

## Bonus Project - Encrypted Loopback Filesystem

In this assignment you will create an encrypted filesystem on a file. You will need to (i) create a file with random bytes, (ii) create an encrypted loopback device (AES encryption), (iii) create a filesystem on the loopback device, created in the previous step, and finally (iv) unassign the loopback device. After these steps, you have successfully created an encrypted filesystem. Mount the filesystem and create some files and directories on the encrypted filesystem, and test that you can remount it with the correct key. Check what happens with a wrong key.

**Hint1:** to be able to use the AES encryption, you need to insert its module: `modprobe aes`. You may get an error after this command, try to resolve it.

**Hint2:** you need to use the `dd` command to create a file, use the `losetup` to create and detach a filesystem, and the `mkfs` command to format the filesystem. You can mount the created filesystem using the `mount` command.

### How to submit the assignment

You should list the commands you used, and present the filesystem you made. This project should be done individually, and the deadline to submit this assignment is 1393/10/20 at 23:59. This project has 1 point out of 20.