



IT4090

Cloud Computing

4th Year, 1st Semester

Azure Lab 2

Practical Session

Submitted to

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1. Attach a new disk

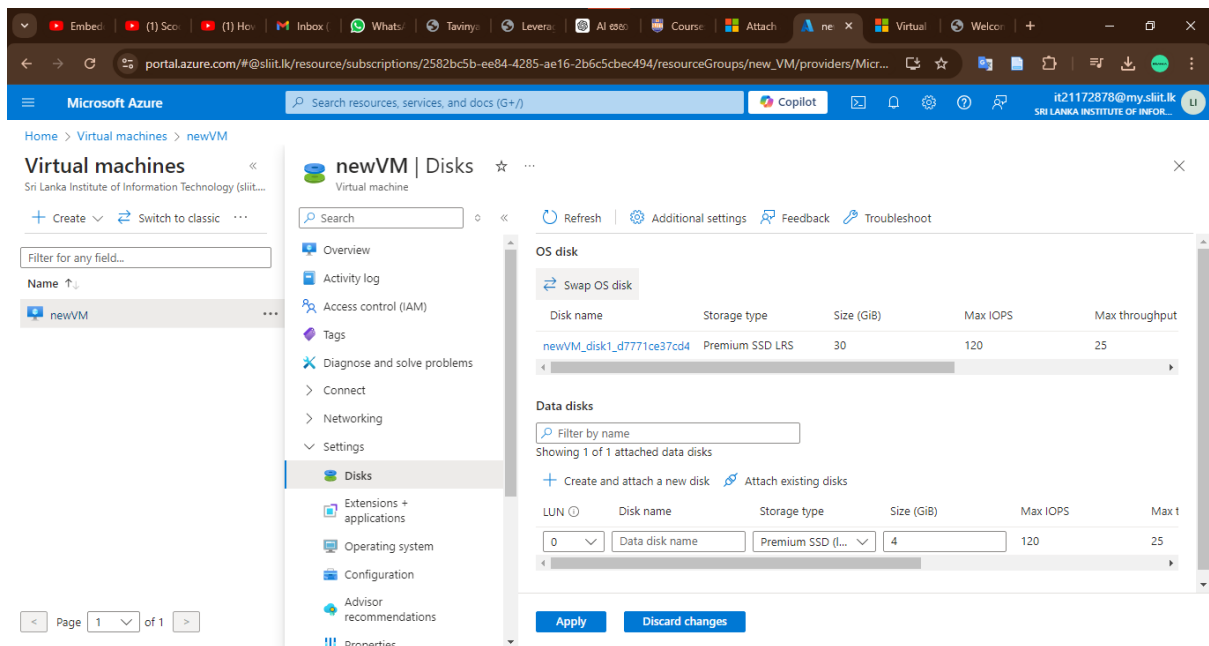


Figure 1. 1: Select Create and attach a new disk

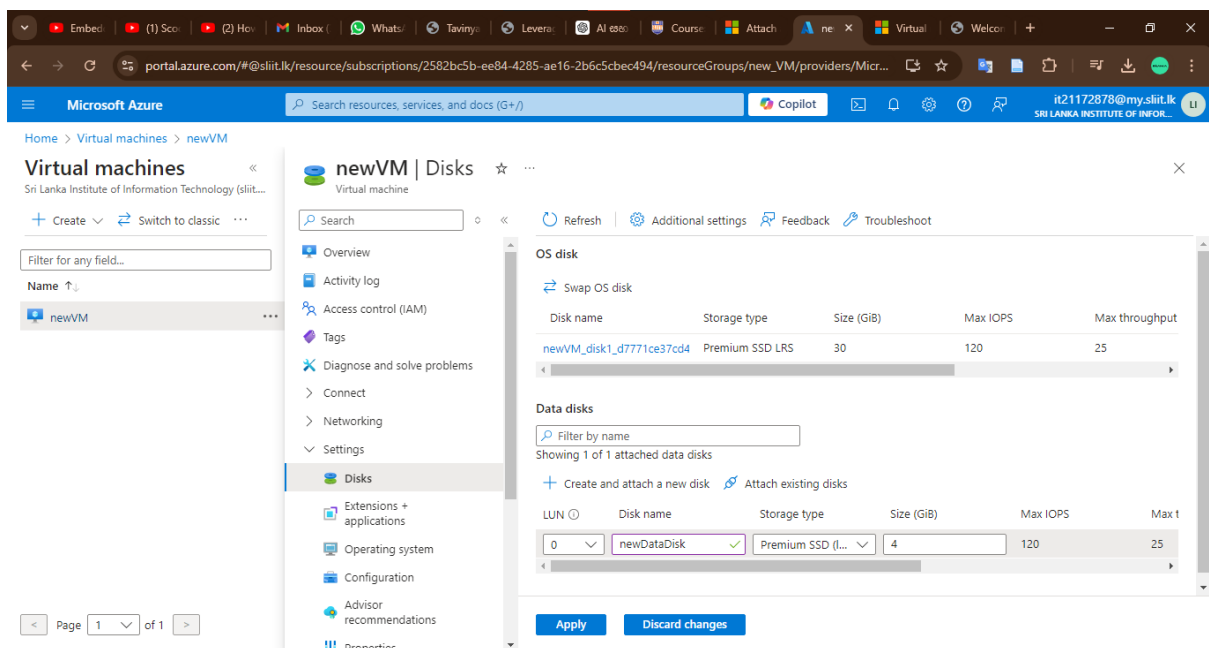


Figure 1. 2: Enter a name for your managed disk

Microsoft Azure portal interface showing the configuration of a virtual machine named 'newVM' under the 'Disks' tab. The interface includes a left-hand navigation pane with options like Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Connect, Networking, Settings, Disks, Extensions + applications, Operating system, Configuration, Advisor recommendations, and Properties. The main content area displays the 'newVM | Disks' configuration, including the OS disk and data disks. A notification banner at the top right indicates 'Successfully created disk' and 'Updating virtual machine'.

OS disk configuration:

Disk name	Storage type	Size (GiB)	Max IOPS	Max throughput
newVM_disk1_d7771ce37cd4	Premium SSD LRS	30	120	25

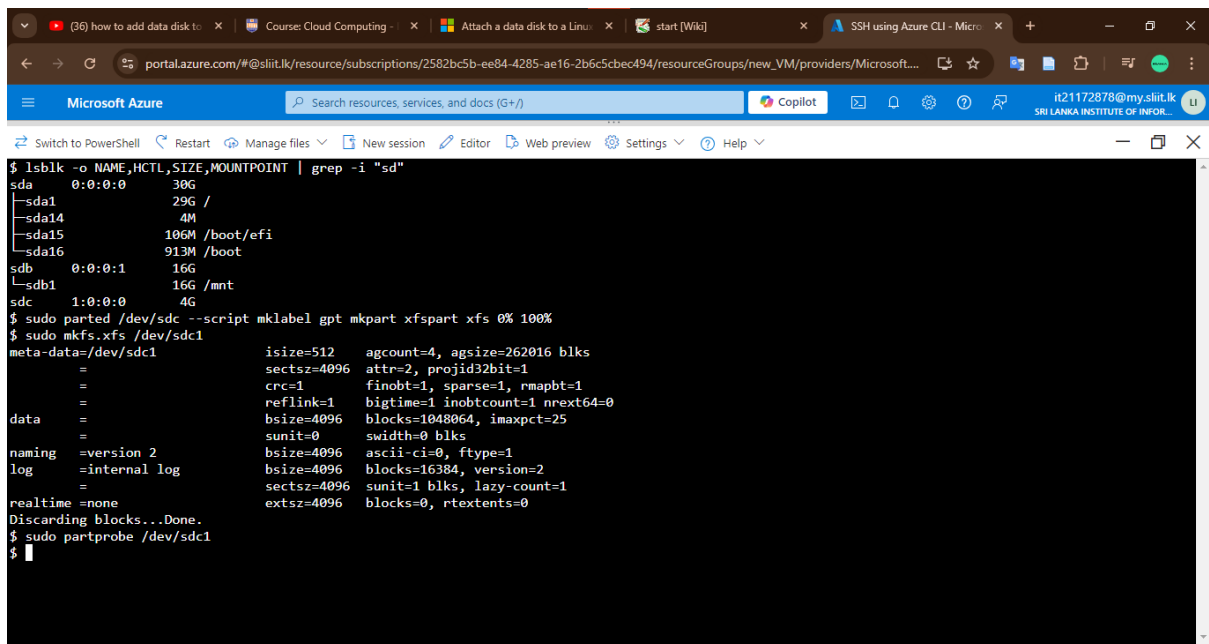
Data disks configuration:

LUN	Disk name	Storage type	Size (GiB)	Max IOPS	Max throughput
0	newDataDisk	Premium SSD (LRS)	4	120	25

Buttons at the bottom: Apply, Discard changes.

