1-1-1: Examining Version Control Systems

After completing this episode, you should be able to:

- Identify and explain the importance of version controls systems in DevOps, given a scenario.

Description: In this episode, the learner will examine version control systems and their significance to DevOps. We will explore the key concepts and the benefits of these implementing these systems in DevOps environments.

- Describe version control systems (VCS)
    - VCS are software tools that help software teams manage changes to source code over time, allowing multiple developers to work collaboratively.
- Describe the key concepts in VCSs
    - Repository - a centralized location where code and project files are stored, facilitating version control and collaboration
    - Commits - saving a snapshot of changes in the VCS, which includes a unique identifier for tracking history.
    - Branches - independent lines of development created from the main project to work on different versions or features simultaneously without affecting the main or master branch.
    - Merges - the process of combining different branches back into a single branch, integrating changes from multiple developers or feature branches.
    - Tags - marking specific points in a repository’s history as being important, typically used for release points.
- Describe the benefits of using VCS
    - Collaboration - allowing multiple developers to work on the same project simultaneously without overwriting each other's work.
    - Track changes - every change to the source code is tracked along with details on who made the change, why they made it, and references to problems fixed, or enhancements introduced.
    - Revert and compare - enables the possibility to revert selected files or whole projects back to a previous state, compare changes over time, and use the best approaches.