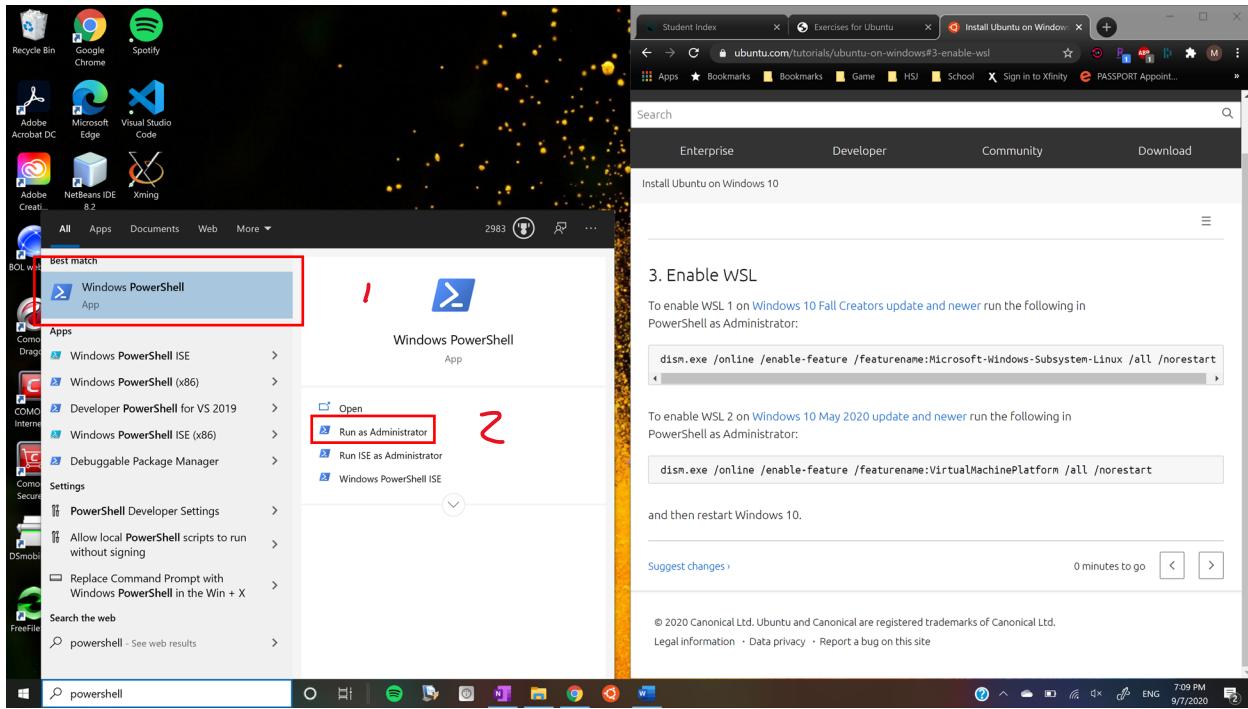
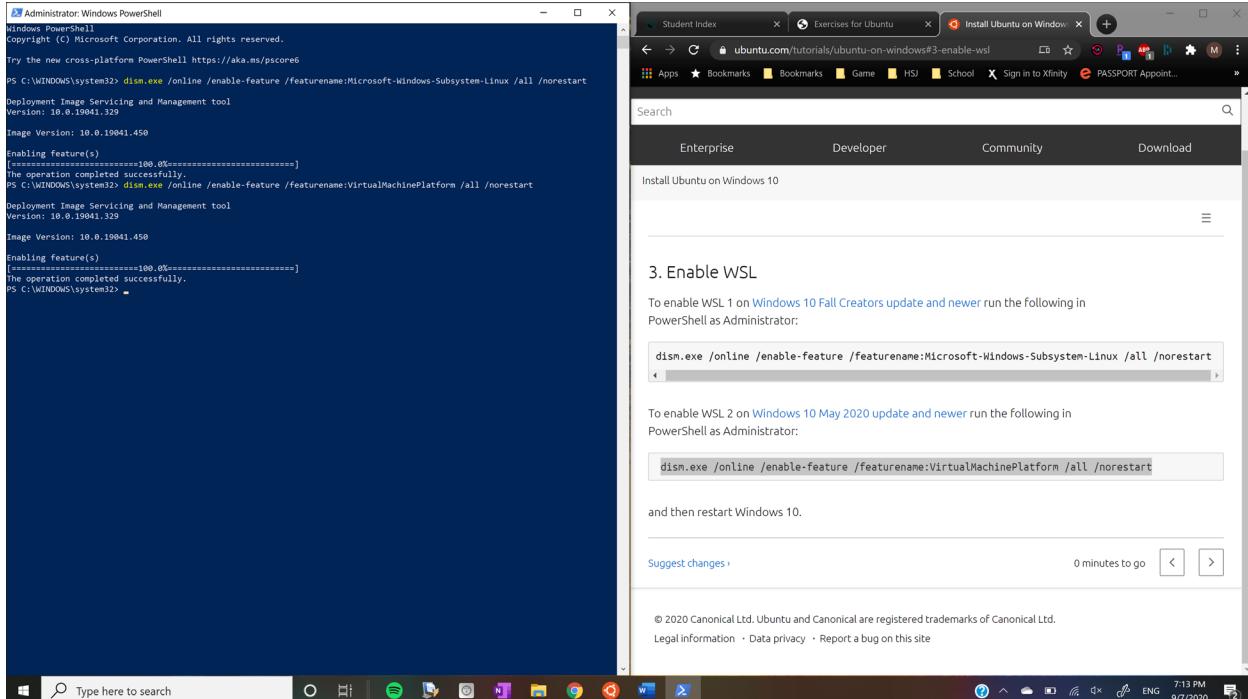


