

## Finals Lab Task 7. MySQL CRUD Operations in Python Using GUI Tkinter

### Step 1. Make sure you install the necessary prerequisites:

- MySQL-Connector** in Pycharm
- Activate xampp (Apache and Mysql)
- Create a database named: cars
- Import the sql file (cars.sql) to load the tables and records

### Step 2. See the GUI Design of the Demo interface



ID	Model	Year	Color	EngineCapacity	EnginePower	EngineType	Transmission	Price
1	BMW X3	2022	Black	3000	330	Petrol	A	50000.00
2	BMW 3 Series	2021	White	2000	230	Diesel	M	40000.00
3	BMW M5	2023	Blue	4000	600	Petrol	A	80000.00
4	BMW 5 Series	2022	Silver	2500	300	Diesel	A	45000.00
5	BMW X3	2020	Black	2000	240	Petrol	A	38000.00
6	BMW 7 Series	2021	White	3500	400	Diesel	M	65000.00
7	BMW X1	2022	Blue	1800	200	Petrol	A	32000.00
8	BMW 4 Series	2023	Red	3000	330	Petrol	A	48000.00
9	BMW X8	2022	Black	4000	500	Diesel	M	75000.00
10	BMW i3	2021	Silver	1500	170	Electric	A	35000.00
11	BMW i4	2023	Blue	3000	430	Petrol	M	62000.00
12	BMW X2	2022	White	2000	230	Diesel	A	36000.00
13	BMW 8 Series	2020	Black	4400	600	Petrol	A	95000.00
14	BMW X7	2022	Silver	4500	550	Diesel	A	85000.00
15	BMW 2 Series	2023	Black	1800	200	Petrol	M	32000.00
16	BMW iM2	2021	White	3000	365	Petrol	A	54000.00
17	BMW X4	2022	Blue	2000	240	Diesel	A	41000.00
18	BMW 6 Series	2023	Red	3500	430	Petrol	M	68000.00
19	BMW i8	2022	Black	1500	170	Electric	A	75000.00
20	BMW X6	2022	White	3000	400	Diesel	M	68000.00
22	BMW 4 Series	2020	Black	2500	320	Petrol	A	48000.00
23	BMW X3	2022	Blue	2000	240	Petrol	A	38000.00
24	BMW iM4	2021	Red	3000	430	Petrol	M	62000.00
25	BMW X2	2022	White	2000	230	Diesel	A	36000.00
26	BMW 7 Series	2023	Black	4000	500	Diesel	M	77000.00
27	BMW i3	2022	Silver	1500	170	Electric	A	35000.00
28	BMW X5	2021	Blue	3000	330	Petrol	A	52000.00
29	BMW 3 Series	2023	Red	2000	250	Diesel	M	41000.00

### Step 3. Try the code below:

Get the copy of the following files and load in pycharm:

Link here:

[https://drive.google.com/drive/folders/1e6Eh55qLAwepf0A\\_l8GKh70eIW6jAxJj?usp=sharing](https://drive.google.com/drive/folders/1e6Eh55qLAwepf0A_l8GKh70eIW6jAxJj?usp=sharing)

- connectDb.py
- main.py
- window.py

**Step 4.** Run the program main.py (and test all the functions (CRUD)) it should be free from errors. Make a screenshot of your output as proof that you were able to configure the program properly

