

Reliance Foundation School, Koparkhairane

Session 2020 – 2021

Computer science project (083)

Project Topic: warehouse management system using the concept of python interface with SQL

Name: Sricharan Adapa

Class: 12 A

Board roll no. 15607192

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Reliance Foundation School, Koparkhairane

CERTIFICATE

This is to certify that _____ , of class XII A,
Reliance Foundation School, Koparkhairane has successfully completed
the **Computer Science Journal** in conformity with the prescribed CBSE
syllabus for the academic session 2020- 2021.

Date:

Board Roll number:

Signature of Internal Examiner:

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Signature of Principal:

School Seal:

Acknowledgement

I would like to thank my project partner Sricharan Adapa without whom the project would've been an impossible task. I would also like to express my extreme gratitude to my Computer Science teacher Ms Bhanumathy Ganesh. I would also thank my parents and the school for providing excellent facilities for my academics.

Aim of the project:

The aim of our project is to use Python programming language, MySQL database and the concept of MySQL connector to make an interface to a database in python. This is a project for the warehouse management of electronic devices. Using this you should be able to buy a product, add another record, delete a particular record, display a particular record or exit the program. We can choose the product on basis of its special code.

Project outline

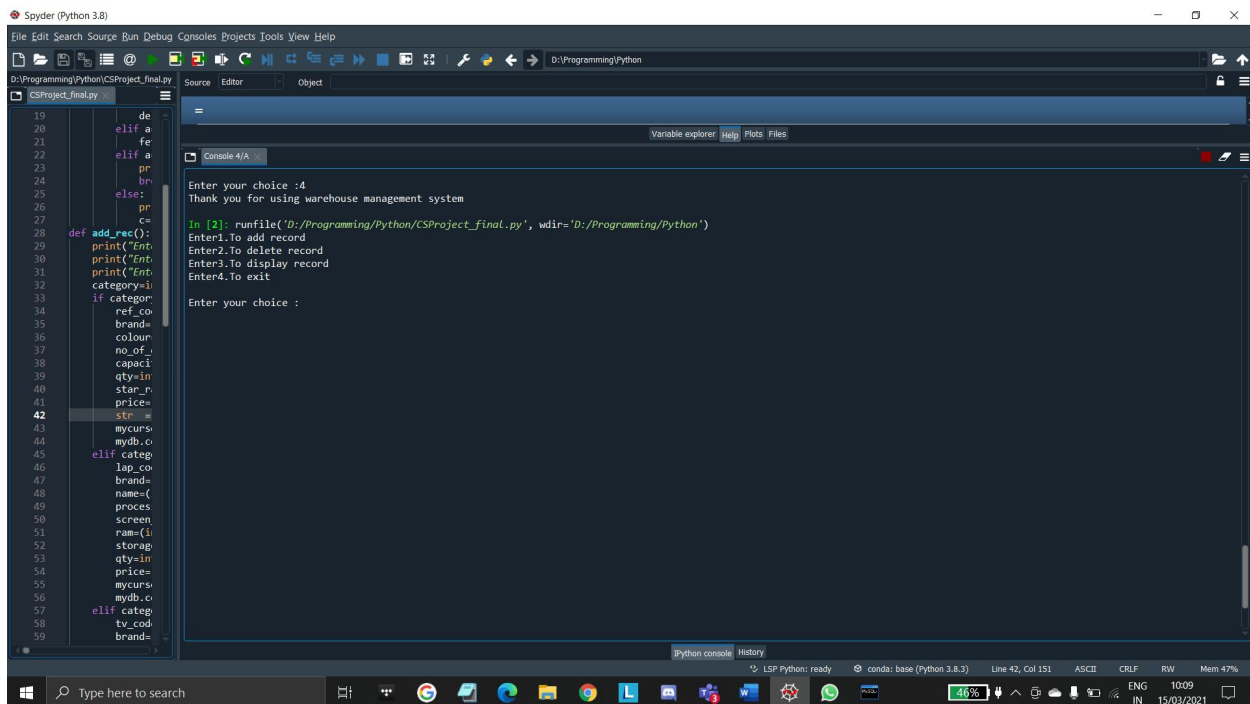
This project has been designed keeping in mind the needs of a warehouse management system, and user friendliness. This program helps us to maintain a database which is essential for any business.

Flow of execution

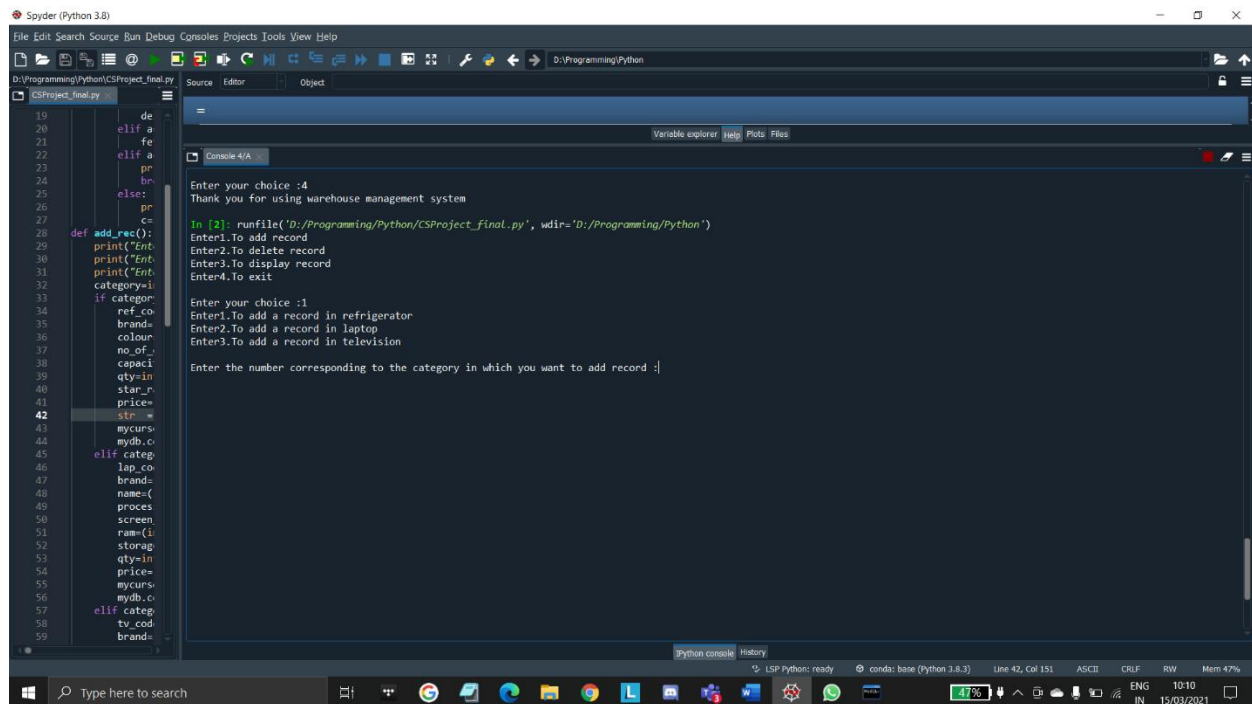
We have created 4 tables as given below: -

```
mysql> show tables;
+-----+
| Tables_in_csproject |
+-----+
| categories          |
| laptop              |
| refrigerator        |
| television          |
+-----+
4 rows in set (0.01 sec)
```

1) First the user will be asked which action he/she wants to perform as follows: -



- 2) If the user chooses option 1 to add record, he/she will be asked to choose which category he/she wants to add a record into as follows: -