## Q1 ==> Set up Ubuntu

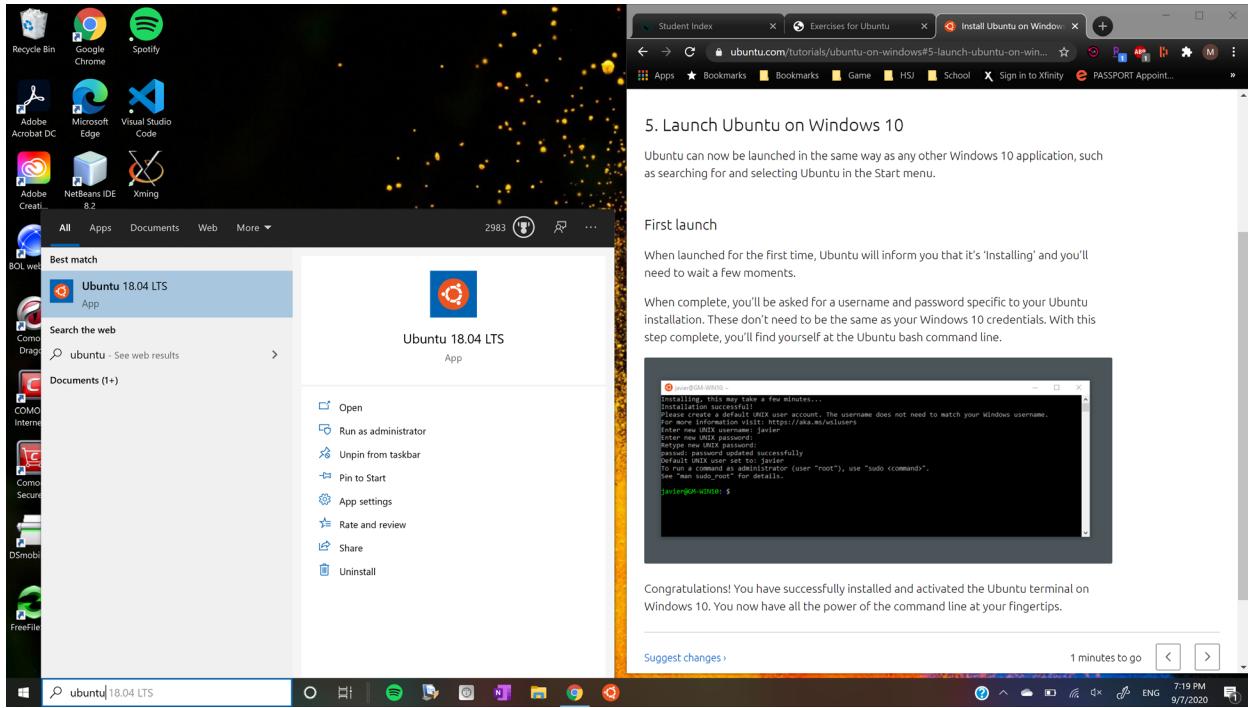
### Enable WSL



Copy paste code found in <https://ubuntu.com/tutorials/ubuntu-on-windows#3-enable-wsl> then restart