Figure 1. 3: select Save at the top of the page

2. Find the disk



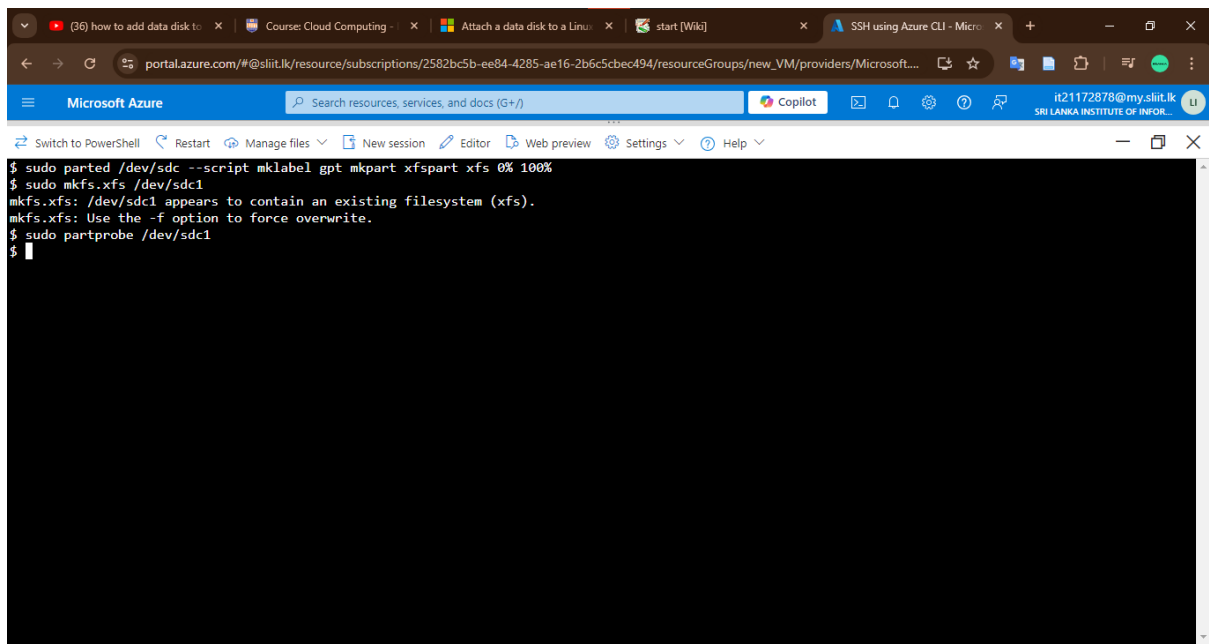
The screenshot shows a terminal window within a web browser interface. The browser's address bar shows a URL from portal.azure.com. The terminal window has a title bar with options like 'Switch to PowerShell', 'Restart', 'Manage files', 'New session', 'Editor', 'Web preview', 'Settings', and 'Help'. The terminal content shows the following commands and output:

```
$ lsblk -o NAME,HCTL,SIZE,MOUNTPOINT | grep -i "sd"
sda      0:0:0:0      30G
├─sda1    29G /
├─sda14    4M
├─sda15   106M /boot/efi
└─sda16   913M /boot
sdb      0:0:0:1      16G
└─sdb1    16G /mnt
sdc      1:0:0:0       4G

$ sudo parted /dev/sdc --script mklabel gpt mkpart xfs part xfs 0% 100%
$ sudo mkfs.xfs /dev/sdc1
meta-data=/dev/sdc1          isize=512    agcount=4, agsize=262016 blks
                        sectsz=4096   attr=2,   projid32bit=1
                        crc=1         finobt=1, sparse=1, rmapbt=1
                        reflink=1     bigtime=1 inobtcount=1 nrext64=0
data                =          bsize=4096   blocks=1048064, imaxpct=25
                        sunit=0      swidth=0 blks
naming              =version 2          bsize=4096   ascii-ci=0, ftype=1
log                 =internal log      bsize=4096   blocks=16384, version=2
                        =          sectsz=4096   sunit=1 blks, lazy-count=1
realtime            =none              extsz=4096   blocks=0, rtextents=0
Discarding blocks...Done.
$ sudo partprobe /dev/sdc1
$
```

