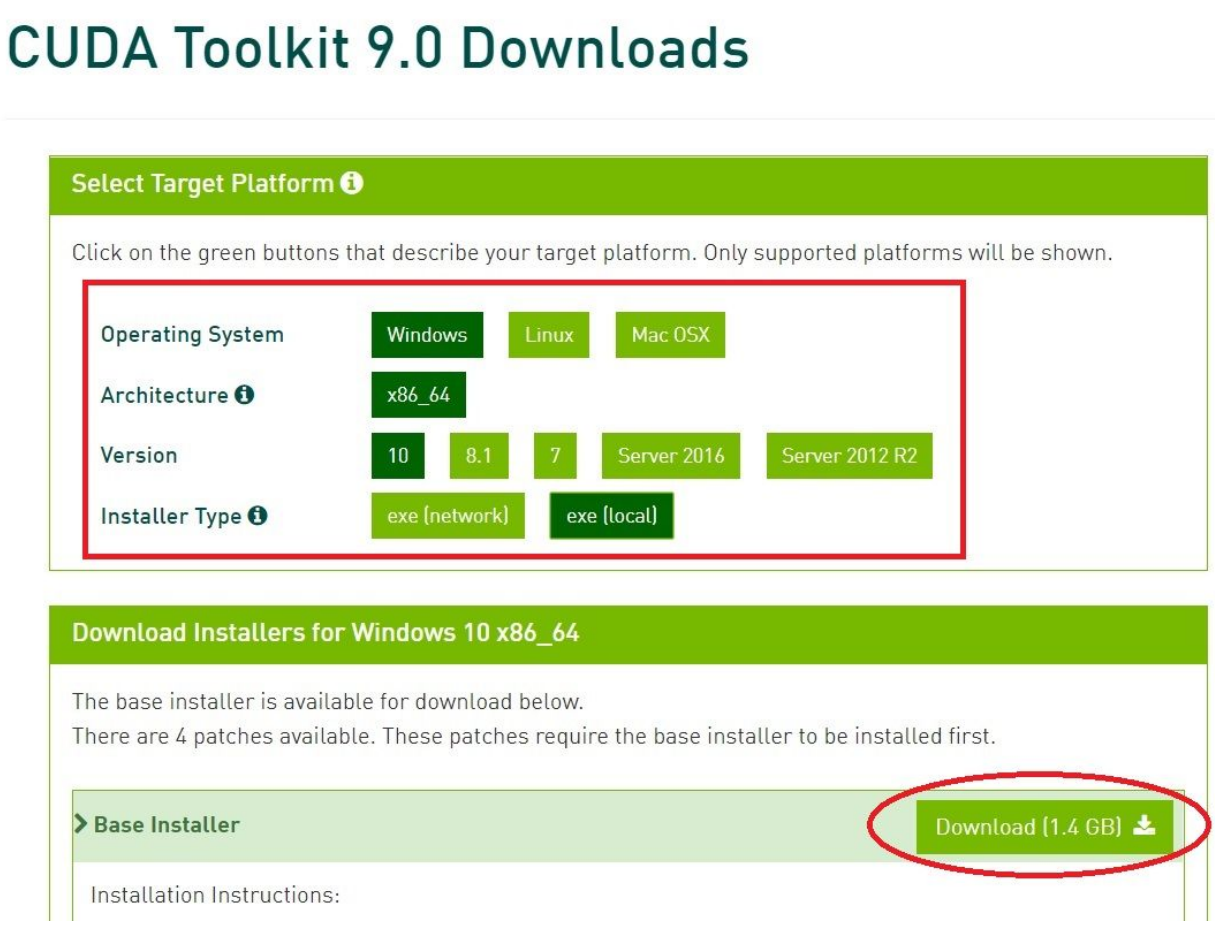
Here are the steps required to run the code

1) Install CUDA toolkit 9.0.
   Download & Install all - (base + patch)
   Use link - https://developer.nvidia.com/cuda-90-download-archive

