Installing Keras in R

Handbook Guide

September 2022

Contents

Python Installation 2

- Installing Python using *Anaconda*
- Verify Python Installation

`keras` Installation 8

- Installing `keras` in R
- Verify `keras` Installation
- Common error in `keras` installation

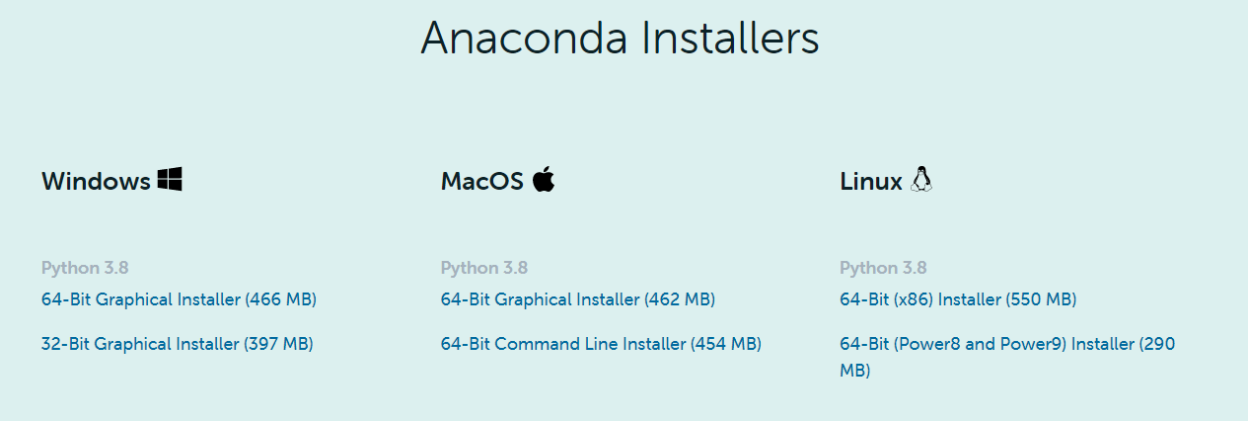
Python Installation

Installing Python using *Anaconda*

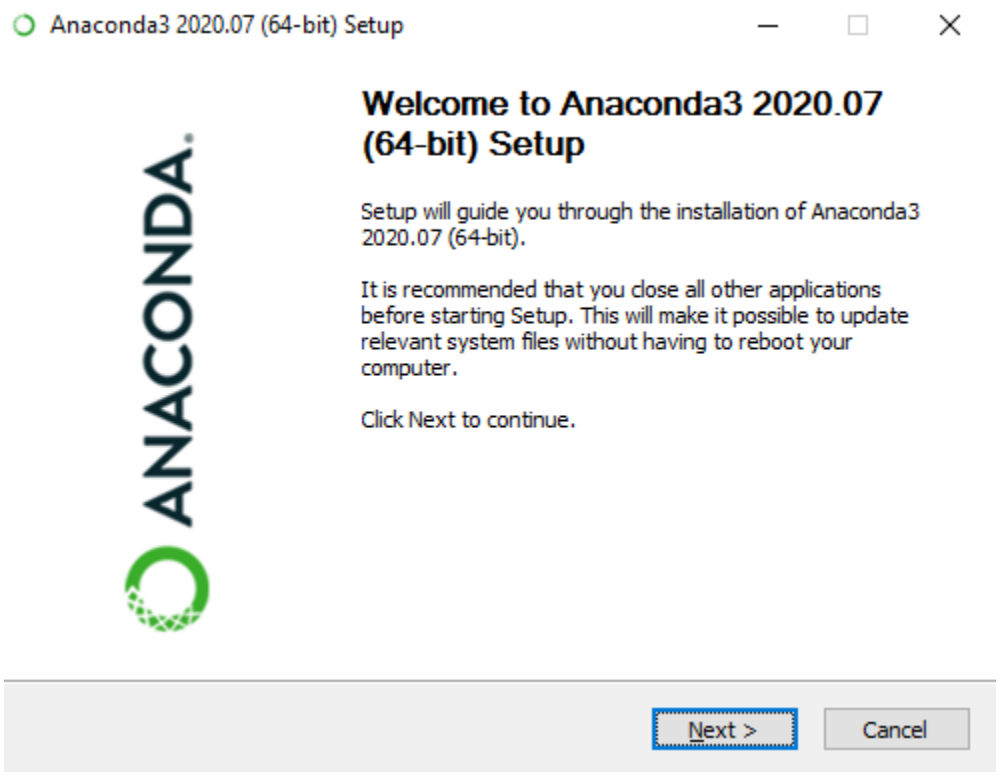
For our Python installation, we will be using and installing a package manager named ***Anaconda***. With *Anaconda*, users will not only have Python installed but also will have the necessary packages (i.e. numpy, pandas) utilized in our workshops. Also, *Anaconda* would have included the installation of ***Jupyter*** - an open-source web application that allows you to create and share Python code. Once opening the link below, **please choose Python version 3.8 for installation**.

