

## Experiment 8

**AIM:** Change specification and use any SCM Tool to make different versions

**Theory :**

Software configuration management: The traditional software configuration management (SCM) process is looked upon by practitioners as the best solution to handling changes in software projects. It identifies the functional and physical attributes of software at various points in time, and performs systematic control of changes to the identified attributes for the purpose of maintaining software integrity and traceability throughout the software development life cycle.

The SCM process further defines the need to trace changes, and the ability to verify that the final delivered software has all of the planned enhancements that are supposed to be included in the release. It identifies four procedures that must be defined for each software project to ensure that a sound SCM process is implemented. They are:

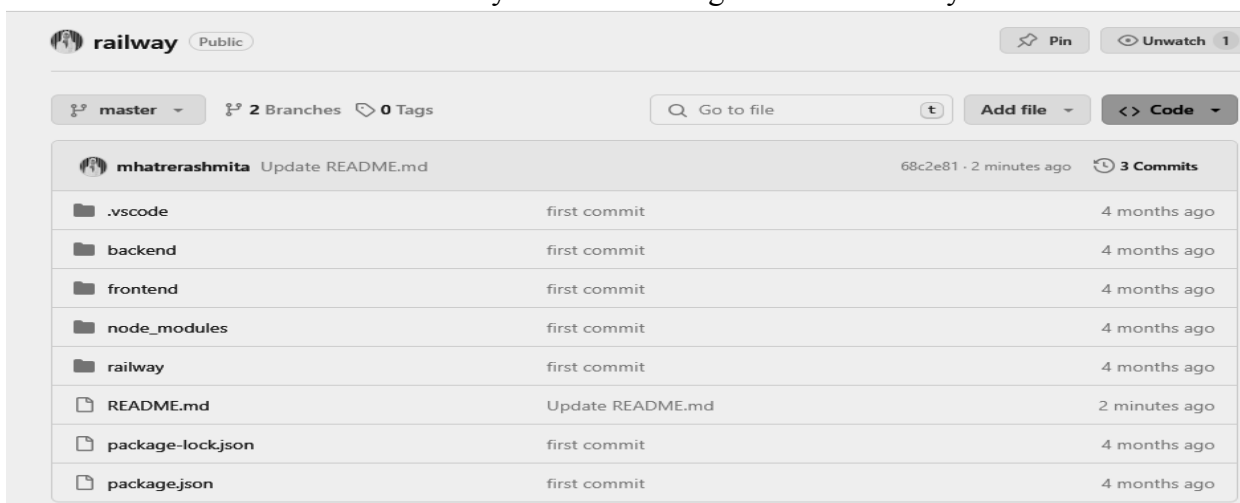
1. Configuration identification
2. Configuration control
3. Configuration status accounting
4. Configuration audits

These terms and definitions change from standard to standard, but are essentially the same.

- Configuration identification is the process of identifying the attributes that define every aspect of a configuration item. A configuration item is a product (hardware and/or software) that has an end-user purpose. These attributes are recorded in configuration documentation and baselined. [Baselining](#) an attribute forces formal configuration change control processes to be effected in the event that these attributes are changed.
- Configuration change control is a set of processes and approval stages required to change a configuration item's attributes and to re-baseline them.
- Configuration status accounting is the ability to record and report on the configuration baselines associated with each configuration item at any moment of time.
- Configuration audits are broken into functional and [physical configuration audits](#). They occur either at delivery or at the moment of effecting the change. A functional configuration audit ensures that functional and performance attributes of a configuration item are achieved, while a physical configuration audit ensures that a configuration item is installed in accordance with the requirements of its detailed design documentation.

GitHub offers all of the distributed revision control and source code management (SCM) functionality of Git as well as adding its own features. Unlike Git, which is strictly a command- line tool, GitHub provides a Web-based graphical interface and desktop as well as mobile integration. It also provides access control and several collaboration features such as bug tracking, feature requests, task management for every project.

