1. **Write a shell script to get the pattern and filename from the user, and check if the pattern exists. If the pattern exists, print the relevant message; if not, print the relevant message.**

```
#! /usr/bin/bash

read -p "Enter patter to search: " pattern
read -p "Enter the filename: " file

if grep -q "$pattern" "$file"; then
        echo "Pattern '$pattern found in File: '$file'."
else
        echo "Pattern '$pattern' not found in File: '$file'."
fi
```

```
┌──(pb㉿kali)-[~/Desktop]
└─$ ./script.sh
Enter patter to search: They
Enter the filename: poem.txt
Pattern 'They' not found in File: 'poem.txt'.

┌──(pb㉿kali)-[~/Desktop]
└─$ ./script.sh
Enter patter to search: The
Enter the filename: poem.txt
Pattern 'The found in File: 'poem.txt'.
```

2. **Modify the above script to accept arguments from command line.**

```
#! /usr/bin/bash

if [ $# -ne 2 ]; then
  echo "Usage: $0 <pattern> <filename>"
  exit 1
fi

pattern="$1"
filename="$2"

if grep -q "$pattern" "$filename"; then
  echo "Pattern '$pattern' found in file '$filename'."
else
  echo "Pattern '$pattern' not found in file '$filename'."
fi
```

```
┌──(pb㉿kali)-[~/Desktop]
└─$ ./script.sh The poem.txt
Pattern 'The' found in file 'poem.txt'.

┌──(pb㉿kali)-[~/Desktop]
└─$ ./script.sh They poem.txt
Pattern 'They' not found in file 'poem.txt'.
```

3. **Modify the above script to use hardcoded values within the script.**

```
#! /usr/bin/bash

pattern="The"
filename="poem.txt"

if grep -q "$pattern" "$filename"; then
  echo "Pattern '$pattern' found in file '$filename'."
else
  echo "Pattern '$pattern' not found in file '$filename'."
fi
```

```
┌──(pb㉿kali)-[~/Desktop]
└─$ ./script.sh
Pattern 'The' found in file 'poem.txt'.
```

4. **validate the script**

   (Script 1):

```
# /usr/bin/bash

read -p "Enter patter to search: " pattern
read -p "Enter the filename: " file

if [ ! -f "$file" ]; then
  echo "File '$file' does not exist."
  exit 1
fi

if grep -q "$pattern" "$file"; then
        echo "Pattern '$pattern found in File: '$file'."
else
        echo "Pattern '$pattern' not found in File: '$file'."
fi
```

```
┌──(pb㉿kali)-[~/Desktop]
└─$ ./script.sh
Enter patter to search: Them
Enter the filename: 1.txt
File '1.txt' does not exist.
```

(Script 2):

```
# /usr/bin/bash

if [ $# -ne 2 ]; then
  echo "Usage: $0 <pattern> <filename>"
  exit 1
fi

pattern="$1"
filename="$2"

if [ ! -f "$filename" ]; then
  echo "File '$filename' does not exist."
  exit 1
fi

if grep -q "$pattern" "$filename"; then
  echo "Pattern '$pattern' found in file '$filename'."
else
  echo "Pattern '$pattern' not found in file '$filename'."
fi
```

```
┌──(pb㉿kali)-[~/Desktop]
└─$ ./script.sh
Usage: ./script.sh <pattern> <filename>
```

5. **Applying grep Commands**

Note: Make sure to use the options -e -c -n -q -s -f -A -B -C -i -h, -l -o -w

Frame the questions (as per your choice)

1. **To extract user information:**
   a. **Using -e option (Search for multiple patterns):**

```
┌──(pb㉿kali)-[~]
└─$ grep -e 'pb' -e 'ora' /etc/passwd
pb:x:1000:1000:PB,,,:/home/pb:/usr/bin/zsh
```

   b. **Using -c option (Count occurrences):**

```
┌──(pb㉿kali)-[~]
└─$ grep -c 'pb' /etc/passwd
1
```

   c. **Using -n option (Show line numbers):**

```
┌──(pb㉿kali)-[~]
└─$ grep -n 'pb' /etc/passwd
56:pb:x:1000:1000:PB,,,:/home/pb:/usr/bin/zsh
```

   d. **Using -i option (Case-insensitive search):**

```
┌──(pb㉿kali)-[~]
└─$ grep -i 'PB' /etc/passwd
pb:x:1000:1000:PB,,,:/home/pb:/usr/bin/zsh
```

e. **Using -w option (Match whole words):**

```
┌──(pb㉿kali)-[~]
└─$ grep -w 'bin' /etc/passwd
root:x:0:0:root:/root:/usr/bin/zsh
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
mysql:x:101:102:MariaDB Server,,,:/nonexistent:/bin/false
tss:x:102:103:TPM software stack,,,:/var/lib/tpm:/bin/false
Debian-snmp:x:111:109::/var/lib/snmp:/bin/false
postgres:x:119:119:PostgreSQL administrator,,,:/var/lib/postgresql:/bin/bash
speech-dispatcher:x:122:29:Speech Dispatcher,,,:/run/speech-dispatcher:/bin/f
alse
lightdm:x:126:128:Light Display Manager:/var/lib/lightdm:/bin/false
pb:x:1000:1000:PB,,,:/home/pb:/usr/bin/zsh
```

2. **To extract network information**:
   a. **Using -A option (Show lines after match)**:
      grep -A 3 'eth0' /var/log/syslog
   b. **Using -B option (Show lines before match)**:
      grep -B 5 'wlan0' /var/log/syslog
   c. **Using -C option (Show lines before and after match)**:
      grep -C 2 'eth0' /var/log/syslog

3. **To extract login details:**
   a. **Using -q option (Quiet mode):**
      grep -q 'admin' /var/log/auth.log
   b. **Using -s option (Suppress errors):**
      grep -s 'login' /var/log/auth.log
   c. **Using -l option (Display filenames only):**

```
┌──(pb㉿kali)-[/]
└─$ grep -l 'root' /var/log/*

/var/log/Xorg.0.log
/var/log/Xorg.0.log.old
/var/log/Xorg.1.log
/var/log/Xorg.1.log.old
/var/log/alternatives.log.1
```

   d. **Using -o option (Only matched parts):**
      grep -o 'user=[a-zA-Z]*' /var/log/auth.log