Use this link: https://www.anaconda.com/download

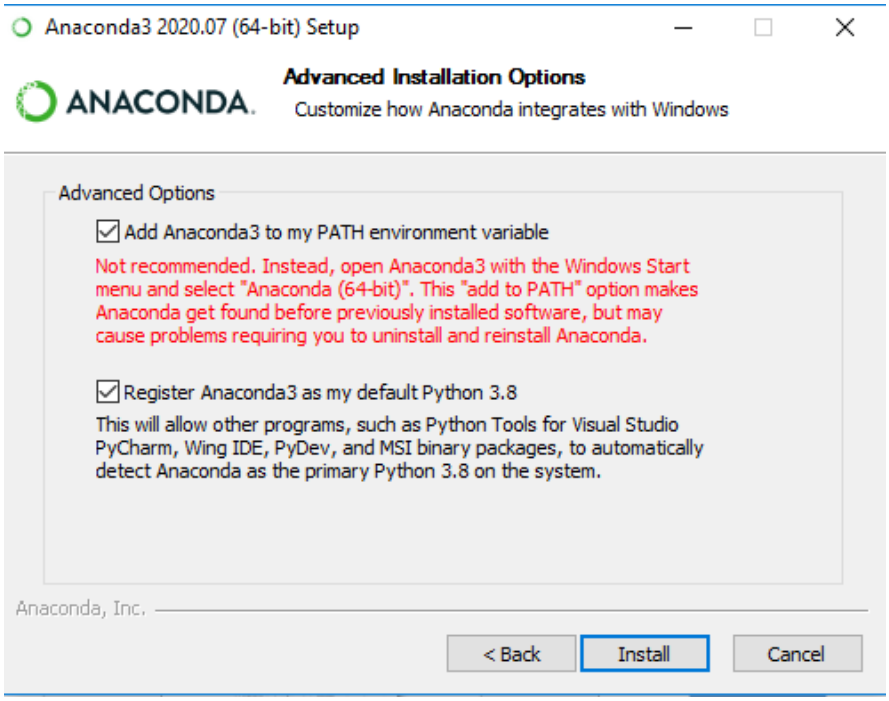
- Choose your appropriate Operating System, make sure you choose the version that is compatible with your pc's bit-rate



- Install **Anaconda**



- For **windows** users make sure you **check Add Anaconda to my PATH to the environment** and then wait until the installation finished.



More info on *Anaconda*:
https://docs.continuum.io/anaconda/#anaconda-navigator-or-conda

Warning: For Windows operating systems, if you can't find the conda command from your Command Prompt please add the **C:\User\Anaconda3** and the **C:\User\Anaconda3\Scripts** to the environment variable as shown here:
https://superuser.com/questions/949560/how-do-i-set-system-environment-variables-in-windows-10

- **For Mac OS X and Linux-based OS:** Open "*Terminal*"
- **For Windows:** Open "*Command Prompt*"

Verify Python Installation:

1. Type the command `python`
2. If the installation was completed successfully, there should be a response which includes information on which Python version was installed as shown below. In this case, it appears the user installed Python version 2.7.13. But make sure yours is 3.8
3. To exit, enter the command `quit()` or use Ctrl-D

