

## Program 4: Integrate git with docker for source-controlled application builds

File structure:

```
/Dockerfile
/package.json
/package-lock.json
/index.js
```

Create folder and initialize package.json

```
mkdir program4 > cd program4 > npm init -y > npm i express
```

### Dockerfile

#stage 1

FROM node:18 AS build

WORKDIR /app

COPY package\*.json ./

RUN npm install

COPY . .

#stage 2

FROM node:18-slim

WORKDIR /app

COPY --from=build /app /app

EXPOSE 3000

CMD ["node", "index.js"]

### index.js

```
const express = require('express')
```

```
const app = express()
```

```
app.get('/',(req,res)=>res.send("Hello from 3rd program"))
```

```
app.listen(3000,()=>{console.log("Server running on http://localhost:3000");})
```

Run the following command to create docker image and container

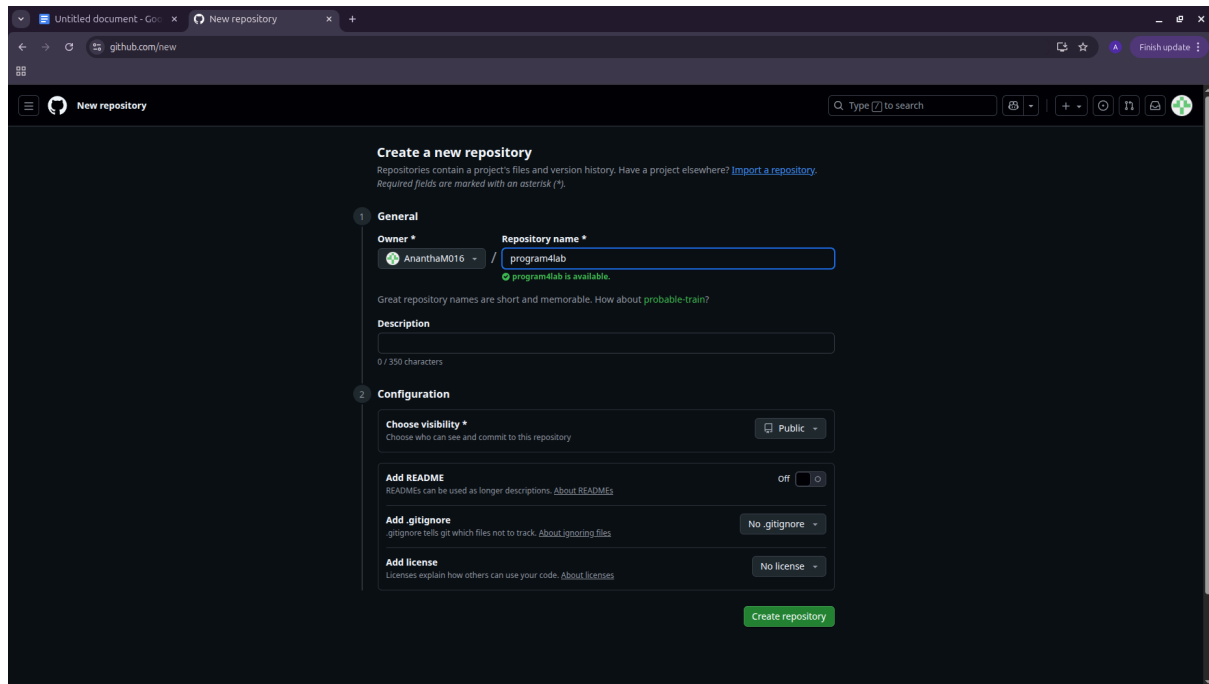
```
sudo docker build -t program4 .
```

```
sudo docker run -d -p 3000:3000 --name pro4 program4
```

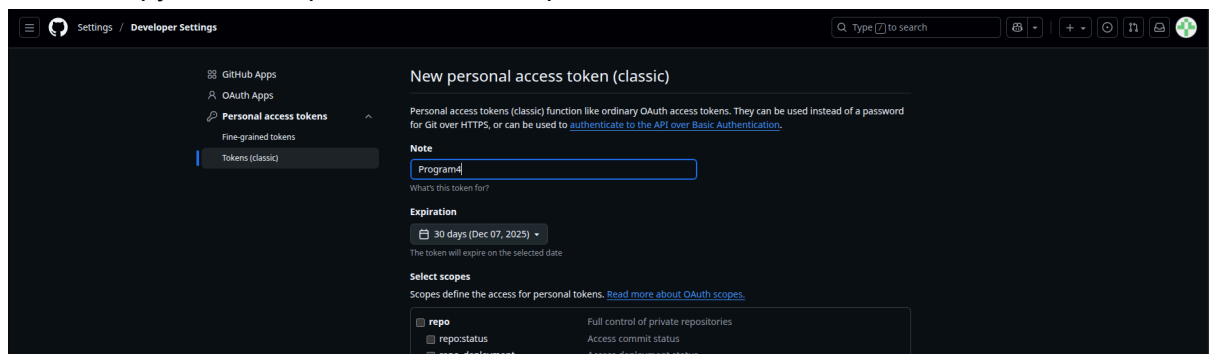
```
1rv24mc016_anantha_m@anantha-ASUS-TUF-Gaming-A15-FA506IHRB-FA506IHRZ:~/Desktop/LabPrograms/Lab4$ sudo docker build -t program4 .
[+] Building 5.8s (14/14) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 236B
=> [internal] load metadata for docker.io/library/node:18-slim
=> [internal] load metadata for docker.io/library/node:18
=> [internal] load .dockerignore
=> => transferring context: 2B
=> [build 1/5] FROM docker.io/library/node:18@sha256:c6ae79e38498325db67193d391e6ecd1224d96c693a8a4d943498556716d3783
=> [internal] load build context
=> => transferring context: 2.70MB
=> [stage-1 1/3] FROM docker.io/library/node:18-slim@sha256:f9ab18e354e6855ae56ef2b298dd225c1e51a564f87584b9bd21dd651838830e
=> CACHED [stage-1 2/3] WORKDIR /app
=> CACHED [build 2/5] WORKDIR /app
=> [build 3/5] COPY package*.json ./
=> [build 4/5] RUN npm install
=> [build 5/5] COPY . .
=> [stage-1 3/3] COPY --from=build /app /app
=> exporting image
=> => exporting layers
=> => writing image sha256:79b476c64819415b3e49a135b58c247d1c5f9020733a73b394b14864457a00d5
=> => naming to docker.io/library/program4
1rv24mc016_anantha_m@anantha-ASUS-TUF-Gaming-A15-FA506IHRB-FA506IHRZ:~/Desktop/LabPrograms/Lab4$ sudo docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
program4 latest 79b476c64819 12 seconds ago 195MB
program3 latest 4fccffca92f2 39 seconds ago 198MB
1rv24mc016_anantha_m@anantha-ASUS-TUF-Gaming-A15-FA506IHRB-FA506IHRZ:~/Desktop/LabPrograms/Lab4$ git init
Initialized empty Git repository in /home/anantha/Desktop/LabPrograms/Lab4/.git/
```