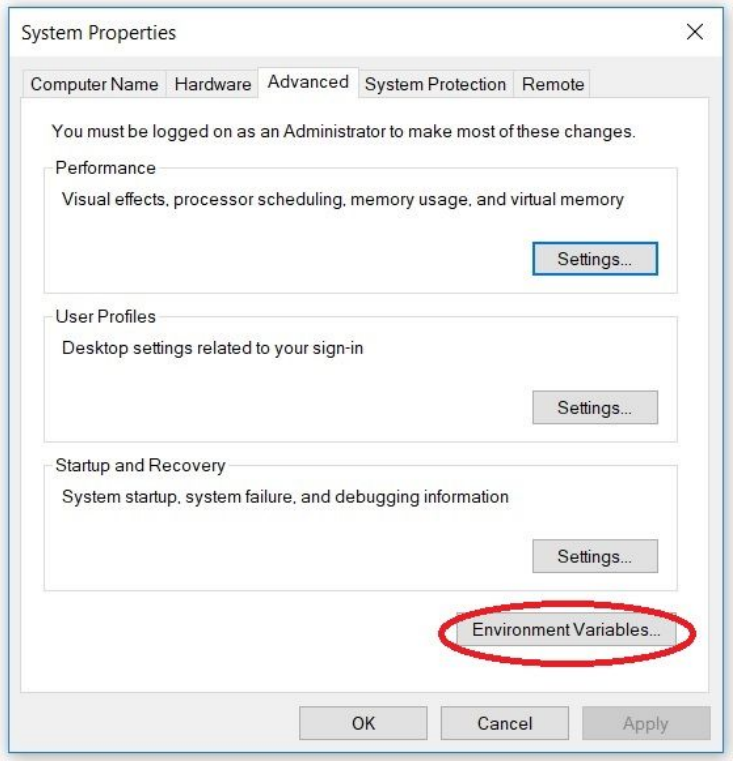


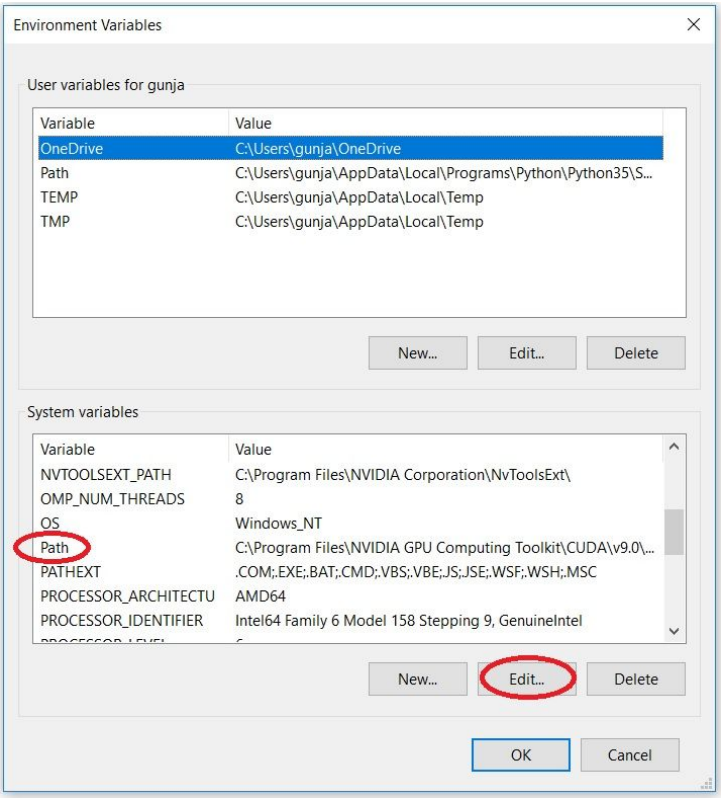
2) Now we need to set up environment variables.

