ADVANCE

GATHERING AUDI DATA

INSTRUCTION:

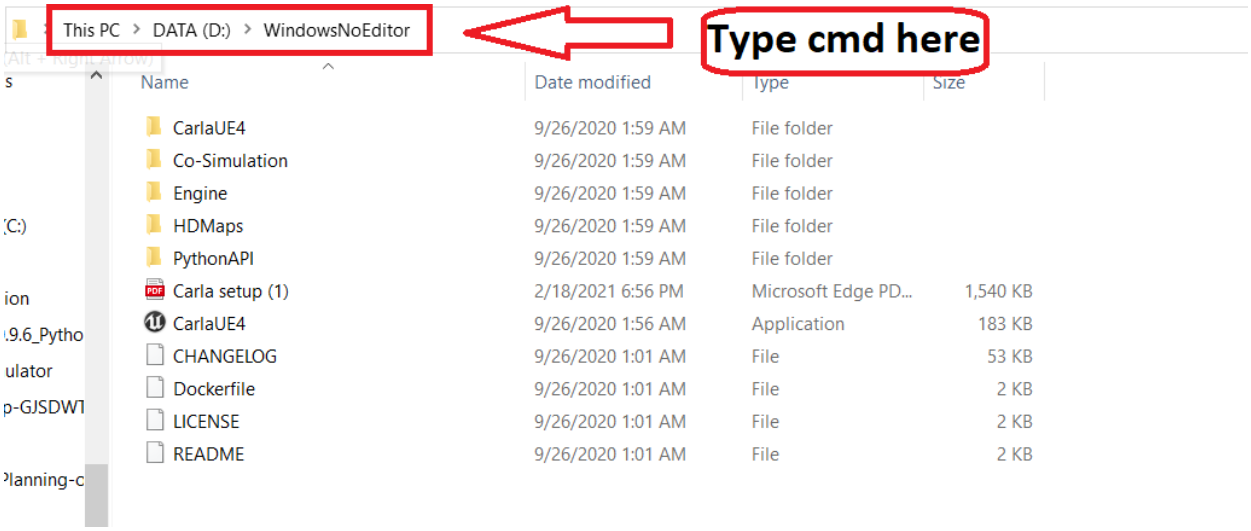
Goals of the Project:
In class 210, we learned how to get the names of the other cars along with the location information that is the distance information of the other cars.

GATHERING AUDI DATA:
In this project, we want you to perform the tasks to improve the function of gathering data. Complete the code, get the information of vehicle Audi, and keep increasing the thread time by 0.4 milliseconds.

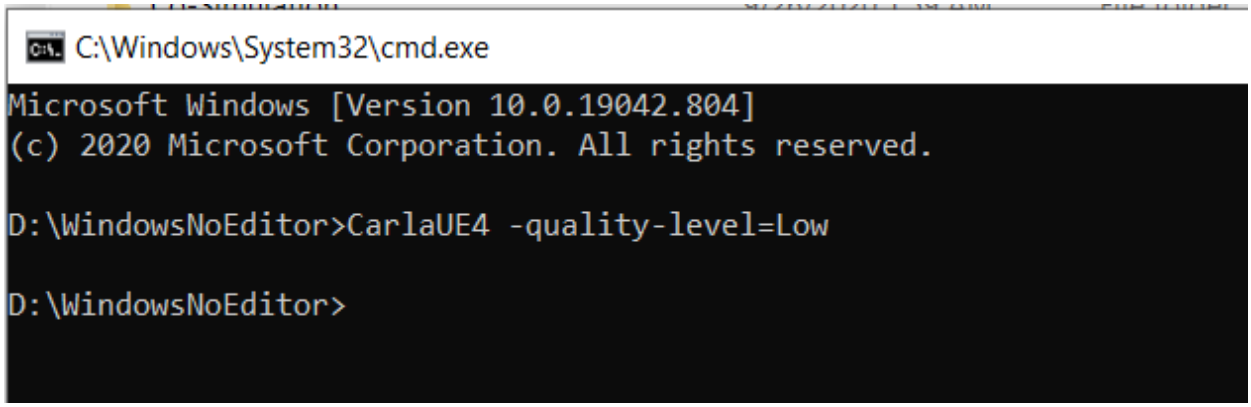
Story:
Many car companies have been working on self-driving vehicle technology for understanding how self-driving cars can be stopped before a collision takes place. They got to know that you are learning the same thing. They want you to perform the below task which may help them complete their research.