The screenshot shows the Spyder Python IDE interface. The left pane displays a Python script named `CSProject_final.py` with the following code:

```
19:         de
20:     elif a
21:         fe
22:     elif a
23:         pr
24:     else:
25:         br
26:         c=
27:         c=
28: def add_rec():
29:     print("Ent
30:     print("Ent
31:     print("Ent
32:     category=i
33:     if categor
34:         ref_co
35:         brand_
36:         colour
37:         no_of_
38:         capaci
39:         qty_in
40:         star_r
41:         price_
42:         str =
43:         mycurs
44:         mydb.c
45:     elif categ
46:         lap_co
47:         brand_
48:         name=C
49:         proces
50:         screen
51:         ram=(i
52:         storag
53:         qty_in
54:         price_
55:         mycurs
56:         mydb.c
57:     elif categ
58:         tv_cod
59:         brand_
```

The right pane shows the console output:

```
Enter your choice :4
Thank you for using warehouse management system

In [2]: runfile('D:/Programming/Python/CSProject_final.py', wdir='D:/Programming/Python')
Enter1.To add record
Enter2.To delete record
Enter3.To display record
Enter4.To exit

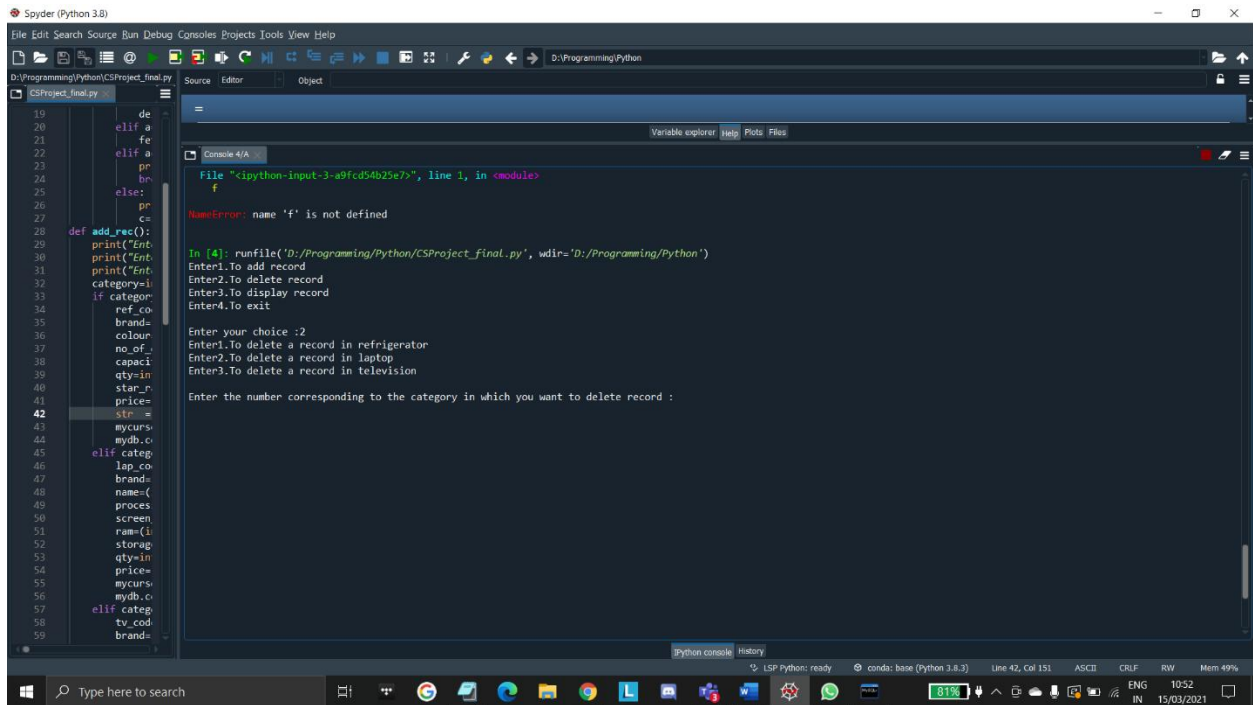
Enter your choice :1
Enter1.To add a record in refrigerator
Enter2.To add a record in laptop
Enter3.To add a record in television

Enter the number corresponding to the category in which you want to add record :|
```

The bottom status bar indicates the current environment: `LSP Python: ready`, `conda: base (Python 3.8.3)`, `Line 42, Col 151`, `ASCII`, `CRUF`, `RW`, `Mem 47%`, `ENG`, `10:10`, `15/03/2021`.

- 3) According to the options he/she chooses, the record will be inserted into the respective tables as follows according to the details inputted by the user

- 4) If the user chooses option 2 then he/she will be presented with the table names to choose from where the record will be deleted. The record will be deleted according to the conditions given by the user.

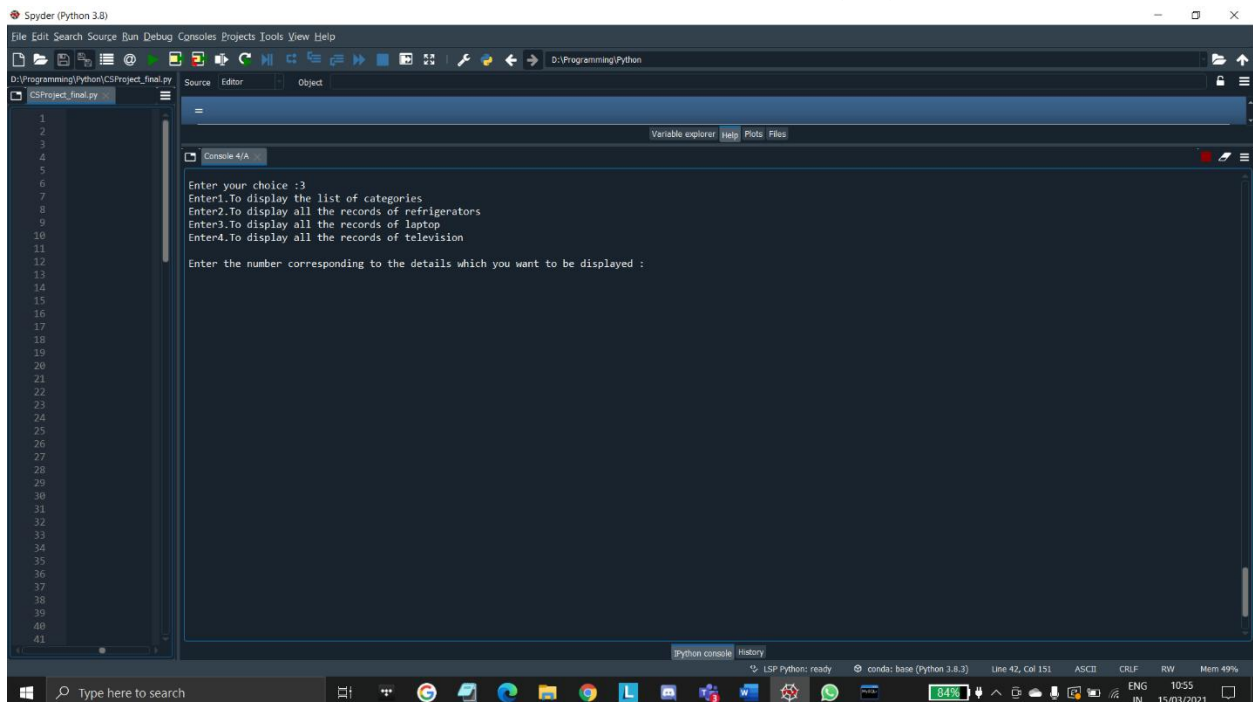


The screenshot shows the Spyder Python IDE interface. The editor on the left displays a Python script with a function `add_rec()` and a loop for deleting records. The console on the right shows the following output:

```
File "c:\python-input-3-a9fcd54b25e7>", line 1, in <module>
f
NameError: name 'f' is not defined

In [4]: runfile('D:/Programming/Python/CSProject_final.py', wdir='D:/Programming/Python')
Enter1.To add record
Enter2.To delete record
Enter3.To display record
Enter4.To exit
Enter your choice :2
Enter1.To delete a record in refrigerator
Enter2.To delete a record in laptop
Enter3.To delete a record in television
Enter the number corresponding to the category in which you want to delete record :
```