Ubuntu installed



## Q2 ==> Install JDK on Ubuntu

Update Ubuntu

Error: apt-get update && apt-get upgrade

```
mva456@DESKTOP-OE7HLB: ~
mva456@DESKTOP-OE7HLB: $ apt-get update && apt-get upgrade
Reading package lists... Done
E: Could not open lock file /var/lib/apt/lists/lock - open (13: Permission denied)
E: Unable to lock directory /var/lib/apt/lists/
W: Problem unlinking the file /var/cache/apt/pkgcache.bin - RemoveCaches (13: Permission denied)
W: Problem unlinking the file /var/cache/apt/srcpkgcache.bin - RemoveCaches (13: Permission denied)
mva456@DESKTOP-OE7HLB:~$
```

Solution: sudo apt-get update && sudo apt-get upgrade

```
mva456@DESKTOP-OE7HLB3:~$ apt-get update && apt-get upgrade
Reading package lists... Done
E: Unable to lock directory /var/lib/apt/lists/lock - open (13: Permission denied)
N: Problem unlinking the file /var/cache/apt/pkgcache.bin - RemoveCaches (13: Permission denied)
N: Problem unlinking the file /var/cache/apt/srcpkgcache.bin - RemoveCaches (13: Permission denied)
mva456@DESKTOP-OE7HLB3:~$ sudo apt-get update && sudo apt-get upgrade
mva456@DESKTOP-OE7HLB3:~$ Type here to search 〇 ⓘ 🔍 ENG 9/7/2020 7:24 PM
mva456@DESKTOP-OE7HLB3:~$ Type here to search 〇 ⓘ 🔍 ENG 9/7/2020 7:24 PM
Setting up git (1:2.17.1-17.1~ubuntu0.7) ...
Setting up libglx-mesa0:amd64 (20.0.8-0ubuntu1-18.04.1) ...
Setting up libpython3.6-stdeb:amd64 (3.6.9-1-18.04ubuntu1.1) ...
Setting up libupnp-systemedit:amd64 (2.2.0-1-18.04ubuntu1.42) ...
Setting up libupnp-tools:amd64 (1.1.0-1-18.04ubuntu1.1) ...
Setting up libxrandr-gpu1:amd64 (2.4.181-2-18.04.1) ...
Setting up curl (7.58.0-2ubuntu0.10) ...
Setting up pulseaudio-utils (1:11.1-1ubuntu7.10) ...
Setting up libwebkit2gtk-4.0-37:amd64 (2.28.4-0ubuntu0.18.04.1) ...
Setting up openjdk-8-jdk-headless:amd64 (8.0.252-0ubuntu0.18.04.1) ...
invoke-rc.d: could not determine current runlevel
Setting up libgbm:amd64 (20.0.8-0ubuntu1-18.04.1) ...
Setting up libbus-x11 (1.12.2-1ubuntu1.2) ...
Setting up python3.6-minimal (3.6.9-18.04ubuntu1.1) ...
Setting up python3.6-apt (3.6.9-18.04ubuntu1.17) ...
Setting up libelf-crash:amd64 (1.19.11.3-3dfsg-1ubuntu1.13) ...
Setting up libgl1-mesa-glx:amd64 (20.0.8-0ubuntu1-18.04.1) ...
Setting up libapt-pkg:all (2.20.9-0ubuntu7.17) ...
Installing new version of config file /etc/init.d/aptport ...
invoke-rc.d: could not determine current runlevel
Setting up libeglfs0:amd64 (20.0.8-0ubuntu1-18.04.1) ...
Setting up libeglfs0-headless:amd64 (20.0.8-0ubuntu1.1) ...
Setting up python3.6 (3.6.9-1-18.04ubuntu1.1) ...
Setting up libirs169:amd64 (1.19.11.3-3dfsg-1ubuntu1.13) ...
Setting up libbind9-160:amd64 (1.19.11.3-3dfsg-1ubuntu1.13) ...
Setting up bind9-host (1.19.11.3-3dfsg-1ubuntu1.13) ...
Setting up libdutils:amd64 (1.19.11.3-3dfsg-1ubuntu1.13) ...
Setting up libubntu-standard (1.11.15) ...
Setting up python3-updates-manager (1:18.04.11.13) ...
Setting up liblvm2c2nd:02:amd64 (2.02.176-4.1ubuntu3.18.04.3) ...
Setting up python3-distupgrade (1:18.04.38) ...
Setting up dmeventd (2:1.02.145-4.1ubuntu3.18.04.3) ...
Setting up lvm2 (2.02.176-4.1ubuntu3.18.04.3) ...
Setting up libubntu-standard (1.11.15) ...
update-intramfs: deferring update (trigger activated)
invoke-rc.d: could not determine current runlevel
invoke-rc.d: could not determine current runlevel
Setting up ubuntu-release-upgrader-core (1:18.04.38) ...
Setting up updates-manager-core (1:18.04.11.13) ...
Processing triggers for libubntu-standard (1.11.15) ...
Processing triggers for ureadahead (0.100.0-21) ...
Processing triggers for libgde-pixbuf2.0-0:amd64 (2.36.11-2) ...
Processing triggers for intramfs-tools (0.130ubuntu3.9) ...
Processing triggers for libbc-bin (2.27-Subuntu1.2) ...
Processing triggers for sysvinit-utils (2.87-Subuntu1.42) ...
Processing triggers for cron (3.8.3-2ubuntu0.1) ...
Processing triggers for hicolor-icon-theme (0.17-2) ...
Processing triggers for rsyslog (8.32.0-Subuntu4) ...
invoke-rc.d: could not determine current runlevel
Processing triggers for ca-certificates (20190110-18.04.1) ...
Processing triggers for dh-ssl (2.4.1-1) ...
Running hooks in /etc/ca-certificates/update.d...
d added, 0 removed; done
mva456@DESKTOP-OE7HLB3:~$ Type here to search 〇 ⓘ 🔍 ENG 9/7/2020 7:23 PM
```

