Control Systems (VCS) have been used by many software developers during project developments as it helps them to manage the source codes and enables them to keep every version of the project they have worked on. It is the way towards managing, organizing, and coordinating the development of objects. In Software Engineering, software developers need to collaborate with each other to develop a better project. Thus, version control system is very useful because it also supports a collaborative framework that makes it easy for software developers to work together effectively. Without version control system, collaboration is very challenging.

Task (2): What is Version Control System?

Version control system are most commonly run as stand-alone applications, but revision control is also embedded in various types of software such as word processors, spreadsheets, collaborative web docs and in various content management systems. Version control system are a category of software tools that helps record changes to files by keeping a track of modifications done to the code.

Types of version control systems:

* Local Version Control Systems
* Centralized Version Control Systems
* Distributed Version Control Systems

Local Version Control Systems: It is one of the simplest forms and has a database that kept all the changes to files under revision control.

Centralized Version Control Systems: Centralized version control system contain just one repository and each user gets their own working copy. You need to commit to reflecting your changes in the repository. It is possible for others to see your changes by updating.

Distributed Version Control Systems: Distributed version control system contain multiple repositories. Each user has their own repository and working

copy. Just committing your changes will not give others access to your changes. This is because commit will reflect those changes in your local repository and you need to push them in order to make them visible on the central repository.

Why is it needed in System Development plan?

Version control allows you to manage changes to files over time.

You can use version control to version code, binary files and digital assets. It needs to do more than just manage and track files. It should help you develop and ship products faster. This s especially important for teams. That’s because using the right one:

-improves visibility.

-Helps teams collaborate around the world.

-Accelerates product delivery.

Task (3) :What version control system is used now?

Git is a distributed version control system for tracking changes source code during software development. It is designed for coordinated work among programmers, but it can be used to track changes in any set of files. If we want to start using Git, we need to know where to host our repositories. A repository is a project that contains multiple files. In our case a repository will contain code-based files. There are two ways you can host your repositories. One is online (on the cloud) and the second is offline(self-installed on your server).

There are three popular Git hosting services:

GitHub (owned by Microsoft),GitLab(owned by GitLab) and BitBucket.

We’ll use GitHub as our hosting service.

Git commands

* git config
* git init
* git clone
* git add
* git commit
* git diff
* git reset
* git status
* git rm
* git log
* git show
* git tag
* git branch
* git checkout
* git merge
* git remote
* git push
* git pull
* git stash

Task (4) :What is testing?

Testing is the process of evaluating a system or its components with the intent to find whether it satisfies the specified requirements or not. In simple words, testing is executing a system in order to identify any gaps, errors or missing requirements in contrary to the actual requirements. In the software development life cycle SDLC) the Testing plays an important role, which helps to improve the quality, reliability & performance of the system with all check what all functions software supposed to do & also check that Software is not doing what he not supposed to do. Testing should be introduced in the early stage of the SDLC, The cost of fixing the bug is larger if testing is not done in early-stage & bugs found in later stages .In today’s competitive market only the quality product stays long time firmly, so to make sure they produce a good quality product the testing of application is a key factor in SDLC.As it not possible makes its software application is defect-free but testing will be necessary. The most important thing of testing is the development environment is different than the Testing environment and the testing done on the testing environment is similar to the Production environment.

Task (5) Which tools (technology ,framework) are used in Testing phase(Java Project)?

**JUnit** is a unit testing framework designed for the Java programming language. JUnit has been important in the development of test-driven development frameworks. It is one of a family of unit testing frameworks which is collectively known as the xUnit that originated with SUnit.

JUnit is linked as a JAR at compile-time and can be used to write repeatable tests.