

Homework Assignment

Andreas Vikke & Martin Frederiksen



10. februar 2021
Professionsbachelor i softwareudvikling
Cphbusiness Lyngby
Denmark

1. Description

In order to look at self reflection and to judge your assessment of information, you should solve the programming exercise below.

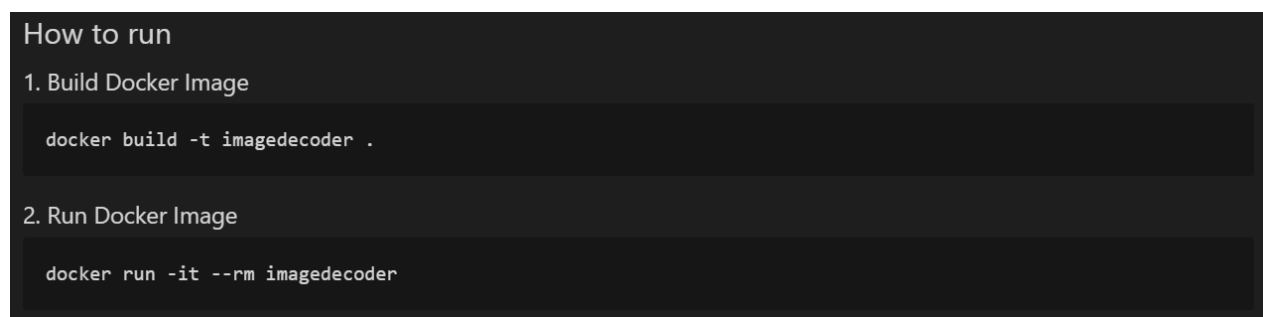
However - the important thing in this exercise is how you solved it, not the end result.

At the end of the programming exercise you should have:

- A list of **all** search queries you made to solve it, and timestamps (just copy it from the browser history)
- A list all pages you visited to solve it (just copy it from the browser history)
- A list of the 3 biggest stumbling blocks you came across and your reflection on why they were problematic (did you misunderstand something, was some of the info you found wrong, did you miss a detail, ...)
- A brief "every 30 min" diary as explained in the slides (this is more frequent than one would normally do, and is just meant as part of the exercise)

2. Løsning

Vi valgte at bruge Python som programmingssprog og vi har bygget det som en docker container. Nedenfor ses en række billeder af hvordan projektet kan køres, samt vores løsnings forslag med tilhørende resultat.



```
How to run

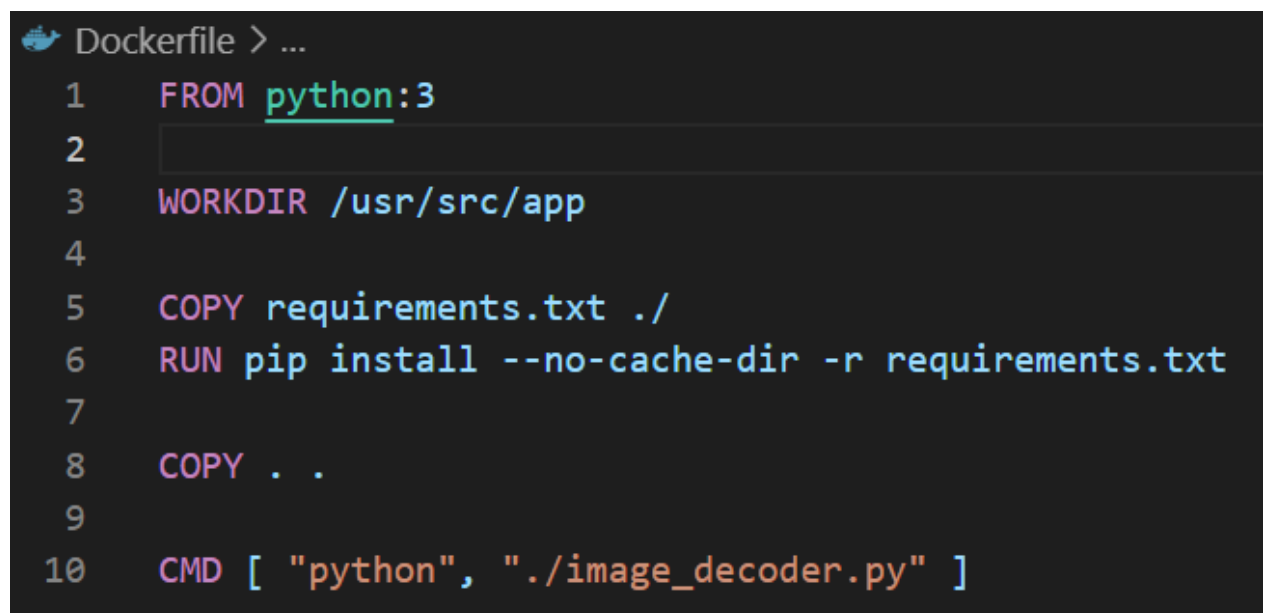
1. Build Docker Image

docker build -t imagedecoder .

2. Run Docker Image

docker run -it --rm imagedecoder
```

