**Assignment 4 : explain fork and git clone with example.**  the concepts of  **fork**  and  **git clone**  in Git with examples.

**Fork**

A  **fork**  is a copy of a repository that you manage. Forks allow you to freely experiment with changes without affecting the original project. This is commonly used in open-source projects where you want to contribute changes back to the original project.

Example of Forking a Repository

1. **Go to the Repository on GitHub:**

Navigate to the repository you want to fork on GitHub. For example, `https://github.com/original/repo`.

1. **Fork the Repository**

Click on the "Fork" button at the top right of the repository page. This will create a copy of the repository under your GitHub account.

1. **Clone the Forked Repository:**

Once forked, you can clone the repository to your local machine to start working on it.  **Clone**

git clone is a Git command that creates a copy of an existing repository (either your own or someone else's) on your local machine.

Example of Cloning a Repository:

1.  **Clone the Repository:**

Use the `git clone` command followed by the repository URL to create a local copy of the repository.  **git clone https://github.com/yourusername/repo**

This will clone the repository to a directory named `repo`.

**Putting It All Together**

Here’s a step-by-step example that combines both concepts:

**Step 1: Fork a Repository on GitHub**

1. Navigate to the repository you want to contribute to, e.g., `https://github.com/original/repo`.
2. Click the "Fork" button at the top right of the page. This will create a copy of the repository under your GitHub account, e.g., `https://github.com/yourusername/repo`.

**Step 2: Clone the Forked Repository**

1. Open your terminal or command prompt.
2. Clone the forked repository to your local machine using the `git clone` command.  **git clone https://github.com/yourusername/repo**

**Step 3: Make Changes and Commit**

1. Navigate to the repository directory.

**cd repo**

1. Create a new branch for your changes.  **git checkout -b new-feature**
2. Make your changes to the project files.
3. Stage and commit your changes.

**git add .**

**git commit -m "Add new feature"**

**Step 4: Push Changes to Your Fork**

1. Push your changes to the forked repository on GitHub.  **git push origin new-feature**

**Step 5: Create a Pull Request**

1. Go to your forked repository on GitHub, e.g., `https://github.com/yourusername/repo`.
2. Click the "Compare & pull request" button.
3. Provide a title and description for your pull request and submit it.

By following these steps, you have forked a repository, cloned it to your local machine, made changes, pushed those changes to your fork, and created a pull request to contribute back to the original repository.

**Summary**

* Fork: Creates a copy of a repository on your GitHub account, allowing you to freely make changes without affecting the original repository.
* Clone: Creates a local copy of a repository on your machine for development purposes.

By understanding and using these concepts, you can effectively contribute to open-source projects and collaborate with others using Git and GitHub.