Assignment-8

Deploying a Project from Local Machine to GitHub and Vice Versa

Overview

This guide explains:

1. **Creating a GitHub repository**
2. **Generating a GitHub authentication token**
3. **Uploading files to GitHub using Git Bash**
4. **Cloning a repository to a local machine**

Remark: Git is an open-source version control system that tracks changes in source code. This process allows developers to manage and share their projects effectively.

Step 1: Create a GitHub Repository

1. Go to **GitHub** and sign in or create an account.
2. Click on the **GitHub logo** (top left).
3. Under **Top Repositories**, click **New**.
4. Enter a **Repository Name** (e.g., MYNEWREPO).
5. Choose **Public** or **Private** (Here, we select **Private**).
6. Click **Create Repository**.

Remark: A repository is a storage location for project files and their revision history.

Step 2: Generate a GitHub Authentication Token

GitHub authentication tokens are required for secure access without passwords.

1. Click on your **Profile Name → Settings**.
2. Go to **Developer Settings** (left sidebar).
3. Click **Tokens (Classic) → Generate New Token (Classic)**.
4. Enter a **Token Name** (e.g., tok2).
5. Set an **Expiration Period** (e.g., 90 days).
6. Check **all required permissions**.
7. Click **Generate Token** and **Copy the Token** for later use.

Remark: The token replaces your GitHub password for authentication when using Git.

Step 3: Upload Files to GitHub Using Git Bash

Prerequisites:

- Install **Git for Windows** if not already installed.

Process:

1. **Navigate to Your Project Folder**:
   - On your desktop, locate the folder containing project files.
   - **Right-click** inside the folder and select **Git Bash Here**.
2. **Initialize Git in the Folder**:

   ```
   git init
   ```

   - This creates a new Git repository in the folder.
3. **Configure Git User Details**:

   ```
   git config --global user.email "your_email@example.com"
   ```

   - This links your local Git to your GitHub account.
4. **Stage Files for Commit**:

   ```
   git add .
   ```

   - This adds all files in the folder to Git's tracking system.
5. **Commit the Files with a Message**:

   ```
   git commit -m "Initial commit"
   ```

   - This saves the changes locally with a message.
6. **Connect to the Remote Repository**:

   ```
   git remote add origin "https://github.com/yourusername/MYNEWREPO.git"
   ```

   - This links your local repository to the GitHub repository.
7. **Push the Files to GitHub**:

   ```
   git push -f origin master
   ```

   - A popup window appears asking for credentials.
   - Enter the **authentication token** instead of the password.

Remark: If successful, all files will be visible in the GitHub repository.

Step 4: Clone a GitHub Repository to a Local Machine

Scenario:

We want to download an existing repository (`https://github.com/sudip7407/New-Repo1.git`) to our local machine.

Process:

1. **Create a New Folder** on your desktop (e.g., `folder2`).
2. **Right-click the folder → Git Bash Here**.
3. **Clone the GitHub Repository**:

   ```
   git clone "https://github.com/sudip7407/New-Repo1.git"
   ```

   o This downloads the repository to the local machine.
4. **Verify Files Are Downloaded**:

   ```
   ls
   ```

   o This lists all files in the cloned repository.
5. **Navigate Inside the Cloned Repository**:

   ```
   cd New-Repo1
   ```

6. **Check Repository Files**:

   ```
   ls
   ```

   o This displays the files copied from GitHub.

Remark: You can now modify files and push updates back to GitHub using the steps from **Step 3** (excluding token creation).

Final Notes

- **Authentication tokens expire** after a set period; regenerate if needed.
- **Using `git push -f` overwrites changes** in the remote repository. Be cautious.
- **Ensure Git is installed** before attempting commands.
- **Use SSH authentication** instead of tokens for enhanced security.