## Install default JDK

Error: apt-get install default-jdk

```
mva456@DESKTOP-OE7HLB: ~  
[mva456@DESKTOP-OE7HLB: ~]$ apt-get install default-jdk  
E: Could not open lock file /var/lib/dpkg/lock - open (13: Permission denied)  
E: Unable to acquire the dpkg frontend lock (/var/lib/dpkg/lock-frontend), are you root?  
mva456@DESKTOP-OE7HLB: ~$
```

Solution: sudo apt-get install default-jdk

```
mva456@DESKTOP-OE7HLB: ~  
[mva456@DESKTOP-OE7HLB: ~]$ apt-get install default-jdk  
E: Could not open lock file /var/lib/dpkg/lock - open (13: Permission denied)  
E: Unable to acquire the dpkg frontend lock (/var/lib/dpkg/lock-frontend), are you root?  
mva456@DESKTOP-OE7HLB: ~$ sudo apt-get install default-jdk
```

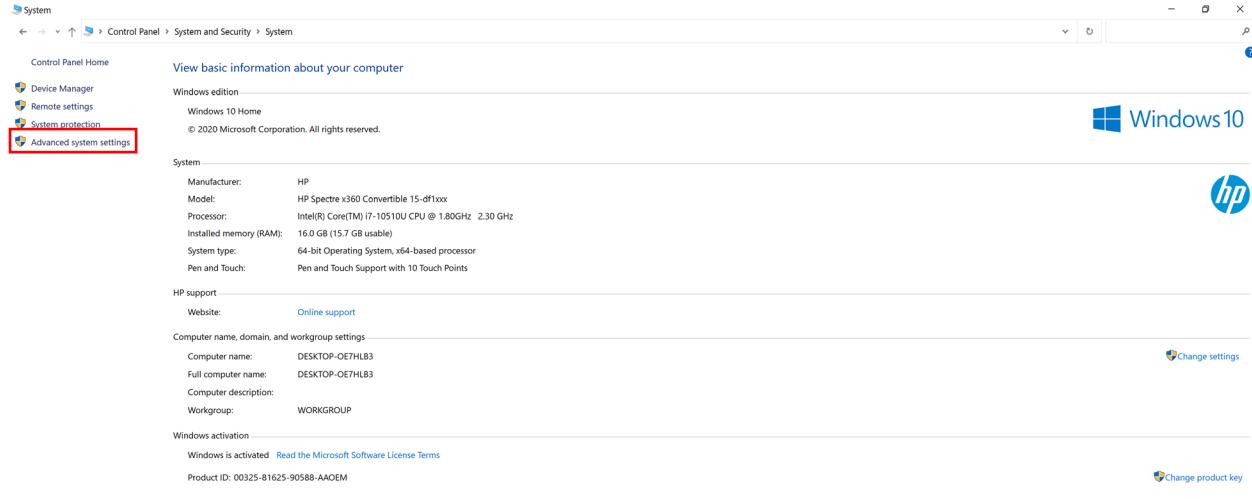
```

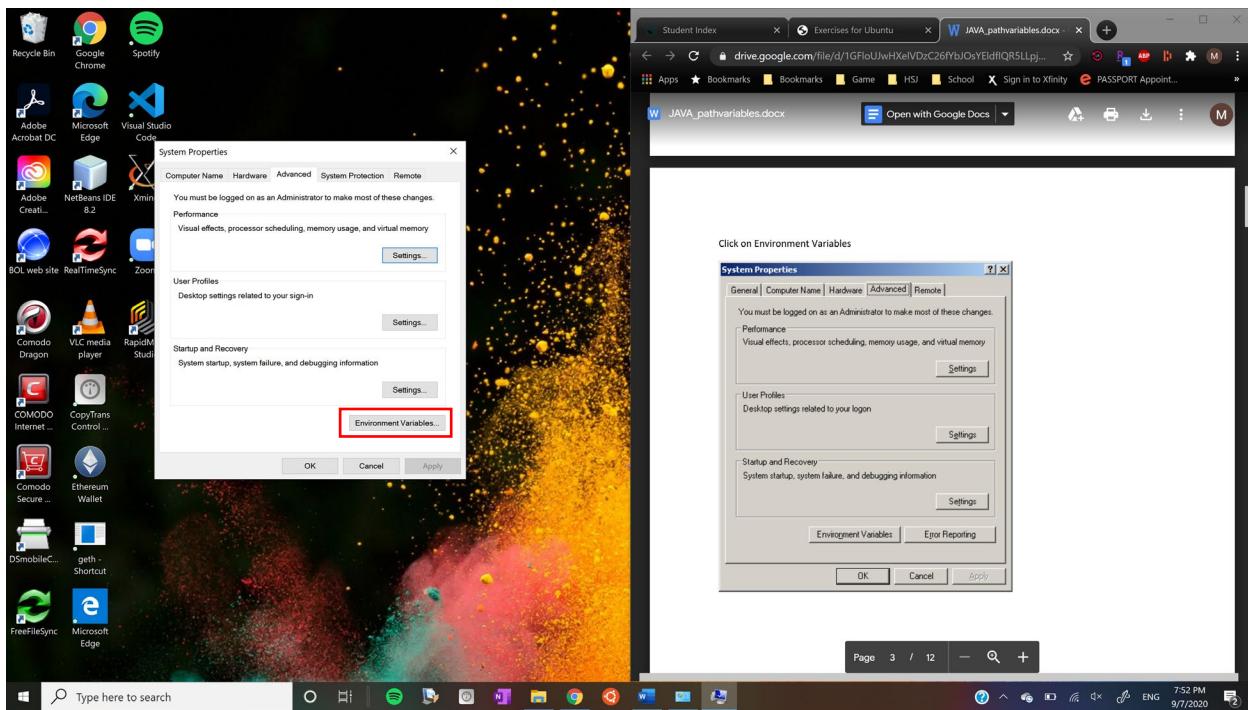
mva456@DESKTOP-OE7HLB3: ~
Adding debian:SZAFIM_Root_CA2.pem
Adding debian:Starfield_Root_Cert_1.pem
Adding debian:SecureTrust_CA.pem
Adding debian:Secure_Global_CA.pem
Adding debian:Security_Communication_RootCA2.pem
Adding debian:Security_Communication_Root_CA.pem
Adding debian:Starfield_Class_2_Root_CA.pem
Adding debian:Staat_der_Nederlanden_Root_CA.pem
Adding debian:Staat_der_Nederlanden_Root_CA_G2.pem
Adding debian:Staat_der_Nederlanden_Root_CA_G3.pem
Adding debian:Starfield_Class_2_CA.pem
Adding debian:Starfield_Root_Certificate_Authority_G2.pem
Adding debian:Starfield_Services_Root_Certificate_Authority_G2.pem
Adding debian:SwissSign_Root_CA_02.pem
Adding debian:SwissSign_Silver_CA_02.pem
Adding debian:T_TeleSec_GlobalRoot_Class_3.pem
Adding debian:T_TeleSec_GlobalRoot_Class_3_1.pem
Adding debian:TUBITAK_Kamu_SM_SSL_Kok_Sertifikasi_Surum_1.pem
Adding debian:TMCRoot_CA_Root_CA.pem
