



ASSIGNMENT 1

Software Setup for CS4DS

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1. Set up Unix-bash:

Set up the terminal using <https://www.cygwin.com>

Test, open terminal window and type shell commands:

```
DELL@DESKTOP-UI2D542 ~
$ ls -la
total 33
drwxr-xr-x+ 1 DELL None    0 Oct 17 19:10 .
drwxrwxrwt+ 1 DELL None    0 Oct 17 18:20 ..
-rw----- 1 DELL None  142 Oct 24 18:44 .bash_history
-rwxr-xr-x 1 DELL None 1494 Oct 17 18:05 .bash_profile
-rwxr-xr-x 1 DELL None 5645 Oct 17 18:05 .bashrc
-rwxr-xr-x 1 DELL None 1919 Oct 17 18:05 .inputrc
drwxr-xr-x+ 1 DELL None    0 Oct 17 19:09 .ipynb_checkpoints
drwxr-xr-x+ 1 DELL None    0 Oct 17 19:08 .ipython
-rwxr-xr-x 1 DELL None 1236 Oct 17 18:05 .profile
-rwxr-xr-x 1 DELL None   700 Oct 17 19:10 first_program.ipynb

DELL@DESKTOP-UI2D542 ~
$ pwd
/home/DELL

DELL@DESKTOP-UI2D542 ~
$ whoami
DELL
```

```
DELL@DESKTOP-UI2D542 ~
$ cat ~/.bashrc
# To the extent possible under law, the author(s) have dedicated all
# copyright and related and neighboring rights to this software to the
# public domain worldwide. This software is distributed without any warranty.
# You should have received a copy of the CC0 Public Domain Dedication along
# with this software.
# If not, see <http://creativecommons.org/publicdomain/zero/1.0/>.

# base-files version 4.3-3

# ~/.bashrc: executed by bash(1) for interactive shells.

# The latest version as installed by the Cygwin Setup program can
# always be found at /etc/defaults/etc/skel/.bashrc

# Modifying /etc/skel/.bashrc directly will prevent
# setup from updating it.

# The copy in your home directory (~/.bashrc) is yours, please
# feel free to customise it to create a shell
# environment to your liking. If you feel a change
# would be benifital to all, please feel free to send
# a patch to the cygwin mailing list.
```

```
~  
# User dependent .bashrc file  
  
# If not running interactively, don't do anything  
[[ "$-" != *i* ]] && return  
  
# Shell Options  
#  
# See man bash for more options...  
#  
# Don't wait for job termination notification  
# set -o notify  
#  
# Don't use ^D to exit  
# set -o ignoreeof  
#  
# Use case-insensitive filename globbing  
# shopt -s nocaseglob  
#  
# Make bash append rather than overwrite the history on disk  
# shopt -s histappend  
#  
# When changing directory small typos can be ignored by bash  
# for example, cd /vr/lgo/apaache would find /var/log/apache  
# shopt -s cdspell  
  
# Programmable completion enhancements are enabled via  
# /etc/profile.d/bash_completion.sh when the package bash_completetion  
# is installed. Any completions you add in ~/.bash_completion are  
# sourced last.  
  
# History Options  
#  
# Don't put duplicate lines in the history.  
# export HISTCONTROL=$HISTCONTROL${HISTCONTROL+,}ignoredups  
#  
# Ignore some controlling instructions  
# HISTIGNORE is a colon-delimited list of patterns which should be excluded.  
# The '&' is a special pattern which suppresses duplicate entries.  
# export HISTIGNORE=$'[ \t]*:&:[fb]g:exit'  
# export HISTIGNORE=$'[ \t]*:&:[fb]g:exit:ls' # Ignore the ls command as well  
#  
# Whenever displaying the prompt, write the previous line to disk  
# export PROMPT_COMMAND="history -a"  
  
# Aliases  
#  
# Some people use a different file for aliases  
# if [ -f "${HOME}/.bash_aliases" ]; then  
#   source "${HOME}/.bash_aliases"  
# fi
```

```

#
# Some example alias instructions
# If these are enabled they will be used instead of any instructions
# they may mask. For example, alias rm='rm -i' will mask the rm
# application. To override the alias instruction use a \ before, ie
# \rm will call the real rm not the alias.
#
# Interactive operation...
# alias rm='rm -i'
# alias cp='cp -i'
# alias mv='mv -i'
#
# Default to human readable figures
# alias df='df -h'
# alias du='du -h'
#
# Misc :)
# alias less='less -r'                # raw control characters
# alias whence='type -a'              # where, of a sort
# alias grep='grep --color'          # show differences in colour
# alias egrep='egrep --color=auto'    # show differences in colour
# alias fgrep='fgrep --color=auto'    # show differences in colour
#
# Some shortcuts for different directory listings
# alias ls='ls -hF --color=tty'       # classify files in colour
# alias dir='ls --color=auto --format=vertical'
# alias vdir='ls --color=auto --format=long'
# alias ll='ls -l'                    # long list
# alias la='ls -A'                    # all but . and ..
# alias l='ls -CF'                    #
#
# Umask
#
# /etc/profile sets 022, removing write perms to group + others.
# Set a more restrictive umask: i.e. no exec perms for others:
# umask 027
# Paranoid: neither group nor others have any perms:
# umask 077
#
# Functions
#
# Some people use a different file for functions
# if [ -f "${HOME}/.bash_functions" ]; then
#     source "${HOME}/.bash_functions"
# fi
#
# Some example functions:
#
# a) function settitle
# settitle ()
# {
#     echo -ne "\e]2;$@\a\e]1;$@\a";
# }
#
#

