

Staff Graded Assessment - 2

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Section: Git

In this section, I created a local Git repository for my simple web application consisting of three HTML pages: `index.html`, `about.html`, and `contact.html`.

The repository was initialized using `git init`, after which I used commands like `git status`, `git add`, and `git commit` to stage and commit my files.

I explored branching using `git branch` and switched branches with `git switch` to simulate working on different features.

The commit history was viewed using `git log`, which displayed a record of all commits made to the project.

This process demonstrated version control fundamentals and how Git tracks changes efficiently in a project.

```
● yashrajkupekar@Yashrajs-MacBook-Air Bits assignmeny % mkdir devops-assignment
● yashrajkupekar@Yashrajs-MacBook-Air Bits assignmeny % cd devops-assignment
● yashrajkupekar@Yashrajs-MacBook-Air devops-assignment % mkdir src
● yashrajkupekar@Yashrajs-Macbook-Air devops-assignment % pwd
/Users/yashrajkupekar/Bits assignmeny/devops-assignment
```

Initialized a new Git repository in the project folder using `git init`. This creates a `.git` folder to track changes.

```
● yashrajkupekar@Yashrajs-MacBook-Air devops-assignment % git init
git status
git add src
git status
git commit -m "Initial commit: add web app HTML pages"
Initialized empty Git repository in /Users/yashrajkupekar/Bits assignmeny/devops-assignment/.git/
On branch main

No commits yet

Untracked files:
(use "git add <file>..." to include in what will be committed)
src/

nothing added to commit but untracked files present (use "git add" to track)
On branch main

No commits yet

Changes to be committed:
(use "git rm --cached <file>..." to unstage)
  new file: src/about.html
  new file: src/contact.html
  new file: src/index.html

[main (root-commit) bbd27e3] Initial commit: add web app HTML pages
  3 files changed, 27 insertions(+)
  create mode 100644 src/about.html
  create mode 100644 src/contact.html
  create mode 100644 src/index.html
```

```
● yashrajkupekar@Yashrajs-MacBook-Air devops-assignment % git log --oneline
bbd27e3 (HEAD -> main) Initial commit: add web app HTML pages
● yashrajkupekar@Yashrajs-MacBook-Air devops-assignment % git branch
git switch -c feature/add-readme
* main
Switched to a new branch 'feature/add-readme'
● yashrajkupekar@Yashrajs-MacBook-Air devops-assignment % echo "# DevOps Assignment" > README.md
git add README.md
git commit -m "Add README"
git log --oneline
git switch main
[feature/add-readme f18852e] Add README
1 file changed, 1 insertion(+)
create mode 100644 README.md
f18852e (HEAD -> feature/add-readme) Add README
bbd27e3 (main) Initial commit: add web app HTML pages
Switched to branch 'main'

● yashrajkupekar@Yashrajs-MacBook-Air devops-assignment % git remote add origin git@github.com:YashrajKupekar17/devops-assignment.git
git branch -M main
git push -u origin main
Enumerating objects: 6, done.
Counting objects: 100% (6/6), done.
Delta compression using up to 8 threads
Compressing objects: 100% (5/5), done.
Writing objects: 100% (6/6), 876 bytes | 876.00 KiB/s, done.
Total 6 (delta 0), reused 0 (delta 0), pack-reused 0
To github.com:YashrajKupekar17/devops-assignment.git
 * [new branch]      main -> main
branch 'main' set up to track 'origin/main'.
```

Github

After setting up the local repository, I created a remote repository on GitHub named **devops-assignment**.

The local repository was linked to GitHub using the command `git remote add origin`, followed by pushing the commits with `git push -u origin main`.

This integration ensured my code was backed up online and version-controlled collaboratively. The project files (HTML pages, Dockerfile, and README) were successfully uploaded to GitHub, providing remote accessibility and version tracking.

GitHub also helps with future collaboration and acts as a central repository for development and deployment pipelines.

The screenshot shows a GitHub repository page for 'devops-assignment'. The repository has 1 branch and 0 tags. There is one commit from 'YashrajKupekar17' titled 'Initial commit: add web app HTML pages' made 22 minutes ago. The commit hash is bbd27e3. On the right side, there is an 'About' section with a note: 'No description, website, or topics provided.' It also shows activity metrics: 0 stars, 0 watching, and 0 forks. Below that is a 'Releases' section with a note: 'No releases published' and a link to 'Create a new release'. Under 'Packages', it says 'No packages published' and 'Publish your first package'. At the bottom left, there is a 'Add a README' button.

Docker

In this section, I containerized the web application using Docker.

I created a **Dockerfile** that uses a lightweight Python base image and serves the HTML files via Python's built-in HTTP server on port 8080.