Adding debian:TMCRoot_Certification_Authority.pem
Adding debian:Taiwan_GRC4.pem
Adding debian:TeliaSonera_Root_CA_v1.pem
Adding debian:TrustCor_ECA1.pem
Adding debian:TrustCor_RootCert_CA1.pem
Adding debian:TrustCor_RootCert_CA2.pem
Adding debian:TrustCor_FPS_Root_CA.pem
Adding debian:USERtrust_ECC_Certification_Authority.pem
Adding debian:USERtrust_RSA_Certification_Authority.pem
Adding debian:VeriSign_Class_3_Public_Primary_Certification_Authority_G4.pem
Adding debian:VeriSign_Class_3_Public_Primary_Certification_Authority_G5.pem
Adding debian:VeriSign_Class_3_Public_Primary_Certification_Authority_G6.pem
Adding debian:VeriSign_Class_3_Public_Primary_Certification_Authority_G7.pem
Adding debian:Xamp_Global_CA_Root.pem
Adding debian:cert5TIGR_ROOT_CA.pem
Adding debian:pK1_Root_Certification_Authority.pem
Adding debian:thawte_Primary_Root_CA.pem
Adding debian:thawte_Primary_Root_CA_G2.pem
Adding debian:thawte_Primary_Root_CA_G3.pem
done.
Setting up default-jre (2:1.11-68ubuntu1-18.04.1) ...
Setting up openjdk-11-jdk-amd64 (11.0.8+10-0ubuntu1-18.04.1) ...
update-alternatives: using /usr/lib/jvm/java-11-openjdk-amd64/bin/jconsole to provide /usr/bin/jconsole (jconsole) in auto mode
Setting up libfontconfig1:amd64 (2.12.6-0ubuntu0.2) ...
Processing triggers for mime-support (3.60ubuntu2) ...
Processing triggers for libgc-bin (2.27-3ubuntu0.2) ...
Processing triggers for man-db (2.8.3-2ubuntu0.1) ...
Processing triggers for ca-certificates (20190110-18.04.1) ...
Updating certificates in /etc/ssl/certs...
  Writing new certificate chain to /etc/ssl/certs/ca-certificates.crt
done.
done.
Processing triggers for hicolor-icon-theme (0.17-2) ...
mva456@DESKTOP-OE7HLB3: ~