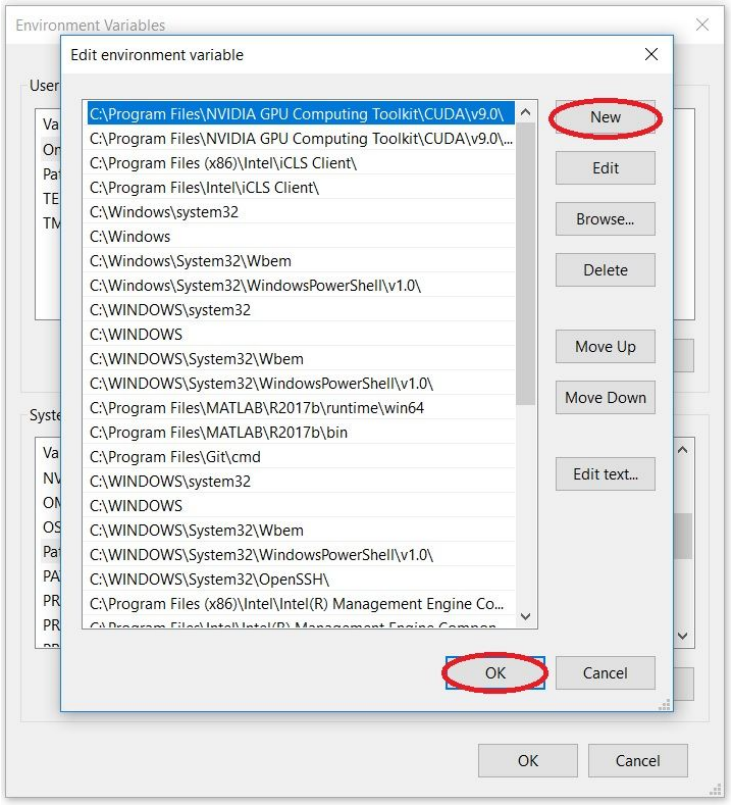
- Go to Start and Search "environment variables"
- Click on Edit the system environment variables
- Select “environment variables” button
- Select Path from the “System Variables” and click edit
- Click on New and add the following paths

I. `C:\Program Files\NVIDIA GPU Computing Toolkit\CUDA\v9.0\bin`
II. `C:\Program Files\NVIDIA GPU Computing Toolkit\CUDA\v9.0\libnvvp`
III. `C:\Program Files\NVIDIA GPU Computing Toolkit\CUDA\v9.0\extras\CUPTI\libx64`

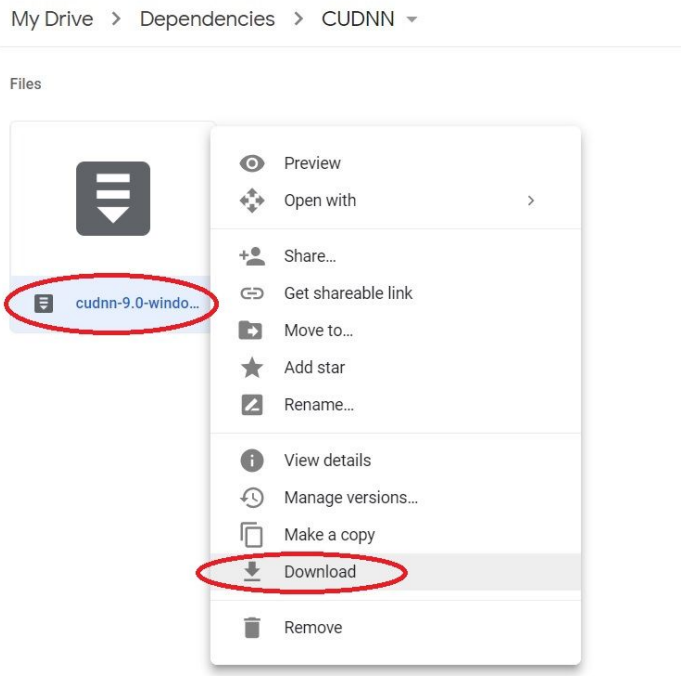
- then select ok >> ok >> ok.