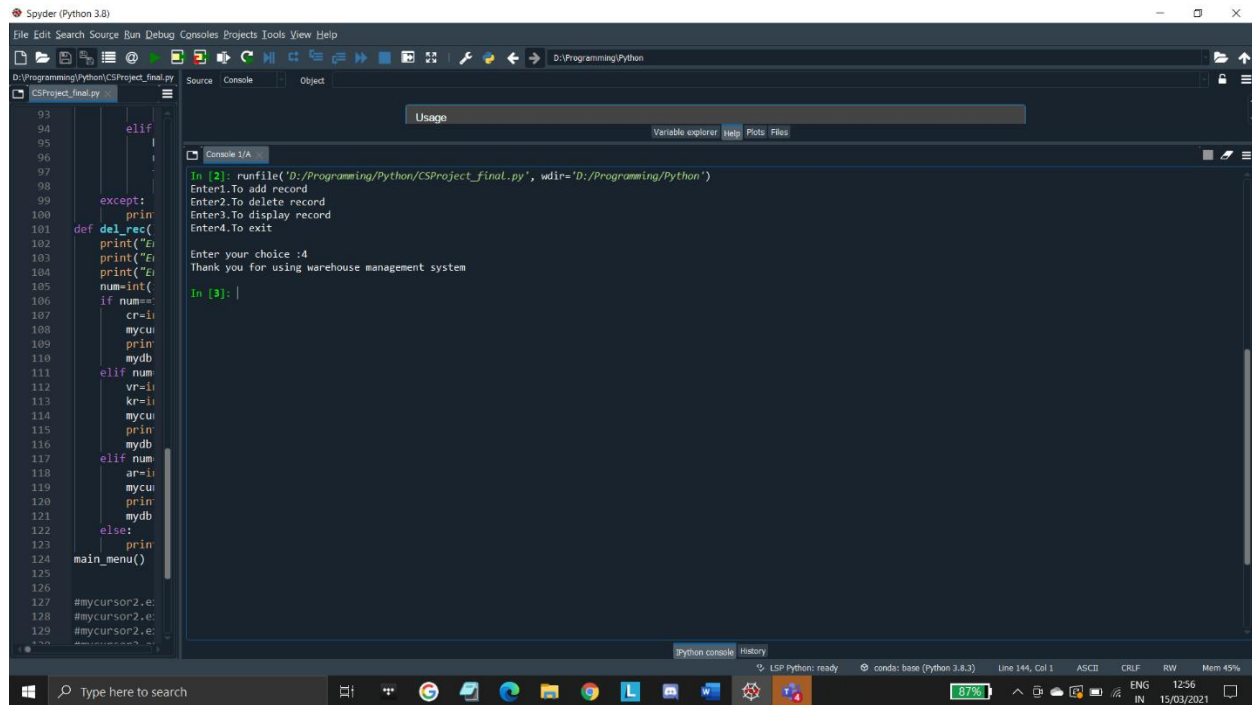
- 5) If the user chooses option 3 then he/she will be presented with options as follows, the records of the selected tables will be displayed



The screenshot shows the Spyder Python IDE interface. The editor on the left displays a Python script with a function `add_rec()` and a loop for displaying records. The console on the right shows the following output:

```
Enter your choice :3
Enter1.To display the list of categories
Enter2.To display all the records of refrigerators
Enter3.To display all the records of laptop
Enter4.To display all the records of television
Enter the number corresponding to the details which you want to be displayed :
```

6) If the user chooses option 4 then the program will come to an end



The screenshot shows the Spyder Python IDE interface. The left pane displays a Python script named `CSProject_final.py` with the following code:

```
93
94     elif
95     :
96
97
98
99     except:
100         print
101     def del_rec(
102         print("E
103         print("E
104         print("E
105         num=int(
106         if num==
107             cr=i
108             mycu
109             prin
110             mydb
111         elif num
112             vr=i
113             kr=i
114             mycu
115             prin
116             mydb
117         elif num
118             ar=i
119             mycu
120             prin
121             mydb
122         else:
123             prin
124     main_menu()
125
126
127 #mycursor2.e
128 #mycursor2.e
129 #mycursor2.e
```

The right pane shows the IPython console with the following output:

```
In [2]: runfile('D:/Programming/Python/CSProject_final.py', wdir='D:/Programming/Python')
Enter1.To add record
Enter2.To delete record
Enter3.To display record
Enter4.To exit
Enter your choice :4
Thank you for using warehouse management system
In [3]: |
```

The bottom status bar indicates the Python interpreter is ready, the conda base (python 3.8.3) environment is active, and the current file is Line 144, Col 1.

Hardware and software specifications

Softwares used :

Computer operating software : Windows 10

Python with spyder IDE

MySQL database

Hardware specification :

Intel Core i5

4GB RAM

Source code

```
import mysql.connector

mydb=mysql.connector.connect(host="localhost",user="root",password="Admin
@2507")

#print(mydb)

mycursor=mydb.cursor()

mycursor.execute("use csproject;")

mycursor2=mydb.cursor()


def main_menu():

    c='y'

    while (c=='y'):

        print("Enter1.To add record")

        print("Enter2.To delete record")

        print("Enter3.To display record")

        print("Enter4.To exit")

        a=int(input("Enter your choice :"))

        if a==1:

            add_rec()

        elif a==2:

            del_rec()

        elif a==3:

            fetchdata()

        elif a==4:

            print("Thank you for using warehouse management system")
```

```

        break
    else:
        print("Please enter a valid choice")
        c=input("Do you want to continue? Type 'y' for yes and 'n' for no")
def add_rec():
    print("Enter1.To add a record in refrigerator")
    print("Enter2.To add a record in laptop")
    print("Enter3.To add a record in television")
    category=int(input("Enter the number corresponding to the category in which
you want to add record :"))
    if category==1:
        ref_code=(input("Enter a reference code of your choice :"))
        brand=input("Enter the brand name which you want to add :")
        colour=input("Enter a colour :")
        no_of_doors=int(input("Enter the number of doors :"))
        capacity=(input("Enter the capacity of the refrigerator :"))
        qty=int(input("Enter the number of refrigerators that you want to add to the
available products list :"))
        star_rating=int(input("Enter the rating of this brand :"))
        price=(input("Enter the cost of this product :"))
        str          =          "insert          into          refrigerator
values('%s','%s','%s',%d,'%s',%d,%d,'%s')"%(ref_code,brand,colour,no_of_doors,c
apacity,qty,star_rating,price)
        mycursor.execute(str)
        mydb.commit()
    elif category==2:

```

```

lap_code=(input("Enter a code of your choice :"))
brand=input("Enter the brand name which you want to add :")
name=(input("Enter the series of your device :"))
processor=(input("Enter the type of processor :"))
screen_size=(input("Enter the size of the screen :"))
ram=(input("Enter the ram of the laptop :"))
storage=(input("Enter the storage space available :"))

qty=int(input("Enter the number of laptop devices that you want to add to
the available products list :"))

price=(input("Enter the cost of this product :"))

mycursor2.execute("insert                into                laptop
values('%s','%s','%s','%s','%s','%s','%s',%d,'%s')"%(lap_code,brand,name,processor,
screen_size,ram,storage,qty,price))

mydb.commit()

elif category==3:

tv_code=(input("Enter a code of your choice :"))
brand=input("Enter the brand name which you want to add :")
screen_size=(input("Enter the size of the screen :"))
resolution=(input("Enter the resolution :"))

qty=int(input("Enter the number of television sets that you want to add to
the available products list :"))

price=(input("Enter the cost of this product :"))

mycursor2.execute("insert                into                television
values('%s','%s','%s','%s',%d,'%s')"%(tv_code,brand,screen_size,resolution,qty,pric
e))

mydb.commit()