Figure 1: python Response on Mac OS X Terminal

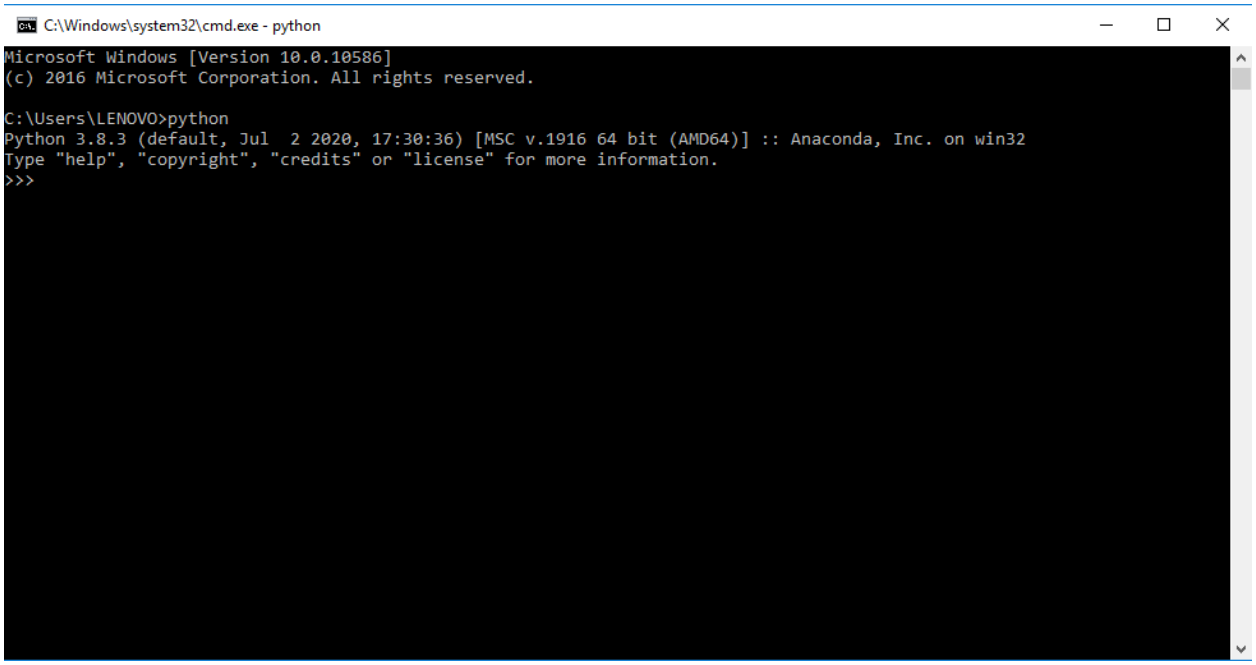


Figure 2: python Response on Windows Command Prompt

Verify Anaconda Installation

1. Type the command `conda list` in your *"Terminal"* or *"Command Prompt"*.
2. not give any response, please check the Warning in the installation section, if the problem still persists please contact our teaching assistants for help.

