

Bash Scripting

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Introduction

A **bash script** is a file containing a sequence of commands that are executed by the bash program line by line. It allows you to perform a series of actions, such as navigating to a specific directory, creating a folder, and launching a process using the command line.

By saving these commands in a script, you can repeat the same sequence of steps multiple times and execute them by running the script.

Advantages

Bash scripting is a powerful and versatile tool for automating system administration tasks, managing system resources, and performing other routine tasks in Unix/Linux systems.

Some advantages of shell scripting are:

Automation: Shell scripts allow you to automate repetitive tasks and processes, saving time and reducing the risk of errors that can occur with manual execution.

Portability: Shell scripts can be run on various platforms and operating systems, including Unix, Linux, macOS, and even Windows using emulators or virtual machines.

Flexibility: Shell scripts are highly customizable and can be easily modified to suit specific requirements. They can also be combined with other programming languages or utilities to create more powerful scripts.

Accessibility: Shell scripts are easy to write and don't require any special tools or software. They can be edited using any text editor, and most operating systems have a built-in shell interpreter.

Integration: Shell scripts can be integrated with other tools and applications, such as databases, web servers, and cloud services, allowing for more complex automation and system management tasks.

Debugging: Shell scripts are easy to debug, and most shells have built-in debugging and error-reporting tools that can help identify and fix issues quickly.

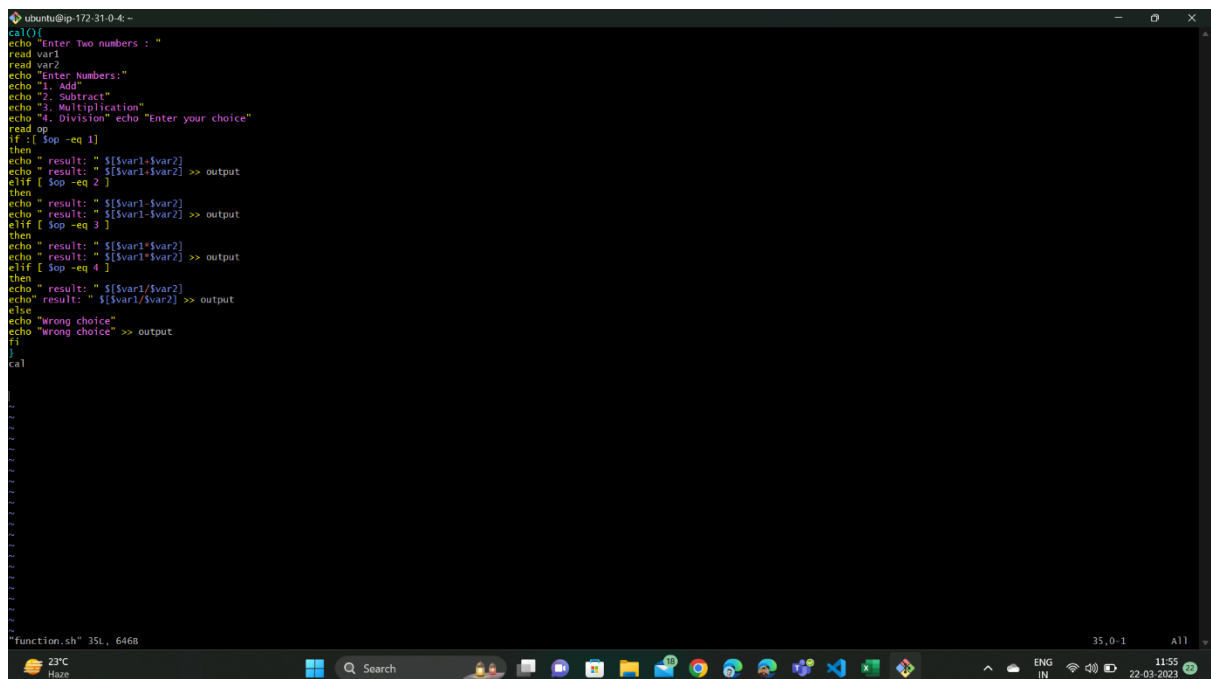
Overview of Bash shell and command line interface

The terms **"shell"** and **"bash"** are used interchangeably. But there is a subtle difference between the two.

The term **"shell"** refers to a program that provides a command-line interface for interacting with an operating system. **Bash (Bourne-Again Shell)** is one of the most used Unix/Linux shells and is the default shell in many Linux distributions.

Steps on how to create a simple Calculator.

1. Create an Ubuntu instance using AWS. (We can use our Gitbash also but there are some commands that only runs on Ubuntu)
2. Now, create a file where you will perform the task.
Commands - vi filename
(vi - is used for creating a file)
3. When file is opened, then first write **#!/bin/bash**
(This is used to specify the path where we must run the file.)
4. Write your Bash Code.



```
calO{
echo "Enter Two numbers : "
read var1
read var2
echo "Enter Numbers:"
echo "1. Add"
echo "2. Subtract"
echo "3. Multiplication"
echo "4. Division" echo "Enter your choice"
read op
if [ $op -eq 1 ]
then
echo " result: " ${var1+$var2}
echo " result: " ${var1+$var2} >> output
elif [ $op -eq 2 ]
then
echo " result: " ${var1+$var2}
echo " result: " ${var1+$var2} >> output
elif [ $op -eq 3 ]
then
echo " result: " ${var1*$var2}
echo " result: " ${var1*$var2} >> output
elif [ $op -eq 4 ]
then
echo " result: " ${var1/$var2}
echo " result: " ${var1/$var2} >> output
else
echo "Wrong choice"
echo "Wrong choice" >> output
fi
}
cal
```

5. Now, save it using **Esc + S** keys.
6. Exit the file using **Esc + :wq!** keys.
(If it shows permission denied, then use **chmod 777** file that is used for changing the permission).
7. After that run the file again.

```
ubuntu@ip-172-31-0-4: ~$  
3. Multiplication  
4. Division echo Enter your choice  
3  
./function.sh: line 11: [: command not found  
result: 6  
ubuntu@ip-172-31-0-4:~$ vi function.sh  
ubuntu@ip-172-31-0-4:~$ ./function.sh  
Enter first number : var12  
Enter Secon number : var23  
Enter Numbers:  
1. Add  
2. Subtract  
3. Multiplication  
4. Division echo Enter your choice  
2  
./function.sh: line 13: [: command not found  
./function.sh: line 19: -: syntax error: operand expected (error token is "-")  
ubuntu@ip-172-31-0-4:~$ vi function.sh  
ubuntu@ip-172-31-0-4:~$ ./function.sh  
Enter Two numbers :  
2  
3  
Enter Secon number : var22  
Enter Numbers:  
1. Add  
2. Subtract  
3. Multiplication  
4. Division echo Enter your choice  
2  
./function.sh: line 13: [: command not found  
result: -1  
ubuntu@ip-172-31-0-4:~$ vi function.sh  
ubuntu@ip-172-31-0-4:~$ ./function.sh  
Enter Two numbers :  
3  
4  
Enter Numbers:  
1. Add  
2. Subtract  
3. Multiplication  
4. Division echo Enter your choice  
1  
./function.sh: line 13: [: command not found  
wrong choice  
ubuntu@ip-172-31-0-4:~$ vi function.sh  
ubuntu@ip-172-31-0-4:~$ ./function.sh  
Enter Two numbers :  
2  
3  
Enter Numbers:  
1. Add  
2. Subtract  
3. Multiplication  
4. Division echo Enter your choice  
2  
./function.sh: line 11: [: command not found  
result: -1  
ubuntu@ip-172-31-0-4:~$
```