

הנדסת פתרונות תוכנה מתקדמים- הכנה לתרגיל 1

תרגיל ההכנה:

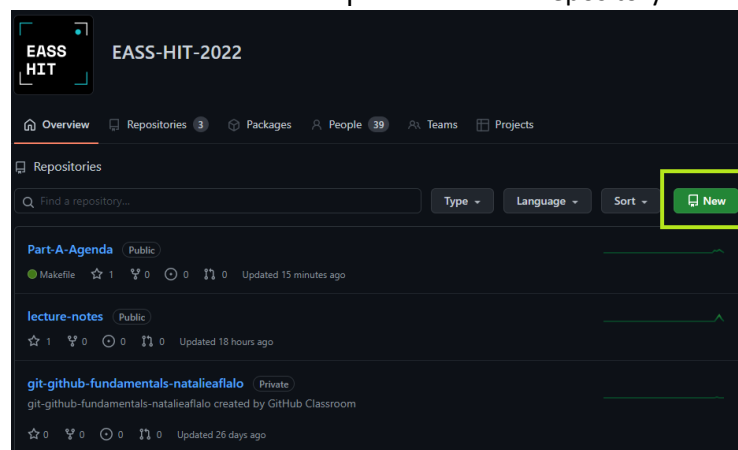
- 1 Create a remote git repo on our organization GitHub <https://github.com/EASS-HIT-2022/> (private/public)
- 2 Name the repo `http-api-demo-<your github name>`
- 3 Include a README, Dockerfile, client.py files
- 4 In client.py include at least two POST/GET requests from httpbin demo HTTP API (<http://httpbin.org/>):
 - POST to any endpoint of your choice (e.g., <http://httpbin.org/post>)
 - GET to any endpoint of your choice (e.g., <http://httpbin.org/get>)
- 5 Make a Dockerfile that execute client.py on startup and prints the status and output from the http requests it performs from step 3. Helpful snippet:

```
FROM ubuntu
RUN apt-get update
RUN apt-get -y install python
CMD ["echo", "Hello, EASS 2022"]
```

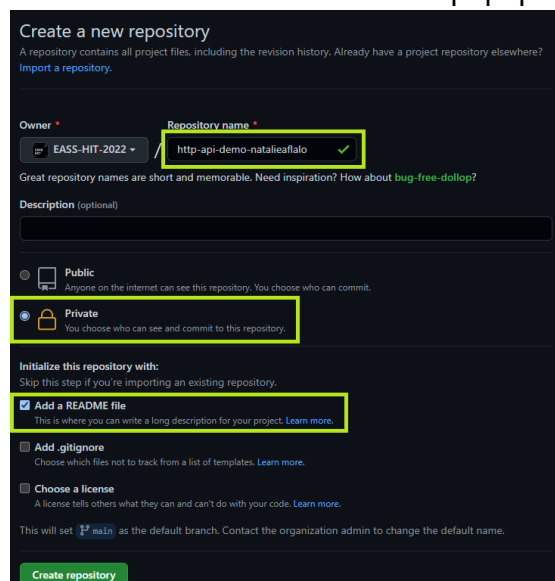
- 6 Now, create a second Dockerfile in your git repo localhost.Dockerfile which call to the local hosted httpbin and call it via `http://localhost: docker run -p 80:80 kennethreitz/httpbin`
- 7 build the second docker image. Useful command:

```
docker build -t tab ./ -f localhost.Dockerfile
```

1. פתיחת repository בגיטהאב של הקורס



2. נגדיר את מאפייני הסר: שם (בין מילים עדיף לשים מקף), מצב תצוגה (פרטי/ציבורי), נוסף קובץ README



