BICOL UNIVERSITY POLANGUI
Polangui, Albay

IT 123 – System Administration and Maintenance

1st Semester 2025-2026

Lab Report 4 – *File Systems and Storage Management*

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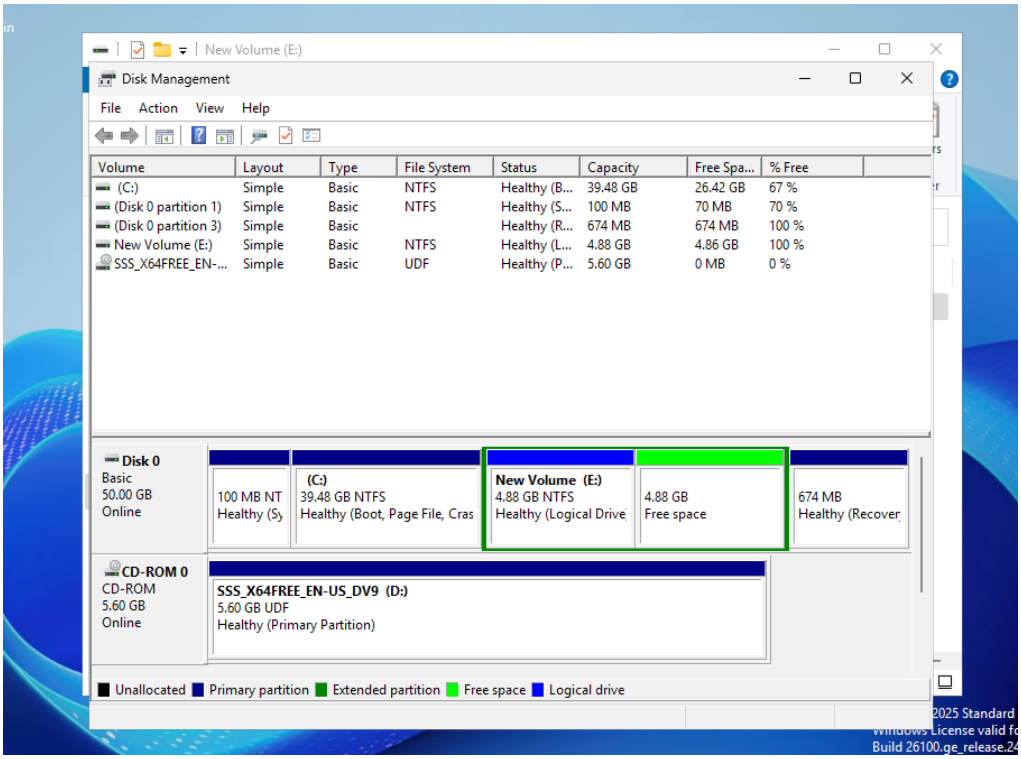
Part 1 – Windows Server

A. Partition Creation

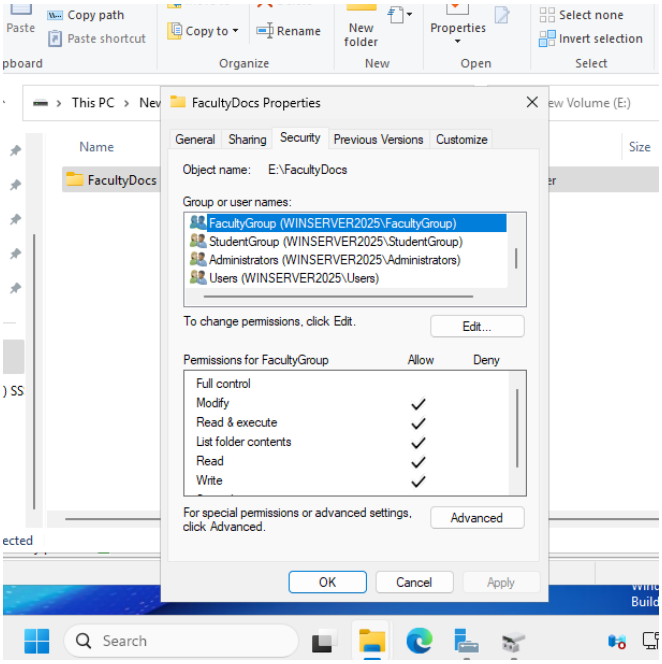
Drive Letter: E:
File System: NTFS
Size: 5000 MB (~5 GB)