Figur 1: Billede af kommandoer der kan bruges til at køre projektet.



```
Dockerfile > ...

1  FROM python:3
2
3  WORKDIR /usr/src/app
4
5  COPY requirements.txt ./
6  RUN pip install --no-cache-dir -r requirements.txt
7
8  COPY . .
9
10 CMD [ "python", "./image_decoder.py" ]
```

Figur 2: Billede af vores dockerfil.

```
image_decoder.py
1  from PIL import Image
2  import binascii
3
4  img = Image.open('7fe3c3f6-Stego.png')
5  width, height = img.size
6
7  extracted_bin = [str(img.getpixel((y, x))[2]&1) for x in range(0, height) for y in range(0, width)]
8  extracted_bytes = ["".join(extracted_bin[i:i+8][::-1]) for i in range(0, len(extracted_bin), 8)]
9
10 result = ''
11 for byte in extracted_bytes:
12     if byte != '00000000':
13         result += chr(int(byte, 2))
14     else:
15         break
16
17 print ("Secret Message: ", result)
```

Figur 3: Billede af vores pythonkode.

```
PS C:\Users\Andreas Vikke\OneDrive\Documents\Skolet\SoftwareUdvikling\CPH-Business-UFO\Week1> docker build -t imagedecoder .
[+] Building 0.9s (10/10) FINISHED
=> [internal] load build definition from Dockerfile 0.0s
=> => transferring dockerfile: 32B 0.0s
=> [internal] load .dockerignore 0.0s
=> => transferring context: 2B 0.0s
=> [internal] load metadata for docker.io/library/python:3 0.8s
=> [internal] load build context 0.0s
=> => transferring context: 237B 0.0s
=> [1/5] FROM docker.io/library/python:3@sha256:9dc8877a34fd1614f7d4240c7fc45853f3605eb37bbfa9ccef714a1a071529be 0.0s
=> CACHED [2/5] WORKDIR /usr/src/app 0.0s
=> CACHED [3/5] COPY requirements.txt ./ 0.0s
=> CACHED [4/5] RUN pip install --no-cache-dir -r requirements.txt 0.0s
=> CACHED [5/5] COPY . . 0.0s
=> exporting to image 0.0s
=> => exporting layers 0.0s
=> => writing image sha256:c81ea72cc36ae58ac0c652da4f1810fcde2683d49713c81dc31b1087dcbf5a79 0.0s
=> => naming to docker.io/library/imagedecoder 0.0s
PS C:\Users\Andreas Vikke\OneDrive\Documents\Skolet\SoftwareUdvikling\CPH-Business-UFO\Week1> docker run -it --rm imagedecoder
Secret Message: Congratulations, this is the secret message of the UFO class! (no, not 42)
PS C:\Users\Andreas Vikke\OneDrive\Documents\Skolet\SoftwareUdvikling\CPH-Business-UFO\Week1>
```

Figur 4: Billede af resultatet.

3. Største udfordringer

- **Forståelse af opgaven:** det største problem for vores gruppe var at forstå opgaven. Vi prøvede hver især først at decode billedet uden noget meningsfuldt resultat. Vi brugte dernæst lidt tid på lige at få snakket opgaven ordenligt igennem sådan at der ikke var nogen tvivl om hvad der præsis skulle ske.
- **Least significant bit of the blue values:** dette brugte vi lidt tid på at forstå ordenligt i forhold til at vi skal tage det sidste bit i den blå del af pixlen. Hvis vi printede en pixel ud fik vi RGB værdien som (R, G, B, ??) hvor ?? er ??.
- **Little-endian:** her var vi langsomme om at opfatte at ??

4. Dagbog

05/01-21 kl. 14.07:

05/01-21 kl. 14.45:

05/01-21 kl. 15.20:

5. Søgning og links

Acceptance Testing. (s.d.). *Softwaretesting Fundamentals*. Lokaliseret den 29.december 2020 på:
<https://softwaretestingfundamentals.com/acceptance-testing>