Figure 2. 1: Find the disk

3. Prepare a new empty disk

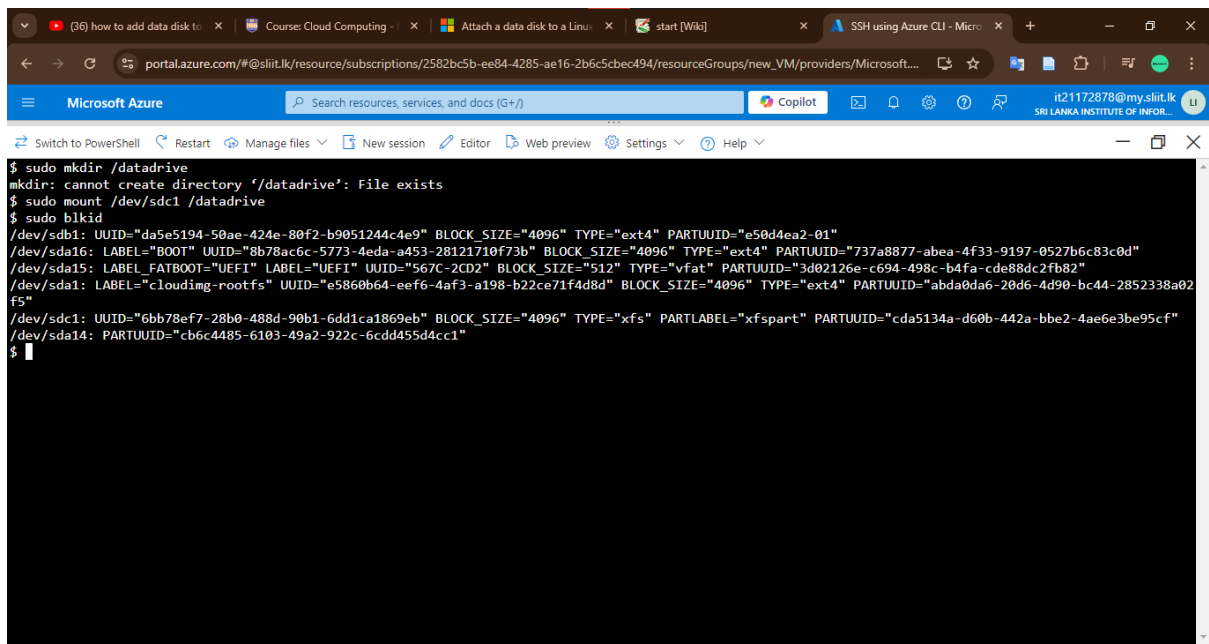


The screenshot shows a terminal window within a web browser interface. The browser's address bar shows a URL from portal.azure.com. The terminal window has a title bar with options like 'Switch to PowerShell', 'Restart', 'Manage files', 'New session', 'Editor', 'Web preview', 'Settings', and 'Help'. The terminal content shows the following commands and output:

```
$ sudo parted /dev/sdc --script mklabel gpt mkpart xfspart xfs 0% 100%
$ sudo mkfs.xfs /dev/sdc1
mkfs.xfs: /dev/sdc1 appears to contain an existing filesystem (xfs).
mkfs.xfs: Use the -f option to force overwrite.
$ sudo partprobe /dev/sdc1
$
```

Figure 3. 1: The parted utility can be used to partition and to format a data disk

