Project: Database Systems

CSE 5330-002 – Spring 2023

Deliverable: Project 2 (Part 3)

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1. Loading data into tables

Task 1: For loading data into tables, we created a csv file for each of the six tables, and used the MySQL Connector/Python to import data. MySQL Connector enables Python programs to access MySQL databases, using an API that is compliant with the Python

Database API Specification. The source code for the same is listed below:

```
import csv
import mysql.connector
mydb = mysql.connector.connect(host="acadmysqldb001p.uta.edu", user="mxj3280", password="Mjuta2022!",
database="mxj3280")
mycursor = mydb.cursor()
print(mydb)
print(mycursor)
with open('/Users/ASUS/Downloads/dbdata/Owner.csv') as csvfile:
 csv data = csv.reader(csvfile)
 next(csv data, None)
 for rows in csv_data:
  a = int(rows[0])
  print(a)
  mycursor.execute("INSERT INTO Owner VALUES (%s)", [a])
csvfile.close()
with open('/Users/ASUS/Downloads/dbdata/Rental_Company.csv') as csvfile:
 csv data = csv.reader(csvfile)
 next(csv data, None)
 for rows in csv_data:
  a = int(rows[0])
  b = rows[1]
```

```
print(a,b)
  mycursor.execute("INSERT INTO Rental_Company VALUES (%s,%s)", [a,b])
csvfile.close()
with open('/Users/ASUS/Downloads/dbdata/Bank.csv') as csvfile:
 csv_data = csv.reader(csvfile)
 next(csv_data, None)
 for rows in csv_data:
  a = int(rows[0])
  b = rows[1]
  print(a,b)
  mycursor.execute("INSERT INTO Bank VALUES (%s,%s)", [a,b])
csvfile.close()
with open('/Users/ASUS/Downloads/dbdata/Individual.csv') as csvfile:
 csv_data = csv.reader(csvfile)
 next(csv_data, None)
 for rows in csv_data:
  a = int(rows[0])
  b = rows[1]
  c = rows[2]
  print(a,b,c)
  mycursor.execute("INSERT INTO Individual VALUES (%s,%s,%s)", [a,b,c])
csvfile.close()
with open('/Users/ASUS/Downloads/dbdata/CAR.csv') as csvfile:
 csv_data = csv.reader(csvfile)
 next(csv data, None)
 for rows in csv data:
  a = int(rows[0])
  b = int(rows[1])
  c = rows[2]
  d = rows[3]
  e = rows[4]
  f = rows[5]
  print(a,b,c,d,e,f)
  mycursor.execute("INSERT INTO CAR VALUES (%s,%s,%s,%s,%s,%s,%s)", [a,b,c,d,e,f])
csvfile.close()
```

```
with open('/Users/ASUS/Downloads/dbdata/CAR_TYPE.csv') as csvfile:
 csv_data = csv.reader(csvfile)
 next(csv_data, None)
 for rows in csv data:
  a = int(rows[0])
  b = int(rows[1])
  c = int(rows[2])
  print(a,b,c)
  mycursor.execute("INSERT INTO CAR_TYPE VALUES (%s,%s,%s)", [a,b,c])
csvfile.close()
with open('/Users/ASUS/Downloads/dbdata/Van.csv') as csvfile:
 csv_data = csv.reader(csvfile)
 next(csv data, None)
 for rows in csv_data:
  a = int(rows[0])
  print(a)
  mycursor.execute("INSERT INTO Van VALUES (%s)", [a])
csvfile.close()
with open('/Users/ASUS/Downloads/dbdata/Compact.csv') as csvfile:
 csv_data = csv.reader(csvfile)
 next(csv_data, None)