```

else:

print("This category is not present in our products")

def fetchdata():

try:

b=mydb.cursor()

print("Enter1.To display the list of categories")

print("Enter2.To display all the records of refrigerators")

print("Enter3.To display all the records of laptop")

print("Enter4.To display all the records of television")

z=int(input("Enter the number corresponding to the details which you want to be displayed :"))

if z==1:

b.execute("select * from categories")

results1=b.fetchall()

#print(type(results1))

#print((results1[0]))

for x in results1:

print(x)

elif z==2:

b.execute("select * from refrigerator")

results2=b.fetchall()

for x in results2:

print((x))

elif z==3:

```

        b.execute("select * from laptop")
        results3=b.fetchall()
        for x in results3:
            print((x))
    elif z==4:
        b.execute("select * from television")
        results4=b.fetchall()
        for x in results4:
            print((x))
except:
    print("Error:Unable to fetch data")
def del_rec():
    print("Enter1.To delete a record in refrigerator")
    print("Enter2.To delete a record in laptop")
    print("Enter3.To delete a record in television")
    num=int(input("Enter the number corresponding to the category in which you
want to delete record :"))
    if num==1:
        cr=input("Enter the brand name whose record is to be deleted :")
        mycursor2.execute("delete from refrigerator where brand='%s'"%(cr))
        print("Deleted successfully")
        mydb.commit()
    elif num==2:
        vr=input("Enter the brand name whose record is to be deleted :")

```



```

kr=input("Enter the series name of the device whose record is to be
deleted :")

mycursor2.execute("delete from laptop where brand='%s' and
name='%s'"%(vr,kr))

print("Deleted successfully")

mydb.commit()

elif num==3:

ar=input("Enter the brand name whose record is to be deleted :")

mycursor2.execute("delete from television where brand='%s'"%(ar))

print("Deleted successfully")

mydb.commit()

else:

print("This category is not present in our products")

main_menu()

```

```

#mycursor2.execute("create table categories (cat_code varchar(20) not null
primary key,category varchar(35),location_code varchar(5));")

#mycursor2.execute("INSERT INTO categories(cat_code,category,location_code)
VALUES(1001,'refrigerator',2001);")

#mycursor2.execute("insert into categories values(1002,'laptop',2002);")

#mycursor2.execute("insert into categories values(1003,'television',2003);")

#mycursor2.execute("create table refrigerator(ref_code varchar(10) not null
primary key, brand varchar(20), colour varchar(20), no_of_doors int(1), capacity
varchar(10), qty int(10), star_rating int(1), price varchar(10));")

```

```

#mycursor2.execute("insert                into                refrigerator
values('R001','Whirlpool','blue',1,'180L',10000,4,'Rs19000');")

#mycursor2.execute("insert                into                refrigerator
values('R002','LG','rose_gold',2,'420L',10000,4,'Rs55990');")

#mycursor2.execute("insert                into                refrigerator
values('R003','Samsung','grey',2,'810L',10000,5,'Rs350000');")

#mycursor2.execute("create table laptop (lap_code varchar(10) not null primary
key, brand varchar(20), name varchar(50), processor varchar(10), screen_size
varchar(15), ram varchar(4), storage varchar(30), qty int(10), price varchar(10));")

#mycursor2.execute("insert into laptop values('L001','acer','nitro5','i7','15.6
inch','16GB','1TB HDD+256GB SSD',10000,'Rs101999');")

#mycursor2.execute("insert into laptop values('L002','lenovo','ideapad','RYZEN
3','15.6 inch','4GB','1TB HDD',10000,'Rs36590');")

#mycursor2.execute("insert into laptop values('L003','apple','MacBook
Pro','i9','16 inch','16GB','1TB HDD',10000,'Rs239990');")

#mycursor2.execute("create table television(tv_code varchar(10) not null primary
key, brand varchar(20), screen_size varchar(20), resolution varchar(5), qty int(10),
price varchar(15));")

#mycursor2.execute("insert into television values('T001','sony','50
inches','1080p',10000,'Rs79990');")

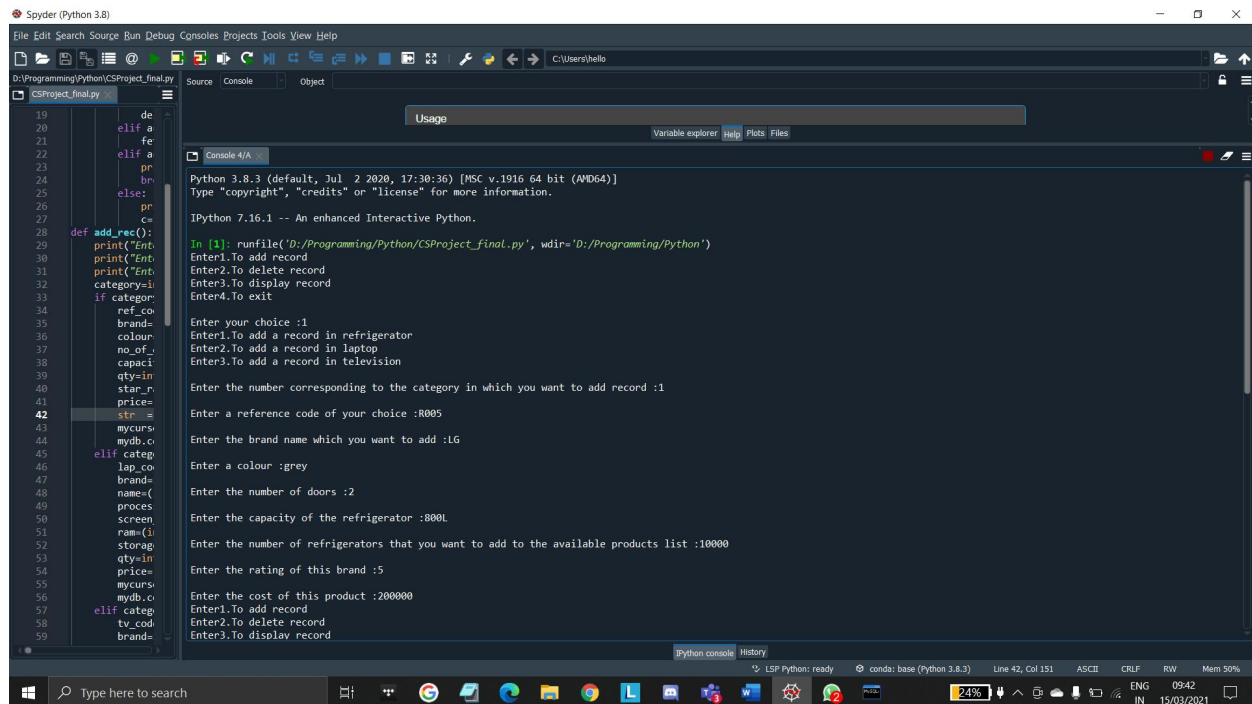
#mycursor2.execute("insert into television values('T002','sony','65
inches','4k',10000,'Rs264900');")

#mycursor2.execute("insert into television values('T003','sony','97.6
inches','8k',10000,'59999.99 USD');")

#mydb.commit()

```

Output :