System Properties
Computer Name
Hardware
Advanced
System Protection
Remote
You must be logged on as an Administrator to make most of these changes.
Performance
Visual effects, processor scheduling, memory usage, and virtual memory
Settings...
User Profiles
Desktop settings related to your sign-in
Settings...
Startup and Recovery
System startup, system failure, and debugging information
Settings...
Environment Variables...
OK
Cancel
Apply


Environment Variables
User variables for gunja
Variable
Value
OneDrive
C:\Users\gunja\OneDrive
Path
C:\Users\gunja\AppData\Local\Programs\Python\Python35\S...
TEMP
C:\Users\gunja\AppData\Local\Temp
TMP
C:\Users\gunja\AppData\Local\Temp
New...
Edit...
Delete
System variables
Variable
Value
NVTOOLSEXT_PATH
C:\Program Files\NVIDIA Corporation\NvToolsExt\
OMP_NUM_THREADS
8
OS
Windows_NT
Path
C:\Program Files\NVIDIA GPU Computing Toolkit\CUDA\v9.0\...
PATHEXT
.COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;.JSE;.WSF;.WSH;.MSC
PROCESSOR_ARCHITECTU
AMD64
PROCESSOR_IDENTIFIER
Intel64 Family 6 Model 158 Stepping 9, GenuineIntel
New...
Edit...
Delete
OK
Cancel



3) Download CUDNN 9.0. The set file can be downloaded from the following link.
https://drive.google.com/drive/folders/1vbgoBz1ZSmWsWkRzK-rCmf_aOqS5_eXI?usp=sharing

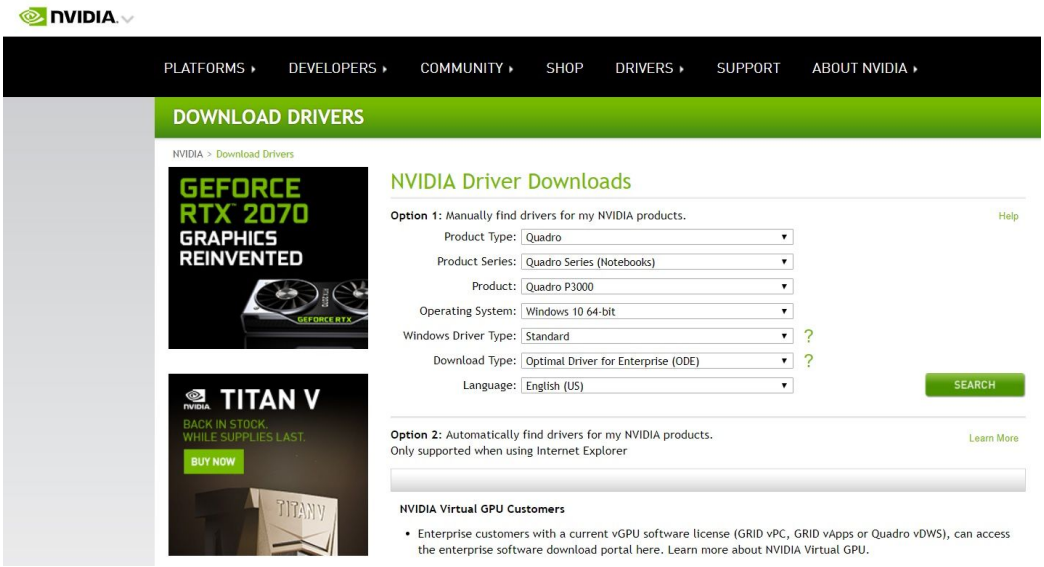


4) Extract the downloaded folder. There will be a folder named CUDA, copy that folder and paste it into C drive.
5) Now again add the path by following these steps
    - Go to Start and Search "environment variables"
    - Click on Edit the system environment variables
    - Select “environment variables” button
    - Select Path from the “System Variables” and click edit
    - Click on New and add the following paths

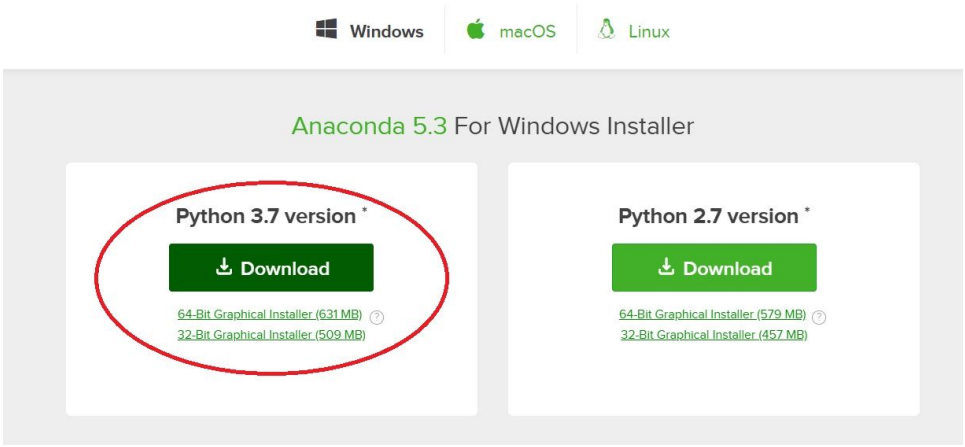
    `C:\cuda\bin`
- then select ok >> ok >> ok.

