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1. What is the purpose of a .gitignore file in a Git repository, and how does it contribute to managing project files?

Can you explain the syntax used in a .gitignore file to specify which files and directories Git should ignore? Provide examples of common patterns used.

Ans A .gitignore file in a Git repository is used to specify files and directories that should be ignored by Git when tracking changes. This is useful to avoid including unnecessary or sensitive files in the version control system.

```
Hp@HunarBhutani MINGW64 ~/OneDrive/Desktop/scm g6 class work (master)
$ touch .gitignore
Hp@HunarBhutani MINGW64 ~/OneDrive/Desktop/scm g6 class work (master)
$ touch try1.txt
Hp@HunarBhutani MINGW64 ~/OneDrive/Desktop/scm g6 class work (master)
$ touch new.py
Hp@HunarBhutani MINGW64 ~/OneDrive/Desktop/scm g6 class work (master)
$ touch try2.txt
Hp@HunarBhutani MINGW64 ~/OneDrive/Desktop/scm g6 class work (master)
$ touch try3.txt
Hp@HunarBhutani MINGW64 ~/OneDrive/Desktop/scm g6 class work (master)
$ touch try4.txt
Hp@HunarBhutani MINGW64 ~/OneDrive/Desktop/scm g6 class work (master)
$ git status
On branch master
Untracked files:
  (use "git add <file>..." to include in what will be committed)
        .gitignore
        new.py
        try1.txt
        try2.txt
        try3.txt
        try4.txt

nothing added to commit but untracked files present (use "git add" to track)
Hp@HunarBhutani MINGW64 ~/OneDrive/Desktop/scm g6 class work (master)
$ git init
Reinitialized existing Git repository in C:/Users/Hp/OneDrive/Desktop/scm g6 class work/.git/
Hp@HunarBhutani MINGW64 ~/OneDrive/Desktop/scm g6 class work (master)
$ |
```

2. How can you create a .gitignore file in a Git repository using Git Bash? Describe the steps involved in creating and editing this file.

1. Create .gitignore with touch .gitignore.
2. Edit using a text editor, e.g., nano .gitignore.
3. Add rules for files/directories to ignore.
4. Save and exit.
5. git add .gitignore and git commit -m "Add .gitignore".
6. Optionally, git push origin <branch-name>.

3. Is it possible to have multiple .gitignore files within a Git repository, and if so, how does Git handle them? Explain any hierarchy or precedence rules that apply when multiple .gitignore files are present.

Ans 1. Local .gitignore: Rules in a .gitignore file in a folder apply only to that folder and its subfolders.

2. *Global .gitignore:* You can have a global set of rules that apply to all repositories on your computer.

3. *Repository-level .gitignore:* If there are multiple .gitignore files in a repository, rules from all are considered.

4. *Hierarchy:* Rules in lower-level (closer to the file) .gitignore files override those in higher-level ones.

This system allows you to set general rules globally, specific rules for the whole repository, and even more specific rules for individual folders. The closer the .gitignore file is to the file or folder, the more influence it has.