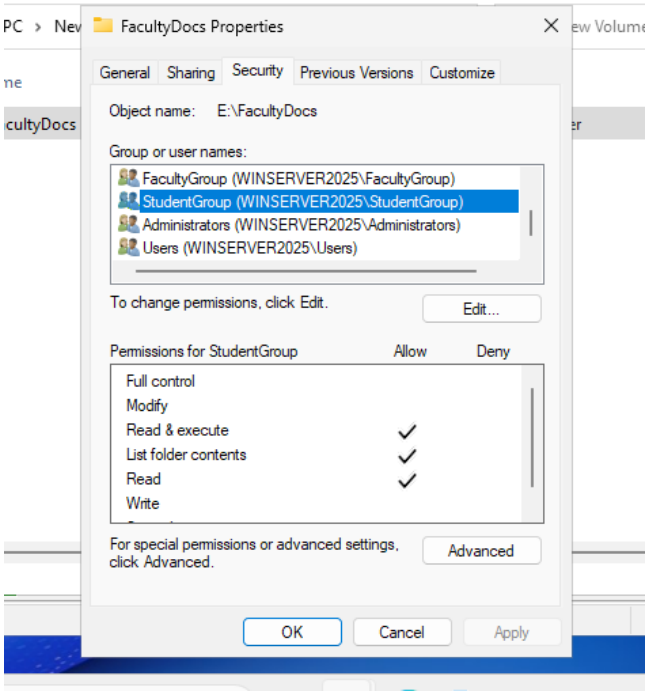


B. Folder Setup & Permissions
Folder Name: FacultyDocs
Group Assigned:

- FacultyGroup → Modify
- StudentGroup → Read & Execute

Permission Level: FacultyGroup = Modify, StudentGroup = Read & Execute





C. Verification

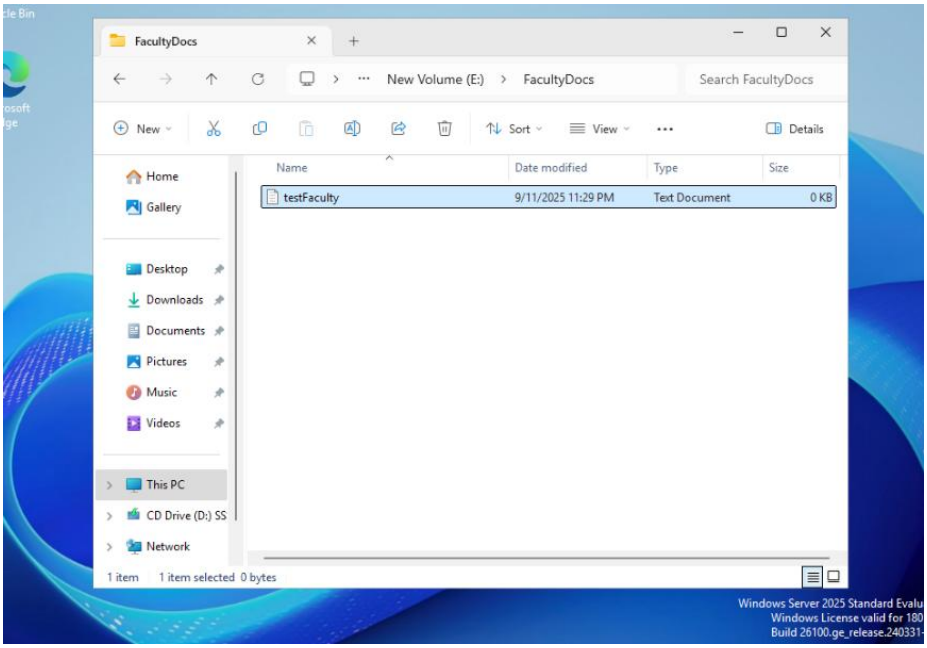
Tested User Account: faculty1

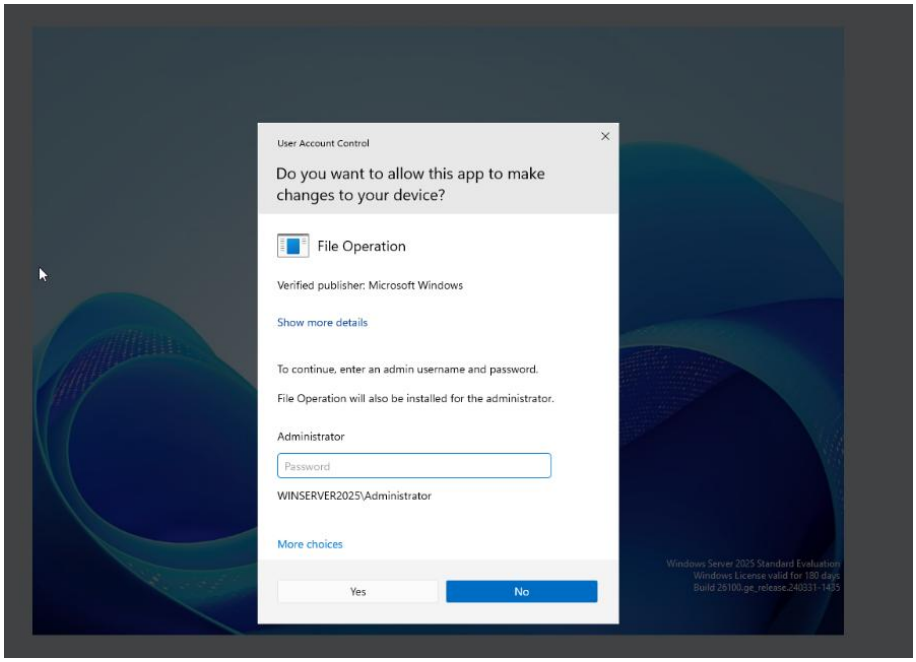
