COMP350 - Introduction to Devops - Fall 2024
Midterm Study Sheet

Hakan Ayral

Please consider the concepts and questions below; be prepared to give definition, explanation and/or examples for each one. Keep in mind that the list below is not comprehensive, and you are responsible for all the topics we studied.

1 Linux and Shell

- How can you merge all text files with .txt extension and file name starting with "LOG" under a single new file called "LOG-all.txt" using shell?

- What is an environment variable?

- What are the two limitations of a hard link compared to a symbolic link?

- How can you give a file read and write access for the owner, just read access for the group owner and no access for the remaining users through shell?

- How can you save the data being piped to a separate file at an intermediate stage of a chain of pipes?

- How can you get the current working directory?

- How can you impersonate another user if you are root in Linux shell?

2 Storage

- What is the full path to the device for the second partition of the third SATA disk?

- What is RAID? What is the difference between RAID 0 and RAID 2?

- Where is the configuration for list of storage devices that are automatically mounted at boot time are stored in?

- What are the steps to make a brand new storage device usable on a Linux system?

- How do you create a new filesystem of type ext4 on the 1st partition of the 2nd SATA disk?

- Can you have multiple different file systems on the same physical hard drive? How?

3 Networking

- Who assigns you a public IP address when you are connecting to the internet from your home? Using which network protocol?

- What kind of traffic can not be handled just by NAT and requires manual port forwarding?

- What does happen to the public IP address that you were using with your ADSL modem at your home when you stop using it (i.e. power down the modem)?

- How does NAT know to which local computer an incoming traffic (from outside) is destined for?

- What is the purpose of docker networks? Why do we need them?

- What is port forwarding?

- What is the purpose of a private IP address?

- When you use wifi here on Koç University, does your mobile device get assigned a public IP address or a private IP address?

4 Docker

- How can you connect to a shell in an already running Docker container?

- How can you protect certain files and directories in a container from disappearing when you restart it?

- What is the purpose of Docker's own DHCP functionality?

- How can you launch all the services described in a compose.yml file?

- How do you map a TCP/IP network port from inside a container to the outside network in Docker? How do you do the same thing with Docker Compose?

- Draw the state diagram for the execution states of a Docker container?

- What is the difference between RUN and CMD commands on a docker file?

- What is the difference between ADD and COPY commands on a docker file?

- What is the advantage of OS-level virtualization compared to hardware-level virtualization?

- What is the main mechanism for passing extra information (like runtime parameters) to a container while being launched (i.e. not during image building)?

- Why do we need VOLUMES in docker?