

Docker “FROM scratch”

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Date :

KSU IS

Course Introduction

- What is Docker ?

Installation and Configuration:

- Linux (Ubuntu, Debian, CentOS, Fedora, Raspbian ... etc) <https://docs.docker.com/engine/install/>
- MacOS got to <https://hub.docker.com/editions/community/docker-ce-desktop-mac/>
- Windows go to <https://hub.docker.com/editions/community/docker-ce-desktop-windows/>

Docker Hub Basics

- <https://hub.docker.com/> ## Docker Images
- Standardize our development environment (i.e. ubuntu LTS 16.04 using python 2.7) from development to production.
- Secure our environment .

```
docker pull ubuntu:16.04
```

The Dockerfile * Create a file named Dockerfile and add the following docker commands

```
FROM ubuntu:16.04
LABEL maintainer="Meshari Alnaim <malnaim@safedecision.com.sa>"
LABEL name="dev"
LABEL version="v1"
RUN apt-get update && apt-get -y upgrade
RUN apt install -y python
```

- Save the Dockerfile and run the following command to build the Dockerfile in the current directory

```
docker build .
```

- Check the images

```
# Legacy command
```

```
docker images
```

```
# updated command
```

```
docker image ls
```

Running Containers

- list all the images

```
dokcer image ls
```

- Now lets run the container

```
# we run ubuntu 16.04 docker container name is_dev  
docker run -it --name is_dev ubuntu:16.04
```

- install python and nano in the container

```
apt update  
apt install -y nano python nginx  
# Nginx example  
nano nano /var/www/html/index.nginx-debian.html  
service nginx start  
nginx -s reload  
service nginx reload  
# Python example  
nano hello.py  
# add the two lines in to the python script  
#####  
#!/usr/bin/env python  
print("Hello IS Students !")  
#####  
# now exit and make the script executable  
chmod +x hello.py  
python hello.py
```

The Container Lifecycle

```
docker images  
docker container ls  
docker container ls -a  
docker container start is_dev  
docker attach is_dev
```

Container and Image Management

```
docker container ls -a  
docker images  
docker push malnaim/ksu_is:v1  
docker container rm is_dev  
docker rmi <image_name>
```

Docker Container Ports

```
docker run -itp 8080:80 --name is_dev ubuntu:16.04
```

Docker Container Volumes

```
docker run -itp 8080:80 --volume /home/USER/Code/KSU_IS/html:/var/www/html:ro --name is_de
```

Resources

Docker remove commands

```
docker stop (docker ps -a -q)
docker rm (docker ps -aq)
docker rmi (docker images -aq)
```

- <https://labs.play-with-docker.com/>
- <https://code.visualstudio.com/docs/containers/quickstart-node>
- <https://www.docker.com/101-tutorial>
- <https://github.com/IBMStockTrader/portfolio>
- <https://hub.docker.com/r/ibmstocktrader/portfolio>
- <https://cloud.linode.com>
- https://github.com/malnaim/KSU_IS