Ubuntu Basic Commands

1. Basic System Information & Navigation

#Understanding the system

```
hostname                # Display the name of the machine
who                     # Show logged-in users
date                    # Show current date and time
 cal                    # Display a calendar
env                     # Show environment variables
uptime                  # Display system uptime
uname                   # Display system information
uname -a                # Show detailed system info
man uname               # Manual for uname command
```

Navigating the File System

```
pwd                     # Show the current directory
path ls                 # List files in the current directory
ls -l                   # Detailed list view with permissions
ls -a                   # Show hidden files
ls -t                   # Sort files by modification time
ls -R                   # Recursively list directory contents
man ls                  # Manual for ls command
cd test_dir/            # Move into a directory
cd ..                   # Go back to the previous directory
mkdir new_dir           # Create a new directory
rmdir new_dir           # Remove an empty directory
```

2. File Management

Creating and Editing Files

```
touch file.txt                          # Create an empty file
gedit file.txt                          # Open file in text editor
echo 'Hello Linux' > file.txt           # Create and write into a file
echo 'Welcome to OS Lab' >> file.txt    # Append text to a file
```

Copying, Moving, and Deleting Files

```
cp file.txt copy_file.txt               # Copy file to another file
mkdir dir                               # Create a directory
mkdir -p dir                            # Create parent directory if needed
cp file.txt dir/                        # Copy file to a directory
mv file.txt renamed_file.txt            # Rename or move a file
rm renamed_file.txt                     # Delete a file
rmdir dir                               #Delete empty directory
rm -r dir/                              # Delete a directory and its contents
```

Searching for Files

```
find / -name file.txt                   # Search for file.txt in the entire system
find . -type f -name "*.txt"            # Find all .txt files in the current directory
locate file.txt                         # Quickly find a file
```

3. User and Permission Management

Managing Users and Groups

```
sudo adduser student                    # Add a new user
sudo groupadd student_group             # Create a new group
sudo usermod -a -G student_group student # Add user to group
sudo groupdel student_group             #Delete a group
id student                              # Check user and group info
groups student                          #Check user's all group info
```

Managing File Permissions

```
ls -l file.txt                  # Check file permissions
chmod u+x file.txt              # Give execute permission to the user
chmod go+x file.txt             # Give execute permission to group & others
chmod -x file.txt               # Remove execute permission
chmod 766 file.txt              # Set specific permissions
                                (owner: rwx, group:rw, others: rw)
sudo chown student file.txt     # Change file ownership
sudo chgrp group file.txt       # Change group ownership
```

4. Viewing and Processing Files

Displaying File Content

```
cat file.txt                    # Display file contents
more file.txt                   # View file with scrolling
less file.txt                   # Similar to more but with better navigation
```

Viewing Parts of a File

```
head -5 file.txt                # Show the first 5 lines
tail -5 file.txt                # Show the last 5 lines
```

Sorting and Counting Content

```
sort file.txt                   # Sort file contents
wc file.txt                     # Count lines, words, and characters
wc -w file.txt                  # Count words only
```

 # Searching Within Files (grep Commands)

```
grep 'Linux' file.txt          # Search for 'Linux' in file.txt
grep -i 'linux' file.txt       # Case-insensitive search
grep -r 'error' /var/logs/     # Search recursively in logs directory
grep -n 'Linux' file.txt       # Show line numbers for matches
grep -c 'Linux' file.txt       # Count occurrences of 'Linux'
```

5. Advanced File Redirection & Piping history

 # Show command history

```
history > cmd.txt              # Save history to a file
echo 'New Entry' >> cmd.txt    # Append a new line to a file
head -4 file.txt | tail -2     # Extract specific lines
man ls > lsmanpage             # Save manual page output to a file
cat -n lsmanpage               # Display file contents with line numbers
```