

LAB-2.md

LAB2 – Shell Scripting Basics

This lab demonstrates running and analyzing two simple shell scripts from the Scripts/ folder:

- print_numbers.sh
- array_loop.sh

We will explore their purpose, line-by-line explanations, and example outputs.

♦ Script 1: print_numbers.sh

Purpose

To print numbers from **1 to 5** using a simple loop.

Code Snippet (with output)

```
sneha@sneha-HP-Laptop-15s-fq5xxx:~/LINUX_LAB/scripts$ cat array1_scripts.sh
#!/bin/bash
fruits=("apple" "banana" "cherry")
length=${#fruits[@]}
echo "Array length:$length"
i=0
while [ $i -lt $length ] ; do
    echo "Fruit: ${fruits[$i]}"
    ((i++))
done
sneha@sneha-HP-Laptop-15s-fq5xxx:~/LINUX_LAB/scripts$ ./array1_scripts.sh
Array length:3
```

Line-by-Line Explanation

Line	Code	Explanation
1	#!/bin/bash	Shebang – tells the system to use the Bash shell.
2	fruits=("apple" "banana" "cherry")	Creates an array named fruits with 3 elements: apple, banana, and cherry.
3	length=\${#fruits[@]}	Finds the length of the array using \${#array[@]}. Here, length = 3.
4	echo "Array length:\$length"	Prints the length of the array.
5	i=0	Initializes the loop counter i to 0 (first index).
6	while [\$i -lt \$length] ; do	Starts a while loop that runs while i is less than the array length .
7	echo "Fruit: \${fruits[\$i]}"	Prints the element of the array at index i.
8	((i++))	Increments i by 1 after each iteration.
9	done	Marks the end of the while loop.

♦ Script 2: array_loop.sh

Purpose

To demonstrate a for loop with a numeric range in Bash.

Code Snippet (with output)

```
sneha@sneha-HP-Laptop-15s-fq5xxx:~/LINUX_LAB/scripts$ cat range.sh
#!/bin/bash

for i in {0..7}
do echo "Number: $i"
done
sneha@sneha-HP-Laptop-15s-fq5xxx:~/LINUX_LAB/scripts$ ./range.sh
Number: 0
Number: 1
Number: 2
Number: 3
Number: 4
Number: 5
Number: 6
Number: 7
```

Line-by-Line Explanation

Line	Code	Explanation
1	<code>#!/bin/bash</code>	Shebang → ensures the script runs with the Bash shell.
2	<i>(blank)</i>	Just an empty line for readability.
3	<code>for i in {0..7}</code>	Starts a for loop. The loop variable <code>i</code> will take values from 0 to 7 (inclusive).
4	<code>do</code>	Marks the beginning of the loop body.
5	<code>echo "Number: \$i"</code>	Prints the current value of <code>i</code> prefixed with "Number: ".
6	<code>done</code>	Ends the for loop.

? Extra Questions

Q1. What is the purpose of `#!/bin/bash`?

- It is called the shebang. It tells the system to run the script using the Bash shell, ensuring correct execution.

Q2. How do you make a script executable?

- `chmod +x scriptname.sh`
- Example:

```
chmod +x print_numbers.sh
./print_numbers.sh
```

✨ Summary

- `print_numbers.sh` → Demonstrates a basic for loop.
- `array_loop.sh` → Demonstrates using arrays in Bash.
- `#!/bin/bash` → Ensures the script runs in the Bash shell.
- `chmod +x` → Makes a script executable.