**4. Branch Creation, Editing, Merging, and Conflict Resolution**

**Objective:**

To create and work with branches in Git, make changes in different branches, merge them back into the main branch, resolve conflicts using a 3-way merge tool, manage ignored files, and clean up branches after merging.

Steps to Perform in Git:

**1. Verify if master is in clean state**

|  |
| --- |
| git checkout master  git status |

**2. Create a branch GitWork and add a file hello.xml**

|  |
| --- |
| git branch GitWork  git checkout GitWork  echo "<message>Hello from GitWork branch</message>" > hello.xml |

**3. Update the content of hello.xml and observe the status**

|  |
| --- |
| echo "<message>Updated content in GitWork branch</message>" > hello.xml  git status |

**4. Commit the changes to branch**

|  |
| --- |
| git add hello.xml  git commit -m "Updated hello.xml in GitWork branch" |

**5. Switch to the master**

|  |
| --- |
| git checkout master |

**6. Add hello.xml to master with different content**

|  |
| --- |
| echo "<message>Hello from master branch</message>" > hello.xml |

**7. Commit the changes to master**

|  |
| --- |
| git add hello.xml  git commit -m "Added hello.xml in master with different content" |

**8. Observe the log**

|  |
| --- |
| git log --oneline --graph --decorate --all |

**9. Check differences with Git diff tool**

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| --- |
| git diff master GitWork |

**10. Use P4Merge tool for visual differences**

|  |
| --- |
| git difftool master GitWork |

**11. Merge the branch into master**

|  |
| --- |
| git merge GitWork |

**12. Observe Git markup**

|  |
| --- |
| git status |

**13. Use 3-way merge tool to resolve the conflicts**

|  |
| --- |
| git mergetool |

* Edit conflicting files, save changes.

**14. Commit the resolved changes to master**

|  |
| --- |
| git add hello.xml  git commit -m "Resolved merge conflicts in hello.xml" |

**15. Observe status and add backup files to .gitignore**

|  |
| --- |
| git status  echo "\*~" >> .gitignore |

**16. Commit .gitignore changes**

|  |
| --- |
| git add .gitignore  git commit -m "Added backup files to .gitignore" |

**17. List out all available branches**

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| --- |
| git branch -a |

**18. Delete the branch merged to master**

|  |
| --- |
| git branch -d GitWork |

**19. Observe the log**

|  |
| --- |
| git log --oneline --graph --decorate |