6) Update the graphics card driver by going to the following link
https://www.nvidia.com/Download/index.aspx

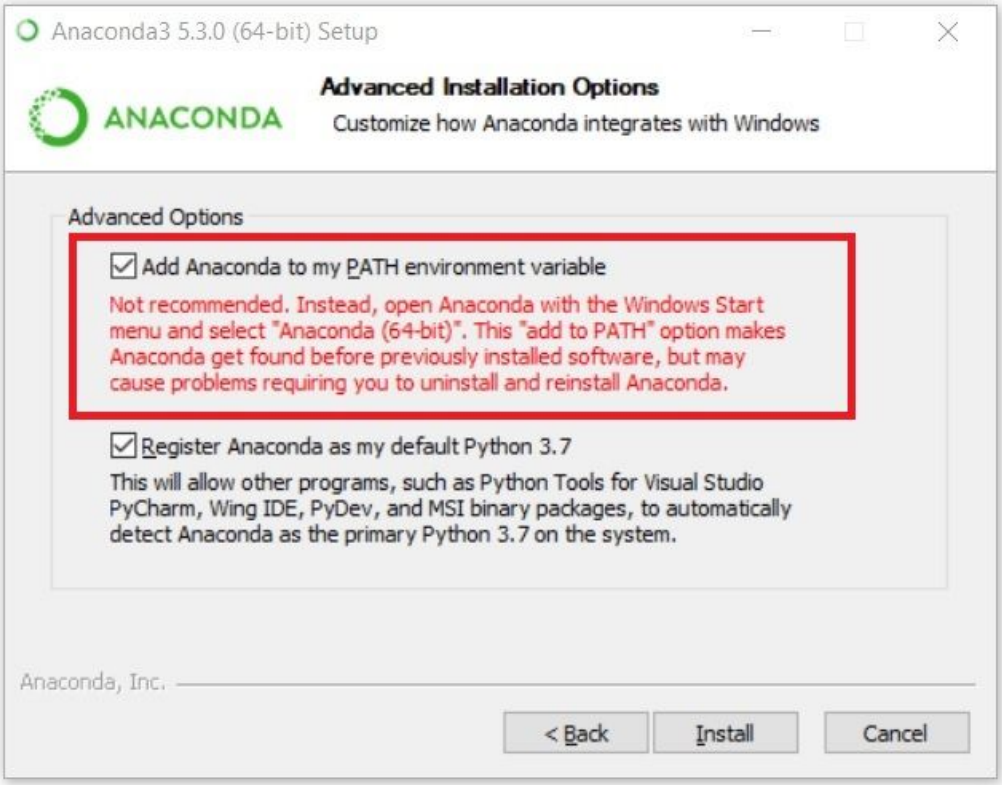
Select the appropriate graphics card and then download and install the executable.