```

```

# b) function cd_func
# This function defines a 'cd' replacement function capable of keeping,
# displaying and accessing history of visited directories, up to 10 entries.
# To use it, uncomment it, source this file and try 'cd --'.
# acd_func 1.0.5, 10-nov-2004
# Petar Marinov, http://geocities.com/h2428, this is public domain
# cd_func ()
# {
#     local x2 the_new_dir adir index
#     local -i cnt
#
#     if [[ $1 == "--" ]]; then
#         dirs -v
#         return 0
#     fi
#
#     the_new_dir=$1
#     [[ -z $1 ]] && the_new_dir=$HOME
#
#     if [[ ${the_new_dir:0:1} == '-' ]]; then
#         #
#         # Extract dir N from dirs
#         index=${the_new_dir:1}
#         [[ -z $index ]] && index=1
#         adir=$(dirs +$index)
#         [[ -z $adir ]] && return 1
#         the_new_dir=$adir
#     fi
#
#     #
#     # '~' has to be substituted by ${HOME}
#     [[ ${the_new_dir:0:1} == '~' ]] && the_new_dir="${HOME}${the_new_dir:1}"
#
#     #
#     # Now change to the new dir and add to the top of the stack
#     pushd "${the_new_dir}" > /dev/null
#     [[ $? -ne 0 ]] && return 1
#     the_new_dir=$(pwd)
#
#     #
#     # Trim down everything beyond 11th entry
#     popd -n +11 2>/dev/null 1>/dev/null
#
#     #
#     # Remove any other occurrence of this dir, skipping the top of the stack
#     for ((cnt=1; cnt <= 10; cnt++)); do
#         x2=$(dirs +${cnt} 2>/dev/null)
#         [[ $? -ne 0 ]] && return 0
#         [[ ${x2:0:1} == '~' ]] && x2="${HOME}${x2:1}"
#         if [[ "${x2}" == "${the_new_dir}" ]]; then
#             popd -n +$cnt 2>/dev/null 1>/dev/null
#             cnt=cnt-1
#         fi
#     done
#
#     return 0
# }
#
# alias cd=cd_func

```

```

DELL@DESKTOP-UI2D542 ~
$ echo $PATH
/usr/local/bin:/usr/bin:/cygdrive/c/Program Files/Common Files/Oracle/Java/javapath:/cygdrive/c/Program Files (x86)/Common Files/Oracle/Java/javapath:/cygdrive/c/ProgramData/Anaconda3:/cygdrive/c/ProgramData/Anaconda3/Library/mingw-w64/bin:/cygdrive/c/ProgramData/Anaconda3/Library/usr/bin:/cygdrive/c/ProgramData/Anaconda3/Library/bin:/cygdrive/c/ProgramData/Anaconda3/Scripts:/cygdrive/c/Windows/system32:/cygdrive/c/Windows:/cygdrive/c/Windows/System32/Wbem:/cygdrive/c/Windows/System32/WindowsPowerShell/v1.0:/cygdrive/c/Windows/System32/OpenSSH:/cygdrive/c/Program Files/NVIDIA Corporation/NVIDIA NvDLISR:/cygdrive/c/Program Files/Git/cmd:/cygdrive/c/Program Files/MySQL/MySQL Shell 8.0/bin:/cygdrive/c/Users/DELL/AppData/Local/Programs/Python/Python36/Scripts:/cygdrive/c/Users/DELL/AppData/Local/Programs/Python/Python36:/cygdrive/c/Users/DELL/AppData/Local/Programs/Python/Launcher:/cygdrive/c/Users/DELL/AppData/Local/Microsoft/WindowsApps:/cygdrive/c/Program Files/Java/jdk-16.0.2/bin:/cygdrive/c/Program Files/CodeBlocks/MinGW/bin:/cygdrive/c/Program Files/Java/jdk-17/bin:/cygdrive/c/Program Files/JetBrains/IntelliJ IDEA Community Edition 2021.2.2/bin:/cygdrive/c/Program Files/JetBrains/PyCharm Community Edition 2021.2.3/bin

```

2. Install Python 3+: I have installed **python** and **pip** earlier in March 2021.

So, I just put the screen short of python version.