The screenshot shows the Spyder Python IDE interface. The left pane displays a Python script named `CSProject_final.py` with the following code:

```
19 def add_rec():
20     elif a:
21         fe
22     elif a:
23         pr
24     br
25 else:
26     pr
27     c=
28
29 def add_rec():
30     print("Enter")
31     print("Enter")
32     print("Enter")
33     category=i
34     if category:
35         ref_co
36         brand=
37         colour=
38         no_of_d
39         capaci
40         qty=in
41         star_r
42         price=
43         str=
44         mycurs
45         mydb.co
46     elif categ
47         lap_co
48         brand=
49         name=(
50         proces
51         screen
52         ram=(i
53         storag
54         qty=in
55         price=
56         mycurs
57         mydb.co
58     elif categ
59         tv_cod
60         brand=
```

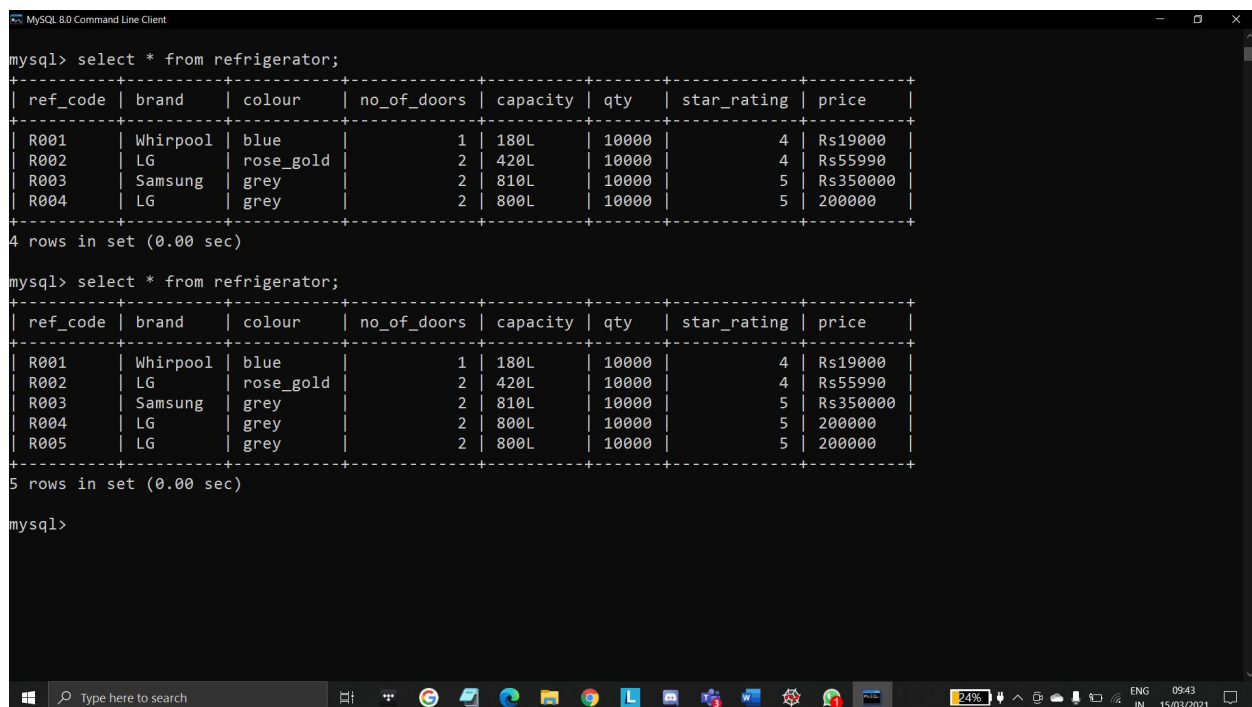
The right pane shows the console output, which includes the Python 3.8.3 startup message and the execution of the script. The script prompts the user for various inputs, and the console shows the following interactions:

```
In [1]: runfile('D:/Programming/Python/CSProject_final.py', wdir='D:/Programming/Python')
Enter1.To add record
Enter2.To delete record
Enter3.To display record
Enter4.To exit

Enter your choice :1
Enter1.To add a record in refrigerator
Enter2.To add a record in laptop
Enter3.To add a record in television

Enter the number corresponding to the category in which you want to add record :1

Enter a reference code of your choice :R005
Enter the brand name which you want to add :LG
Enter a colour :grey
Enter the number of doors :2
Enter the capacity of the refrigerator :800L
Enter the number of refrigerators that you want to add to the available products list :10000
Enter the rating of this brand :5
Enter the cost of this product :200000
Enter1.To add record
Enter2.To delete record
Enter3.To display record
```



The screenshot shows the MySQL 8.0 Command Line Client interface. The user has executed two queries to retrieve data from the `refrigerator` table.

Query 1:

```
mysql> select * from refrigerator;
```

Result:

| ref_code | brand | colour | no_of_doors | capacity | qty | star_rating | price |
|----------|-----------|-----------|-------------|----------|-------|-------------|----------|
| R001 | Whirlpool | blue | 1 | 180L | 10000 | 4 | Rs19000 |
| R002 | LG | rose_gold | 2 | 420L | 10000 | 4 | Rs55990 |
| R003 | Samsung | grey | 2 | 810L | 10000 | 5 | Rs350000 |
| R004 | LG | grey | 2 | 800L | 10000 | 5 | 200000 |

4 rows in set (0.00 sec)

Query 2:

```
mysql> select * from refrigerator;
```

Result:

| ref_code | brand | colour | no_of_doors | capacity | qty | star_rating | price |
|----------|-----------|-----------|-------------|----------|-------|-------------|----------|
| R001 | Whirlpool | blue | 1 | 180L | 10000 | 4 | Rs19000 |
| R002 | LG | rose_gold | 2 | 420L | 10000 | 4 | Rs55990 |
| R003 | Samsung | grey | 2 | 810L | 10000 | 5 | Rs350000 |
| R004 | LG | grey | 2 | 800L | 10000 | 5 | 200000 |
| R005 | LG | grey | 2 | 800L | 10000 | 5 | 200000 |

5 rows in set (0.00 sec)

The user has entered `mysql>` at the prompt, indicating the session is still active.

The screenshot shows the Spyder Python IDE interface. On the left, a Python script is open, showing a function `add_rec()` that prompts the user for various laptop specifications. The console on the right displays the execution of this function, showing the user's input for each prompt and the resulting record added to the database.

```
19 def add_rec():
20     elif a == 'r':
21         fe
22     elif a == 'd':
23         pr
24     else:
25         pr
26     c=
27
28 def add_rec():
29     print("Enter a code of your choice :")
30     print("Enter a code of your choice :L004")
31     print("Enter the brand name which you want to add :Lenovo")
32     print("Enter the series of your device :legion")
33     print("Enter the type of processor :i7")
34     print("Enter the size of the screen :15.6 inch")
35     print("Enter the ram of the laptop :16GB")
36     print("Enter the storage space available :500GB SSD")
37     print("Enter the number of laptop devices that you want to add to the available products list :10000")
38     print("Enter the cost of this product :100000")
39     print("Enter1.To add record")
40     print("Enter2.To delete record")
41     print("Enter3.To display record")
42     print("Enter4.To exit")
43     print("Enter your choice :")
44
45 if __name__ == '__main__':
46     mycursor = mydb.cursor()
47     mydb = mysql.connector.connect(
48         host="localhost",
49         user="root",
50         password="root",
51         database="warehouse")
52     add_rec()
53     mycursor.execute("select * from laptop;")
54     mycursor.execute("select * from laptop;")
55     mycursor.execute("select * from laptop;")
56     mycursor.execute("select * from laptop;")
57     mycursor.execute("select * from laptop;")
58     mycursor.execute("select * from laptop;")
59     mycursor.execute("select * from laptop;")
```