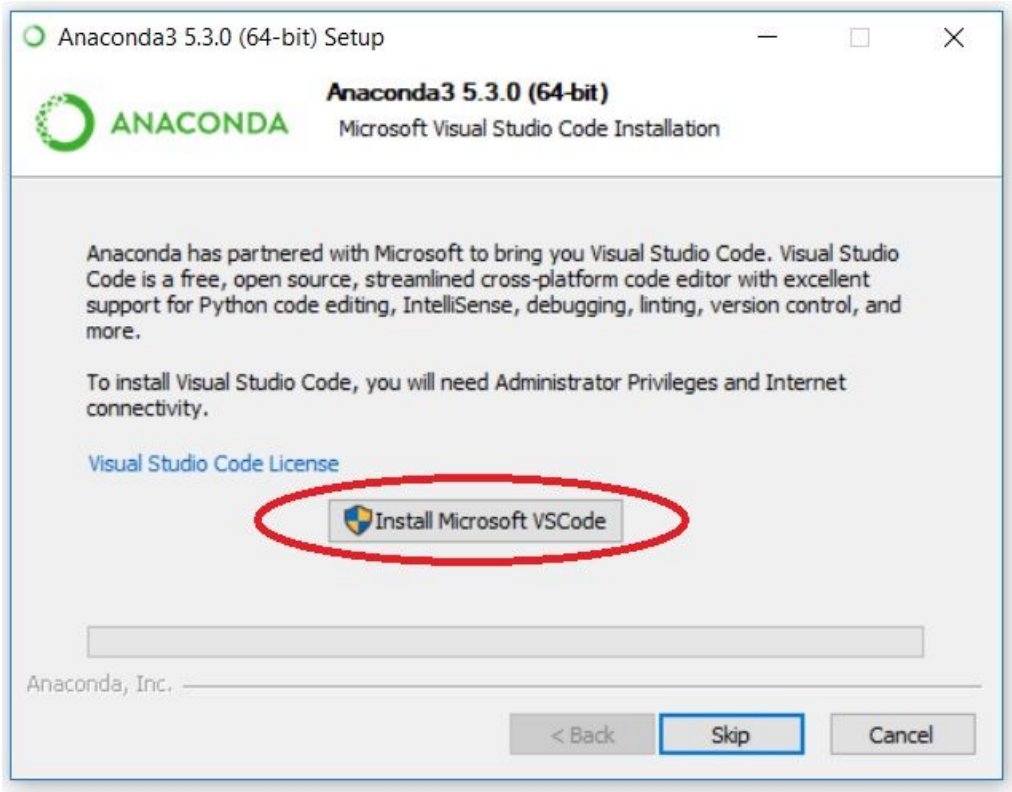
7) Download and install Anaconda 5.3 for Python version 3.7
It can be downloaded from the following link.
https://www.anaconda.com/download/



8) While Installing select add Anaconda to my PATH environment variable.