 for rows in csv_data:
  a = int(rows[0])
  print(a)
  mycursor.execute("INSERT INTO Compact VALUES (%s)", [a])
csvfile.close()
with open('/Users/ASUS/Downloads/dbdata/Truck.csv') as csvfile:
 csv data = csv.reader(csvfile)
 next(csv_data, None)
 for rows in csv data:
  a = int(rows[0])
  print(a)
  mycursor.execute("INSERT INTO Truck VALUES (%s)", [a])
csvfile.close()
with open('/Users/ASUS/Downloads/dbdata/SUV.csv') as csvfile:
 csv_data = csv.reader(csvfile)
 next(csv_data, None)
```

```
for rows in csv_data:
  a = int(rows[0])
  print(a)
  mycursor.execute("INSERT INTO SUV VALUES (%s)", [a])
csvfile.close()
with open('/Users/ASUS/Downloads/dbdata/Large.csv') as csvfile:
 csv_data = csv.reader(csvfile)
 next(csv_data, None)
 for rows in csv_data:
  a = int(rows[0])
  print(a)
  mycursor.execute("INSERT INTO Large VALUES (%s)", [a])
csvfile.close()
with open('/Users/ASUS/Downloads/dbdata/Medium.csv') as csvfile:
 csv_data = csv.reader(csvfile)
 next(csv_data, None)
 for rows in csv_data:
  a = int(rows[0])
  print(a)
  mycursor.execute("INSERT INTO Medium VALUES (%s)", [a])
csvfile.close()
with open('/Users/ASUS/Downloads/dbdata/Luxury.csv') as csvfile:
 csv_data = csv.reader(csvfile)
 next(csv_data, None)
 for rows in csv data:
  a = int(rows[0])
  mycursor.execute("INSERT INTO Luxury VALUES (%s)", [a])
csvfile.close()
with open('/Users/ASUS/Downloads/dbdata/Regular.csv') as csvfile:
 csv_data = csv.reader(csvfile)
 next(csv_data, None)
 for rows in csv_data:
  a = int(rows[0])
  mycursor.execute("INSERT INTO Regular VALUES (%s)", [a])
csvfile.close()
```

```
with open('/Users/ASUS/Downloads/dbdata/RENTS.csv') as csvfile:
 csv_data = csv.reader(csvfile)
 next(csv_data, None)
 for rows in csv_data:
  a = int(rows[0])
  b = int(rows[1])
  c = rows[2]
  d = rows[3]
  e = int(rows[4])
  f = int(rows[5])
  g = int(rows[6])
  h = int(rows[7])
  i = int(rows[8])
  j = int(rows[9])
  print(a,b,c,d,e,f,g,h,i,j)
  csvfile.close()
with open('/Users/ASUS/Downloads/dbdata/CUSTOMER.csv') as csvfile:
 csv_data = csv.reader(csvfile)
 next(csv_data, None)
 for rows in csv data:
  a = int(rows[0])
  b = int(rows[1])
  print(a,b)
  mycursor.execute("INSERT INTO CUSTOMER VALUES (%s,%s)", [a,b])
csvfile.close()
with open('/Users/ASUS/Downloads/dbdata/Individual Cust.csv') as csvfile:
 csv_data = csv.reader(csvfile)
 next(csv data, None)
 for rows in csv data:
  a = int(rows[0])
  b = rows[1]
  c = rows[2]
  print(a,b,c)
  mycursor.execute("INSERT INTO Individual_Cust VALUES (%s,%s,%s)", [a,b,c])
csvfile.close()
with open('/Users/ASUS/Downloads/dbdata/Company.csv') as csvfile:
 csv_data = csv.reader(csvfile)
 next(csv_data, None)
```

```
for rows in csv_data:

a = int(rows[0])

b = rows[1]

print(a,b)

mycursor.execute("INSERT INTO Company VALUES (%s,%s)", [a,b])

csvfile.close()

mydb.commit()
```