Console Output:

```
Enter1.To add a record in refrigerator
Enter2.To add a record in laptop
Enter3.To add a record in television
Enter the number corresponding to the category in which you want to add record :2
Enter a code of your choice :L004
Enter the brand name which you want to add :Lenovo
Enter the series of your device :legion
Enter the type of processor :i7
Enter the size of the screen :15.6 inch
Enter the ram of the laptop :16GB
Enter the storage space available :500GB SSD
Enter the number of laptop devices that you want to add to the available products list :10000
Enter the cost of this product :100000
Enter1.To add record
Enter2.To delete record
Enter3.To display record
Enter4.To exit
Enter your choice :
```

The screenshot shows the MySQL 8.0 Command Line Client interface. It displays the output of two SQL queries: `select * from laptop;` and `select * from laptop;`. The output shows a table with columns: `lap_code`, `brand`, `name`, `processor`, `screen_size`, `ram`, `storage`, `qty`, and `price`. The first query returns 3 rows, and the second query returns 4 rows.

```
mysql> select * from laptop;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| lap_code | brand | name       | processor | screen_size | ram  | storage       | qty | price |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| L001     | acer  | nitro5     | i7         | 15.6 inch   | 16GB | 1TB HDD+256GB SSD | 10000 | Rs101999 |
| L002     | lenovo | ideapad    | RYZEN 3    | 15.6 inch   | 4GB  | 1TB HDD       | 10000 | Rs36590  |
| L003     | apple | MacBook Pro | i9         | 16 inch     | 16GB | 1TB HDD       | 10000 | Rs239990 |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
3 rows in set (0.00 sec)

mysql> select * from laptop;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| lap_code | brand | name       | processor | screen_size | ram  | storage       | qty | price |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| L001     | acer  | nitro5     | i7         | 15.6 inch   | 16GB | 1TB HDD+256GB SSD | 10000 | Rs101999 |
| L002     | lenovo | ideapad    | RYZEN 3    | 15.6 inch   | 4GB  | 1TB HDD       | 10000 | Rs36590  |
| L003     | apple | MacBook Pro | i9         | 16 inch     | 16GB | 1TB HDD       | 10000 | Rs239990 |
| L004     | lenovo | legion     | i7         | 15.6 inch   | 16GB | 500GB SSD     | 10000 | 100000   |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
4 rows in set (0.01 sec)

mysql>
```

The screenshot shows the Spyder Python IDE interface. The left pane displays a Python script named `CSProject_final.py` with the following code:

```
19     de
20     elif a
21     fe
22     elif a
23     pr
24     to
25     else:
26     pr
27     cu
28
29 def add_rec():
30     print("Ent
31     print("Ent
32     category=i
33     if category
34         ref.co
35         brand=
36         colour=
37         no_of_
38         capaci
39         qty-in
40         star_
41         price=
42     str_ =
43     mycurs=
44     mydb.c
45     elif categ
46         lap.co
47         brand=
48         name=(
49         proces
50         screen
51         ram(1
52         storag
53         qty=in
54         price=
55         mycurs=
56         mydb.c
57     elif categ
58         tv_cod
59         brand=
```

The right pane shows the console output for 'Console 4/A':

```
Enter your choice :1
Enter1.To add a record in refrigerator
Enter2.To add a record in laptop
Enter3.To add a record in television

Enter the number corresponding to the category in which you want to add record :3

Enter a code of your choice :T002

Enter the brand name which you want to add :Samsung
Enter the size of the screen :55

Enter the resolution :2160p

Enter the number of television sets that you want to add to the available products list :10000

Enter the cost of this product :100000
Enter1.To add record
Enter2.To delete record
Enter3.To display record
Enter4.To exit

Enter your choice :|
```

The bottom status bar indicates the environment: 'conda: base (Python 3.8.3)', 'Line 42, Col 151', and 'Mem 46%'.

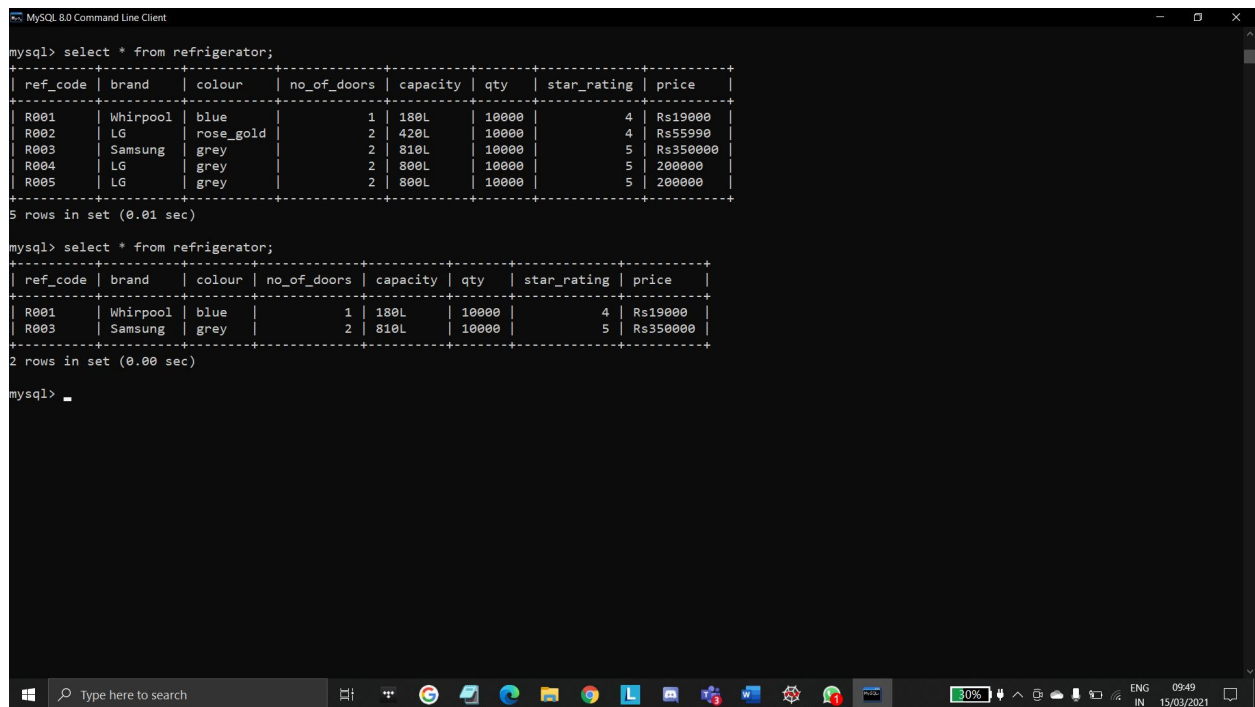
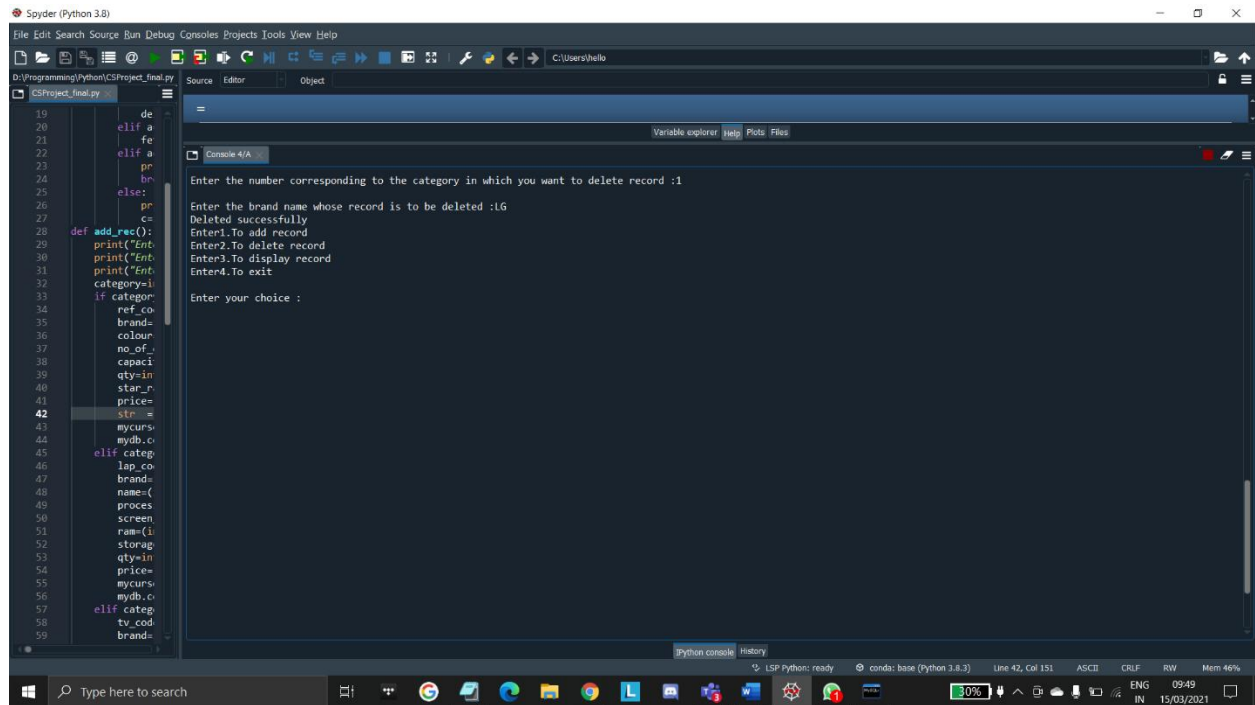
The screenshot shows the MySQL 8.0 Command Line Client interface. The following queries and results are displayed:

```
mysql> select * from television;
+-----+-----+-----+-----+-----+-----+
| tv_code | brand | screen_size | resolution | qty | price |
+-----+-----+-----+-----+-----+
| T001   | Sony  | 55          | 2160p     | 10 | 90000 |
+-----+-----+-----+-----+-----+
1 row in set (0.01 sec)

mysql> select * from television;
+-----+-----+-----+-----+-----+-----+
| tv_code | brand | screen_size | resolution | qty | price |
+-----+-----+-----+-----+-----+
| T001   | Sony  | 55          | 2160p     | 10 | 90000 |
| T002   | Samsung | 55        | 2160p     | 10000 | 100000 |
+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)

mysql>
```