כעת נבצע clone של ה-repo לWSL:

```
natalieafalo@LAPTOP-1GN0OVKD:/mnt/c/Users/natal$ gh repo clone EASS-HIT-2022/http-api-demo-
Welcome to GitHub CLI!

To authenticate, please run 'gh auth login'.
natalieafalo@LAPTOP-1GN0OVKD:/mnt/c/Users/natal$ gh auth login
? What account do you want to log into? GitHub.com
? What is your preferred protocol for Git operations? HTTPS
? Authenticate Git with your GitHub credentials? Yes
? How would you like to authenticate GitHub CLI? Login with a web browser

! First copy your one-time code: 08F7-F871
Press Enter to open github.com in your browser...
✓ Authentication complete.
- gh config set -h github.com git_protocol https
✓ Configured git protocol
✓ Logged in as natalieafalo
natalieafalo@LAPTOP-1GN0OVKD:/mnt/c/Users/natal$ gh repo clone EASS-HIT-2022/http-api-demo-
Cloning into 'http-api-demo-natalieafalo'...
remote: Enumerating objects: 3, done.
remote: Counting objects: 100% (3/3), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
Unpacking objects: 100% (3/3), 615 bytes | 10.00 KiB/s, done.
natalieafalo@LAPTOP-1GN0OVKD:/mnt/c/Users/natal$
```

(כדי להתקין את gh צריך תחילה להתקין את brew בWSL לפי המדריך)

<https://www.how2shout.com/linux/install-brew-on-wsl-windows-subsystem-for-linux>

את קובץ README ניתן לערוך בעזרת vi כך-

```
natalieafalo@LAPTOP-1GN0OVKD:/mnt/c/Users/natal$ cd http-api-demo-
natalieafalo@LAPTOP-1GN0OVKD:/mnt/c/Users/natal/http-api-demo- $ git status
On branch main
natalieafalo@LAPTOP-1GN0OVKD:/mnt/c/Users/natal/http-api-demo- $
natalieafalo@LAPTOP-1GN0OVKD:/mnt/c/Users/natal/http-api-demo- $ ls
README.md
natalieafalo@LAPTOP-1GN0OVKD:/mnt/c/Users/natal/http-api-demo- $ vi README.md
```

לאחר שנלחץ על ENTER נכנס למסך תצוגה. כדי לעבור למצב עריכה יש ללחוץ על i במקלדת (תופיע למטה המילה INSERT). לאחר סיום העריכה נלחץ על esc במקלדת, וכדי לשמור ולצאת חזרה לcommandline נרשום wq (כלומר, נקודותיים wq) ואז ENTER.

```
# http-api-demo-

Hello,

In this repo there will be a Dockerfile and client.py file

This is training for EX1

Good luck!

~
:wq
```

לפני שלב 3, ניצור את הקבצים Dockerfile ו-client.py גם כן נשתמש ב-vi כדי לערוך את Dockerfile ואת client.py (אם הקבצים לא קיימים הפקודה יוצרת קובץ ריק):

.4

```
natalieaflalo@LAPTOP-1GN0OVKD:/mnt/c/Users/natal/http-api-demo- $ vi client.py
```

```
import httpx

get_response = httpx.get("https://httpbin.org/get")

post_response = httpx.post("https://httpbin.org/post")

print("GET response: ",get_response.json())

print("POST response: ",post_response.json())

~

:wq
```

.5

```
natalieaflalo@LAPTOP-1GN0OVKD:/mnt/c/Users/natal/http-api-demo- $ vi Dockerfile
```

```
FROM python:3.8
RUN pip install httpx
COPY ./client.py .
CMD ["python", "./client.py"]

~

~

~

~

~

~

:wq
```