```

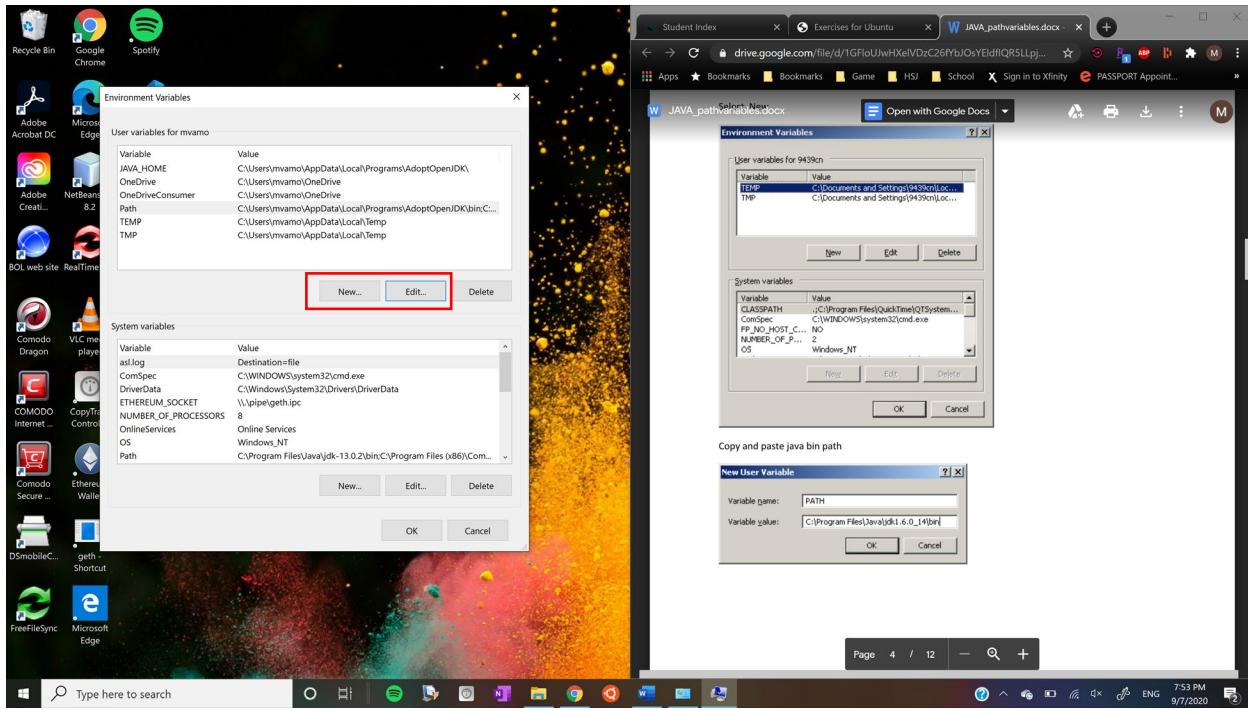
### Q3 ==> Set up Java path

Go to Control Panel > System Security > System > Advanced system settings

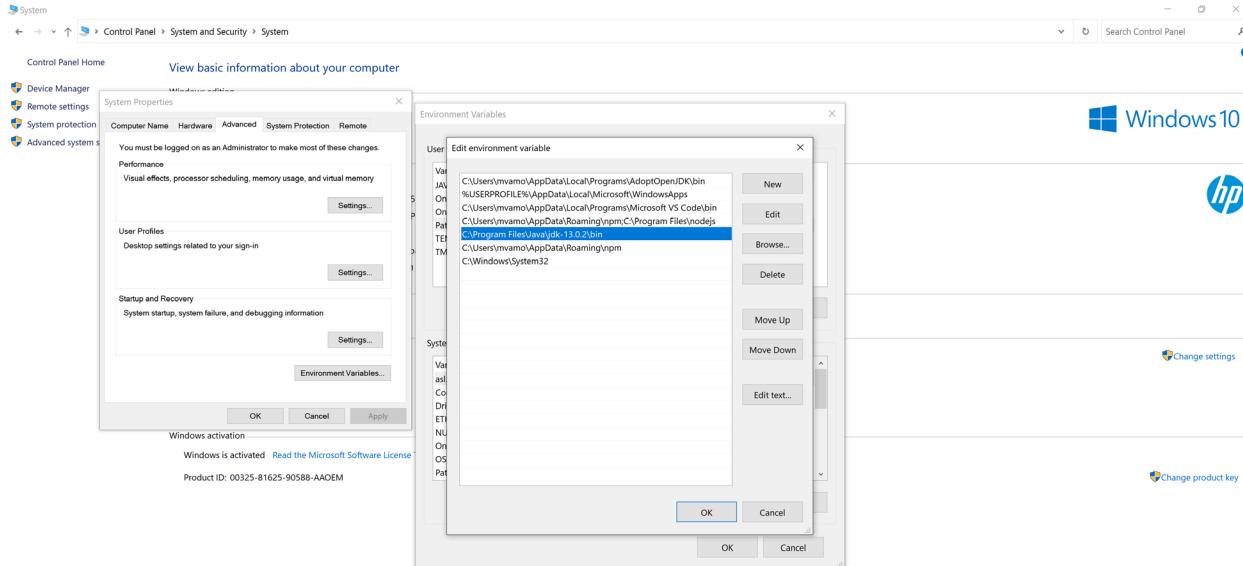




Click on New under user variables (or Edit PATH if already created)



Click on New C:\Program Files\Java\jdk-13.0.2\bin (if not already created)



## Q4 ==> Linux Configuration

Update .profile using the given code

The terminal window shows the command `sudo nano ~/.profile` being run. The file contains the following content:

```

$ cd
$ vi .bash_profile
$ .bash_profile
$ vi .bashrc
$ . .bashrc

```

Below this, the terminal shows the contents of the `~/.bash\_profile` file:

```

Linux Configuration

~/bash_profile

# base-files version 3.9-3
# To pick up the latest recommended .bash_profile content,
# look in /etc/default/etcskel/.bash_profile
# Modifying /etc/skel/.bash_profile directly will prevent
# setup from updating it.

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

# ~/.bash_profile: executed by bash for login shells.

# source the system wide bashrc if it exists
if [ -e /etc/bash.bashrc ] ; then
    source /etc/bash.bashrc
fi

# source the users bashrc if it exists
if [ -e "${HOME}/.bashrc" ] ; then
    source "${HOME}/.bashrc"
fi

# Set PATH so it includes user's private bin if it exists
# if [ -d "$HOME/bin" ] ; then
#     PATH=$HOME/bin:$PATH
# fi

# Set MANPATH so it includes users' private man if it exists
# if [ -d "$HOME/man" ] ; then
#     MANPATH=$HOME/man:$MANPATH
# fi