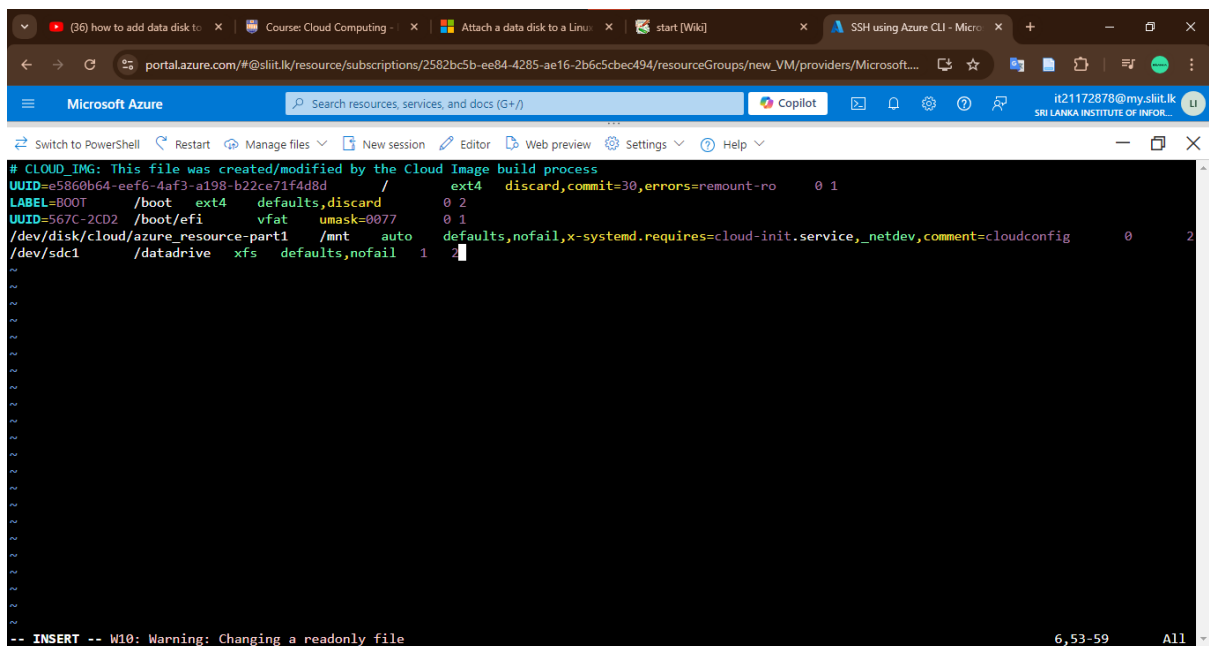
4. Mount the disk



A terminal window showing the execution of commands to create a directory and identify disks. The commands and their outputs are as follows:

```
$ sudo mkdir /datadrive
mkdir: cannot create directory '/datadrive': File exists
$ sudo mount /dev/sdc1 /datadrive
$ sudo blkid
/dev/sdb1: UUID="da5e5194-50ae-424e-80f2-b9051244c4e9" BLOCK_SIZE="4096" TYPE="ext4" PARTUUID="e50d4ea2-01"
/dev/sda16: LABEL="BOOT" UUID="8b78ac6c-5773-4eda-a453-28121710f73b" BLOCK_SIZE="4096" TYPE="ext4" PARTUUID="737a8877-abea-4f33-9197-0527b6c83c0d"
/dev/sda15: LABEL_FATBOOT="UEFI" LABEL="UEFI" UUID="567C-2CD2" BLOCK_SIZE="512" TYPE="vfat" PARTUUID="3d02126e-c694-498c-b4fa-cda88dc2fb82"
/dev/sda1: LABEL="cloudimg-rootfs" UUID="e5860b64-eef6-4af3-a198-b22ce71f4d8d" BLOCK_SIZE="4096" TYPE="ext4" PARTUUID="abda0da6-20d6-4d90-bc44-2852338a02f5"
/dev/sdc1: UUID="6bb78ef7-28b0-488d-90b1-6dd1ca1869eb" BLOCK_SIZE="4096" TYPE="xfs" PARTLABEL="xfspart" PARTUUID="cda5134a-d60b-442a-bbe2-4ae6e3be95cf"
/dev/sda14: PARTUUID="cb6c4485-6103-49a2-922c-6cdd455d4cc1"
```