### Step 5. Add the ff: Functions in the GUI. Choose 1 only

1. Insert a Label and Text widget below the reload button that will display the ff:

infos: a. *the total Number of Records*,

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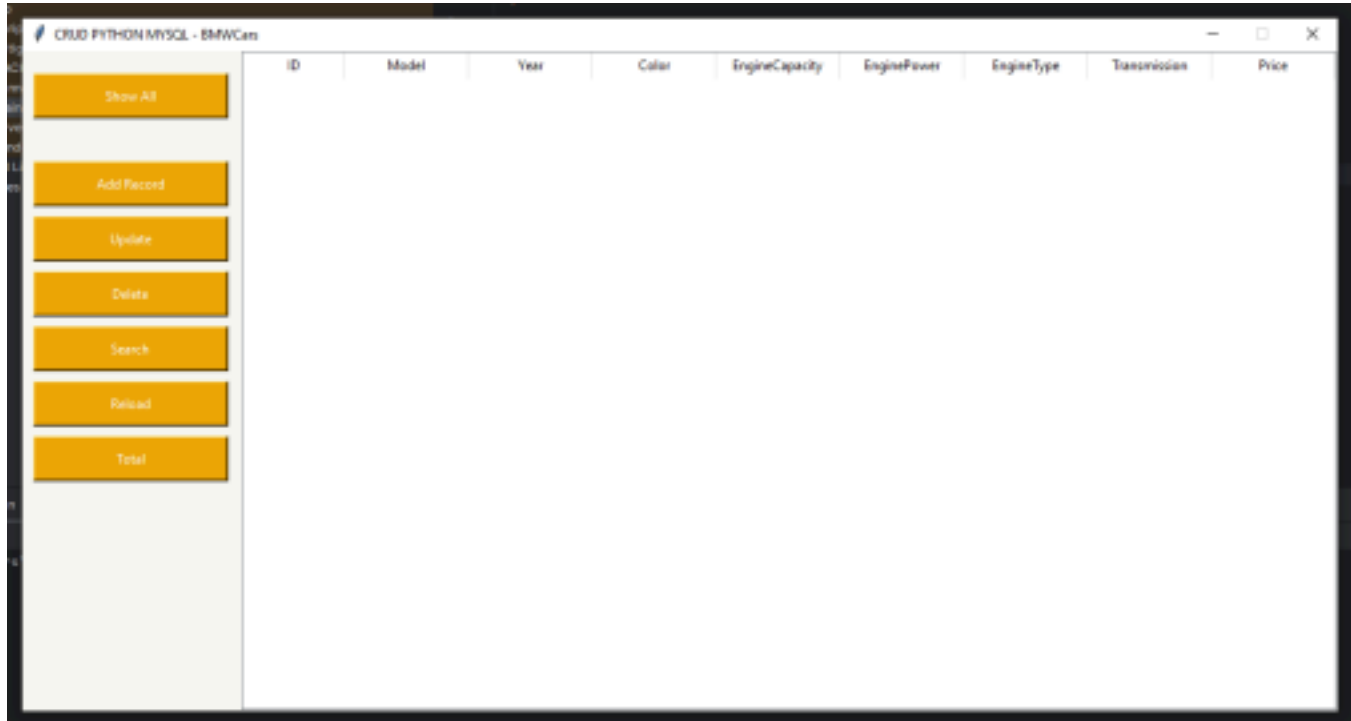
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b. *Car Model* with the Highest Price,

c. *Total Number of Manual*

d. *Total number of and Automatic Cars*

## RUNNING GUI



## SHOW ALL BUTTON

	ID	Model	Year	Color	EngineCapacity	EnginePower	EngineType	Transmission	Price
Show All	1	BMW X3	2022	Black	3000	350	Petrol	A	50000.00
	2	BMW 3 Series	2021	White	2000	250	Diesel	M	40000.00
	3	BMW M5	2023	Blue	4000	600	Petrol	A	80000.00
Add Record	4	BMW 5 Series	2022	Silver	2500	300	Diesel	A	45000.00
	5	BMW X3	2023	Black	2000	240	Petrol	A	38000.00
	6	BMW 7 Series	2021	White	2500	400	Diesel	M	65000.00
Update	7	BMW X1	2022	Blue	1800	200	Petrol	A	32000.00
	8	BMW 4 Series	2023	Red	3000	350	Petrol	A	48000.00
	9	BMW X8	2022	Black	4000	500	Diesel	M	75000.00
Delete	10	BMW i3	2021	Silver	1500	170	Electric	A	35000.00
	11	BMW M4	2023	Blue	3800	450	Petrol	M	62000.00
Search	12	BMW X2	2022	White	2000	230	Diesel	A	36000.00
	13	BMW 8 Series	2023	Black	4400	600	Petrol	A	95000.00
	14	BMW X7	2022	Silver	4500	550	Diesel	A	85000.00
Refresh	15	BMW 2 Series	2023	Black	1800	200	Petrol	M	32000.00
	16	BMW M2	2021	White	2000	265	Petrol	A	54000.00
Total	17	BMW X4	2022	Blue	2800	240	Diesel	A	41000.00
	18	BMW 6 Series	2023	Red	3500	420	Petrol	M	69000.00
	19	BMW i8	2022	Black	1500	170	Electric	A	75000.00
	21	BMW X6	2022	White	3800	480	Diesel	M	68000.00
	22	BMW 4 Series	2023	Black	2500	320	Petrol	A	49000.00
	23	BMW X3	2022	Blue	2000	240	Petrol	A	39000.00
	24	BMW M4	2021	Red	3800	450	Petrol	M	62000.00
	25	BMW X2	2022	White	2000	230	Diesel	A	36000.00
	26	BMW 7 Series	2023	Black	4000	500	Diesel	M	77000.00
	27	BMW i3	2022	Silver	1500	170	Electric	A	35000.00
	28	BMW X5	2021	Blue	3800	350	Petrol	A	52000.00
	29	BMW 5 Series	2023	Red	2900	250	Diesel	M	41000.00
	30	BMW M5	2022	White	4000	600	Petrol	A	82000.00

