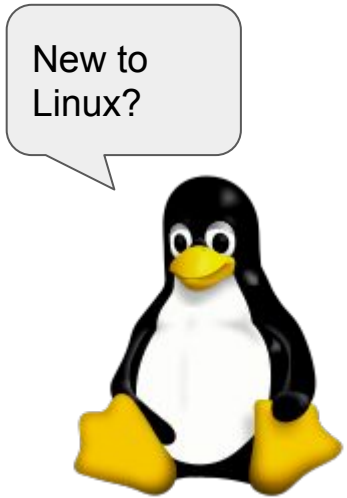
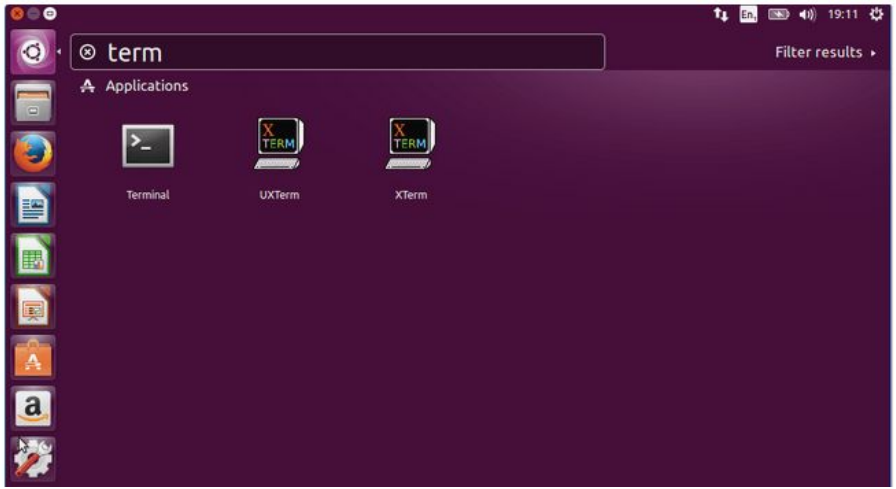
LINUX Basics; C++ and Python

IRR S2019



To Open a Terminal Console Window Using Ubuntu

- Ctrl+Alt +T
- Search Using the Ubuntu Dash



Linux Basic Commands

$ ls # List files in the current directory

$ cd #Change Directory

$ cp #Copy File

$ mkdir #Make Directory

$ cat #display contents of a file

$ touch #to create a file

$ rm

$ chmod

Assignment: if you are new to Linux,
Study basic Linux commands

https://maker.pro/linux/tutorial/basic-linux-commands-for-beginners

Special Symbols

#	comments
~	user directory
.	current directory
..	parent directory
*	star wildcard, for any characters
?	question mark wildcard, for a character
$	command prompt for a regular user *or* Variable ex) $ echo $TERM
|	Pipes; ex) `ls -l | grep '^d'` # get list of all sub-directories in current dir

Useful Shortcuts

^ Shift + : for bigger Terminal

^ - : to reduce Terminal size

^ Shift t - To open a new tab inside a terminal

^ Alt T

^ C: Copy

^ Shift V: Paste to Terminal

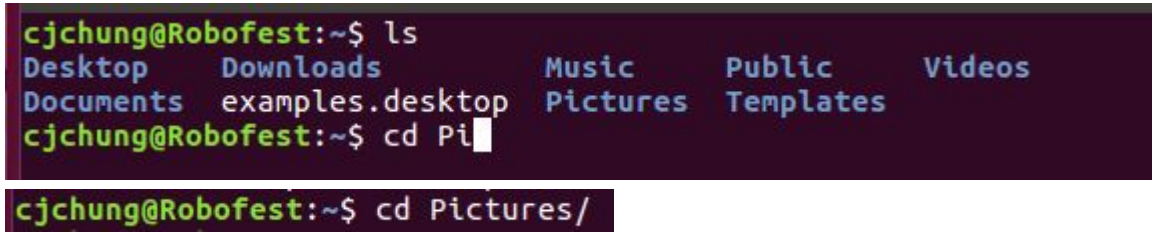
Up arrow and Down arrow keys

- Up arrow - Command history search backward
- Down arrow - Command history search forward

Use Tab Completion to Type Commands Faster

Tab completion is an helpful feature in nearly any command-line environment, the Bash shell on Linux, Command Prompt or PowerShell on Windows, or a terminal window on Mac OS X.

Tab completion is useful when typing file names, directories, and paths. Rather than trying to type a long file name, you can just start typing the beginning of the name and press Tab.



