1. Installing necessary packages

- **zfs file system**

```
sudo apt install zfsutils-linux
```

- **gparted to format partitions**

```
sudo apt install gparted
```

2. Preparing partition

a) Format a partition of the hard drive
b) Create a zfs pool with the partition

```
sudo zpool create zfs_pool /dev/sdb
```

3. Using vdbench

a) In a separate terminal open the folder containing vdbench
b) Create a parameter file with the desired attributes

Run :

```
sudo ./vdbench -f ./parameter_file_name -o output_folder
```

4. Running experiments

a) Dedup:

Set dedup off with:

```
sudo zfs set dedup=off zfs_pool
```

Run the parameter file :

```
sudo ./vdbench -f ./dedup_off -o output_off
```

Now set dedup on with:

```
sudo zfs set dedup=on zfs_pool
```

And run:

```
sudo ./vdbench -f ./dedup_on -o output_on
```

b) Compression:

Set compression off with :

```
sudo zfs set compression=off  zfs_pool
```

Run :

```
sudo ./vdbench -f ./compression_off -o output_comp_off
```

Now set compression to lz4 using:

```
sudo zfs set compression=lz4 zfs_pool
```

Now run

```
sudo ./vdbench -f ./compression_on -o output_comp_on
```

c) Large file creation:

Run:

```
sudo ./vdbench -f ./large_file -o output_large_file
```

Now format the drive using ext4 file system.

Mount the drive using:

```
sudo mount /dev/sdb /media/usb
```

Now run:

```
sudo ./vdbench -f ./large_file_ext4 -o output_large_file_ext4
```

For comparing the two output folders, i.e, output_large_file and output_large_file_ext4, run the following command:

```
sudo ./vdbench compare output_large_file output_large_file_ext4
```