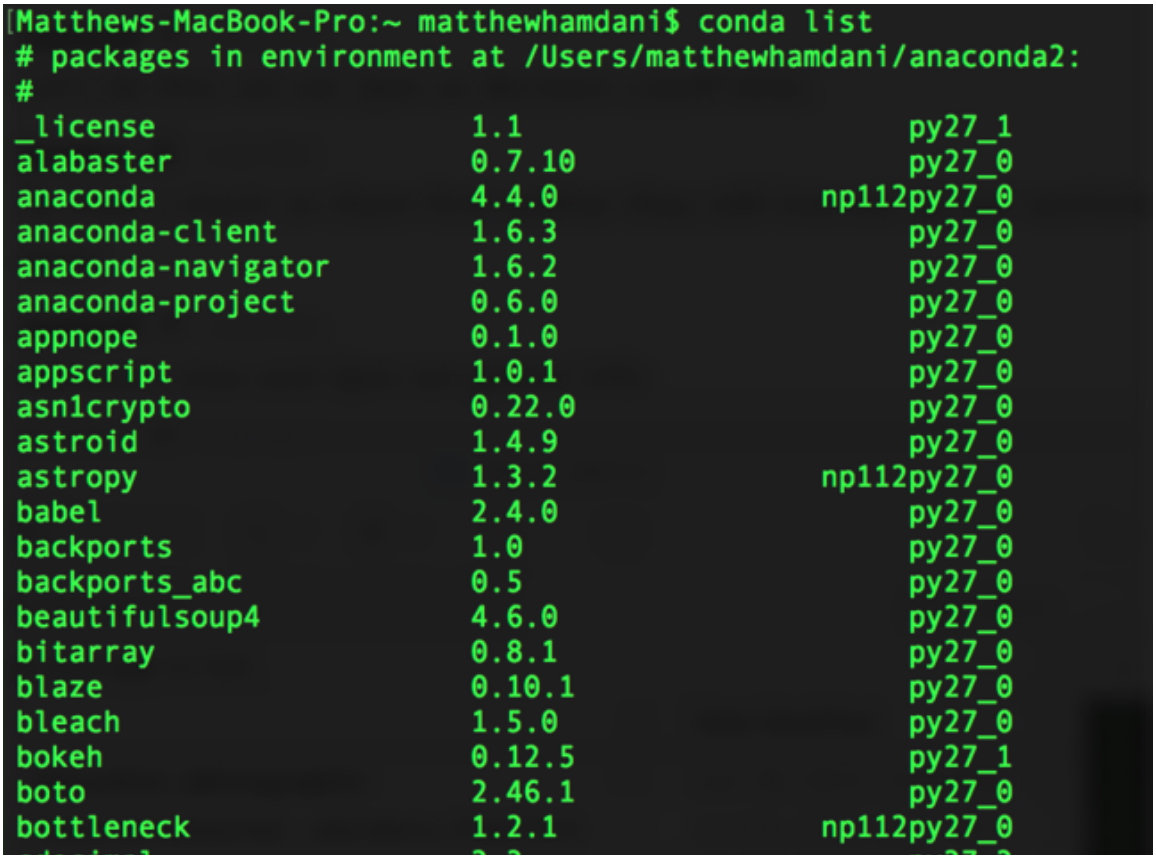


Figure 3: conda list Response on Mac OS X Terminal

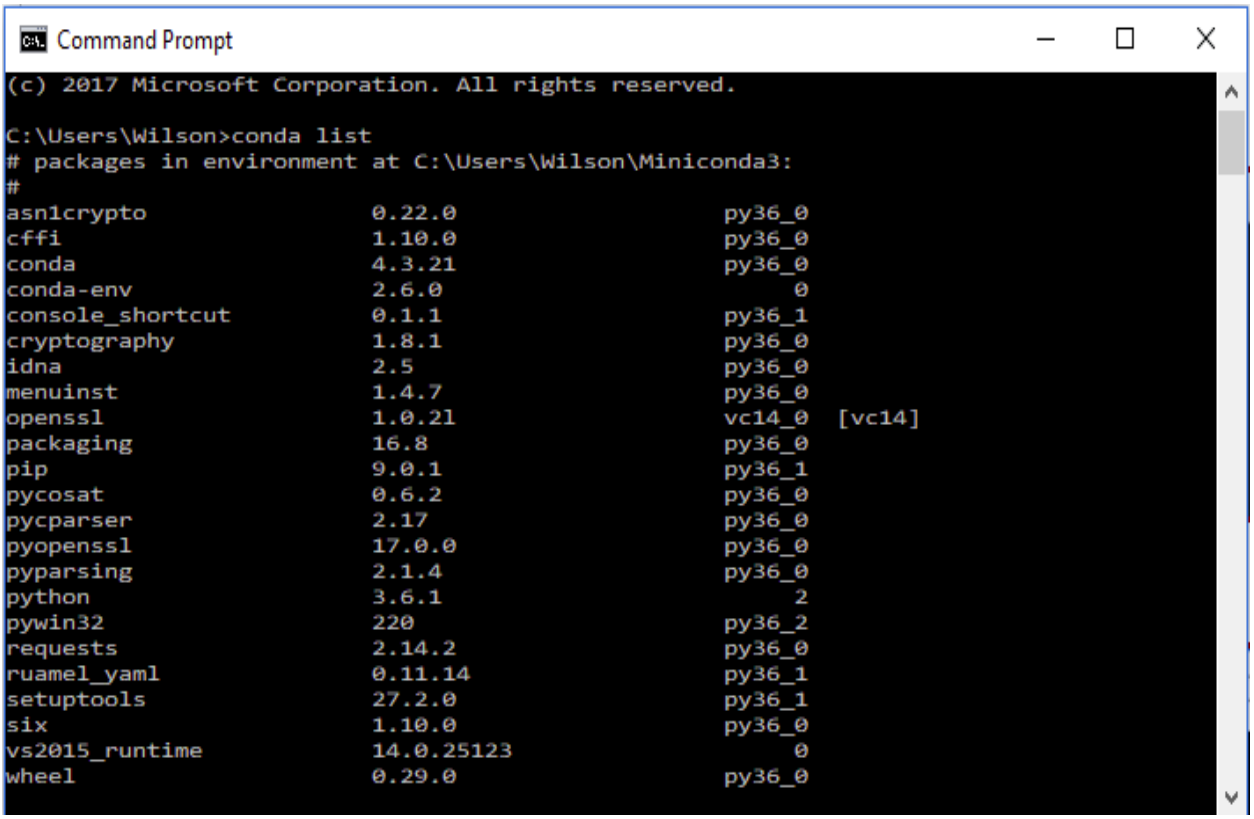


Figure 4: conda list Response on Windows Command Prompt

`keras` Installation

Installing `keras` in R

- Open your R or Rstudio and you can run:

1. Install `keras` package you can use your UI or type `install.packages("keras")`

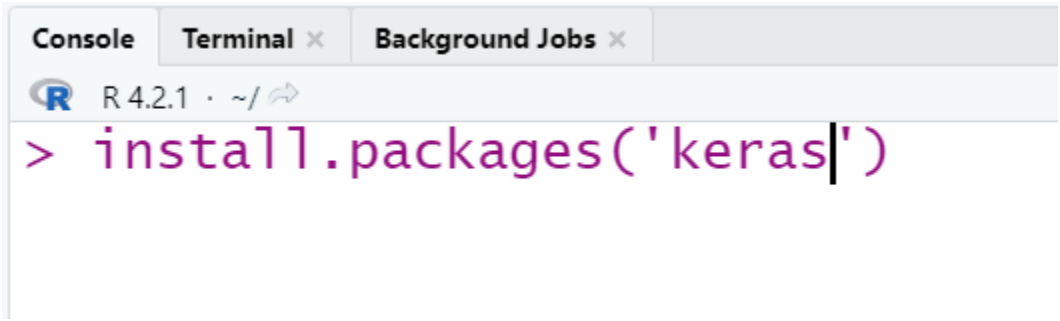


Figure 5 : Installing keras in rstudio console

2. Go to the anaconda prompt if you are windows user or terminal if you are linux/mac user.

3. Type `conda create -n r-tensorflow python=3.7`

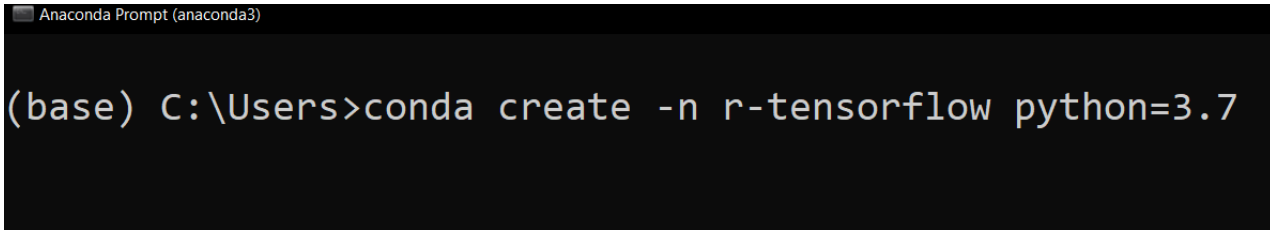


Figure 6 : creating new conda environment

4. Type `y`

5. Type `Conda activate r-tensorflow`

6. Installing tensorflow 2.0. Type `pip install tensorflow==2.0`

```
(base) C:\Users>conda activate r-tensorflow

(r-tensorflow) C:\Users>pip install tensorflow==2.0
```

Figure 7 : Installing Tensorflow library version 2.0

7. Install protobuff 3.20. Type `pip install protobuf==3.20` .

```
(r-tensorflow) C:\Users>pip install protobuf==3.20
```