Tab Completion with **two Tabs**

To find commands starts with “ros”

```
cjchung@Robofest:~/Pictures$ ros
```

Tab Tab

```
cjchung@Robofest:~/Pictures$ ros
rosawesome                      roslaunch-deps
rosbag                          roslaunch-logs
rosboost-cfg                    rosls
roscat                          rosmake
roscd                           rosmaster
rosclean                        rosmsg
rosconsole                      rosmsg-proto
roscore                         rosnode
roscp                           rospack
roscreate-pkg                   rosparam
rosd                            rospd
rosdep                          rospython
rosdep-source                   rosrun
rosdistro_build_cache           rosservice
rosdistro_freeze_source         rossrv
rosdistro_migrate_to_rep_141    rosstack
rosdistro_migrate_to_rep_143    rostest
rosdistro_reformat              rostopic
rosed                           rosunit
rosgraph                        rosversion
roslaunch                       roswtf
roslaunch-complete
```

Rudimentary Text Editors

$ vi

$ vim

$ nano #Open Text File Editor

$ gedit

...

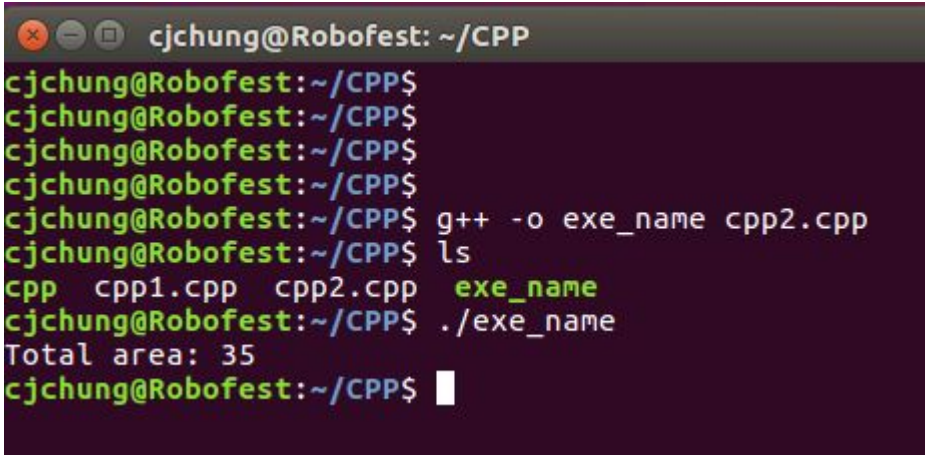
IDE

- Eclipse
- Sublime
- Visual Studio (VS) Code*
- ...

Hello World in C++ on Linux

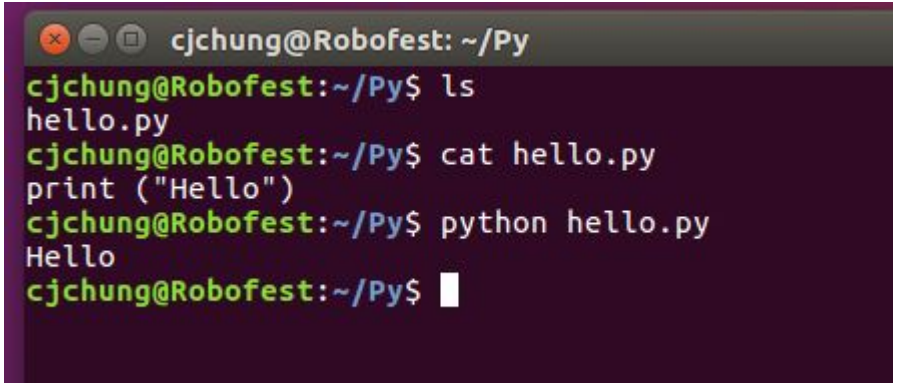
$ g++ fileName.cpp # gcc is for .c

$ ./a.out




```cpp
#include <iostream>

using namespace std;

// Base class
class Shape {
   public:
      void setWidth(int w) {
         width = w;
      }
      void setHeight(int h) {
         height = h;
      }

   protected:
      int width;
      int height;
};

// Derived class
class Rectangle: public Shape {
   public:
      int getArea() {
         return (width * height);
      }
};

int main(void) {
   Rectangle Rect;

   Rect.setWidth(5);
   Rect.setHeight(7);

   // Print the area of the object.
   cout << "Total area: " << Rect.getArea() << endl;

   return 0;
}
```

Hello World in Python on Linux



Hello World in C++ on Linux using VS Code

Later