Using the command `docker build -t yourdockerhubusername/webapp-demo:1.0 .`, I built a custom image from the Dockerfile.

After successful image creation, I logged into Docker Hub using `docker login` and pushed the image using `docker push`.

This step demonstrates containerization—packaging the application and its dependencies into a portable Docker image that can run consistently on any system.

The screenshot shows a terminal window displaying a Dockerfile and a file browser showing the repository structure.

```
# Use a small Python base image
FROM python:3.11-slim
# Create app directory
WORKDIR /app
# Copy source files into the image
COPY src/ ./src
# Set working dir to src
WORKDIR /app/src
# Expose port that python -m http.server will use
EXPOSE 8080
# Start the simple HTTP server
CMD ["python", "-m", "http.server", "8080"]
```

The file browser on the left shows the repository structure:

- BIT ASSIGNMENT
- devops-assignment
 - screenshots
 - docker build -t.png
 - docker ps.png
 - docker run -d.png
 - git init.png
 - git log -oneline.png
 - git remote add origin.png
 - mkdir devops-assignment... U
 - Welcome to My Simple W... U
 - src
 - Dockerfile U

```

● yashrajkupekar@Yashrajs-MacBook-Air devops-assignment % docker build -t yashraj777/webapp-demo:1.0 .
[+] Building 2.4s (10/10) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 364B
=> [internal] load metadata for docker.io/library/python:3.11-slim
=> [auth] library/python:pull token for registry-1.docker.io
=> [internal] load .dockerignore
=> => transferring context: 2B
=> [1/4] FROM docker.io/library/python:3.11-slim@sha256:e4676722fba839e2e5cdb844a52262b43e90e56dbd55b7ad953ee36
=> => resolve docker.io/library/python:3.11-slim@sha256:e4676722fba839e2e5cdb844a52262b43e90e56dbd55b7ad953ee36
=> [internal] load build context
=> => transferring context: 129B
=> CACHED [2/4] WORKDIR /app
=> CACHED [3/4] COPY src/.src
=> CACHED [4/4] WORKDIR /app/src
=> exporting to image
=> => exporting layers
=> => exporting manifest sha256:ffebab335345fb54b39a8c0cb1ad36bdb3da9d7edfb0ae7acf81cc6ac7bbc91
=> => exporting config sha256:d5a6bda64ead890e6cca37345a7c60862d36eaef7804fc9e8f994e84b5fbc11e
=> => exporting attestation manifest sha256:0d16c8a90ba7a79f37ae1919b3788a3d11d4e7f0c621a20f20949fd0e1af9868
=> => exporting manifest list sha256:ee66f77fd4a27535d90e9517d76278e6924a6976f2bdaa225801b994c11226e7
=> => naming to docker.io/yashraj777/webapp-demo:1.0
=> => unpacking to docker.io/yashraj777/webapp-demo:1.0

```

```

● yashrajkupekar@Yashrajs-MacBook-Air devops-assignment % docker run -d --name webapp-demo -p 8080:8080 yashraj777/webapp-demo:1.0
309b9798bcc9bb9f59b0f4beda1f317ac9b722bfc3a6dc6e687eeda02e1932eff

```

```

● yashrajkupekar@Yashrajs-MacBook-Air devops-assignment % docker ps
# to view logs (optional)
docker logs webapp-demo

CONTAINER ID        IMAGE               COMMAND                  CREATED             STATUS              PORTS               NAMES
309b9798bcc9        yashraj777/webapp-demo:1.0   "python -m http.serve..."   2 minutes ago      Up 2 minutes       0.0.0.0:8080->8080/tcp   webapp-demo
zsh: unknown sort specifier

```

	Name	Container ID	Image	Port(s)	CPU...	Last started	Actions
<input type="checkbox"/>	webapp-demo	309b9798bcc9	yashraj777/8080:8080	0.02%	19 minutes ago		

Running the App

Once the Docker image was uploaded to Docker Hub, I ran the container locally using `docker run -d -p 8080:8080 yashraj777/webapp-demo:1.0`.

The container started successfully, serving the web application at `http://localhost:8080/`.

Accessing this URL in a browser displayed the homepage, along with navigation links to the About and Contact pages.

This validated that the Docker image was functional and the container replicated the environment reliably.

Running containers locally also demonstrated the efficiency and consistency of containerized deployments.

Welcome to My Simple Web App

This is the Home page.

[About](#) | [Contact](#)

References and Links

References and Links

- **GitHub Repository:** <https://github.com/YashrajKupekar17/devops-assignment>
- **Tools Used:** Git, GitHub, Docker, Visual Studio Code / Terminal
- **Base Image:** `python:3.11-slim`