```

```

mva456@DESKTOP-OE7HLB3: ~
GNU nano 2.9.3
/home/mva456/.profile

#!/bin/bash
# This file is not read by bash(1), if <~/.bash_profile> or <~/.bash_login>
# exists.
# see /usr/share/doc/bash/examples/startup-files for examples.
# the files are located in the bash-doc package.

# The default umask is set in /etc/profile; for setting the umask
# for ssh logins, install and configure the libpam-umask package.
#umask 022

# If running bash
if [ -n "$BASH_VERSION" ]; then
    # Include bashrc if it exists
    if [ -f "$HOME/.bashrc" ]; then
        . "$HOME/.bashrc"
    fi

    # Set PATH so it includes user's private bin if it exists
    if [ -d "$HOME/bin" ]; then
        PATH=$HOME/bin:$PATH
    fi

    # Set MANPATH so it includes users' private man if it exists
    if [ -d "$HOME/man" ]; then
        MANPATH=$HOME/man:$MANPATH
    fi

    # Set INFOPATH so it includes users' private info if it exists
    if [ -d "$HOME/info" ]; then
        INFOPATH=$HOME/info:$INFOPATH
    fi
fi
export HISTSIZE=450
export HISTFILESIZE=450

export PATH+:$PATH:/bin
export PATH+:$PATH:/home/hchang/src/train/java/course/bruce/script/sh/src
# Java
export PATH+SPATH:"/cygdrive/c/Program Files/Java/jdk1.6.0_26/bin"
export CLASSPATH+:./cygdrive/c/cygwin64/lib/R/share/java/:$CLASSPATH

# Linux configuration from Henry Chang's class
export PATH+:$PATH:/bin
export PATH+SPATH:/home/mva456/src/train/java/course/bruce/script/sh/src
# Java
export PATH+SPATH:"/cygdrive/c/Program Files/Java/jdk1.6.0_26/bin"
export CLASSPATH+:./cygdrive/c/cygwin64/lib/R/share/java/:$CLASSPATH

```

## Run .profile

```
mva456@DESKTOP-OE7HLB3: ~
mva456@DESKTOP-OE7HLB3: ~ ./.profile
mva456@DESKTOP-OE7HLB3: ~
```

## Update .bashrc using the given code

Student In Exercises Linux Config bash - Win How to ed

npu85.npu.edu/~henry/npu/classes/linux/intro/slide/config.html

file file

~/.bashrc

```

alias bin_dir='cd ~bin'
alias qa_dir='cd ~/src/train/java/java/course/qa'
alias machine_learning_dir='cd ~/src/train/java/java/course/machine_learning/'

t,
t

purs, please

lists

```

Type here to search

mva456@DESKTOP-OE7HLB3: ~

[sudo] password for mva456:

```

mva456@DESKTOP-OE7HLB3: ~$ sudo nano ~/.profile
mva456@DESKTOP-OE7HLB3: ~$ sudo nano ~/.bashrc
mva456@DESKTOP-OE7HLB3: ~$
```

GNU nano 2.9.3 /home/mva456/.bashrc

```

if [ -x /usr/bin/dircolors ]; then
    test -z "$dircolors" && eval "$(dircolors -b ~/.dircolors)" || eval "$(dircolors -b)"
    alias ls='ls --color=auto'
    alias dir='dir --color=auto'
    alias vdir='vdir --color=auto'

    alias grep='grep --color=auto'
    alias fgrep='fgrep --color=auto'
    alias egrep='egrep --color=auto'
fi

# colored GCC warnings and errors
export GCC_COLORS='error=01;31:warning=01;35:note=01;36:caret=01;32:locus=01:quote=01'

# some more ls aliases
alias ll='ls -alF'
alias la='ls -A'
alias l='ls -CF'

# Add an "alert" alias for long running commands. Use like so:
# sleep 10 | alert
alias alert='notify-send --urgency=low -i "$(history|tail -n1|sed -e "s/^ *//")"' #!/bin/bash

# Alias definitions.
# You may want to put all your additions into a separate file like like
# ~/.bash_aliases, instead of adding them here directly.
# See /usr/share/doc/bash-doc/examples in the bash-doc package.

if [ -f ~/.bash_aliases ]; then
    . ~/.bash_aliases
fi

# enable programmable completion features (you don't need to enable
# this, if it's already enabled in /etc/bash.bashrc and /etc/profile
# sources /etc/bash.bashrc).
if ! shopt -oq posix; then
    if [ -f /usr/share/bash-completion/bash_completion ]; then
        . /usr/share/bash-completion/bash_completion
    elif [ -f /etc/bash_completion ]; then
        . /etc/bash_completion
    fi
fi

# linux configuration from Henry Chang's class
alias bin_dir='cd ~bin'
alias qa_dir='cd ~/src/train/java/java/course/qa'
alias machine_learning_dir='cd ~/src/train/java/java/course/machine_learning/'
```

Wrote 123 lines

Get Help Write Out Where Is Cut Text Justify Cur Pos Undo

Exit Read File Replace Uncut Text To Spell Go To Line Redo

1248 PM 9/9/2020

Run .bashrc

```
mva456@DESKTOP-OE7HLB3: ~\n[1]+ 0: ./bashrc
```