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## ADD RECORD

Show All

Add Record

Update

Delete

Search

Refresh

Total

ID	Model	Year	Color	EngineCapacity	EnginePower	EngineType	Transmission	Price
1	BMW X3	2022	Black	3000	350	Petrol	A	50000.00
2	BMW 3 Series	2021	White	2000	250	Diesel	M	40000.00
3	BMW M5	2023	Blue	4000	600	Petrol	A	80000.00
4	BMW 5 Series	2022	Silver	2500	300	Diesel	A	45000.00
5	BMW X3	2023	Black	2000	240	Petrol	A	38000.00
6	BMW 7 Series	2021	White	2500	400	Diesel	M	65000.00
7	BMW X1	2022	Blue	1800	200	Petrol	A	32000.00
8	BMW 4 Series	2023	Red	3000	350	Petrol	A	48000.00
9	BMW X8	2022	Black	4000	500	Diesel	M	75000.00
10	BMW i3	2021	Silver	1500	170	Electric	A	35000.00
11	BMW M4	2023	Blue	3800	450	Petrol	M	62000.00
12	BMW X2	2022	White	2000	230	Diesel	A	36000.00
13	BMW 8 Series	2023	Black	4400	600	Petrol	A	95000.00
14	BMW X7	2022	Silver	4500	550	Diesel	A	85000.00
15	BMW 2 Series	2023	Black	1800	200	Petrol	M	32000.00
16	BMW M2	2021	White	2000	265	Petrol	A	54000.00
17	BMW X4	2022	Blue	2800	240	Diesel	A	41000.00
18	BMW 6 Series	2023	Red	3500	420	Petrol	M	69000.00
19	BMW i8	2022	Black	1500	170	Electric	A	75000.00
21	BMW X6	2022	White	3800	480	Diesel	M	68000.00
22	BMW 4 Series	2023	Black	2500	320	Petrol	A	49000.00
23	BMW X3	2022	Blue	2000	240	Petrol	A	39000.00
24	BMW M4	2021	Red	3800	450	Petrol	M	62000.00
25	BMW X2	2022	White	2000	230	Diesel	A	36000.00
26	BMW 7 Series	2023	Black	4000	500	Diesel	M	77000.00
27	BMW i3	2022	Silver	1500	170	Electric	A	35000.00
28	BMW X5	2021	Blue	3800	350	Petrol	A	52000.00
29	BMW 5 Series	2023	Red	2900	250	Diesel	M	41000.00
30	BMW M5	2022	White	4000	600	Petrol	A	82000.00

Show All

Add Record

Update

Delete

Search

Refresh

Total

ID

Model

Year

Color

EngineCapacity

EnginePower

EngineType

Transmission

Price

1 BMW X3 | 2022 | Black | 3000 | 350 | Petrol | A | 50000.00 || 2 | BMW 3 Series | 2021 | White | 2000 | 250 | Diesel | M | 40000.00 |
3	BMW M5	2023	Blue	4000	600	Petrol	A	80000.00
4	BMW 5 Series	2022	Silver	2500	300	Diesel	A	45000.00
5	BMW X3	2023	Black	2000	240	Petrol	A	38000.00
6	BMW 7 Series	2021	White	2500	400	Diesel	M	65000.00
7	BMW X1	2022	Blue	1800	200	Petrol	A	32000.00
8	BMW 4 Series	2023	Red	3000	350	Petrol	A	48000.00
9	BMW X8	2022	Black	4000	500	Diesel	M	75000.00
10	BMW i3	2021	Silver	1500	170	Electric	A	35000.00
11	BMW M4	2023	Blue	3800	450	Petrol	M	62000.00
12	BMW X2	2022	White	2000	230	Diesel	A	36000.00
13	BMW 8 Series	2023	Black	4400	600	Petrol	A	95000.00
14	BMW X7	2022	Silver	4500	550	Diesel	A	85000.00
15	BMW 2 Series	2023	Black	1800	200	Petrol	M	32000.00
16	BMW M2	2021	White	2000	265	Petrol	A	54000.00
17	BMW X4	2022	Blue	2800	240	Diesel	A	41000.00
18	BMW 6 Series	2023	Red	3500	420	Petrol	M	69000.00
19	BMW i8	2022	Black	1500	170	Electric	A	75000.00
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24	BMW M4	2021	Red	3800	450	Petrol	M	62000.00
25	BMW X2	2022	White	2000	230	Diesel	A	36000.00
26	BMW 7 Series	2023	Black	4000	500	Diesel	M	77000.00
27	BMW i3	2022	Silver	1500	170	Electric	A	35000.00
28	BMW X5	2021	Blue	3800	350	Petrol	A	52000.00
29	BMW 5 Series	2023	Red	2900	250	Diesel	M	41000.00
30	BMW M5	2022	White	4000	600	Petrol	A	82000.00