Getting Started:

1. Open this link and download the file **project-210.py.**
2. Once you download the file, move it to **WindowsNoEditor > PythonAPI > examples** path.
3. Open the **examples** folder located in **WindowsNoEditor > PythonAPI > examples**.
4. Open the **project-210.py** file in **Sublime Text**, and start working on the **project-210.py** file which you just downloaded.
5. Run CARLA simulator in command prompt like this in the WindowsNoEditor folder:



6. Now, run this command in cmd: **CarlaUE4 -quality-level=Low**



7. Open the **examples** folder from **WindowsNoEditor > PythonAPI > examples**.
8. Select the full path from the address bar and type **cmd** like this:

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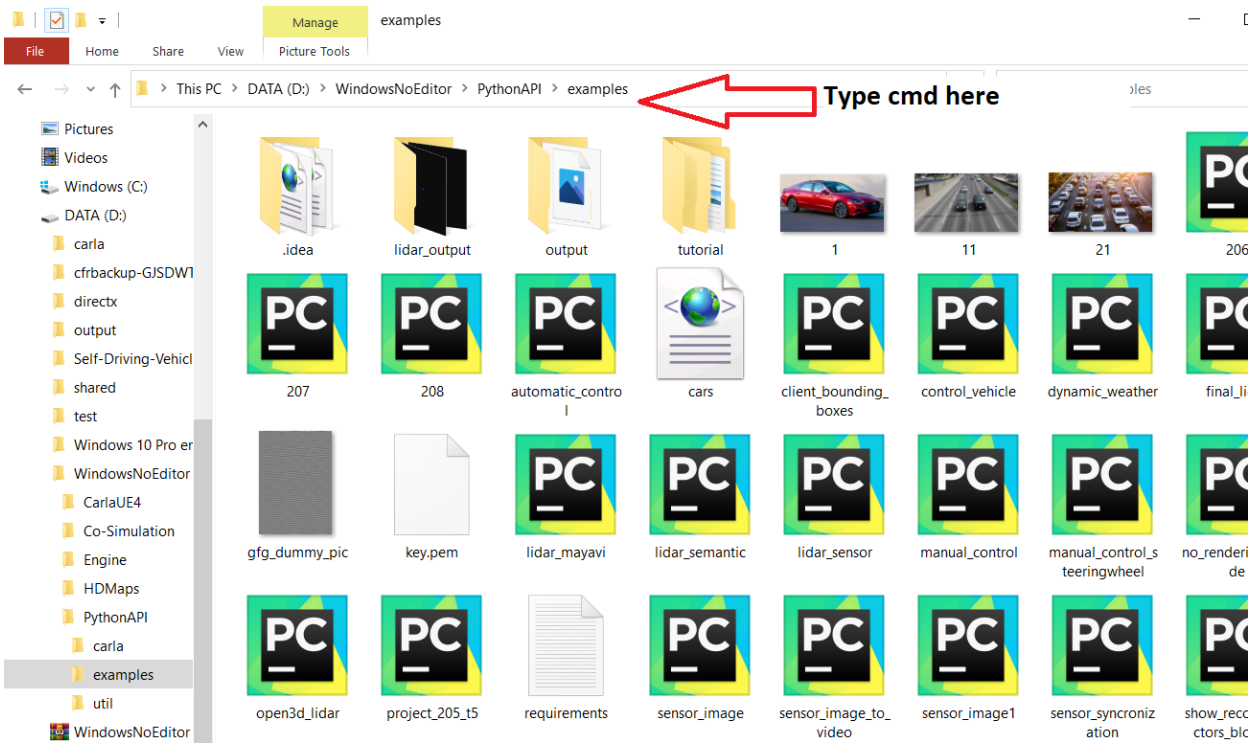
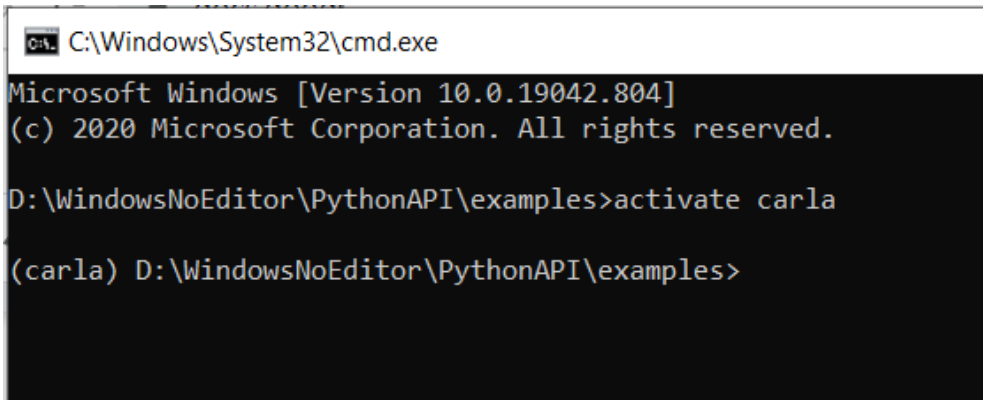
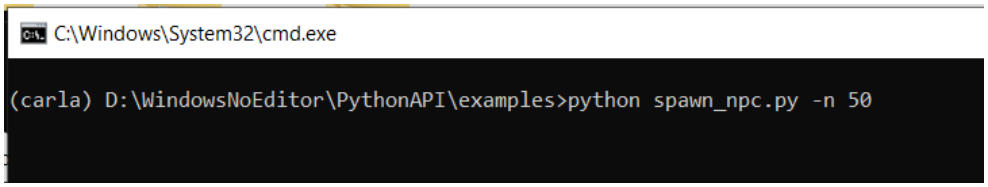


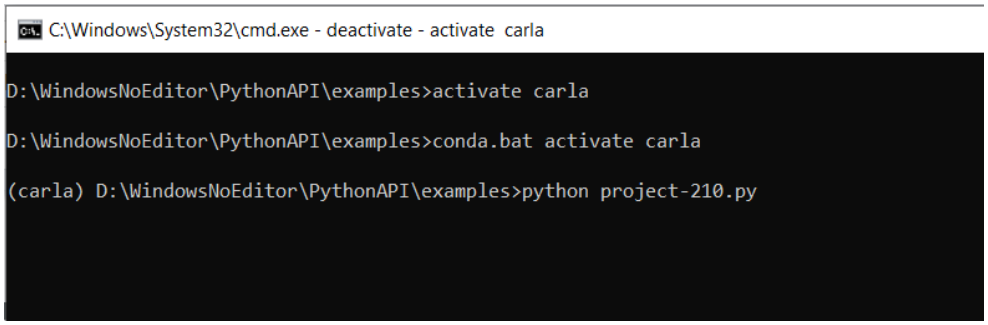
9. Open **two** command prompts in the **example** folder and activate your CARLA environment.



10. In the first command prompt, run this file: **python spawn_npc.py -n 50**



11. In the second command prompt, run this file: **python class_210.py**



Task 01

Complete the for loop:

In class 210, we have learned about how to gather data from the CARLA environment.
In the **project-210.py** file, in line 38, we have specified a **for** loop.
In this task, we want you to complete the **for** loop by adding the following things:

- Add **bot_variable** in the **for** loop.
- Comparison of **word.id** should be done with **x.id**.
- Add **append** function with the following values:
  (distance(x.get_location()), x) is added in get_distance_of_bot_vehicles list.

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Task 02

Gather data of Audi car:

In class 210, we learned about gathering multiple bot cars data from the CARLA environment.
In this task, we want you to gather data of the Audi car only by performing the following steps.
In the **project-210.py** file, in line 27, we have provided this line of code:
bot_vehicles = world.get_actors().filter('vehicle.*')

- Change '**vehicle.***' to Audi car.
- You can find the name of the Audi car in **cars.txt** file which is located in the **example** folder.
- You might get the model name - **vehicle.audi.a2** in the **cars.txt** file.
- Change '**vehicle.***' to **vehicle.audi.a2/** or any other car model you get from the **cars.txt** file.

Task 03

Increase the timer by 0.5:
In class C210, we have gathered data by an interval of 0.1 milliseconds and it is received continuously.
In this task, we want you to gather car data from the surrounding by a time interval of 0.4 milliseconds:
- First, we will get data after 0.1 milliseconds.
- Then, we will get data after 0.4 milliseconds.
- Then, we will get data after 0.8 milliseconds.

In the **project-210.py** file, we want you to do the following steps:

- Define a variable **count** with value **0**, just above the function **number_of_vehicals()**.
- Inside the function **number_of_vehicals()**, get the **count** variable as global. So that the **count** variable can be accessed inside this function.
- Put the **count** variable as the first parameter inside the **threading.Timer()** function, where we generally put the millisecond time.
- After the code, add the code for threading and increment the count variable by 0.4.

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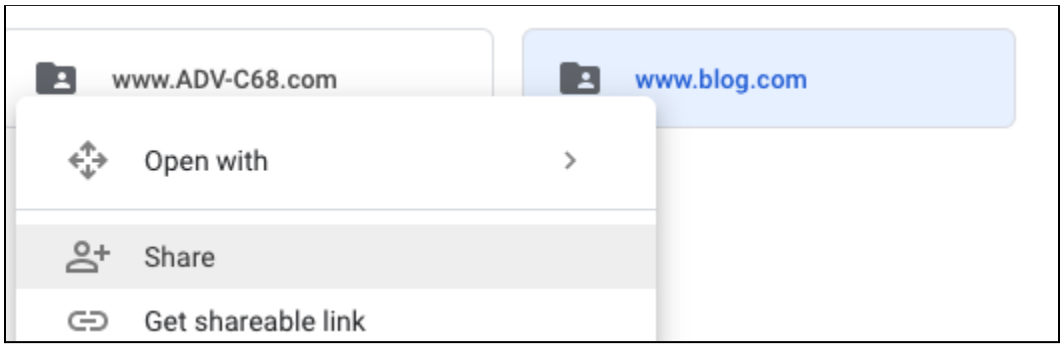
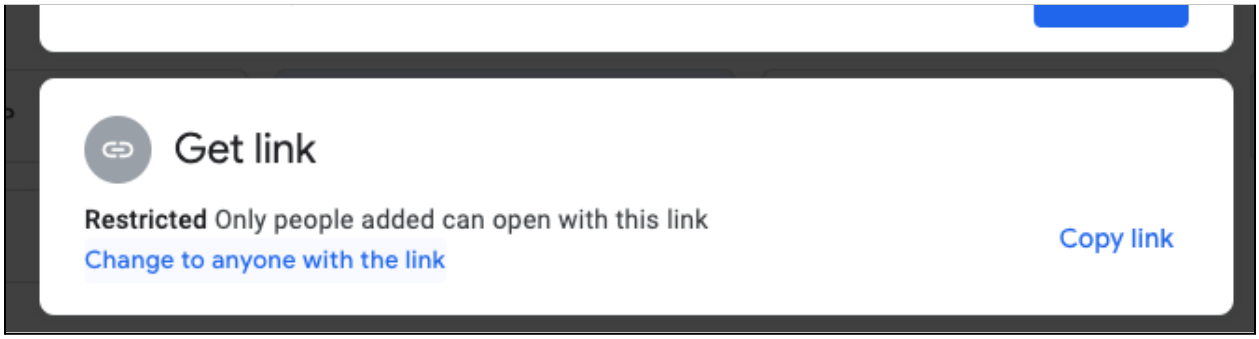
Submitting the Project:

1. Create a folder on your google drive and name it as **C210-project**. Inside the folder, put the **project-210.py** file
2. Start screen recording and run the commands one by one. Record the output using Loom and upload the video in the folder which you have created. Steps for screen recording
3. Now let's generate the link of the folder. Steps for generating a link of the folder:
    - Right-click on the folder and click **Share**.