2. Retrieve and Print data in all tables

Task 2: To retrieve and print data from all tables

Initial Customer Table

```
mysql> select * from customer;
            Phone
  Cust_ID |
       11
             1234
       22
              2345
       33
             3456
       44
             4567
       55
             5678
       66
             6789
       77
             7890
       88
             8901
       99
             9012
      100
             1023
10 rows in set (0.01 sec)
```

```
mysql> select * from company;
 Cust_ID | CName
       11
            Α
            В
       22
       33
            C
            D
       44
            E
       55
            F
       66
       77
            G
            Н
       88
       99
            Ι
      100
            J
10 rows in set (0.01 sec)
```

Initial Company Table

```
mysql> select * from car_type
 Type_ID | Daily_Rate | Weekly_Rate
     1001
                    100
                                   200
     1002
                    110
                                   220
     1003
                    120
                                   240
     1004
                    130
                                   260
     1005
                    140
                                   280
     1006
                    150
                                   300
     1007
                    160
                                   320
     1008
                    170
                                   340
     1009
                    180
                                   360
     1010
                    190
                                   380
10 rows in set (0.02 sec)
```

Vehicle_ID	Owner_ID	Avail_StartDate	Avail_EndDate	Model	Year
1001	1	2023-04-01	2023-04-02	Toyota	2014
1002	2	2023-04-02	2023-04-03	Nissan	2015
1003	3	2023-04-03	2023-04-04	Honda	2016
1004	4	2023-04-04	2023-04-05	Ford	2017
1005	5	2023-04-05	2023-04-06	Chevrolet	2018
1006	6	2023-04-06	2023-04-07	Volkswagen	2019
1007	7	2023-04-07	2023-04-08	Hyundai	2020
1008	8	2023-04-08	2023-04-09	Kia	2021
1009	9	2023-04-09	2023-04-10	MercedesBenz	2022
1010	10	2023-04-10	2023-04-11	BMW	2023

Initial Car table

```
mysql> select * from owner;
+-----+
| Owner_Id |
+-----+
| 1 |
| 2 |
| 3 |
| 4 |
| 5 |
| 6 |
| 7 |
| 8 |
| 9 |
| 10 |
+-----+
10 rows in set (0.01 sec)
```

Initial Owner Table

Initial Individual Customer table

```
mysql> select * from individual cust;
  Cust_ID | Initial_Name
                            LName
       11
            Panini
                            Pande
       22
            Animesh
                            Gupta
       33
            Muskan
                            Jain
       44
            Karan
                            Singh
       55
                            Bhat
            Aditya
       66
            Akash
                            Biswas
       77
            Shreya
                            Patel
       88
            Jatin
                            S
       99
            Harshit
                            Sandu
      100
            Smit
                            Joshi
10 rows in set (0.01 sec)
```

Vehicle_Id	Cust_ID	Start_Date	Return_Date	No_of_Weeks	Daily_Rate	Weekly_Rate	No_of_days	Scheduled	Amount_Due
1001	11	2023-04-01	2023-04-08	1	100	200	7	0	200
1002	22	2023-04-02	2023-04-09	1	110	220	7	0	220
1003	33	2023-04-03	2023-04-10	1	120	240	7	0	240
1004	44	2023-04-04	2023-04-11	1	130	260	7	0	260
1005	55	2023-04-05	2023-04-12	1	140	280	7	0	280
1006	66	2023-04-06	2023-04-13	1	150	300	7	0	300
1007	77	2023-04-07	2023-04-14	1	160	320	7	0	320
1008	88	2023-04-08	2023-04-15	1	170	340	7	0	340
1009	99	2023-04-09	2023-04-16	1	180	360	7	0	360
1010	100	2023-04-10	2023-04-17	1	190	380	7	0	380

Initial Rents Table

```
mysql> select * from van;

+-----+

| Type_ID |

+-----+

| 1001 |

| 1002 |

| 1003 |

| 1004 |

| 1005 |

| 1006 |

| 1007 |

| 1008 |

| 1009 |

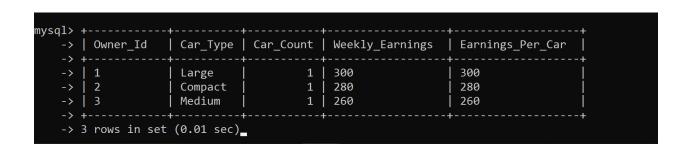
| 1010 |

+-----+

10 rows in set (0.01 sec)
```

```
Task 3:
SELECT
CASE
  WHEN c.Owner_Type = 'Individual' THEN CONCAT(c.Owner_First_Name, '',
c.Owner Last Name)
  WHEN c.Owner_Type = 'Company' THEN c.Owner_Company_Name
 END AS Owner Name,
CONCAT(cd.Car Classification, '', cd.Car_Type) AS Car_Type,
COUNT(*) AS Car Count,
 SUM(CASE WHEN r.Rental Type = 'Weekly' THEN r.Amount Due ELSE 0 END) AS
Weekly Earnings,
 SUM(CASE WHEN r.Rental Type = 'Weekly' THEN r.Amount Due ELSE 0 END) /
COUNT(*) AS Earnings Per Car
FROM
car c
 JOIN car desc cd ON c.Type ID = cd.Type ID
 JOIN rental r ON c. Vehicle ID = r. Vehicle ID
WHERE
 r.Schedule = 1
 AND r.Start Date <= NOW()
 AND r.End Date \geq= NOW()
GROUP BY
```