The bottom status bar shows the system clock: '09:47 15/03/2021'.



The screenshot shows the Spyder Python IDE with a file named `CSProject_final.py`. The script contains a `delete_record` function that interacts with a database to delete records based on user input. The console output shows the program's execution flow, including prompts for category, brand, and device name, and confirmation messages.

```

19     de
20     elif a
21     fe
22     elif a
23     pr
24     br
25     else:
26     pr
27     cs
28
29 def delete_record():
30     print("Ent
31     print("Ent
32     category=i
33     if category
34         ref.co
35         brand=
36         colour=
37         no_of_
38         capaci
39         qty-in
40         star_r
41         price=
42     str =
43     mycursor=
44     mydb.co
45     elif categ
46         lap.co
47         brand=
48         name=(
49         proces
50         screen
51         ram(il
52         storag
53         qty=in
54         price=
55         mycursor=
56         mydb.co
57     elif categ
58         tv_cod
59         brand=

```

Console Output:

```

Enter your choice :2
Enter1.To delete a record in refrigerator
Enter2.To delete a record in laptop
Enter3.To delete a record in television

Enter the number corresponding to the category in which you want to delete record :2

Enter the brand name whose record is to be deleted :acer

Enter the series name of the device whose record is to be deleted :nitro5
Deleted successfully
Enter1.To add record
Enter2.To delete record
Enter3.To display record
Enter4.To exit

Enter your choice :

```

The screenshot shows the MySQL Command Line Client with two SQL queries and their results. The first query selects all records from the `laptop` table, and the second query selects all records from the `laptop` table where the quantity is greater than 1000.

```

mysql> select * from laptop;
+----+-----+-----+-----+-----+-----+-----+-----+-----+
| lap_code | brand | name       | processor | screen_size | ram   | storage          | qty | price |
+----+-----+-----+-----+-----+-----+-----+-----+-----+
| L001    | acer  | nitro5     | i7         | 15.6 inch   | 16GB | 1TB HDD+256GB SSD | 1000 | Rs101999 |
| L002    | lenovo | ideapad    | RYZEN 3    | 15.6 inch   | 4GB  | 1TB HDD          | 1000 | Rs36590  |
| L003    | apple | MacBook Pro | i9         | 16 inch     | 16GB | 1TB HDD          | 1000 | Rs239990 |
| L004    | Lenovo | legion     | i7         | 15.6 inch   | 16GB | 500GB SSD        | 1000 | 100000   |
+----+-----+-----+-----+-----+-----+-----+-----+-----+
4 rows in set (0.00 sec)

mysql> select * from laptop;
+----+-----+-----+-----+-----+-----+-----+-----+-----+
| lap_code | brand | name       | processor | screen_size | ram   | storage          | qty | price |
+----+-----+-----+-----+-----+-----+-----+-----+-----+
| L002    | lenovo | ideapad    | RYZEN 3    | 15.6 inch   | 4GB  | 1TB HDD          | 1000 | Rs36590  |
| L003    | apple | MacBook Pro | i9         | 16 inch     | 16GB | 1TB HDD          | 1000 | Rs239990 |
| L004    | Lenovo | legion     | i7         | 15.6 inch   | 16GB | 500GB SSD        | 1000 | 100000   |
+----+-----+-----+-----+-----+-----+-----+-----+-----+
3 rows in set (0.01 sec)

mysql>

```


The screenshot shows the Spyder Python IDE with a file named `CSProject_final.py`. The script defines a function `add_rec()` that interacts with a MySQL database. The console output shows the following sequence of events:

```

Enter your choice :2
Enter1.To delete a record in refrigerator
Enter2.To delete a record in laptop
Enter3.To delete a record in television

Enter the number corresponding to the category in which you want to delete record :3

Enter the brand name whose record is to be deleted :Samsung;
Deleted successfully
Enter1.To add record
Enter2.To delete record
Enter3.To display record
Enter4.To exit

Enter your choice :
  
```

The script code is as follows:

```

19     de
20     elif a
21     fe
22     elif a
23     pr
24     br
25     else:
26     pr
27     co
28
29 def add_rec():
30     print("Ent
31     print("Ent
32     category=i
33     if category
34         ref.co
35         brand=
36         colour=
37         no_of_
38         capaci
39         qty=in
40         star_r
41         price=
42         str =
43         mycurs=
44         mydb.c
45         elif categ
46         lap.co
47         brand=
48         name=(
49         proces
50         screen
51         ram(il
52         storag
53         qty=in
54         price=
55         mycurs=
56         mydb.c
57         elif categ
58         tv_cod
59         brand=
  
```

The screenshot shows the MySQL Command Line Client with the following queries and results:

```

mysql> select * from television;
+-----+-----+-----+-----+-----+-----+
| tv_code | brand | screen_size | resolution | qty | price |
+-----+-----+-----+-----+-----+-----+
| T001   | Sony  | 55          | 2160p     | 10  | 90000 |
| T002   | Samsung | 55        | 2160p     | 10000 | 100000 |
+-----+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)

mysql> select * from television;
+-----+-----+-----+-----+-----+-----+
| tv_code | brand | screen_size | resolution | qty | price |
+-----+-----+-----+-----+-----+-----+
| T001   | Sony  | 55          | 2160p     | 10  | 90000 |
+-----+-----+-----+-----+-----+-----+
1 row in set (0.00 sec)

mysql>
  