## UPDATE

CRUD PYTHON MYSQL - BMW Cars

Show All  
Add Record  
Update  
Delete  
Search  
Refresh  
Total  
Save  
Cancel

ID: 35  
Model: Kingster  
Year Make: 2025  
Color: black  
Engine Capacity: 2000  
Engine Motor: 200  
Engine Type: Diesel  
Transmission Type: A  
Price: 20.00

ID	Model	Year	Color	EngineCapacity	EnginePower	EngineType	Transmission	Price
8	BMW 4 Series	2023	Red	3000	350	Petrol	A	48000.00
9	BMW X5	2022	Black	4000	500	Diesel	M	75000.00
10	BMW i3	2021	Silver	1500	170	Electric	A	35000.00
11	BMW M4	2023	Blue	3000	450	Petrol	M	62000.00
12	BMW X2	2022	White	2000	230	Diesel	A	36000.00
13	BMW 6 Series	2023	Black	4400	600	Petrol	A	95000.00
14	BMW X7	2022	Silver	4500	550	Diesel	A	85000.00
15	BMW 2 Series	2023	Black	1800	200	Petrol	M	32000.00
16	BMW M2	2021	White	3000	365	Petrol	A	54000.00
17	BMW X4	2022	Blue	2000	240	Diesel	A	41000.00
18	BMW 6 Series	2023	Red	2500	420	Petrol	M	69000.00
19	BMW i8	2022	Black	1500	170	Electric	A	75000.00
21	BMW X5	2022	White	3000	400	Diesel	M	68000.00
22	BMW 4 Series	2023	Black	2500	320	Petrol	A	49000.00
23	BMW X3	2022	Blue	2000	240	Petrol	A	39000.00
24	BMW M4	2021	Red	3000	450	Petrol	M	62000.00
25	BMW X2	2022	White	2000	230	Diesel	A	36000.00
26	BMW 7 Series	2023	Black	4000	500	Diesel	M	77000.00
27	BMW i3	2022	Silver	1500	170	Electric	A	35000.00
28	BMW X5	2021	Blue	3000	350	Petrol	A	52000.00
29	BMW 3 Series	2023	Red	2000	250	Diesel	M	41000.00
30	BMW M5	2022	White	4000	600	Petrol	A	82000.00
31	BMW X1	2023	Black	1800	200	Petrol	A	32000.00
32	BMW 5 Series	2021	Silver	2500	300	Diesel	A	47000.00
33	BMW X7	2022	Black	4500	550	Diesel	A	87000.00
34	BMW 2 Series	2023	Blue	1800	200	Petrol	M	34000.00
35	BMW M2	2022	Red	3000	365	Petrol	A	55000.00
36	Toyota Camry	2000	black	2000	200	Diesel	A	20000.00

