

# Shell programming

- A shell is a special user program that provides an interface for the user to use operating system services.
- Shell accepts human-readable commands from users and converts them into something which the kernel can understand.
- It is a command language interpreter that executes commands read from input devices such as keyboards or from files.

## How to Run the Script:

1. Save the script in a file, e.g., `filename.sh`

Give execute permissions to the file:

1. **`chmod +x filename.sh`**
2. **`./filename.sh`**

```
echo "Hello World!"  
echo "What is your name?"  
read PERSON  
echo "Hello, $PERSON"
```

```
Hello World!  
What is your name?  
anu  
Hello, anu
```

# Shell Arithmetic

Use to perform arithmetic operations.

*Syntax:*

`expr op1 math-operator op2`

*Examples:*

```
$ expr 1 + 3
$ expr 2 - 1
$ expr 10 / 2
$ expr 20 % 3
$ expr 10 \* 3
$ echo `expr 6 + 3`
```

**Note:**

`expr 20 %3` - Remainder read as 20 mod 3 and remainder is 2.

`expr 10 \* 3` - Multiplication use `\*` and not `*` since its wild card.

**\$ echo "expr 6 + 3" # It will print expr 6 + 3**

**\$ echo 'expr 6 + 3' # It will print expr 6 + 3**

**fi** :

This marks the end of the if-elif-else statement.

The word “fi” is “if” spelled backward and is used to close the conditional blocks in Bash

```
1 for i in {1..5}
2 do
3     echo "Number: $i"
4 done
```

Program input

### Output

```
Number: 1
Number: 2
Number: 3
Number: 4
Number: 5
```

```
1 counter=1
2 while [ $counter -le 5 ]
3 do
4     echo "Counter: $counter"
5     ((counter++))
6 done
7
```

Program input

### Output

```
Counter: 1
Counter: 2
Counter: 3
Counter: 4
Counter: 5
```