```



```
19     de
20     elif a
21     fe
22     elif a
23     pr
24     br
25     else:
26     pr
27     cs
28     def add_rec():
29     print("Ent
30     print("Ent
31     print("Ent
32     category=i
33     if categor
34     ref_co
35     brand
36     colour
37     no_of_
38     capaci
39     qty-in
40     star_r
41     price=
42     str =
43     mycurs=
44     mydb.c
45     elif categ
46     lap_co
47     brand
48     name=(
49     proces
50     screen
51     ram=(i
52     storag
53     qty=in
54     price=
55     mycurs=
56     mydb.c
57     elif categ
58     tv_cod
59     brand=
```

Console 4/A

Enter your choice :3

Enter1.To display the list of categories

Enter2.To display all the records of refrigerators

Enter3.To display all the records of laptop

Enter4.To display all the records of television

Enter the number corresponding to the details which you want to be displayed :1

('1001', 'refrigerator', '2001')

('1002', 'laptop', '2002')

('1003', 'television', '2003')

Enter1.To add record

Enter2.To delete record

Enter3.To display record

Enter4.To exit

Enter your choice :

```
19     de
20     elif a
21     fe
22     elif a
23     pr
24     br
25     else:
26     pr
27     cs
28     def add_rec():
29     print("Ent
30     print("Ent
31     print("Ent
32     category=i
33     if categor
34     ref_co
35     brand
36     colour
37     no_of_
38     capaci
39     qty-in
40     star_r
41     price=
42     str =
43     mycurs=
44     mydb.c
45     elif categ
46     lap_co
47     brand
48     name=(
49     proces
50     screen
51     ram=(i
52     storag
53     qty=in
54     price=
55     mycurs=
56     mydb.c
57     elif categ
58     tv_cod
59     brand=
```

Console 4/A

Enter your choice :3

Enter1.To display the list of categories

Enter2.To display all the records of refrigerators

Enter3.To display all the records of laptop

Enter4.To display all the records of television

Enter the number corresponding to the details which you want to be displayed :2

('R001', 'Whirlpool', 'blue', 1, '180L', 10000, 4, 'Rs19000')

('R003', 'Samsung', 'grey', 2, '810L', 10000, 5, 'Rs350000')

Enter1.To add record

Enter2.To delete record

Enter3.To display record

Enter4.To exit

Enter your choice :

```
19 def add_rec():
20     de
21     elif a
22     elif a
23     pr
24     br
25     else:
26     pr
27     c=
28     def add_rec():
29     print("Ent
30     print("Ent
31     print("Ent
32     category=i
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36     colour=
37     no_of_
38     capaci
39     qty=in
40     star_r
41     price=
42     str =
43     mycurs=
44     mydb.co
45     elif categ
46     lap_co
47     brand=
48     name=(
49     proces
50     screen
51     ram=(i
52     storag
53     qty=in
54     price=
55     mycurs=
56     mydb.co
57     elif categ
58     tv_cod
59     brand=
```

Console 4/A

Enter your choice :3
Enter1.To display the list of categories
Enter2.To display all the records of refrigerators
Enter3.To display all the records of laptop
Enter4.To display all the records of television

Enter the number corresponding to the details which you want to be displayed :3
(1002, 'lenovo', 'ideapad', 'RYZEN 3', '15.6 inch', '4GB', '1TB HDD', 10000, 'Rs36590')
(1003, 'apple', 'MacBook Pro', 'i9', '16 inch', '16GB', '1TB HDD', 10000, 'Rs239990')
(1004, 'lenovo', 'legion', 'i7', '15.6 inch', '16GB', '500GB SSD', 10000, '100000')

Enter1.To add record
Enter2.To delete record
Enter3.To display record
Enter4.To exit

Enter your choice :

```
19 def add_rec():
20     de
21     elif a
22     elif a
23     pr
24     br
25     else:
26     pr
27     c=
28     def add_rec():
29     print("Ent
30     print("Ent
31     print("Ent
32     category=i
33     if category
34     ref_co
35     brand=
36     colour=
37     no_of_
38     capaci
39     qty=in
40     star_r
41     price=
42     str =
43     mycurs=
44     mydb.co
45     elif categ
46     lap_co
47     brand=
48     name=(
49     proces
50     screen
51     ram=(i
52     storag
53     qty=in
54     price=
55     mycurs=
56     mydb.co
57     elif categ
58     tv_cod
59     brand=
```

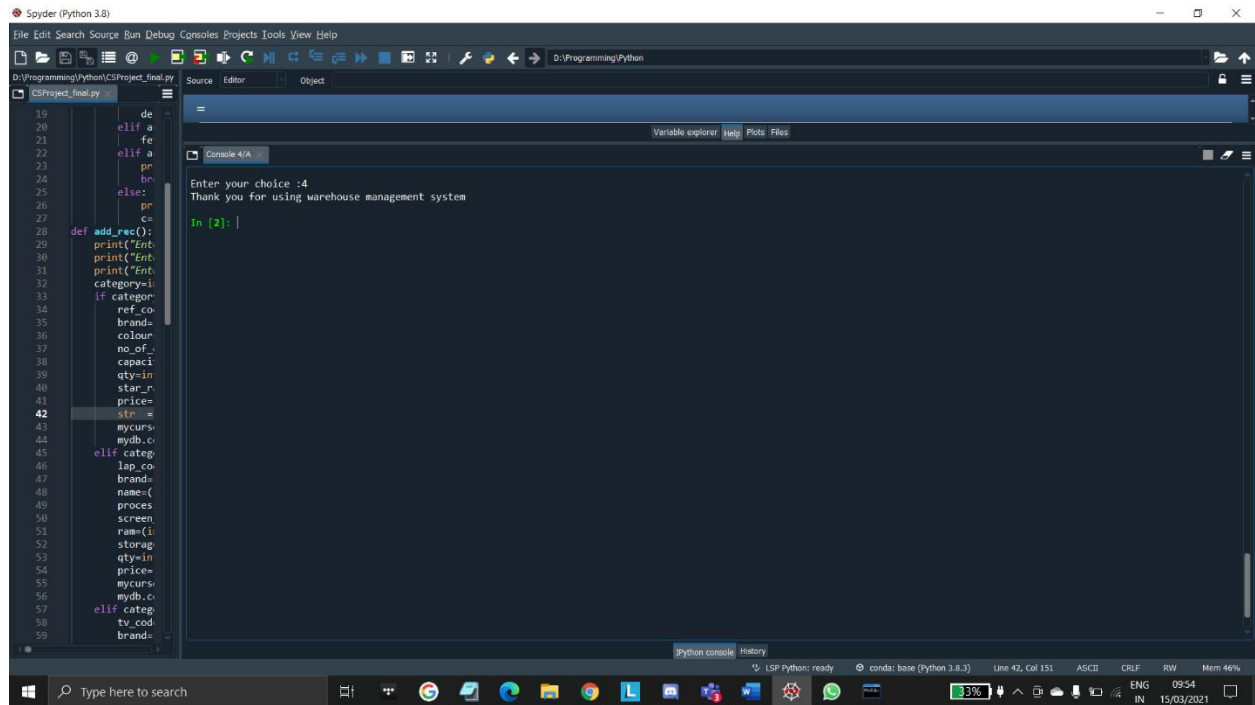
Console 4/A

Enter your choice :3
Enter1.To display the list of categories
Enter2.To display all the records of refrigerators
Enter3.To display all the records of laptop
Enter4.To display all the records of television

Enter the number corresponding to the details which you want to be displayed :4
(1001, 'Sony', '55', '2160p', 10, '00000')

Enter1.To add record
Enter2.To delete record
Enter3.To display record
Enter4.To exit

Enter your choice :



Bibliography

The source used for this project is our prescribed computer science textbook, Computer science with python for class 12 by Sumita Arora

Issues faced while doing the project were solved using stackoverflow.com