Figure 4. 1: Create a directory to mount the file system using mkdir



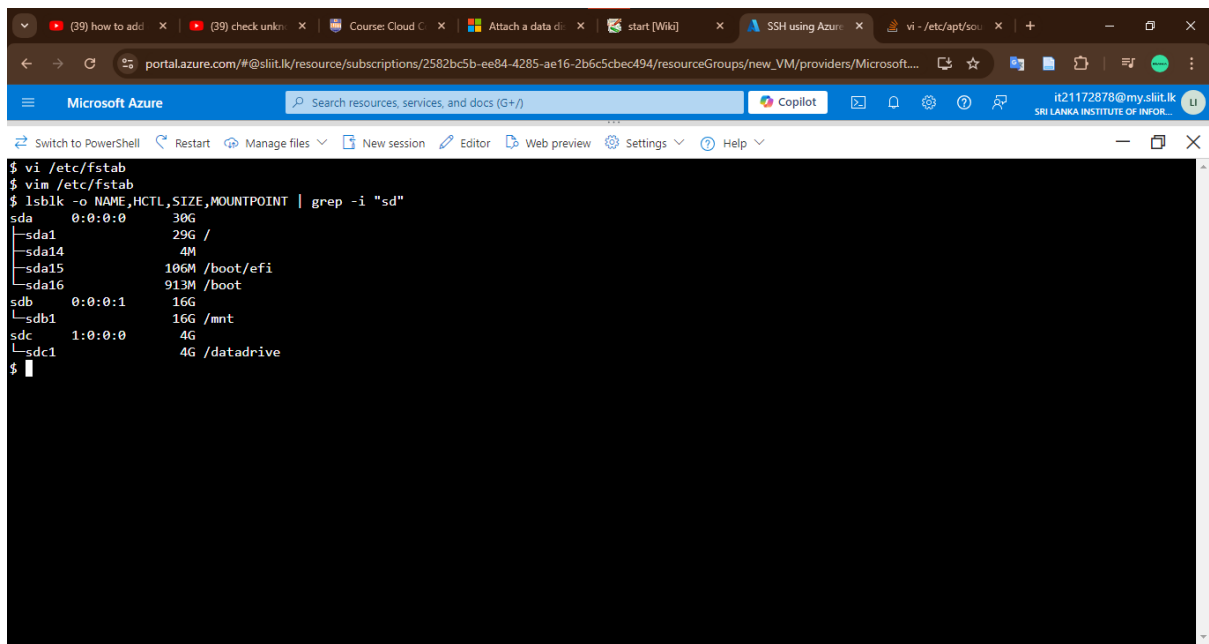
A terminal window showing the contents of the `/etc/fstab` file. The file contains the following entries:

```
# CLOUD_IMG: This file was created/modified by the Cloud Image build process
UUID=e5860b64-eef6-4af3-a198-b22ce71f4d8d / ext4 discard,commit=30,errors=remount-ro 0 1
LABEL=BOOT /boot ext4 defaults,discard 0 2
UUID=567C-2CD2 /boot/efi vfat umask=0077 0 1
/dev/disk/cloud/azure_resource-part1 /mnt auto defaults,nofail,x-systemd.requires=cloud-init.service,_netdev,comment=cloudconfig 0 2
/dev/sdc1 /datadrive xfs defaults,nofail 1
```

At the bottom of the terminal, there is a warning message: `-- INSERT -- W10: Warning: Changing a readonly file`. The terminal also shows the line numbers 6,53-59 and All.

