

# Introduction to Bash and Shell Scripting

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# What I do

- Mathematics Major at SFU
- DevOps Engineer for iReceptor from September 2018 - today

Write Python and Shell scripts to perform quality assurance and track performance of database.



# How did I first learn about Bash and Shell scripting

- First introduction to Bash through Software Carpentry Workshop (2016)
- IT Help Desk Assistant for BC Cancer Research Centre September 2016 - May 2017 (participated in HackSeq 2016)
- Volunteer in Dr. Cedric Chauve's Lab as Bioinformatician from May 2017 - July 2018



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# How did it change my work

- It helped me be more efficient
- Reduced error-rate when performing repetitive tasks
- Automate multiple processes at large scale (1000s to 1,000,000s)



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# Tell me about you

- Name
- What you do
- One challenge you face in your work
- What you hope to learn from this workshop



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# What are commands

Commands are sequences of lines of text which may be entered by a user, or read from a file or data streams

Commands are interpreted by Unix-like operating systems and allow the user to read, write or execute files within the system



# What is Bash

First and foremost, Bash is a language for job control in computing

Bash is also a Unix shell language - meaning it is interpreted by Unix-like operating systems



# What is Shell Scripting

A shell script is a computer program designed to be run by the Unix shell

Shell scripts are normally created via text editors such as nano, notepad, notepad ++ and run directly from the terminal



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# Where can I use shell scripting?

Shell scripting can come in really handy to perform repetitive operations on any kind of file or datastream:

- Text files
- Spreadsheets
- Databases



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# Sample Script

A script that prints "Hello world!" to the screen

```
#!/bin/sh  
echo "Hello world"
```



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# Sample Script

A script that takes variables as input

```
#!/bin/bash

# example of using arguments to a script
echo "My first name is $1"
echo "My surname is $2"
echo "Total number of arguments is $#"
```

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# Sample Script

Running our script

```
$ chmod a+x name.sh  
$ ./name.sh Hans-Wolfgang Loidl  
My first name is Hans-Wolfgang  
My surname is Loidl  
Total number of arguments is 2
```

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## Time to practice

(UBUNTU) Press CTRL + ALT + T (or enter Terminal in search bar)

(MacOS) Search for Terminal in Applications (or Spotlight)

(Windows) If you have Unix terminal installed, open it, otherwise visit <https://sfu.syzygy.ca/>



# Final Remarks

- We learned what Bash and shell scripting are
- We practiced basic Bash commands and generated our own script
- We learned how to use shell scripting to perform a few repetitive tasks via the command line



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