Access Allowed: [✓] Yes [ ] No

Tested User Account: student3

Access Allowed: [✓] Yes [ ] No

Access Denied: [✓] Yes [ ] No



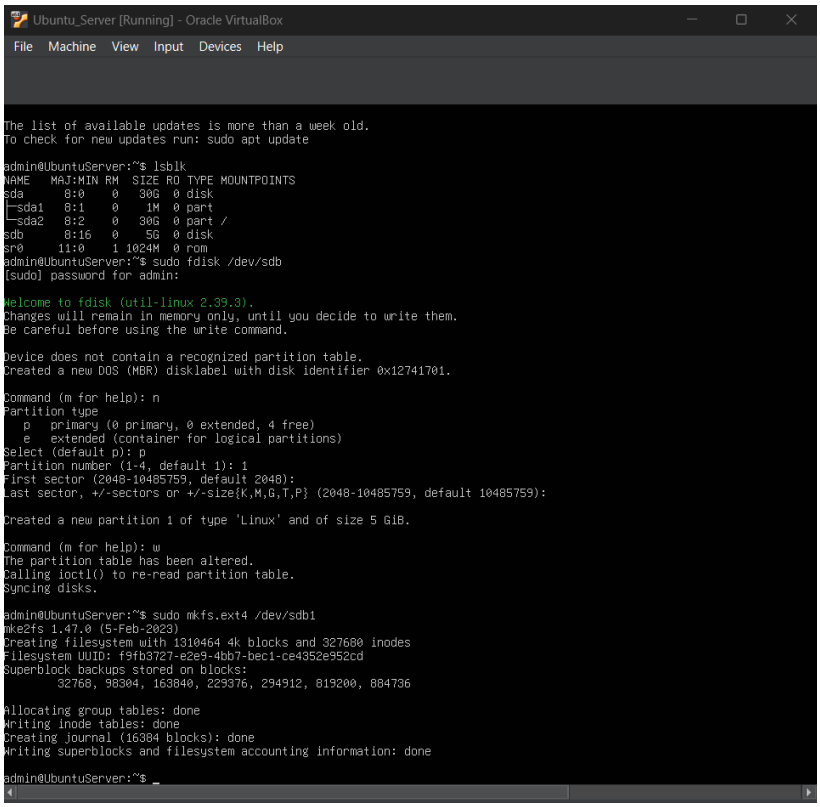


Part 2 – Ubuntu Server

A. Partition & Mount

- **Device Name:** /dev/sdb1
- **File System Type:** ext4
- **Mount Point:** /mnt/data

Screenshot(s)/Command Outputs:



B. Directory Setup & Permissions

- **Directory Path:** /projectdata
- **Group Assigned:** facultygrp (faculty group)

  studentgrp (student)
- **Permission Level:** faculty = read/write, student = read-only

Command Outputs:

```
admin@UbuntuServer:~$ q
Command 'q' not found, but can be installed with:
sudo snap install q                     # version 1.6.3-1, or
sudo apt  install python3-q-text-as-data  # version 3.1.6-3
See 'snap info q' for additional versions.
admin@UbuntuServer:~$ lsblk
NAME   MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
sda      8:0    0   30G  0 disk
├─sda1   8:1    0    1M  0 part
└─sda2   8:2    0   30G  0 part /
sdb      8:16   0   10G  0 disk
└─sdb1   8:17   0   10G  0 part
sr0     11:0    1 1024M  0 rom
admin@UbuntuServer:~$ sudo mkfs.ext4 /dev/sdb1
mke2fs 1.47.0 (5-Feb-2023)
Creating filesystem with 2621184 4k blocks and 655360 inodes
Filesystem UUID: 2b655191-bcfa-4308-8c9e-cff7cf8348f6
Superblock backups stored on blocks:
        32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632

Allocating group tables: done
Writing inode tables: done
Creating journal (16384 blocks): done
Writing superblocks and filesystem accounting information: done

admin@UbuntuServer:~$ sudo mkdir /projectdata
mkdir: cannot create directory ■/projectdata■: File exists
admin@UbuntuServer:~$ sudo mount /dev/sdb1 /projectdata
admin@UbuntuServer:~$ sudo chown :facultygrp /projectdata
admin@UbuntuServer:~$ sudo chmod 770 /projectdata
admin@UbuntuServer:~$ sudo setfacl -m g:studentgrp:rx /projectdata
admin@UbuntuServer:~$
```

```
student4@UbuntuServer:/projectdata$ ls -ld /projectdata
drwxrwx---+ 3 root facultygrp 4096 Sep 11 18:02 /projectdata
student4@UbuntuServer:/projectdata$ getfacl /projectdata
getfacl: Removing leading '/' from absolute path names
# file: projectdata
# owner: root
# group: facultygrp
user::rwx
group::rwx
group:studentgrp:r-x
mask::rwx
other::---

student4@UbuntuServer:/projectdata$
```

C. Verification

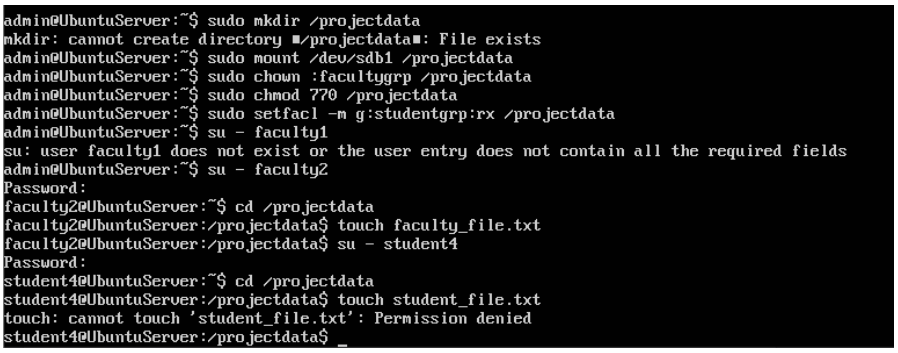
Tested User Account: faculty2

Access Allowed: [✓] Yes [ ] No

Tested User Account: student4

Access Allowed: [✓] Yes [ ] No

Access Denied: [] Yes [✓] No



Part 3 – Reflection

(Answer briefly in 3–5 sentences)

- What challenges did you encounter in creating partitions and managing permissions?
- How can these skills be applied in real-world system administration duties?

Creating partitions and setting up permissions on both Windows and Ubuntu servers was challenging at first because we had to make sure the disks weren't in use and follow the correct steps for each system. We also had to learn how to assign groups different levels of access, especially using ACLs on Linux to give students read-only rights while faculty had full control. Testing with multiple user accounts helped us understand how permissions actually work and how important it is to configure them correctly. These skills are very useful in real-world system administration, as managing disk space and controlling access ensures data security and proper organization. Overall, the exercise helped us gain hands-on experience in both Windows and Linux environments.