Figure 4. 2: open the `/etc/fstab` file in a text editor and edit

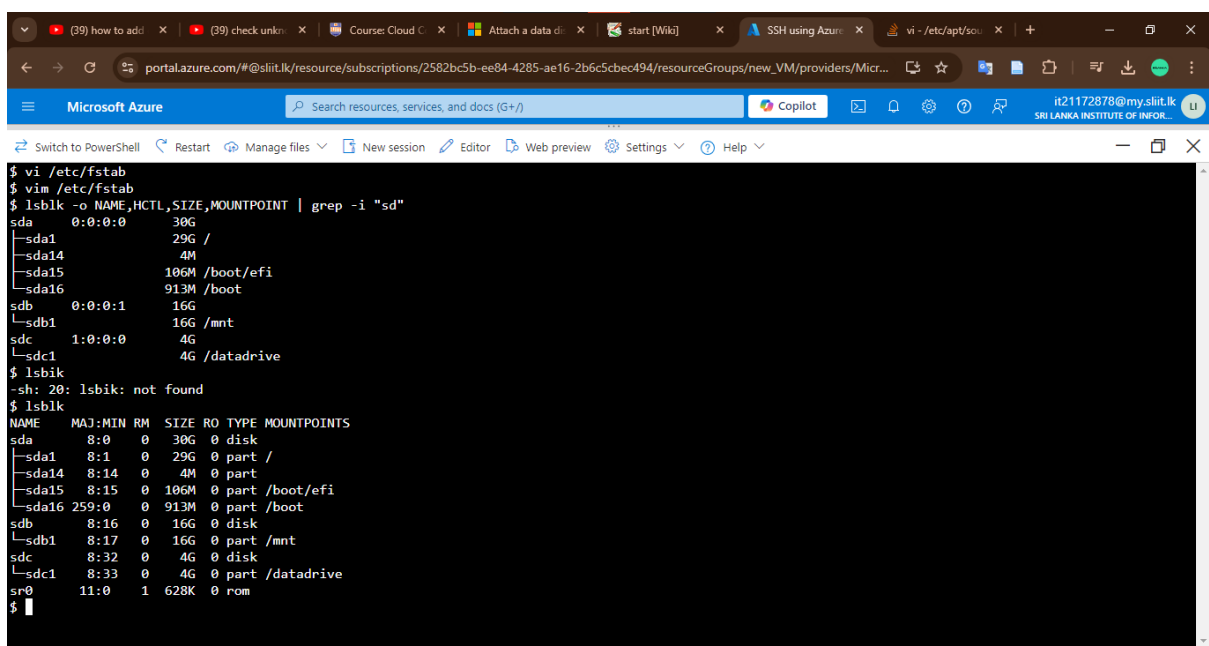
5. Verify the disk



A terminal window showing the execution of `lsblk` to verify disk and mountpoint information. The output lists disks `sda`, `sdb`, `sdc` and their partitions with their respective sizes and mountpoints.

```
$ vi /etc/fstab
$ vim /etc/fstab
$ lsblk -o NAME,HCTL,SIZE,MOUNTPOINT | grep -i "sd"
sda      0:0:0:0      30G
├─sda1    29G /
├─sda14    4M
├─sda15   106M /boot/efi
└─sda16   913M /boot
sdb      0:0:0:1      16G
├─sdb1    16G /mnt
sdc      1:0:0:0       4G
└─sdc1    4G /datadrive
$
```

Figure 5. 1: Use lsblk again to see the disk and the mountpoint



A terminal window showing the execution of `lsblk` and `lsblkik` to verify disk and mountpoint information. The output lists disks `sda`, `sdb`, `sdc` and their partitions with their respective sizes and mountpoints. The `lsblkik` command is also executed, showing the output `-sh: 20: lsblkik: not found`.

```
$ vi /etc/fstab
$ vim /etc/fstab
$ lsblk -o NAME,HCTL,SIZE,MOUNTPOINT | grep -i "sd"
sda      0:0:0:0      30G
├─sda1    29G /
├─sda14    4M
├─sda15   106M /boot/efi
└─sda16   913M /boot
sdb      0:0:0:1      16G
├─sdb1    16G /mnt
sdc      1:0:0:0       4G
└─sdc1    4G /datadrive
$ lsblk
-sh: 20: lsblkik: not found
$ lsblkik
NAME MAJ:MIN RM SIZE RO TYPE MOUNTPOINTS
sda   8:0    0  30G  0 disk
├─sda1 8:1    0  29G  0 part /
├─sda14 8:14   0   4M  0 part
├─sda15 8:15   0 106M  0 part /boot/efi
└─sda16 259:0  0 913M  0 part /boot
sdb   8:16   0  16G  0 disk
├─sdb1 8:17   0  16G  0 part /mnt
sdc   8:32   0   4G  0 disk
└─sdc1 8:33   0   4G  0 part /datadrive
sr0   11:0   1 628K  0 rom
$
```

Figure 5. 2: New disk that I mounted