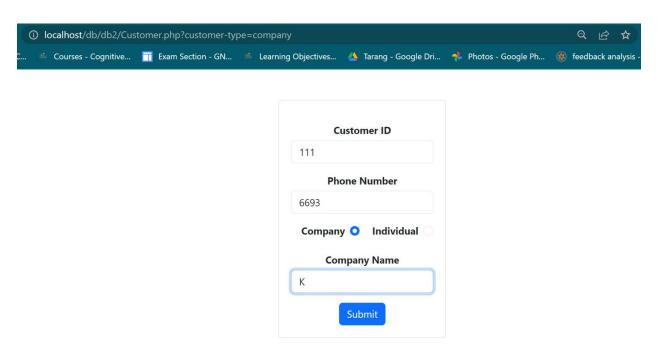
```
c.Owner_ID,
cd.Car_Classification,
cd.Car_Type;
```



Task 4 and 5: The following database update transactions were executed using a PHP based interface.

w	Welcome to Car Rental System Please select an option from below:							
Customer Table	Car	Rental	Amount Due	Rental Rate				

Initially, the user clicks on the "Customer Table" option from the homepage to proceed to the next form.



Then, the user will input the customer ID and phone number, and select the company by entering its name.

The changes are reflected on both the customer and company tables.

```
mysql> select * from customer;
  Cust_ID | Phone
       11
             1234
             2345
       22
       33
             3456
       44
             4567
       55
             5678
       66
             6789
       77
             7890
       88
             8901
             9012
       99
      100
             1023
      111
             6693
```

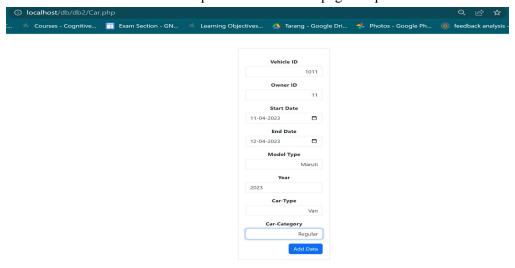
```
mysql> select * from company;
  Cust_ID |
            CName
       11
            A
       22
            В
       33
            C
       44
            D
       55
            E
       66
            F
            G
       77
            H
       88
       99
            Ι
      100
            J
      111 | K
11 rows in set (0.01 sec)
```

The user enters a new customer ID along with the individual's name, which includes the first and last name.

```
mysql> select * from customer;
 Cust_ID | Phone
       11
             1234
       22
             2345
       33
             3456
       44
             4567
       55
             5678
       66
             6789
       77
             7890
       88
             8901
             9012
       99
      100
             1023
      111
             6693
      112
             6694
12 rows in set (0.01 sec)
```

```
mysql> select * from individual_cust;
  Cust_ID | Initial_Name
                            LName
            Panini
                            Pande
       11
            Animesh
                            Gupta
       22
            Muskan
                            Jain
       33
                            Singh
       44
            Karan
            Aditya
                            Bhat
       55
            Akash
       66
                            Biswas
            Shreya
       77
                            Patel
       88
            Jatin
                            S
            Harshit
       99
                            Sandu
                            Joshi
      100
            Smit
            Rudviq
      112
                            Bhavsar
11 rows in set (0.01 sec)
```

The user will click on the "Car" option from the homepage to update the car details.