Go to browser and type <http://localhost:3000> to see the output

## Login to github account create a repo



Go to profile > settings > developer settings > access tokens > general tokens > create token > copy the token password and keep it safe



Initialize your directory with git

git init

git add .

git commit -m "<message>"

git branch -M main

Add remote git repo to cli

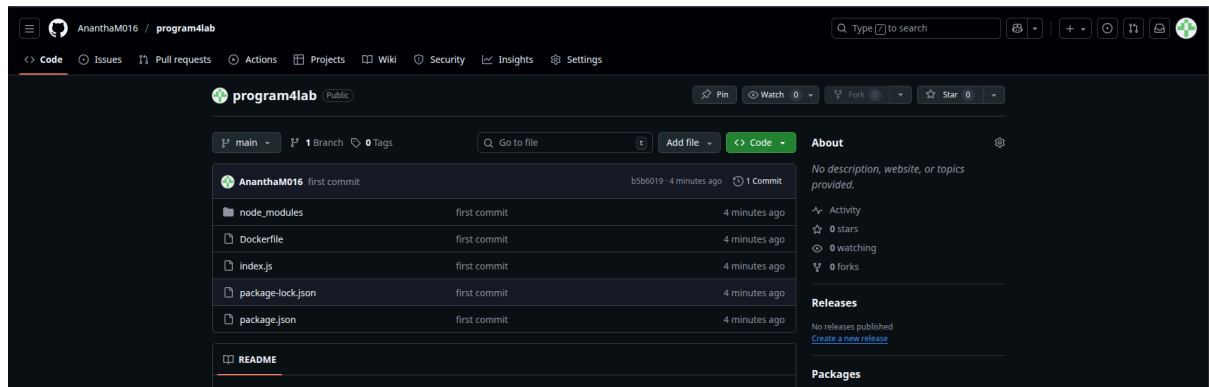
git remote add origin https://github.com/<username>/<repo>.git

git push -u origin main

```
1rv24mc016_anantha_m@anantha-ASUS-TUF-Gaming-A15-FA506IHRB-FA506IHRZ:~/Desktop/LabPrograms/Lab4$ git branch -M main
1rv24mc016_anantha_m@anantha-ASUS-TUF-Gaming-A15-FA506IHRB-FA506IHRZ:~/Desktop/LabPrograms/Lab4$ git remote add origin https://github.com/AnanthaM016/program4lab.git
1rv24mc016_anantha_m@anantha-ASUS-TUF-Gaming-A15-FA506IHRB-FA506IHRZ:~/Desktop/LabPrograms/Lab4$ git push -u origin main
Username for 'https://github.com': AnanthaM016
Password for 'https://AnanthaM016@github.com':
Enumerating objects: 722, done.
Counting objects: 100% (722/722), done.
Delta compression using up to 12 threads
Compressing objects: 100% (667/667), done.
Writing objects: 100% (722/722), 734.06 KiB | 10.64 MiB/s, done.
Total 722 (delta 142), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (142/142), done.
To https://github.com/AnanthaM016/program4lab.git
 * [new branch]    main -> main
branch 'main' set up to track 'origin/main'.
1rv24mc016_anantha_m@anantha-ASUS-TUF-Gaming-A15-FA506IHRB-FA506IHRZ:~/Desktop/LabPrograms/Lab4$ git status
On branch main
Your branch is up to date with 'origin/main'.

nothing to commit, working tree clean
1rv24mc016_anantha_m@anantha-ASUS-TUF-Gaming-A15-FA506IHRB-FA506IHRZ:~/Desktop/LabPrograms/Lab4$
```

Go to repo and see the files were added



To list and remove container and images  
sudo docker container ls -a  
sudo docker container stop <container id>  
sudo docker container rm <container id>  
sudo docker images  
sudo docker rmi <imageid>