### **🔬 Lab Exercises – grep**

#### **🗂️ Exercise 1 – Basic Text Search**

1. Create a file named **fruits.txt** with the following contents:

apple
banana
grape
Apple
pineapple
mango

✅ **Tasks:**

a) Search for **“apple”**

grep "apple" fruits.txt

b) Search **case-insensitive** for **“apple”**

grep -i "apple" fruits.txt

c) Count lines containing **“apple”**

grep -c "apple" fruits.txt

d) Show **line numbers** containing “apple”

grep -n "apple" fruits.txt

e) Display lines **not containing “apple”**

grep -v "apple" fruits.txt

#### **🗂️ Exercise 2 – Regular Expressions**

1. Create **numbers.txt** with:

abc123
123abc
456
789xyz
abc
123

✅ **Tasks:**

a) Display lines **starting with numbers**

grep "^[0-9]" numbers.txt

b) Display lines **ending with numbers**

grep "[0-9]$" numbers.txt

c) Display lines containing **only numbers**

grep "^[0-9]\+$" numbers.txt

d) Display lines containing **three consecutive digits**

grep "[0-9]\{3\}" numbers.txt

#### **🗂️ Exercise 3 – Recursive Search**

1. Create a folder **mydir**, with three files:

mkdir mydir
echo "hello world" > mydir/a.txt
echo "hi universe" > mydir/b.txt
echo "hello galaxy" > mydir/c.txt

✅ **Tasks:**

a) Search for **“hello”** in all files within **mydir**

grep "hello" mydir/\*

b) Search **recursively** in **mydir**

grep -r "hello" mydir/

#### **🗂️ Exercise 4 – Using grep with other commands**

✅ **Tasks:**

a) Display currently running **sshd** process

ps aux | grep sshd

b) List all files in /etc containing **“root”**

grep "root" /etc/\*

*(You will see permission denied errors for some files; use sudo or ignore.)*

c) Find your **username** in /etc/passwd

grep "$USER" /etc/passwd

#### **🗂️ Exercise 5 – Extended Regex**

✅ **Tasks:**

a) Using egrep or grep -E, search for lines containing **“dog” or “cat”** in a file named **animals.txt**:

grep -E "dog|cat" animals.txt

### **🔍 Additional Challenges**

✔ Search for users with **UID 0** in /etc/passwd

 ✔ Find lines with **exactly 4-letter words** in a given file

 ✔ Combine grep with wc -l to count pattern occurrences