

San José State University  
Department of Computer Engineering

CMPE 142  
**Operating Systems**  
Section 1

Spring 2021  
Instructor: Ron Mak

## Assignment #1

**Assigned:** Friday, January 29  
**Due:** Friday, February 5 at 11:30 AM  
**Individual assignment**, 100 points max

### Ubuntu and the bash shell

For this assignment, install **Ubuntu** if you're on Windows 10, or **bash** if you're on macOS (Catalina or later). You will gain some experience using the bash shell.

**Windows 10:** Follow the instructions in the following tutorials to install Ubuntu and the development environment:

- "Install Ubuntu on Windows 10"  
<http://www.cs.sjsu.edu/~mak/tutorials/InstallUbuntuWindows.pdf>
- "Configure Ubuntu for Software Development"  
<http://www.cs.sjsu.edu/~mak/tutorials/ConfigureUbuntu.pdf>

**macOS:** For Catalina and later, follow the instructions in the following tutorial to install bash and make it your default shell:

- "Install **bash** for macOS"  
<http://www.cs.sjsu.edu/~mak/tutorials/InstallBashForMacOS.pdf>

**VirtualBox:** If you're unable to use the Windows Subsystem for Linux (WSL) to install Ubuntu, or if you're on macOS but want to use Ubuntu, follow the instructions in the following tutorials to install VirtualBox, Ubuntu, and the development environment:

- "Install Ubuntu on VirtualBox"  
<http://www.cs.sjsu.edu/~mak/tutorials/InstallUbuntuVirtualBox.pdf>
- "Configure Ubuntu for Software Development"  
<http://www.cs.sjsu.edu/~mak/tutorials/ConfigureUbuntu.pdf>

## Experience with the bash shell

After you have the bash shell (command interpreter) up and running in a terminal window in either Ubuntu or macOS, go through the “Bash Scripting Tutorial for Beginners” at <https://linuxconfig.org/bash-scripting-tutorial-for-beginners>.

Cut and paste the bash commands from the tutorial into your terminal window to verify that they work.

There are several steps in the tutorial where you’re asked to edit a script using the **vi** editor. You can use **vi** if you’re familiar with it. Otherwise, on the Mac, you can instead use any text editor. In Ubuntu, you can use the **gedit** GUI-based text editor that you installed when you configured Ubuntu (be sure an X Window server is running).

For this assignment, make screen shots of your terminal window showing the commands you entered and their output for the following sections of the tutorial:

- Hello World Bash Shell Script
- Variables
- Input, Output and Error Redirections
- Functions
- Numeric and String Comparisons
- Conditional Statements
- Positional Parameters
- For Loop
- While Loop
- Until Loop

Your screen shots can be similar to those in the tutorial, but also use the **cat** command to print out any **.sh** scripts that you write, such as

```
cat hello-world.sh
```

Make sure you aren’t simply cutting and pasting without understanding what the commands do!

## Rubric

Your submission will be graded according to these criteria:

Criteria	Max points
<b>Screen shots from</b>	<b>100</b>
• Hello World Bash Shell Script	• 10
• Variables	• 10
• Input, Output and Error Redirections	• 10
• Functions	• 10
• Numeric and String Comparisons	• 10
• Conditional Statements	• 10
• Positional Parameters	• 10
• For Loop	• 10
• While Loop	• 10
• Until Loop	• 10