Test, open terminal window and type:

```

DELL@DESKTOP-UI2D542 ~
$ python --version
Python 3.6.5 :: Anaconda, Inc.

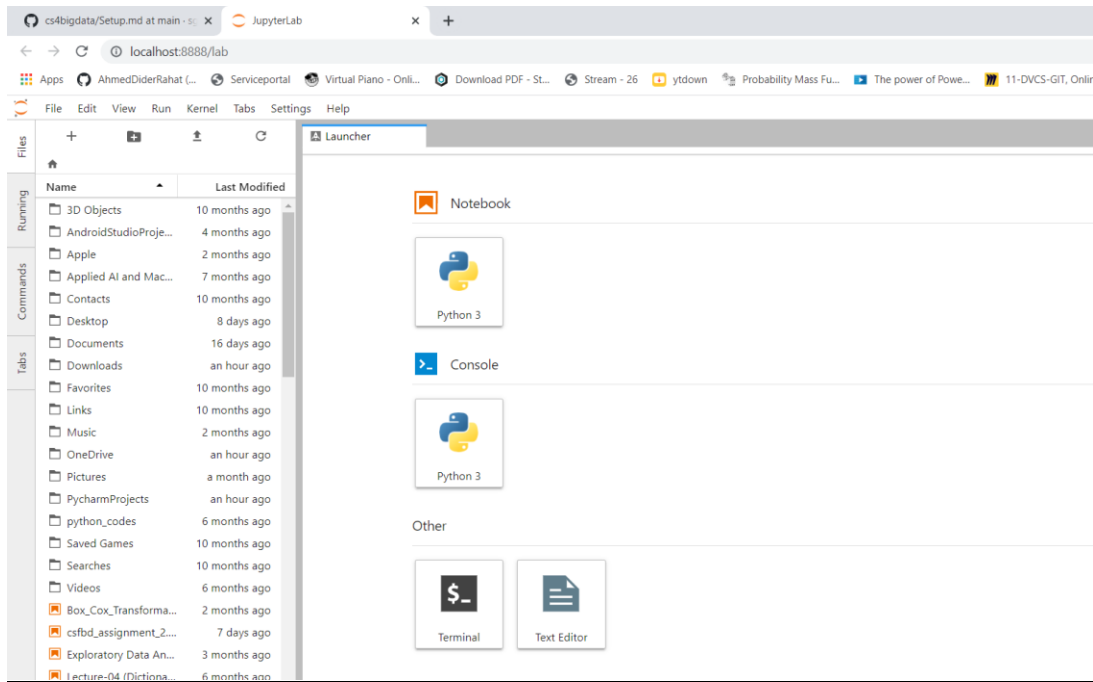
DELL@DESKTOP-UI2D542 ~
$ python
Python 3.6.5 [Anaconda, Inc.] (default, Mar 29 2018, 13:32:41) [MSC v.1900 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> print("Hello World!")
Hello World!
>>> 2+3*4
14
>>> fruits = ['apple', 'pear', 'orange', 'banana']
>>> print(fruits)
['apple', 'pear', 'orange', 'banana']
>>> print(fruits[2])
orange
>>> globals()
{'__name__': '__main__', '__doc__': None, '__package__': None, '__loader__': <class '_frozen_importlib.BuiltinImporter', 'fruits': ['apple', 'pear', 'orange', 'banana']}
>>> exit()

DELL@DESKTOP-UI2D542 ~
$ pip --version
pip 10.0.1 from C:\ProgramData\Anaconda3\lib\site-packages\pip (python 3.6)

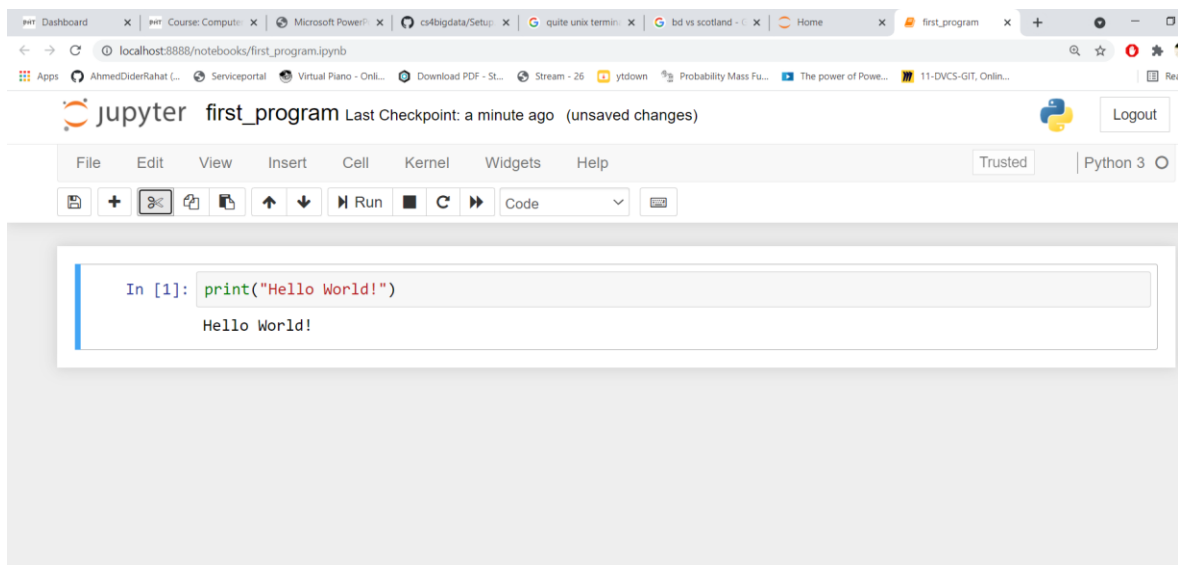
DELL@DESKTOP-UI2D542 ~
$ |