Figure 8 : Installing protobuff version 3.20

8. Back to your Rstudio and Restart your R.

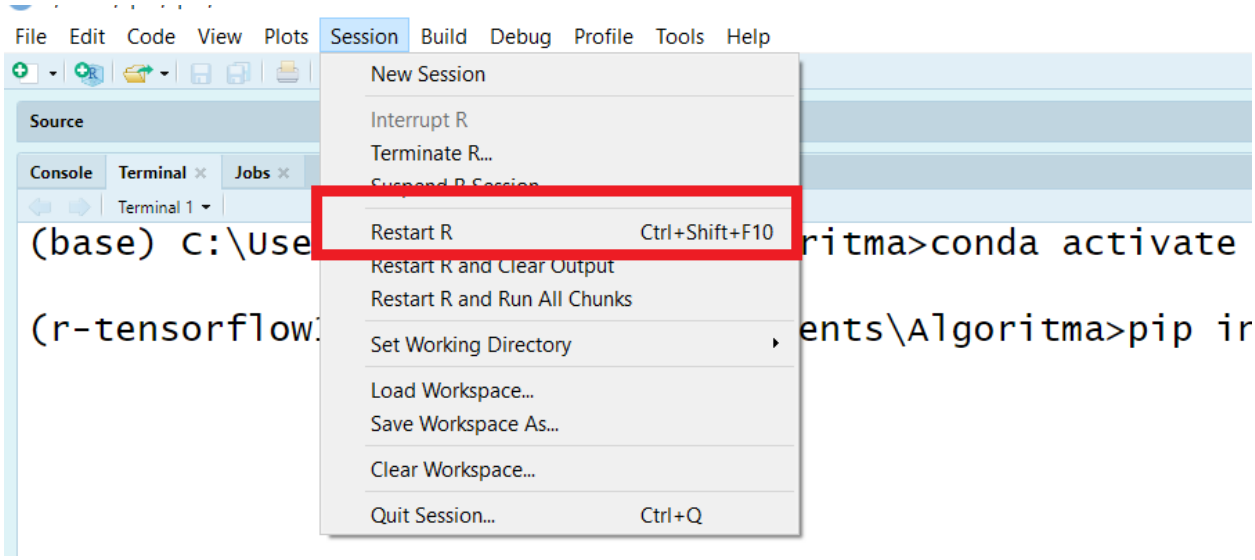


Figure 9: Restarting your R

9. Setting up your conda environment to rstudio
    - Go to tools choose global option > python > conda environment

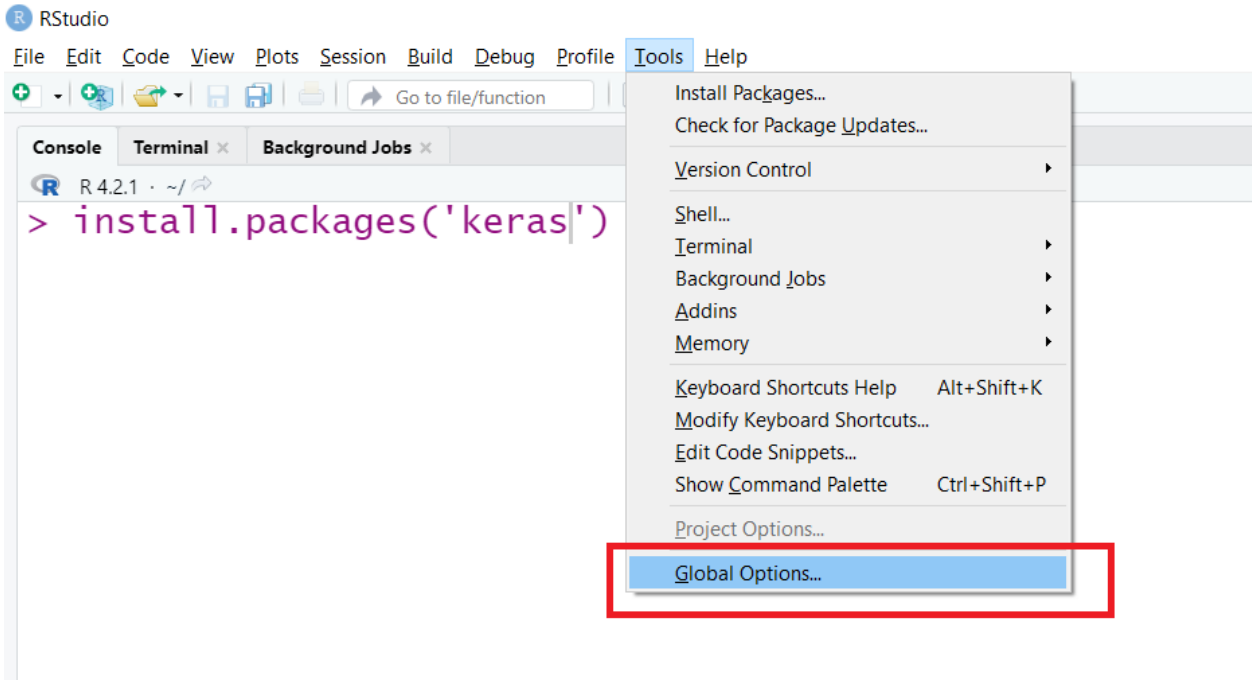


Figure 10: Going to global option