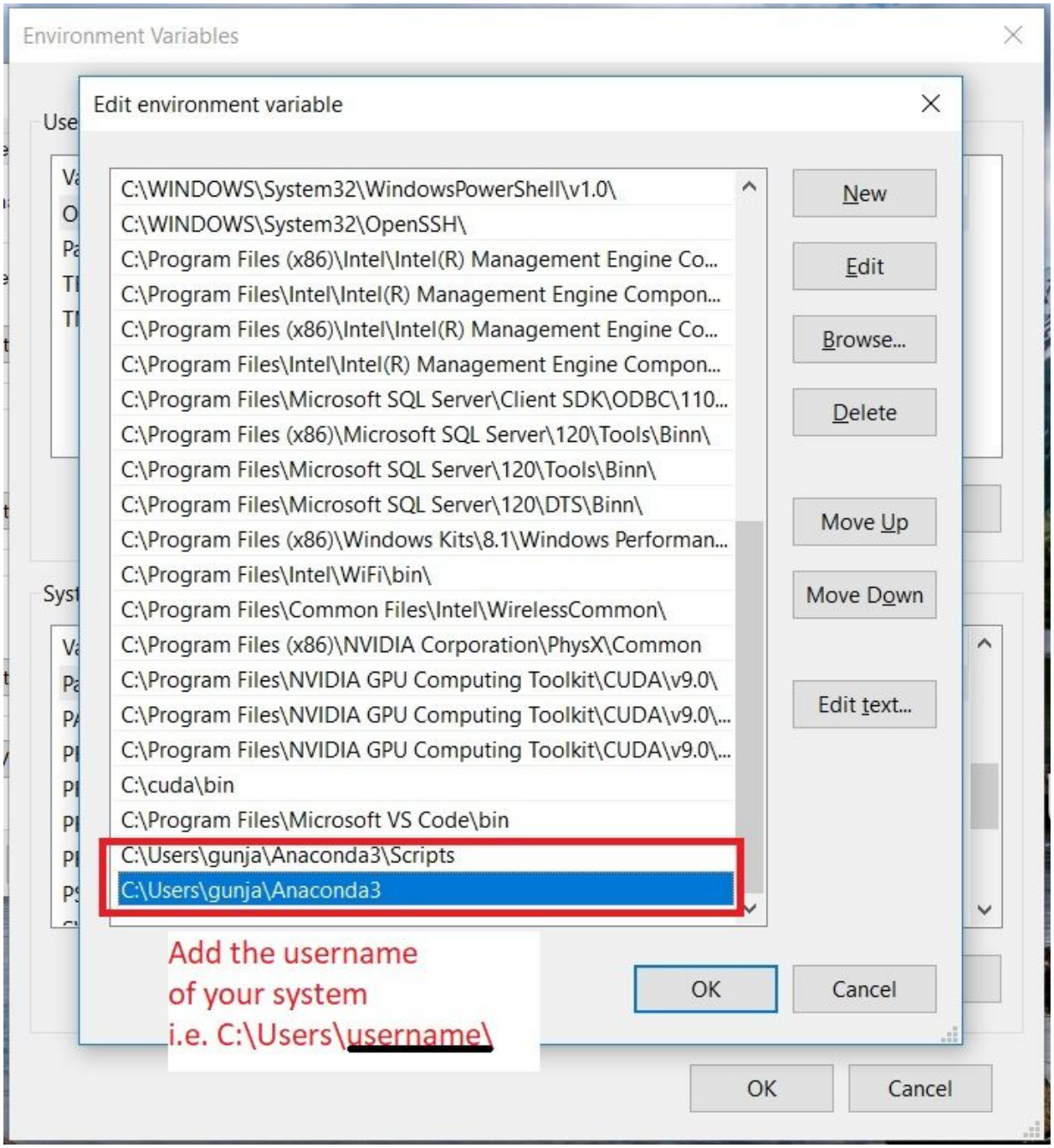
Install Microsoft VSCode
Press Ignore if any error appears



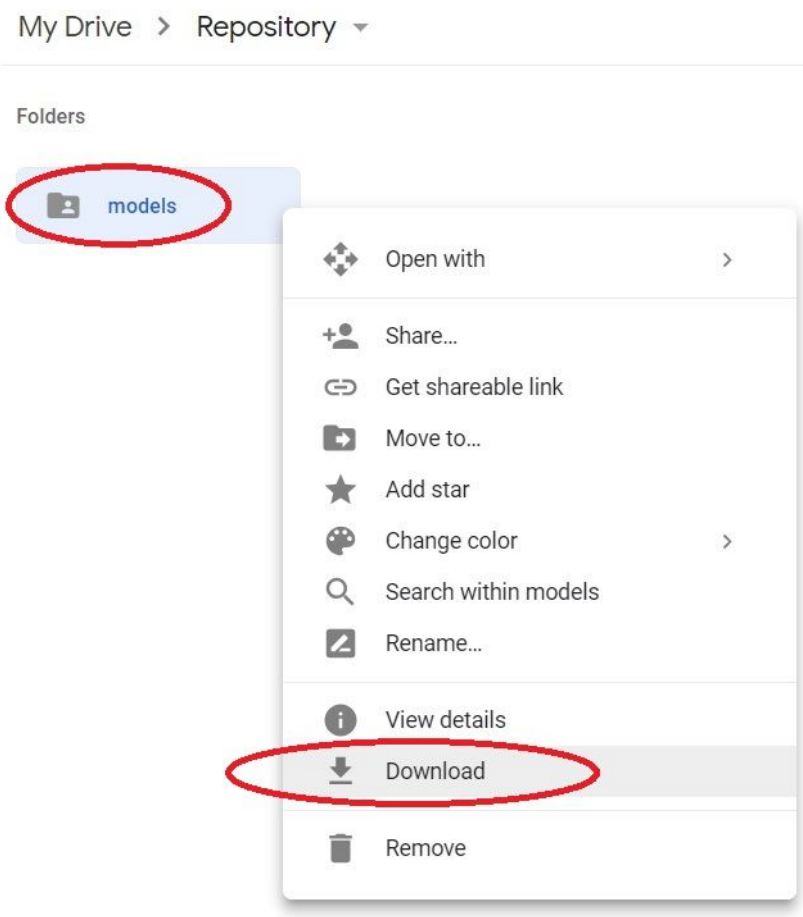
9) Now again add the path by following these steps
   - Go to Start and Search "environment variables"
   - Click on Edit the system environment variables
   - Select “environment variables” button
   - Select Path from the “System Variables” and click edit
   - Click on New and add the following paths