כעת נחזור לשלב 3 אחרי שיצרנו את הקבצים (ניתן לבצע docker build ודא docker run כדי ליצור אימג' ולראות שהוא רץ באופן תקין)

```
natalieaflalo@LAPTOP-1GN0OVKD:/mnt/c/Users/natal/http-api-demo- $ docker build . -t http-api-demo
[+] Building 3.4s (8/8) FINISHED
=> [internal] load build definition from Dockerfile                                0.1s
=> => transferring dockerfile: 131B                                              0.0s
=> [internal] load .dockerignore                                                 0.0s
=> => transferring context: 2B                                                    0.0s
=> [internal] load metadata for docker.io/library/python:3.8                    3.0s
=> [1/3] FROM docker.io/library/python:3.8@sha256:53cb5152064a7e7b485ad42704ea63c5155b264c  0.0s
=> [internal] load build context                                                0.0s
=> => transferring context: 253B                                                 0.0s
=> CACHED [2/3] RUN pip install httpx                                           0.0s
=> [3/3] COPY ./client.py .                                                    0.1s
=> exporting to image                                                           0.1s
=> => exporting layers                                                            0.1s
=> => writing image sha256:0e50e42b332965bad54fb47b0e3fb5c4813feb889b4c4eb79689c31484b6a0a  0.0s
=> => naming to docker.io/library/http-api-demo                                0.0s

Use 'docker scan' to run Snyk tests against images to find vulnerabilities and learn how to fix them
natalieaflalo@LAPTOP-1GN0OVKD:/mnt/c/Users/natal/http-api-demo- $ docker run http-api-demo
GET response: {'args': {}, 'headers': {'Accept': '*/.*', 'Accept-Encoding': 'gzip, deflate', 'Host': 'httpbin.org', 'User-Agent': 'python-httpx/0.22.0', 'X-Amzn-Trace-Id': 'Root=1-62309f50-05f3811968964b123fb19420'}, 'origin': '77.137.75.12', 'url': 'https://httpbin.org/get'}
POST response: {'args': {}, 'data': '', 'files': {}, 'form': {}, 'headers': {'Accept': '*/.*', 'Accept-Encoding': 'gzip, deflate', 'Content-Length': '0', 'Host': 'httpbin.org', 'User-Agent': 'python-httpx/0.22.0', 'X-Amzn-Trace-Id': 'Root=1-62309f51-44f3a52554a0057f782aaff1'}, 'json': None, 'origin': '77.137.75.12', 'url': 'https://httpbin.org/post'}
```

3. נבחן את השינויים שבוצעו ולא מעודכנים בrepo בgithub

```
natalieaflalo@LAPTOP-1GN00VKD:/mnt/c/Users/natal/http-api-demo- [redacted] $ git status
On branch main
Your branch is up to date with 'origin/main'.
Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
        modified:   README.md

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

no changes added to commit (use "git add" and/or "git commit -a")
```

נוסיף את כל הקבצים שעברו שינוי או הוספה:

```
$ git add README.md
$ git add Dockerfile
$ git add client.py
```

נעדכן במערכת מי אנחנו כדי שהמערכת תדע מי מבצע את השינוי ונבצע commit לאחר מכן, ואז נדחוף את השינויים לrepo בgithub:

```
natalieaflalo@LAPTOP-1GN00VKD:/mnt/c/Users/natal/http-api-demo- [redacted] $ git config --global user.email "[redacted].com"
natalieaflalo@LAPTOP-1GN00VKD:/mnt/c/Users/natal/http-api-demo- [redacted] $ git config --global user.name "[redacted]"
natalieaflalo@LAPTOP-1GN00VKD:/mnt/c/Users/natal/http-api-demo- [redacted] $ git commit -m "Added Dockerfile and client.py"
[main 0b23373] Added Dockerfile and client.py
 3 files changed, 30 insertions(+), 1 deletion(-)
 create mode 100644 Dockerfile
 create mode 100644 client.py
natalieaflalo@LAPTOP-1GN00VKD:/mnt/c/Users/natal/http-api-demo- [redacted] $ git push
Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Delta compression using up to 8 threads
Compressing objects: 100% (5/5), done.
Writing objects: 100% (5/5), 636 bytes | 26.00 KiB/s, done.
Total 5 (delta 0), reused 0 (delta 0)
To https://github.com/EASS-HIT-2022/http-api-demo-[redacted].git
 aab8f75..0b23373  main -> main
```

לאחר סיום פעולה זו נוכל לראות את הקבצים והשינויים בrepo בgithub דרך הדפדפן.

| | | |
|------------|--------------------------------|---------------|
| Dockerfile | Added Dockerfile and client.py | 9 minutes ago |
| README.md | Added Dockerfile and client.py | 9 minutes ago |
| client.py | Added Dockerfile and client.py | 9 minutes ago |

README.md

http-api-demo-[redacted]

Hello,

In this repo there will be a Dockerfile and client.py file

This is training for EX1

Good luck!

(הסבר לסעיפים 6+7 נמצא בסיכום הרצאה 5)