- Choose python then click select

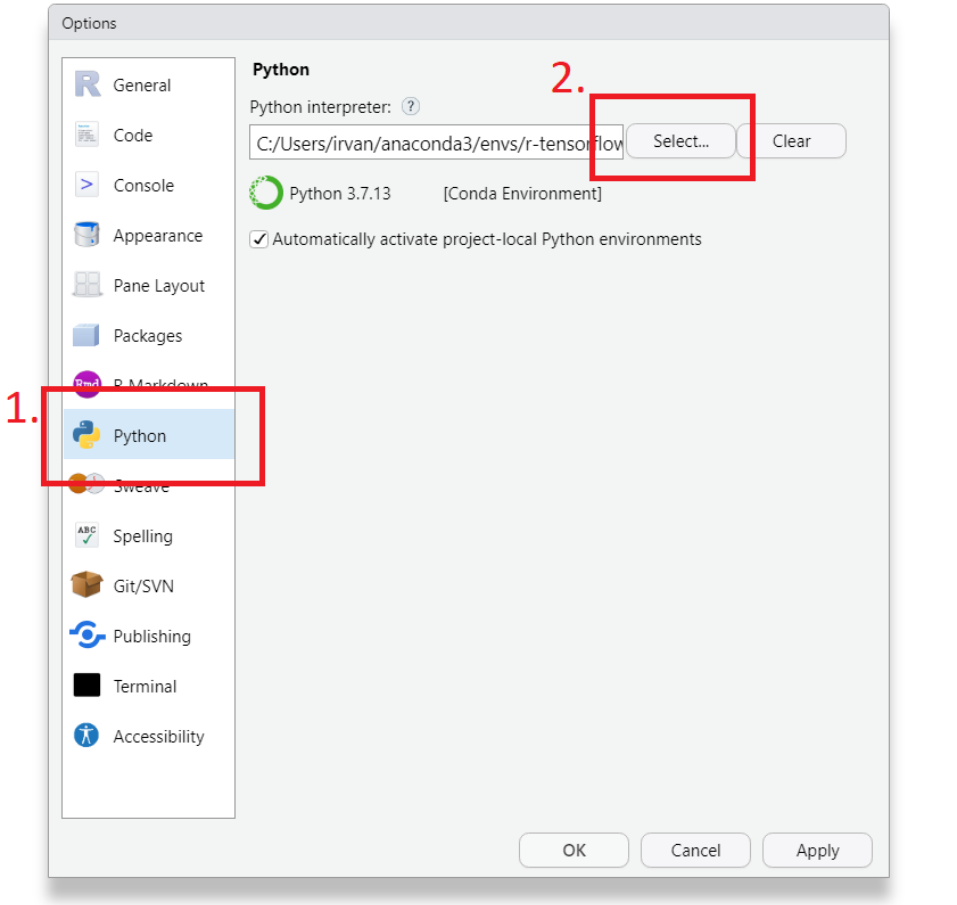


Figure 11: Going to python option

- Choose the conda environment, then choose the ‘r-tensorflow` environment you installed earlier. Then press select.

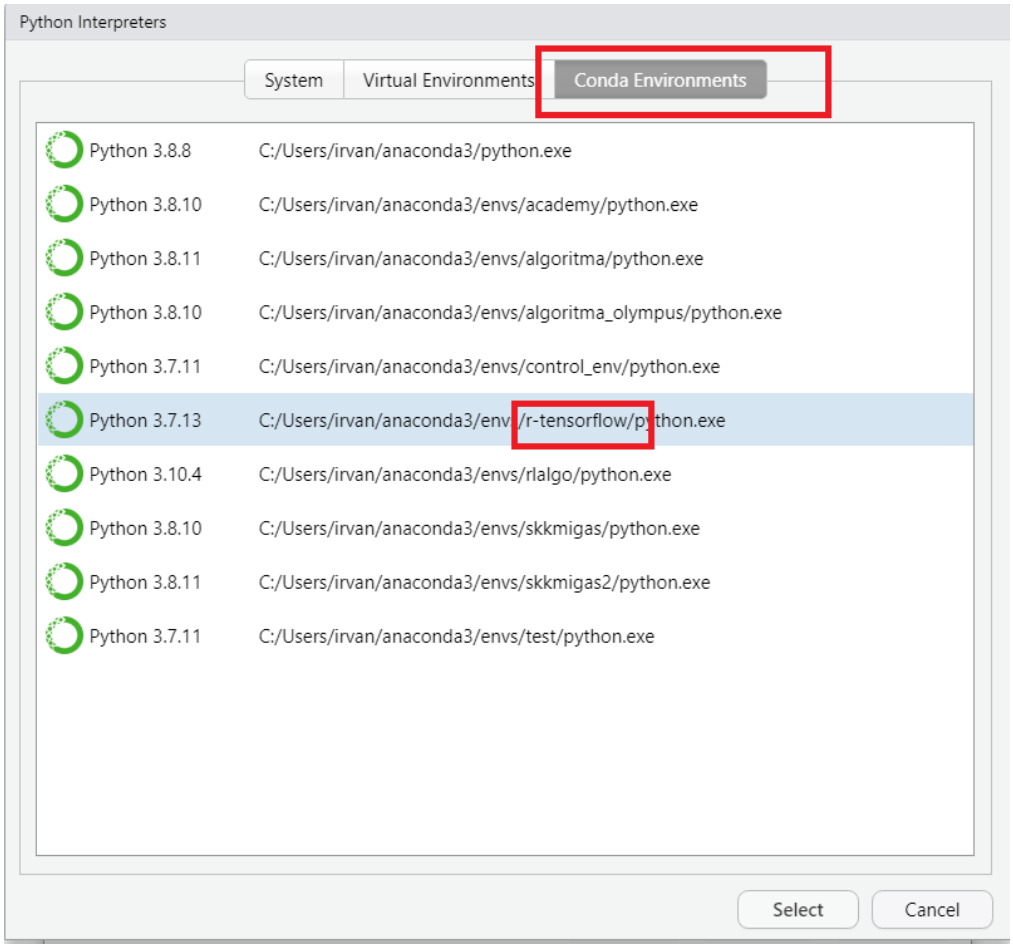


Figure 12: Choosing “r-tensorflow” environment

- Press apply then restart your R again.

