4. Creating File Systems

What is File System?
filesystem governs file organization and access. without file systems and only creating a partition
won't be of any use and you can't put any data in them.

How to create file systems?

there is a tool called `mkfs` we can use to create file systems.
you can see all the available file systems that you can create with checking `mkfs` directory.

```
        ls /usr/bin/mkfs*
```

Let's create an `ext4` file system:

- First you should know where that device is located.
- then you can create the file system.

```
        lsblk -f # Shows advanced info
```

You can see which partition doesn't have a file system by checking its column being empty.
when you selected the partition you
wanted you ca just use `mkfs`:

```
        sudo mkfs.ext4 /dev/sdb
        sudo mkfs -t ext4 /dev/sdb
```

but creating swap partitions to help RAM is different. we use `mkswap` for this case.

```
        sudo mkswap /dev/sdc1 # Create swap
        sudo swapon /dev/sdc # Enabling swap function(it may not be enabled
by default)
```

Can i modify file systems's properties or size?

It's not easy to resize partitions but it's easy to change UUID or Label of a partition But if we want

to do that we should use that specific file system tool to change it.

EXT

```
sudo e2label /dev/sdb1 Backup
```

- `e2label` -> A tool for modifying the label of `ext` file system partitions
- `/dev/sdb1` -> The device location
- `Backup` -> Label's value

XFS

```
sudo xfs_admin -L Backup /dev/nvme0n1n
```

- `xfs_admin` -> A tool for modifying the `xfs` file system partitions
- `-L Backup` -> Changing the label value
- `/dev/nvme0n1n` -> Device's location