```

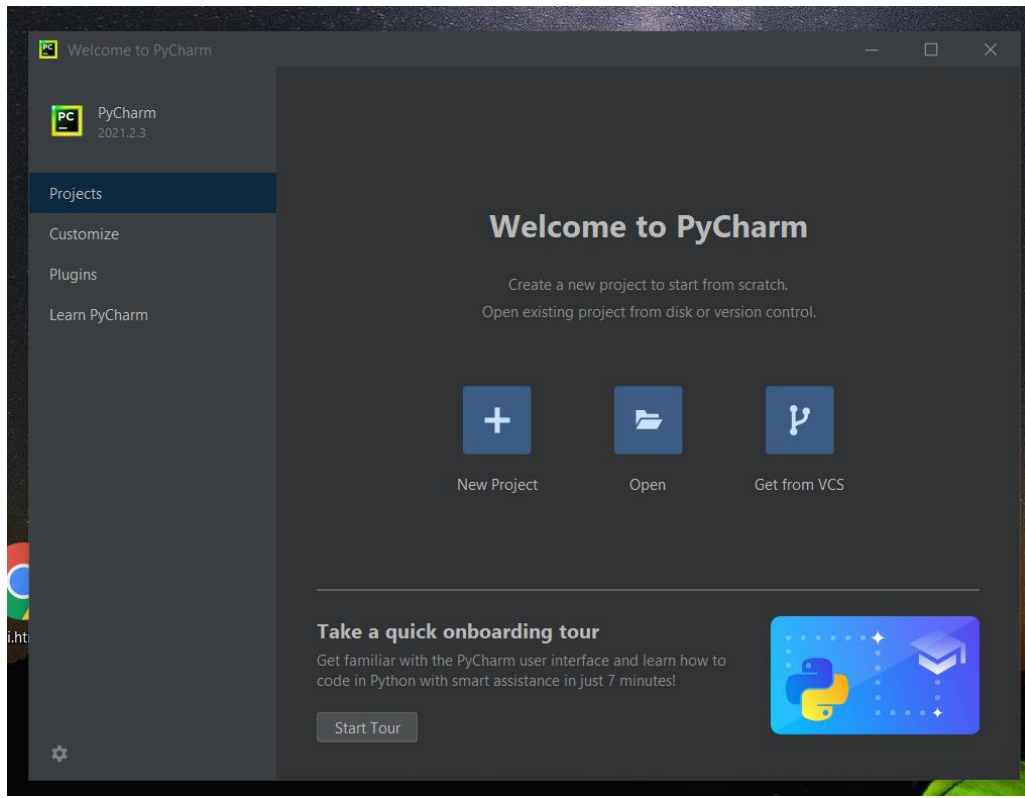
3. **Install Jupyter Lab:** I have installed jupyter lab earlier in March 2021. So, I just put the screen short of python version.



4. **Print-“Hello World” in jupyter notebook:**



5. Install a Python IDE: I have installed pyCharm as python IDE.



6. Print-“Hello World” in pyCharm:

