

Project Documentation

Github: [thezack1212/431-Database-Management \(github.com\)](https://github.com/thezack1212/431-Database-Management)

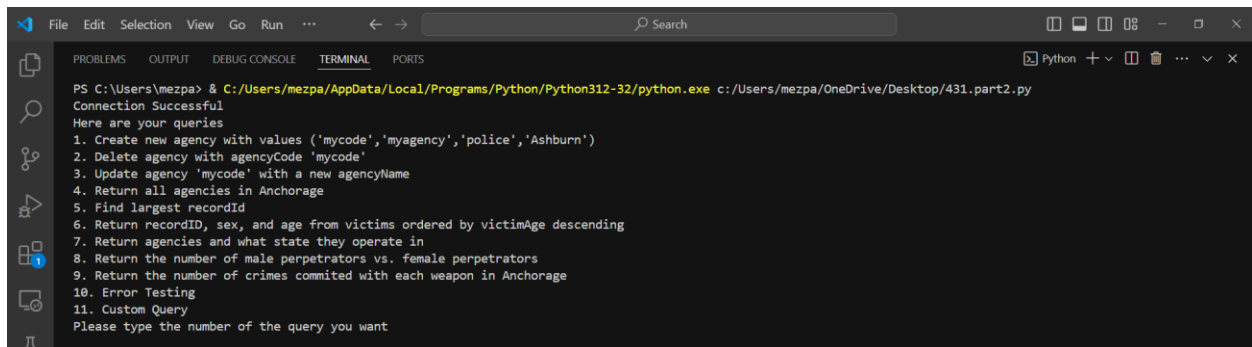
Video Demonstration: https://youtu.be/TmLZspK_JKA

Getting Started

To begin executing the python script, you must first open the file using a python integrated development environment (IDE) running python 3.10 or later. Once open, simply run the program in the IDE.

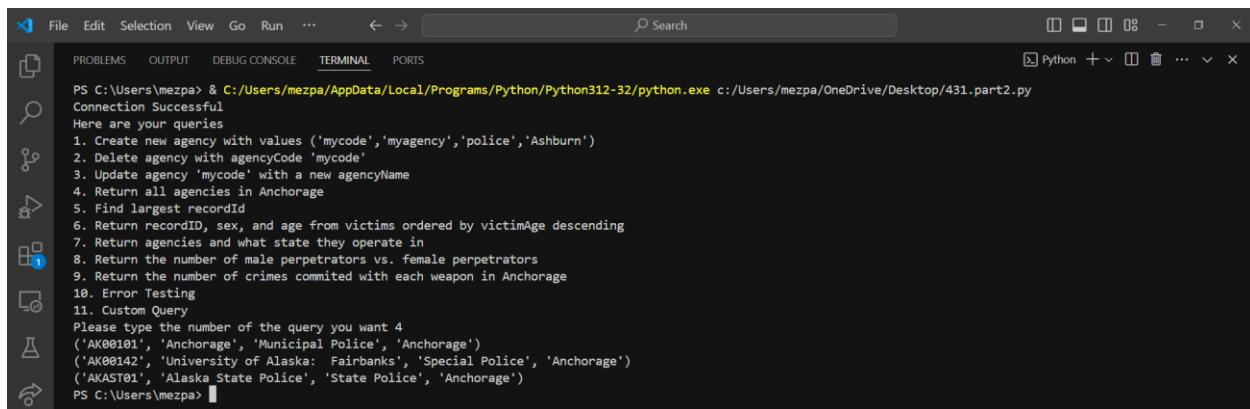
Running the Script

Once the script has been started, you will see a list of several different query options presented to you numbered 1 though 11 that will look like *Figure 1*. For numbers 1 through 9, select the query you would like to run by typing the matching number of the query you would like, and outputs will be printed to the terminal below as seen in *Figure 2*, each tuple represents a record in the table.



```
PS C:\Users\mezpa> & C:/Users/mezpa/AppData/Local/Programs/Python/Python312-32/python.exe c:/Users/mezpa/OneDrive/Desktop/431.part2.py
Connection Successful
Here are your queries
1. Create new agency with values ('mycode','myagency','police','Ashburn')
2. Delete agency with agencyCode 'mycode'
3. Update agency 'mycode' with a new agencyName
4. Return all agencies in Anchorage
5. Find largest recordId
6. Return recordID, sex, and age from victims ordered by victimAge descending
7. Return agencies and what state they operate in
8. Return the number of male perpetrators vs. female perpetrators
9. Return the number of crimes committed with each weapon in Anchorage
10. Error Testing
11. Custom Query
Please type the number of the query you want
```

Figure 1: User being prompted for a query.