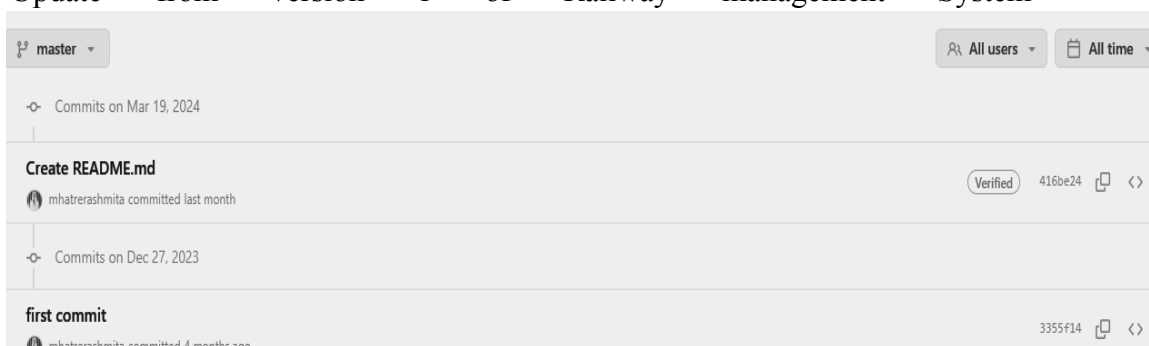
Version for Railway Management System:



The screenshot shows the GitHub interface for a repository named 'railway'. The repository is public and has 2 branches and 0 tags. The current branch is 'master'. The file history table shows the following files and their commit details:

| File              | Commit Message   | Commit Hash | Time          |
|-------------------|------------------|-------------|---------------|
| .vscode           | first commit     | 68c2e81     | 4 months ago  |
| backend           | first commit     | 68c2e81     | 4 months ago  |
| frontend          | first commit     | 68c2e81     | 4 months ago  |
| node_modules      | first commit     | 68c2e81     | 4 months ago  |
| railway           | first commit     | 68c2e81     | 4 months ago  |
| README.md         | Update README.md | 68c2e81     | 2 minutes ago |
| package-lock.json | first commit     | 68c2e81     | 4 months ago  |
| package.json      | first commit     | 68c2e81     | 4 months ago  |

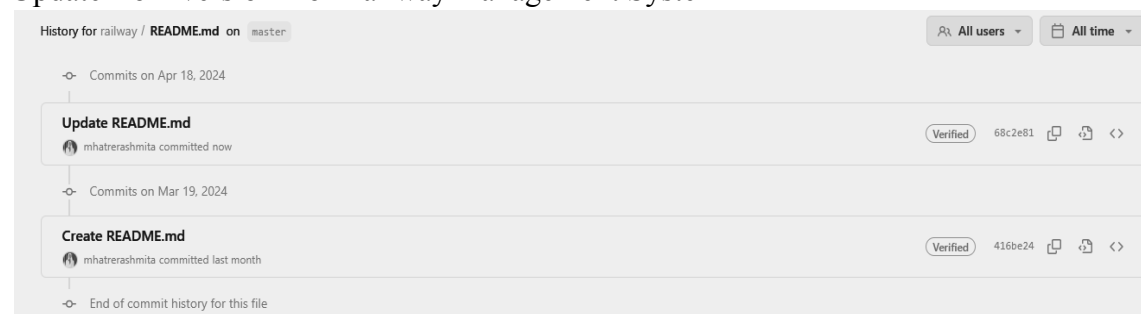
Update from version 1 of Railway management System



The screenshot shows the commit history for the file 'Create README.md'. The repository is 'railway' and the branch is 'master'. The commit history shows the following commits:

| Commit Message   | Commit Hash | Time         |
|------------------|-------------|--------------|
| Create README.md | 416be24     | last month   |
| first commit     | 3355f14     | 4 months ago |

Update from version 2 of Railway management System



The screenshot shows the commit history for the file 'Update README.md'. The repository is 'railway' and the branch is 'master'. The commit history shows the following commits:

| Commit Message   | Commit Hash | Time          |
|------------------|-------------|---------------|
| Update README.md | 68c2e81     | committed now |
| Create README.md | 416be24     | last month    |

For Faculty Use

| Correction Parameters | Formative Assessment [40%] | Timely completion of Practical [40%] | Attendance / Learning Attitude [20%] |  |
|-----------------------|----------------------------|--------------------------------------|--------------------------------------|--|
| Marks Obtained        |                            |                                      |                                      |  |