   `C:\Users\gunja\Anaconda3`
   `C:\Users\gunja\Anaconda3\Scripts`
- then select ok >> ok >> ok.

NOTE: Add the username of the system on which you are running the program



10) Now download our repository named “models” by going to the following the link https://drive.google.com/drive/folders/1PHjoOzDH6f5zh7uW3N7Rjso2gpgReCgJ



11) Make a folder named tensorflow1 in C drive
12) Extract and Copy the downloaded repository to the tensorflow1 folder in C drive. **(C:\tensorflow1\models)**
13) Press Windows key and Search for “**command prompt**”
14) Copy and paste following commands

```
I.    conda create -n tensorflow1 pip python=3.5
II.   activate tensorflow1
III.  pip install --ignore-installed --upgrade tensorflow-gpu
IV.   conda install -c anaconda protobuf
V.    pip install pillow
VI.   pip install lxml
VII.  pip install Cython
VIII. pip install jupyter
IX.   pip install matplotlib
X.    pip install pandas
XI.   pip install opencv-python

XII.  set
      PYTHONPATH=C:\tensorflow1\models;C:\tensorflow1\models\research;C:\tensorflow1\models
      \research\slim

XIII. cd C:\tensorflow1\models\research
```

XIV. protoc --python_out=. .\object_detection\protos\anchor_generator.proto .\object_detection\protos\argmax_matcher.proto .\object_detection\protos\bipartite_matcher.proto .\object_detection\protos\box_coder.proto .\object_detection\protos\box_predictor.proto .\object_detection\protos\eval.proto .\object_detection\protos\faster_rcnn.proto .\object_detection\protos\faster_rcnn_box_coder.proto .\object_detection\protos\grid_anchor_generator.proto .\object_detection\protos\hyperparams.proto .\object_detection\protos\image_resizer.proto .\object_detection\protos\input_reader.proto .\object_detection\protos\losses.proto .\object_detection\protos\matcher.proto .\object_detection\protos\mean_stddev_box_coder.proto .\object_detection\protos\model.proto .\object_detection\protos\optimizer.proto .\object_detection\protos\pipeline.proto .\object_detection\protos\post_processing.proto .\object_detection\protos\preprocessor.proto .\object_detection\protos\region_similarity_calculator.proto .\object_detection\protos\square_box_coder.proto .\object_detection\protos\ssd.proto .\object_detection\protos\ssd_anchor_generator.proto .\object_detection\protos\string_int_label_map.proto .\object_detection\protos\train.proto .\object_detection\protos\keypoint_box_coder.proto .\object_detection\protos\multiscale_anchor_generator.proto .\object_detection\protos\graph_rewriter.proto

XV. python setup.py build

XVI. python setup.py install

15) Now we can test our model

To test the images, do following

- Copy and paste images in Test folder which can be found on C:\tensorflow1\models\research\object_detection\Test
- Then run following command in cmd

If Command Prompt was closed enter all the commands else use 2nd and 3rd command

I. Activate tensorflow1
II. Cd C:\tensorflow1\models\research\object_detection
III. Python Object_detection_image_iterator.py

After following the above-stated steps the output images will be in the output folder which is at C:\tensorflow1\models\research\object_detection\output.

To test on video

- Go to the following folder C:\tensorflow1\models\research\object_detection
- Copy the video required to be tested in this folder
- Open a file named “Object_detection_video.py” in a text editor.

- Go to line 36 and change the value of the variable “VIDEO_NAME” by the name of the video.

- Open cmd and run following commands

I. Activate tensorflow1
II. Cd C:\tensorflow1\models\research\object_detection
III. Python Object_detection_video.py

Upon the successful execution of the command, the video should start playing.