Before insertion of new values

```
mysql> select * from car;
 Vehicle_ID
               Owner_ID | Avail_StartDate |
                                              Avail EndDate
                                                               Model
                                                                               Year
        1001
                           2023-04-01
                                              2023-04-02
                                                               Toyota
                                                                               2014
        1002
                           2023-04-02
                                              2023-04-03
                                                               Nissan
                                                                               2015
        1003
                           2023-04-03
                                              2023-04-04
                                                               Honda
                                                                               2016
        1004
                           2023-04-04
                                              2023-04-05
                                                               Ford
                                                                               2017
                                                               Chevrolet
        1005
                           2023-04-05
                                              2023-04-06
                                                                               2018
        1006
                           2023-04-06
                                              2023-04-07
                                                               Volkswagen
                                                                               2019
        1007
                           2023-04-07
                                              2023-04-08
                                                               Hyundai
                                                                               2020
        1008
                           2023-04-08
                                              2023-04-09
                                                               Kia
                                                                               2021
                      9
        1009
                           2023-04-09
                                              2023-04-10
                                                               MercedesBenz
                                                                               2022
                      10
                                                                               2023
        1010
                           2023-04-10
                                              2023-04-11
                                                               BMW
10 rows in set (0.02 sec)
```

```
mysql> select * from car type
             Daily_Rate | Weekly_Rate
  Type ID
     1001
                     100
                                     200
     1002
                     110
                                     220
     1003
                     120
                                     240
     1004
                     130
                                    260
                                    280
     1005
                     140
     1006
                     150
                                    300
     1007
                     160
                                    320
     1008
                     170
                                    340
     1009
                     180
                                    360
     1010
                     190
                                     380
10 rows in set (0.02 sec)
```

```
mysql> select * from van;

+-----+

| Type_ID |

+-----+

| 1001 |

1002 |

1003 |

1004 |

1005 |

1006 |

1007 |

1008 |

1009 |

1010 |

+-----+

10 rows in set (0.01 sec)
```

```
mysql> select * from company;
  Cust_ID | CName
       11
            A
       22
            В
       33
            C
       44 | D
       55 | E
      66
          | F
       77
            G
       88
            H
       99
            I
          J
      100
10 rows in set (0.01 sec)
```

```
mysql> select * from customer;
  Cust_ID | Phone
       11
              1234
       22
              2345
              3456
       33
       44
              4567
       55
              5678
       66
              6789
       77
              7890
       88
              8901
       99
              9012
      100
              1023
10 rows in set (0.01 sec)
```

ehicle_Id	Cust_ID	Start_Date	Return_Date	No_of_Weeks	Daily_Rate	Weekly_Rate	No_of_days	Scheduled	Amount_Due
1001	11	2023-04-01	2023-04-08	1	100	200	7	0	200
1002	22	2023-04-02	2023-04-09	1	110	220	7	0	220
1003	33	2023-04-03	2023-04-10	1	120	240	7	0	240
1004	44	2023-04-04	2023-04-11	1	130	260	7	0	260
1005	55	2023-04-05	2023-04-12	1	140	280	7	0	280
1006	66	2023-04-06	2023-04-13	1	150	300	7	0	300
1007	77	2023-04-07	2023-04-14	1	160	320	7	0	320
1008	88	2023-04-08	2023-04-15	1	170	340	7	0	340
1009	99	2023-04-09	2023-04-16	1	180	360	7	0	360
1010	100	2023-04-10	2023-04-17	1	190	380	7	0	380

After inserting new values

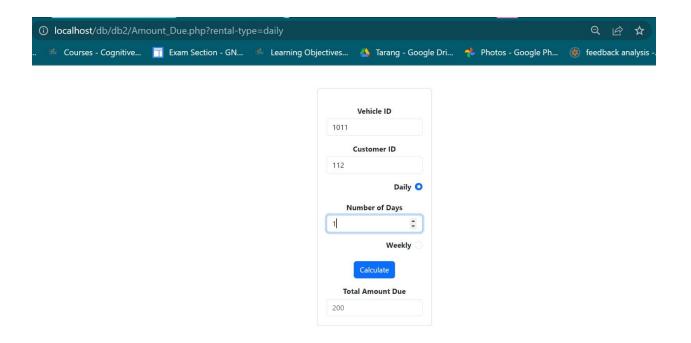
```
mysql> select * from regular;
  Type_ID
     1001
     1002
     1003
     1004
     1005
     1006
     1007
     1008
     1009
     1010
     1011
11 rows in set (0.01 sec)
```

```
mysql> select * from van;
  Type_ID
     1001
     1002
     1003
     1004
     1005
     1006
     1007
     1008
     1009
     1010
     1011
11 rows in set (0.02 sec)
```