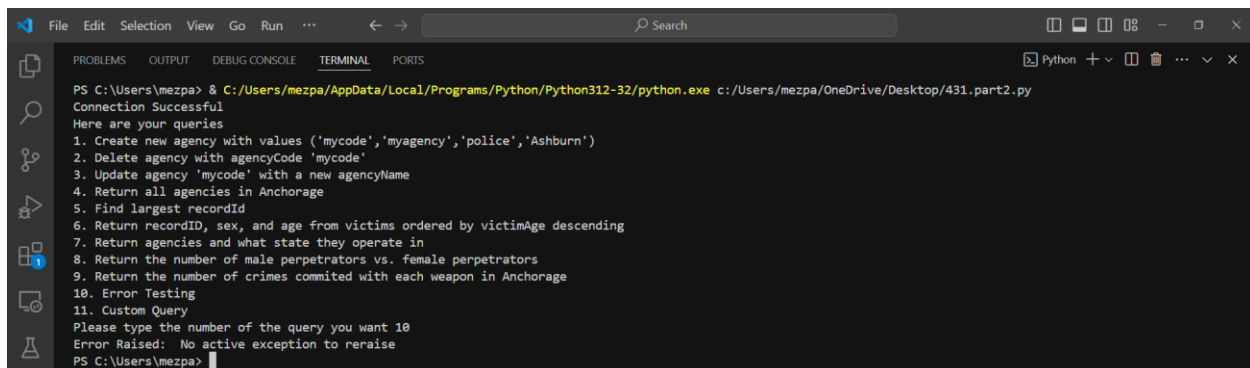


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PS C:\Users\mezpa> & C:/Users/mezpa/AppData/Local/Programs/Python/Python312-32/python.exe c:/Users/mezpa/OneDrive/Desktop/431.part2.py
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9. Return the number of crimes committed with each weapon in Anchorage
10. Error Testing
11. Custom Query
Please type the number of the query you want 4
('AK00101', 'Anchorage', 'Municipal Police', 'Anchorage')
('AK00142', 'University of Alaska: Fairbanks', 'Special Police', 'Anchorage')
('AKA5T01', 'Alaska State Police', 'State Police', 'Anchorage')
PS C:\Users\mezpa>
```

Figure 2: Executing query number 4.

Query 10 and Error handling

Query 10 is a simple case to demonstrate how the scripts handles errors in the code that may be triggered by query 11 or by a connection error. All query 10 does is trigger our scripts error handling process as seen in *Figure 3*. That alone may seem unimpressive since we are not passing any legitimate errors. Our error handler fortunately does much more when is triggered at any point during a query execution, will print out the error type we had experienced as well as issue a rollback to prevent any data corruption.

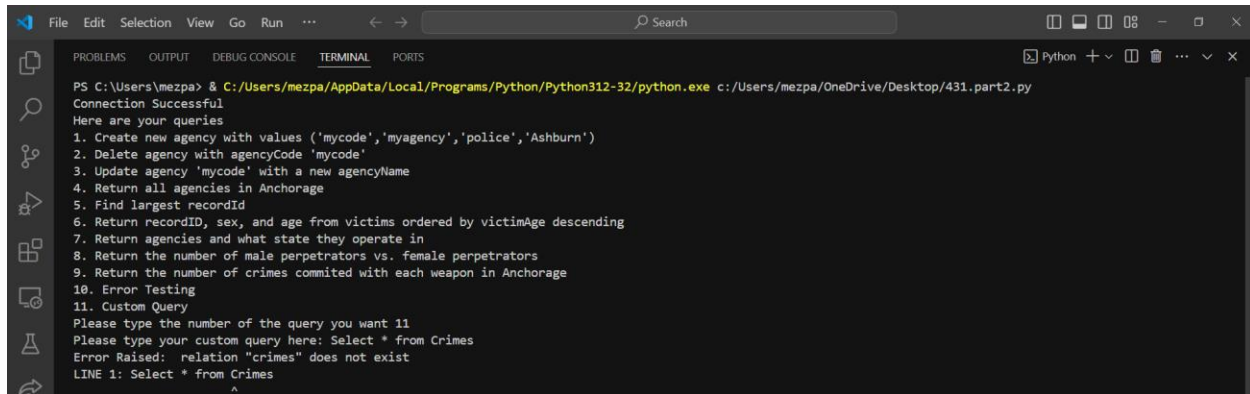


```
PS C:\Users\mezpa> & C:/Users/mezpa/AppData/Local/Programs/Python/Python312-32/python.exe c:/Users/mezpa/OneDrive/Desktop/431.part2.py
Connection Successful
Here are your queries
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7. Return agencies and what state they operate in
8. Return the number of male perpetrators vs. female perpetrators
9. Return the number of crimes committed with each weapon in Anchorage
10. Error Testing
11. Custom Query
Please type the number of the query you want 10
Error Raised: No active exception to reraise
PS C:\Users\mezpa>
```

Figure 3: Query 10 when everything is normal.

Query 11

Query 11 is an additional and special case, presented to the users for those trained in creating SQL queries. This case opens room for users to input their own queries that are still protected by our error handling and rollback protection. Any improperly written queries will execute the error handling block and be prevented from creating any possible data hazards, such as what may be seen in *Figure 4*.



```
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Connection Successful
Here are your queries
1. Create new agency with values ('mycode','myagency','police','Ashburn')
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7. Return agencies and what state they operate in
8. Return the number of male perpetrators vs. female perpetrators
9. Return the number of crimes committed with each weapon in Anchorage
10. Error Testing
11. Custom Query
Please type the number of the query you want 11
Please type your custom query here: Select * from Crimes
Error Raised: relation "crimes" does not exist
LINE 1: Select * from Crimes
^
```

Figure 4: Error raised from naming an unknown table.