Verify `keras` Installation:

1. In your console type `library(keras)`

2. To check if keras is ready, load keras library in R then try:

   `model <- keras_model_sequential()`

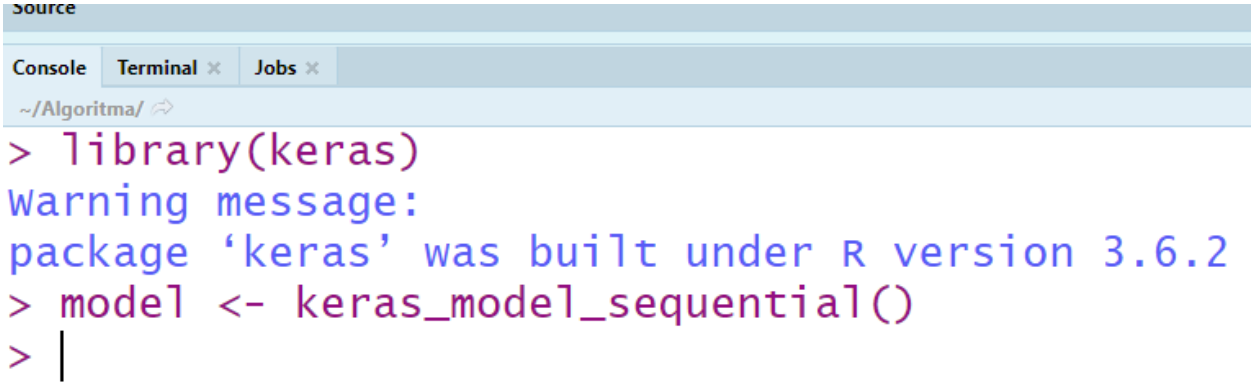


Figure 13 : Verifying your `keras` installation

3. If there is no error, then it is ready to use

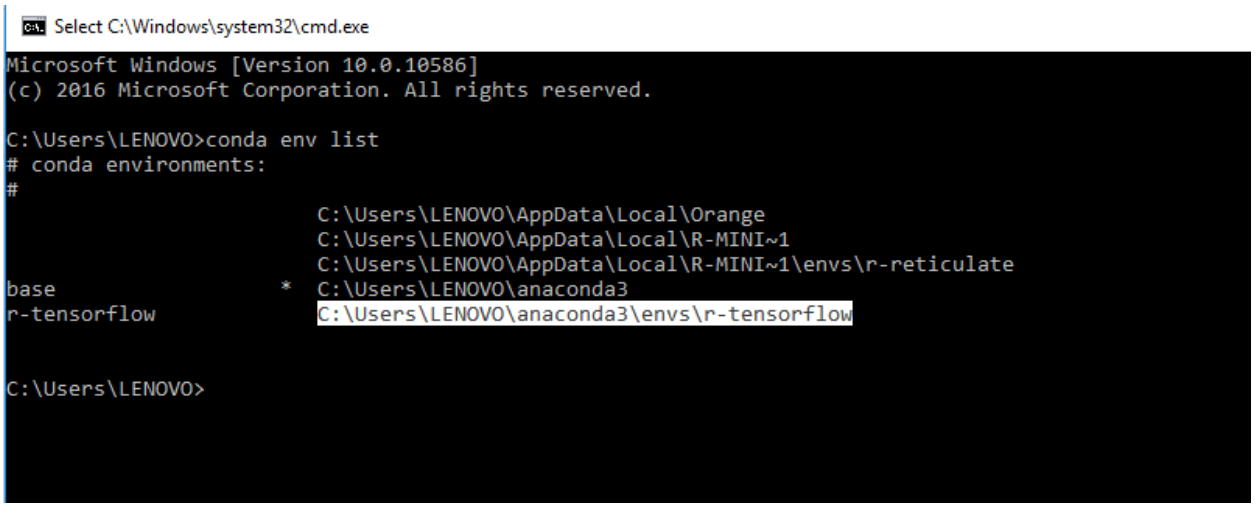
Common Installation Error Solution

Note: Usually, the installation process ends here. But some users might find problems when they run keras_model_sequential( ). It's because R use python version 3.8 as default python to run reticulate (package to use python and its environment in R). If you have problem as the picture below, please continue this additional step.

4. Make sure the tensorflow 2.0 is successfully installed in r-tensorflow environment by using this step
    a. Open command prompt (windows) or terminal (Mac Os)
    b. Run "conda activate r-tensorflow" then "conda list"
    c. The terminal will print default python packages that are installed in the environment. If you found tensorflow version 2.0, then its successfully installed and you can continue to the next step

Windows:

5. Close the command prompt and re-open then run "conda env list"
6. Copy the directory of r-tensorflow like the picture below



7. Open R studio then run this code sequentially. You can run in the console or create new chunk
   reticulate::use_python("directory r-tensorflow2",required=TRUE) *note: change \ to/*
   library(keras)
   Model <- keras_model_sequential

   Example:

8. If there's no error when running keras_model_sequential(), then you good to go

MacOs

1. After you make sure the tensorflow 2.0 is installed in r-tensorflow environment, run this following code sequentially. You can run in the console or create new chunk

   library(tensorflow)
   use_condaenv("r-tensorflow2")
   library(keras)
   Model <- keras_model_sequental()

2. If there's no error when running keras_model_sequential(), then you are good to go