Zachary Francis
Database Management
Assignment 8

The following script adds a passenger to the Railways database and then makes a ticket purchase for the passenger. The only required passenger information is a first name, last name, and age. A passenger ID is automatically assigned – it will be one more the maximum ID value in the Passenger table. For purchasing a ticket, a date is required as well as what routes will be ridden. Every route has an assigned price, and the total price of the ticket is calculated by summing up the cost of each route assigned to the ticket.

```
#!/usr/bin/env python3
"""Assignment 8

The following script adds a new passenger to the railways database,
then makes a ticket purchase for that passenger.
"""

import mysql.connector

# Passenger info to add
firstName = "Zach"
lastName = "Francis"
age = 31

# Ride date and desired routes
rideDate = '2023-03-01'
routes = ['A', 'C', 'E']

raildb = mysql.connector.connect(
    user='python-user',
    passwd='mypy123',
    database='railways',
    host='127.0.0.1'
)

myc = raildb.cursor()
myc.execute("use railways")

# Passenger ID will be one more than the max ID in the table
myc.execute("SELECT MAX(id) from Passengers ;")
newId = myc.fetchone()[0] + 1

# Add info to passenger table
print(f"Adding passenger {firstName} {lastName}...")
passenger_data = (newId, firstName, lastName, age)
add_passenger_cmd = """
INSERT INTO Passengers
(id, firstName, lastName, age)
VALUES (%s, %s, %s, %s)
"""
myc.execute(add_passenger_cmd, passenger_data)
print(f"Passenger {firstName} {lastName} successfully added!\n"
      f"Passenger ID is {newId}\n")

# Ticket Num will be one more than existing max
myc.execute("SELECT MAX(ticketNum) from Tickets ;")
ticketNum = myc.fetchone()[0] + 1

```

```
49. # Add info to passenger table
50. print(f"Purchasing a ticket for routes {', '.join(routes)} on {rideDate}...")
51. ticket_data = (ticketNum, rideDate, newId)
52. add_ticket_cmd = """
53. INSERT INTO Tickets
54. (ticketNum, rideDate, passengerId)
55. VALUES (%s, %s, %s)
56. """
57. myc.execute(add_ticket_cmd, ticket_data)
58.
59. # Add each route to the Assigned table
60. for route in routes:
61.     myc.execute("INSERT INTO Assigned (ticketNum, routeName) VALUES (%s, %s)", (ticketNum,
route))
62.
63. # Calculate the price
64. # Add single quotes around each route name so SQL query is valid
65. route_list = (', '.join('"' + route + '"' for route in routes))
66. myc.execute(f"SELECT price from Routes where routeName in ({route_list})")
67. prices = myc.fetchall()
68. total_price = sum(price[0] for price in prices)
69. print(f"The total price is ${total_price}")
70.
71. myc.close()
72. raildb.commit()
73. raildb.close()
```

Script Output:

```
(venv) [10:01:50] zjfran:assignment8$ ./zachary_francis_assignment8.py
Adding passenger Zach Francis...
Passenger Zach Francis successfully added!
Passenger ID is 50001

Purchasing a ticket for routes A, C, E on 2023-03-01...
The total price is $24.5
(venv) [10:01:54] zjfran:assignment8$
```

Description of the tables used in the script

```
mysql> describe Tickets ;
+-------------+------+------+-----+---------+-------+
| Field       | Type | Null | Key | Default | Extra |
+-------------+------+------+-----+---------+-------+
| ticketNum   | int  | NO   | PRI | NULL    |       |
| rideDate    | date | YES  |     | NULL    |       |
| passengerId | int  | YES  | MUL | NULL    |       |
+-------------+------+------+-----+---------+-------+
3 rows in set (0.06 sec)

mysql> describe Assigned ;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| ticketNum | int         | NO   | PRI | NULL    |       |
| routeName | varchar(10) | NO   | PRI | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
2 rows in set (0.01 sec)
```

```
mysql> describe Routes ;
+--------------+-------------+------+-----+---------+-------+
| Field        | Type        | Null | Key | Default | Extra |
+--------------+-------------+------+-----+---------+-------+
| routeName    | varchar(10) | NO   | PRI | NULL    |       |
| startStation | varchar(20) | YES  | MUL | NULL    |       |
| endStation   | varchar(20) | YES  | MUL | NULL    |       |
| duration     | int         | YES  |     | NULL    |       |
| price        | float       | YES  |     | NULL    |       |
+--------------+-------------+------+-----+---------+-------+
5 rows in set (0.04 sec)
```