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`.

2. **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.

3. **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

2. Create a new branch for your changes.

```
git checkout -b new-feature
```

3. Make your changes to the project files.
4. 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.