Exercise 18.1 Security and Mount Options

We are going to mount a partition or loop device with the `noexec` option to prevent execution of programs that reside on the filesystem therein. You can certainly do this with a pre-existing and mounted partition, but you may not be able to easily change the behavior while the partition is mounted. Therefore, to demonstrate we'll use a loop device, which is a harmless procedure.

1. Set up an empty file, put a filesystem on it and mount it.
2. Copy an executable file to it from somewhere else on your system and test that it works in the new location.
3. Unmount it and remount with the `noexec` option.
4. Test if the executable still works. It should give you an error because of the `noexec` mount option.
5. Clean up.

Solution 18.1

1.
```
$ dd if=/dev/zero of=image bs=1M count=100
$ sudo mkfs.ext3 image
$ mkdir mountpoint
$ sudo mount -o loop image mountpoint
```

2.
```
$ sudo cp /bin/ls mountpoint
$ mountpoint/ls
```

3.
```
$ sudo umount mountpoint
$ sudo mount -o noexec,loop image mountpoint
```

   or

```
$ sudo mount -o noexec,remount image mountpoint
```

4.
```
$ mountpoint/ls
```

5.
```
$ sudo umount mountpoint
$ rm image
$ rmdir mountpoint
```

Note that this is not persistent. To make it persistent you would need to add the option to `/etc/fstab` with a line like:

```
/home/student/image  /home/student/mountpoint    ext3    loop,rw,noexec 0 0
```