36	Kingster	2025	black	2000	200	Diesel	A	20.00
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## DELETE

CRUD PYTHON MYSQL - BMW Cars

Show All  
Add Record  
Update  
Delete  
Search  
Refresh  
Total

ID	Model	Year	Color	EngineCapacity	EnginePower	EngineType	Transmission	Price
7	BMW X1	2022	Blue	1800	200	Petrol	A	32000.00
8	BMW 4 Series	2023	Red	3000	350	Petrol	A	48000.00
9	BMW X5	2022	Black	4000	500	Diesel	M	75000.00
10	BMW i3	2021	Silver	1500	170	Electric	A	35000.00
11	BMW M4	2023	Blue	3000	450	Petrol	M	62000.00
12	BMW X2	2022	White	2000	230	Diesel	A	36000.00
13	BMW 6 Series	2023	Black	4400	600	Petrol	A	95000.00
14	BMW X7	2022	Silver	4500	550	Diesel	A	85000.00
15	BMW 2 Series	2023	Black	1800	200	Petrol	M	32000.00
16	BMW M2	2021	White	3000	365	Petrol	A	54000.00
17	BMW X4	2022	Blue	2000	240	Diesel	A	41000.00
18	BMW 6 Series	2023	Red	2500	420	Petrol	M	69000.00
19	BMW i8	2022	Black	1500	170	Electric	A	75000.00
21	BMW X5	2022	White	3000	400	Diesel	M	68000.00
22	BMW 4 Series	2023	Black	2500	320	Petrol	A	49000.00
23	BMW X3	2022	Blue	2000	240	Petrol	A	39000.00
24	BMW M4	2021	Red	3000	450	Petrol	M	62000.00
25	BMW X2	2022	White	2000	230	Diesel	A	36000.00
26	BMW 7 Series	2023	Black	4000	500	Diesel	M	77000.00
27	BMW i3	2022	Silver	1500	170	Electric	A	35000.00
28	BMW X5	2021	Blue	3000	350	Petrol	A	52000.00
29	BMW 3 Series	2023	Red	2000	250	Diesel	M	41000.00
30	BMW M5	2022	White	4000	600	Petrol	A	82000.00
31	BMW X1	2023	Black	1800	200	Petrol	A	32000.00
32	BMW 5 Series	2021	Silver	2500	300	Diesel	A	47000.00
33	BMW X7	2022	Black	4500	550	Diesel	A	87000.00
34	BMW 2 Series	2023	Blue	1800	200	Petrol	M	34000.00
35	BMW M2	2022	Red	3000	365	Petrol	A	55000.00

## SEARCH

☒ Id
 ☐ Model
 ☐ Year
 ☐ Price

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CRUD PYTHON MYSQL - BMWCars

Show All

Add Record

Update

Delete

Search

Reload

Total

ID	Model	Year	Color	EngineCapacity	EnginePower	EngineType	Transmission	Price
1	BMW X5	2022	Black	3000	350	Petrol	A	50000.00

RELOAD

CRUD PYTHON MYSQL - BMWCars

Show All

Add Record

Update

Delete

Search

Reload

Total

ID	Model	Year	Color	EngineCapacity	EnginePower	EngineType	Transmission	Price
1	BMW X5	2022	Black	3000	350	Petrol	A	50000.00
2	BMW 3 Series	2021	White	2000	250	Diesel	M	40000.00
3	BMW M5	2023	Blue	4000	600	Petrol	A	80000.00
4	BMW 5 Series	2022	Silver	2500	300	Diesel	A	45000.00
5	BMW X3	2023	Black	2000	240	Petrol	A	38000.00
6	BMW 7 Series	2021	White	3500	480	Diesel	M	65000.00
7	BMW X1	2022	Blue	1800	200	Petrol	A	32000.00
8	BMW 4 Series	2023	Red	3000	350	Petrol	A	48000.00
9	BMW X6	2022	Black	4000	500	Diesel	M	75000.00
10	BMW i3	2021	Silver	1500	170	Electric	A	35000.00
11	BMW M4	2023	Blue	3000	450	Petrol	M	62000.00
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13	BMW 8 Series	2023	Black	4400	600	Petrol	A	95000.00
14	BMW X7	2022	Silver	4500	550	Diesel	A	85000.00
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16	BMW M2	2021	White	3000	365	Petrol	A	54000.00
17	BMW X4	2022	Blue	2000	240	Diesel	A	41000.00
18	BMW 6 Series	2023	Red	2500	420	Petrol	M	69000.00
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28	BMW X5	2021	Blue	3000	350	Petrol	A	52000.00
29	BMW 3 Series	2023	Red	2000	250	Diesel	M	41000.00
30	BMW M5	2022	White	4000	600	Petrol	A	82000.00

## TOTAL

```
self.buttonTotal = tk.Button(frame1, text="Total", command=self.totsRec,
                             width=24, height=2, background="#eba607", foreground="white")
self.buttonTotal.place(x=10, y=350)
```