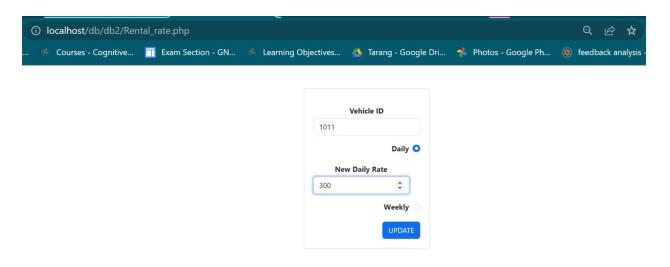
ehicle_Id	Cust_ID	Start_Date	Return_Date	No_of_Weeks	Daily_Rate	Weekly_Rate	No_of_days	Scheduled	Amount_Due
1001	11	2023-04-01	2023-04-08	1	100	200	7	0	200
1002	22	2023-04-02	2023-04-09	1	110	220	7	0	220
1003	33	2023-04-03	2023-04-10	1	120	240	7	0	240
1004	44	2023-04-04	2023-04-11	1	130	260	7	0	260
1005	55	2023-04-05	2023-04-12	1	140	280	7	0	280
1006	66	2023-04-06	2023-04-13	1	150	300	7	0	300
1007	77	2023-04-07	2023-04-14	1	160	320	7	0	320
1008	88	2023-04-08	2023-04-15	1	170	340	7	0	340
1009	99	2023-04-09	2023-04-16	1	180	360	7	0	360
1010	100	2023-04-10	2023-04-17	1	190	380	7	0	380
1011	112	2023-04-11	2023-04-12	1	200	400	7	0	400

Vehicle_ID	Owner_ID	Avail_StartDate	Avail_EndDate	Model	Year
1001		2023-04-01	 2023-04-02	Toyota	2014
1002	2	2023-04-02	2023-04-03	Nissan	2015
1003	3	2023-04-03	2023-04-04	Honda	2016
1004	4	2023-04-04	2023-04-05	Ford	2017
1005	5	2023-04-05	2023-04-06	Chevrolet	2018
1006	6	2023-04-06	2023-04-07	Volkswagen	2019
1007	7	2023-04-07	2023-04-08	Hyundai	2020
1008	8	2023-04-08	2023-04-09	Kia	2021
1009	9	2023-04-09	2023-04-10	MercedesBenz	2022
1010	10	2023-04-10	2023-04-11	BMW	2023
1011	11	2023-04-11	2023-04-12	Maruti	2023

The user click on amount due to find out the amount they have to pay for the rental car, which gets calculated in the backend and gets displayed in the frontend.



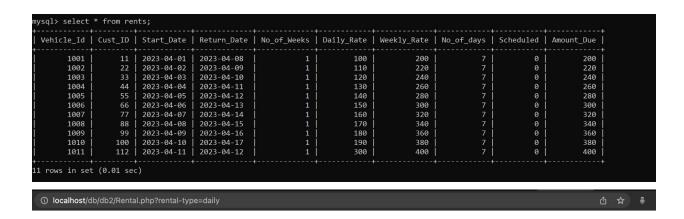
After the user enters the number of days that the car has been rented for, the total amount due will be displayed as \$200 on the homepage.

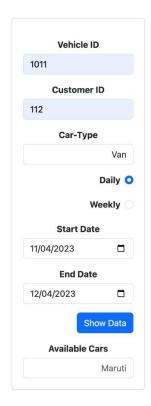


Before inserting new value The daily rate value for vehicle ID 1011 will be updated from \$200 to \$300 :

```
mysql> select * from car_type
    -> ;
  Type_ID | Daily_Rate | Weekly_Rate
     1001
                     100
                                     200
     1002
                     110
                                     220
     1003
                     120
                                     240
     1004
                     130
                                     260
                     140
     1005
                                     280
     1006
                     150
                                     300
                     160
     1007
                                     320
     1008
                     170
                                     340
     1009
                     180
                                     360
     1010
                     190
                                     380
     1011
                     200
                                     400
   rows in set (0.01 sec)
```

After inserting new values





After the user enters the vehicle ID, customer ID, and car type, the system will display the available cars for the customers.