

enhanced_numbers.sh

```
#!/bin/bash
# enhanced_numbers.sh
# Prints numbers from start to end with a given step

# Check if 3 arguments are provided
if [ $# -ne 3 ]; then
    echo "Usage: $0 <start> <end> <step>"
    exit 1
fi

start=$1
end=$2
step=$3

# Validate step > 0
if [ $step -le 0 ]; then
    echo "Error: Step must be a positive number."
    exit 1
fi

# Loop through numbers
for (( i=$start; i<=$end; i+=$step ))
do
    echo "Number: $i"
done
```

LAB3.md – Modified Script Report

Assignment 3 – Modify an Existing Script

Objective

To enhance `print_numbers.sh` so that it accepts **user input (start, end, step)** and validates the step.

1. Original Behavior

The original script simply printed numbers from **1 to 5** without user input:

```
#!/bin/bash
for i in {1..5}
```

```
do
    echo "Number: $i"
done
```

⌚ Limitation: Fixed numbers, no flexibility.

2. New Behavior (`enhanced_numbers.sh`)

Now, the script:

- Takes **start**, **end**, **step** values from the user.
 - Validates that step > 0.
 - Prints the sequence accordingly.
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3. Example Runs

Example 1

```
$ ./enhanced_numbers.sh 1 10 2
Number: 1
Number: 3
Number: 5
Number: 7
Number: 9
```

Example 2

```
$ ./enhanced_numbers.sh 5 20 5
Number: 5
Number: 10
Number: 15
Number: 20
```

 Invalid Example

```
$ ./enhanced_numbers.sh 1 10 -2
Error: Step must be a positive number.
```

4. Extra Questions

- ◊ Q1: Difference between `$1`, `$@`, and `$#` in bash?

- `$1` → first argument passed to the script.
- `$@` → all arguments as separate values.
- `$#` → total number of arguments.

Example:

```
$ ./script.sh A B C
$1 = A
$@ = A B C
$# = 3
```

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- ◊ Q2: What does `exit 1` mean in a script?

☞ `exit 1` stops the script and returns an **error status code (1)** to the system.

- `exit 0` → success.
 - Non-zero (like `exit 1`) → error/failure.
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✓ Conclusion

- Original script → fixed loop from 1 to 5.
 - Enhanced script → **user-controlled range & step** with input validation.
 - Learned: **arguments (\$1, \$@, \$#)** and **exit codes** in bash.
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❖ Deliverables:

- `enhanced_numbers.sh` (script file)
- `LAB3.md` (this explanation)
- Export as **PDF** for submission terminal screenshots

```
chayantika@aryaveer-lohia-ThinkPad-E16-Gen-2:~/Desktop/1/test$ touch print_numbers.sh
chayantika@aryaveer-lohia-ThinkPad-E16-Gen-2:~/Desktop/1/test$ nano print_numbers.sh
chayantika@aryaveer-lohia-ThinkPad-E16-Gen-2:~/Desktop/1/test$ chmod 777 print_numbers.sh
chayantika@aryaveer-lohia-ThinkPad-E16-Gen-2:~/Desktop/1/test$ bash print_numbers.sh
number : 1
number : 2
number : 3
number : 4
number : 5
chayantika@aryaveer-lohia-ThinkPad-E16-Gen-2:~/Desktop/1/test$
```