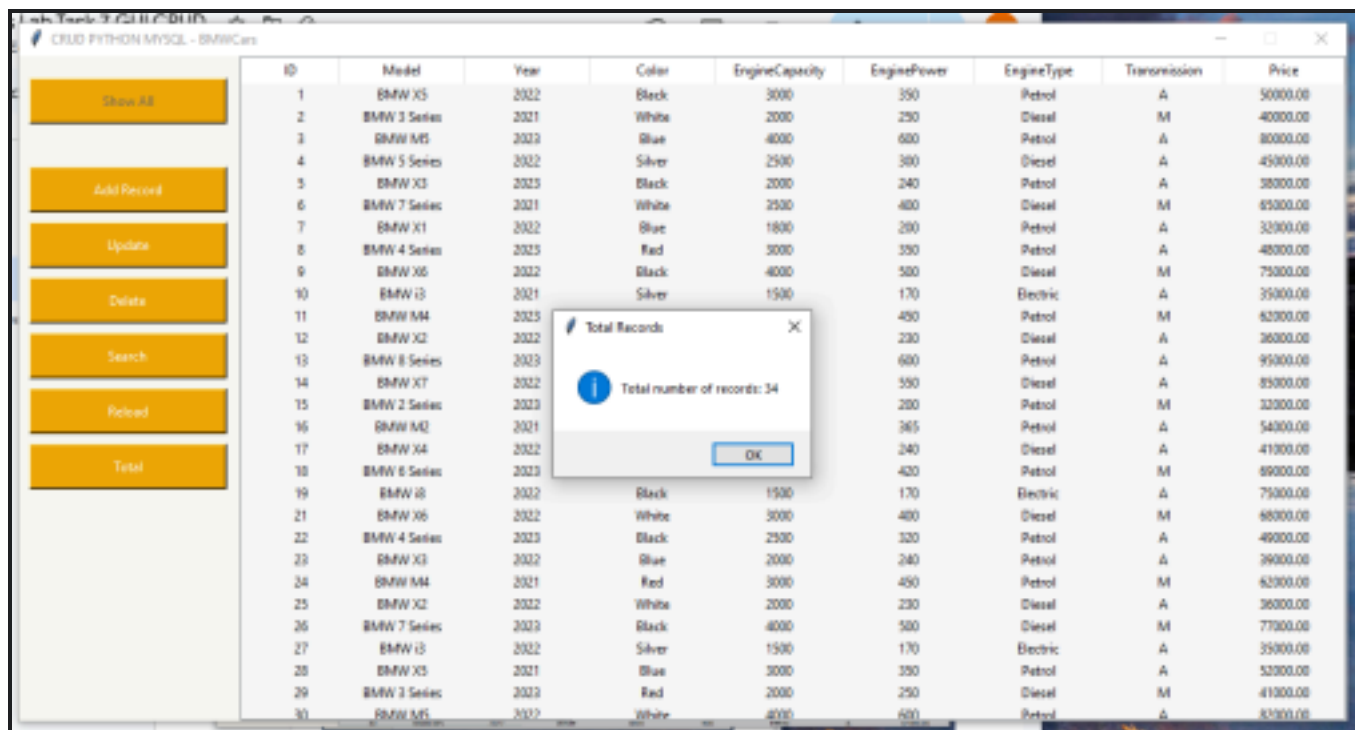
```
def count_records(self, table):
    sql = f"SELECT COUNT(*) FROM {table}"
```

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```
cursor = self.connectDB.cursor()
try:
    cursor.execute(sql)
    result = cursor.fetchone()
    return result[0]
except mysql.connector.Error as error:
    print("Error executing count query:", error)
```

```
def totsRec(self):
    self.cnn.connect()
    total = self.cnn.count_records("car")
    self.cnn.disconnect()
    messagebox.showinfo("Total Records", f"Total number of records: {total}")
```



ID	Model	Year	Color	EngineCapacity	EnginePower	EngineType	Transmission	Price
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8	BMW 4 Series	2023	Red	3000	350	Petrol	A	48000.00
9	BMW X6	2022	Black	4000	580	Diesel	M	75000.00
10	BMW i3	2021	Silver	1500	170	Electric	A	35000.00
11	BMW M4	2023			490	Petrol	M	62000.00
12	BMW X2	2022			230	Diesel	A	36000.00
13	BMW 8 Series	2023			600	Petrol	A	95000.00
14	BMW X7	2022			590	Diesel	A	85000.00
15	BMW 2 Series	2023			200	Petrol	M	32000.00
16	BMW M2	2021			365	Petrol	A	54000.00
17	BMW X4	2022			240	Diesel	A	41000.00
18	BMW 6 Series	2023			420	Petrol	M	69000.00
19	BMW i8	2022	Black	1500	170	Electric	A	75000.00
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