    - Then click on:



    - Then the setting will change so anyone can view it.

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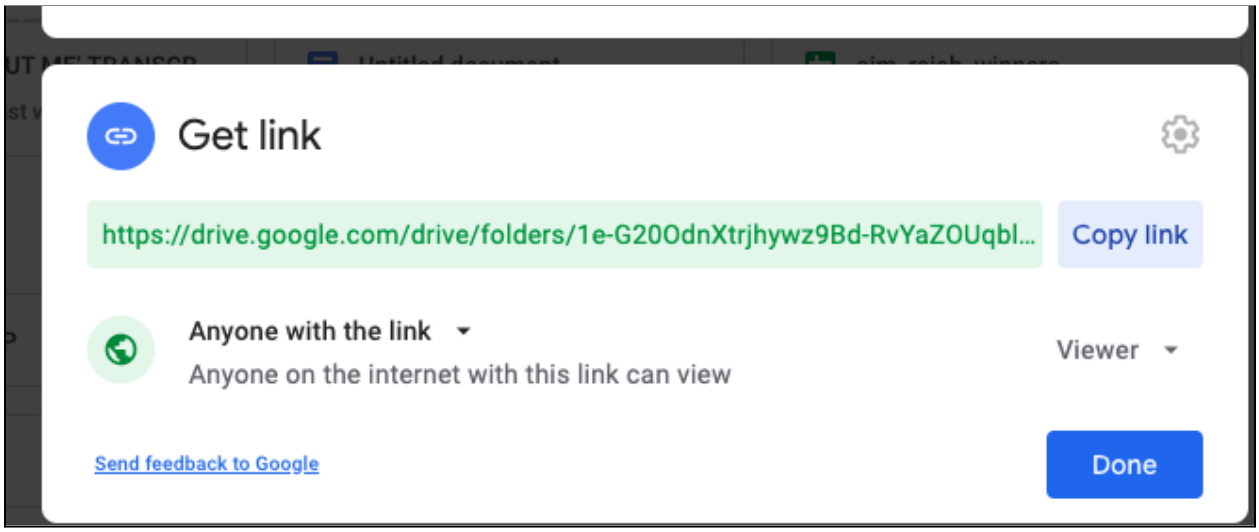

- Now click on the **Copy link** button to copy the link.
- Now share and submit this copied link in the Student Dashboard Projects panel against the correct class number.

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Hints:

1) **Task 1:**

```
36
37          get_distance_of_bot_vehicles = []
38          for x in Bot_vehicle :#complete the loop by adding bot car variable
39              if x.id != world.id:#compare with id
40                  get_distance_of_bot_vehicles.append((distance(x.get_location()), x))#append list
41
42          print("Distance of every vehicle:", get_distance_of_bot_vehicles)
43
```

2) **Task 2:**

```
26  def number_of_vehicle():
27      bot_vehicles = world.get_actors().filter('name of audi car')#Write name of Audi car
28      threading.Timer(0.1, number_of_vehicle).start()
29      transform_location = dropped_vehicle.get_transform()
30      print("Location of each bot vehicle:",transform_location)
31
```

3) **Task 3:**
   Code for setting the count variable as global:

```
28  def number_of_vehicle():
29      global count #set count variable as global
```

REMEMBER... Try your best, that's more important than being correct.
After submitting your project, your teacher will send you feedback on your work.

———— XXX ———— XXX ———— XXX ———— XXX ———— XXX ————