Java Programming and Selenium Web Automation

Homework – Week 9 – Git Commands

# How to resolve GIT conflict?

**What is it?**

**Conflicting versions** of a file.

**How does it happen?**

When attempting to **merge different changes** made by **multiple people working on the same file**, Git is unable to automatically determine which changes should be kept and which should be discarded, leading to a conflict.

**How to resolve it?**

**Manually edit the file**: open the file and make necessary changes, i.e., decide which changes to **keep** and which to **discard**.

This can be done by **opening the file in a text editor** and looking for sections marked with **conflict markers** (<<<<<<<, =======, and >>>>>>>). Then **add** → **commit** → **push**

**Commands to resolve conflicts:**

* “**git log – merge**”: **list of commits** that are **causing conflicts**
* “**git diff** ”: identify the **difference** between **repositories** or **files**
* “**git checkout**”: **undo** **changes** made to the file, or for **changing** **branches**
* “**git reset -- mixed**”: **undo** **changes** to **working** **directory** and **staging** **area**
* “**git merge -- abort**”: **exiting** **merge** process and **returning back to the state** before merging
* “**git reset**”: **reset the conflicted files** to their original state. Used at time of merge conflict to

# Why are GIT branches needed?

**What are they?**

**Version of repository** that **diverges** from the **main**/**master** working project.

Diagram

Description automatically generated

**Why are they needed?**

Allows **developers to work on different parts** of the project **simultaneously** without affecting the main working branch to.

It enables:

* **Collaboration**: multiple people **work on different parts** of the project simultaneously **without interfering** in each other’s work. Once ready, it can be **merged** to the main branch.
* **Maintenance**: **bug** fixes, **security** patch.
* **Experimentation**: **new** **feature**/**idea** **exploration** without affecting the stability of the main branch.