DVCS Requirement Specification

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**Overview**

In this document we discuss our plan for creating a DVCS. Below we cover the requirements for the system and the features we will support.

**System Requirements**

Our DVCS should meet the following requirements:

1. The system must maintain various revisions of the repository and the versions of the files in those revisions.
2. The order of the revisions and the files changes must be maintained.
3. The System should be able to reconstruct files from any revision.
4. The changes made to a revision such as file additions or removal and specific changes made to a file, must be stored and should be attainable by the user. Changes between revisions should also be available them.
5. The system should be able to copy repositories and share them with other users.
6. Files that have been changed in the current revisions should be highlighted to the user.
7. A log of the changes made to the repository should be available to the user.
8. The system must allow for multiple repositories to be merged without file conflicts and data loss. Conflicts must be highlighted to the user with the specific location in the files.
9. A simple, intuitive user interface that makes common operations easy.

**System Features**

Since our system is similar to current existing DVCS, our feature names will be consistent with theirs.

1. init: create an empty repository
2. clone: copy an existing repository
3. add: add specific files to the repository
4. remove: remove specific files from the repository
5. status: check the current status of the current repository
6. heads: show the current heads of the repository
7. diff: check the changes between different revisions
8. checkout: checkout a specific revision
9. cat: inspect/output a file of a given revision
10. log: view the change log of the current repository
11. merge: merge two revisions
12. pull: pull the changes from another repository
13. push: push the change into another repository

The features above are not exhaustive and only cover what is required for our a functioning DVCS. If time permits we would like to consider additional features such as cherry picking.