1) A. Create Java classes for all the tables: Customer, Guide, Reservation, Trip, TripGuides. You can use get/set methods to access all the attributes of the classes (which are normally private), but to make it simple, you can make the attributes of the classes public.

   B. Write Java codes solve the following problems. To get a full credit, use Java program to process the result. That is, to begin with, you need to read all table data into List of classes. Then, solve the problem by writing Java code. If you do not utilize the Java class, you will get 20 point deduction.

   When the program runs, it shows the following menu:

```
1. Show trips made by a customer.
2. Show top five tours with most revenue. The revenue is calculated by
   adding the trip price and other fees for each reservation.
3. Show customers and guides who led tours for the customer.
4. Quit

Select Menu:
```

- When menu 1 is selected, ask the user to enter a customer number.
  - Check for the valid customer number. If the customer number is not found in the Customer table, display "No such customer." If the customer number is valid, display all trip names and trip dates for the customer.
  - If * is selected, show all the trip names and trip dates for each customer.
  - Format the output properly so that it can be easily readable
- When menu 2 is selected, show top five tours with decreasing order of the total revenue for each tour. Show the trip names and the total revenue.
- When menu 3 is selected, ask the user to enter a customer number. Check for the valid customer number. If the customer number is not found in the Customer table, display "No such customer." If the customer number is valid, display the names of guides who led trips for the customer. Also, display the date each trip is made.
- When menu 4 is selected, quit the program by displaying "Goodbye. Thanks for using MyLastNamesTourCompany."
- When either menu 1, 2, or 3 is selected, display the menu again.

- Run your program with the following input sequence: Italicized bold font is what is entered by the user. Avoid any exception that will crash your program.

```
1. ...
2. ...
3. ...
4. Quit

Select Menu: 1
Enter customer number: 200
No such customer
```

```
Enter customer number: 101
CustomerNum  TripName                  TripDate
101          Long Pond                 6/8/2018
101          Wachusett Mountain         3/26/2018
1. ...
2. ...
3. ...
4. Quit

Select Menu: 1
Enter customer number: *
CustomerNum  TripName                  TripDate
101          Long Pond                 6/8/2018
101          Wachusett Mountain  3/26/2018
102          ...                       ...
...    (should show all customers)

1. ...
2. ...
3. ...
4. Quit

Select Menu: 2
TripName                  TotalRevenue
abc                              $$$$$
def                               $$$$
ghi                                $$$
jkl                                 $$
mno                                  $

1. ...
2. ...
3. ...
4. Quit

Select Menu: 3
Enter customer number: 101
CustomerNum  GuideName                  TripDate
101          ...                       ...
...

1. ...
2. ...
3. ...
4. Quit

Select Menu: 4
Goodbye. Thanks for using MyLastNamesTourCompany.
```

Bonus (20 pts). Use JavaFX to make this program working in the GUI environment. Exact GUI is upon you. Fancy GUI is not required. If your program works with minimal GUI, you will get 15 pts. With a better looking GUI, you will get up to 5 pts.

What to submit:

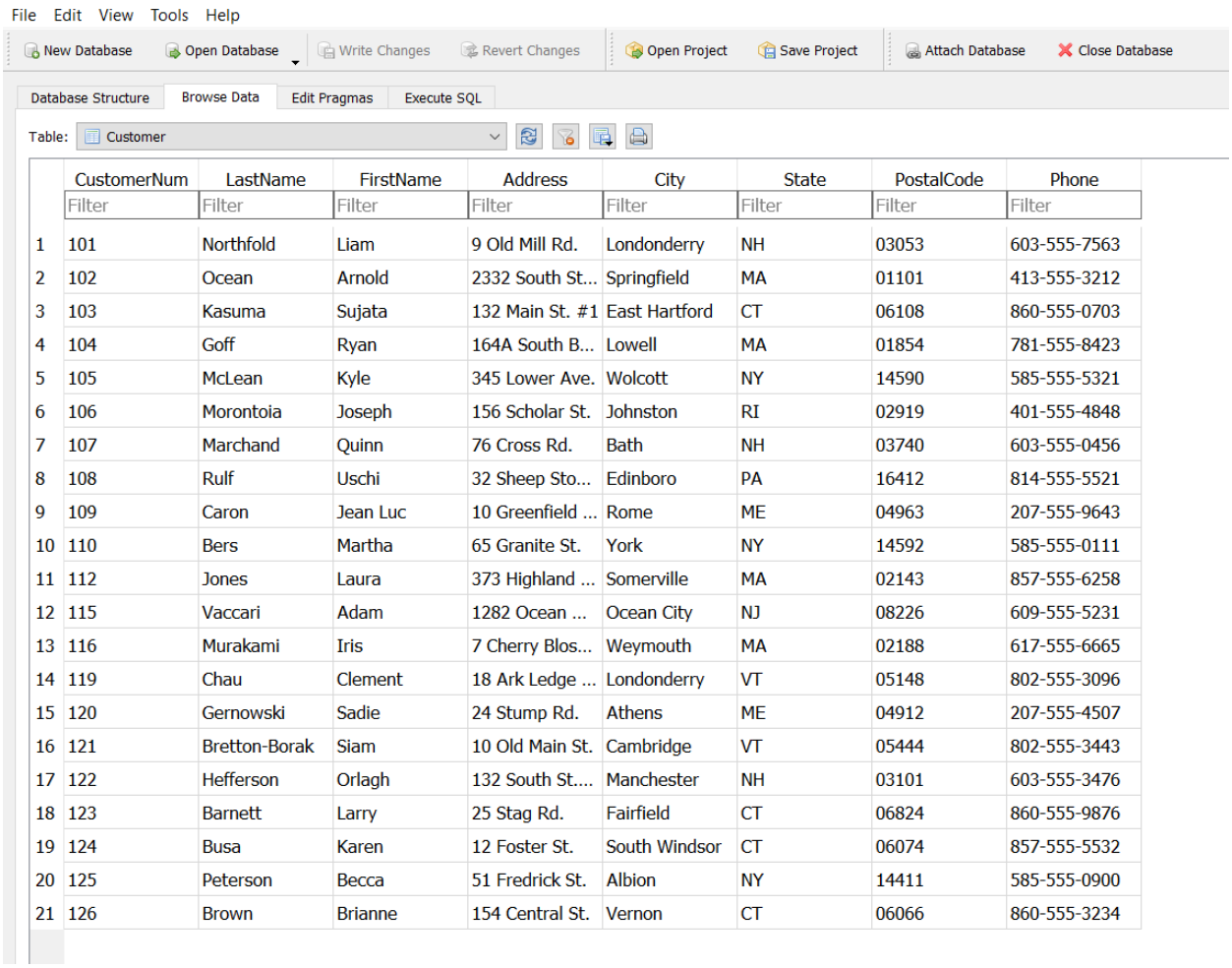
- All the output (MS Word file).
- DB file for SQLite.
- Java cource codes.
  - To get a full credit, provide proper comments for program description and class description using Javadoc format.
  - Make sure your program compiles and runs for java version 1.8. Do not use any features that is not supported in version 1.8
  - To get a full credit, submit java files and the driver jar file only. Do not submit the whole project file if you work on IDE.
  - Name the main program as Main.java.
  - Your program should compile and run with the following command line commands:

    ```
    > javac Main.java

    > java -cp .;sqlite.jar Main
    ```

  - If you want, you can submit a jar file that runs with double clicking: make sure that your jar file runs.

The following are colonial database (colonial.db) using sqlite



	CustomerNum	LastName	FirstName	Address	City	State	PostalCode	Phone
	Filter	Filter	Filter	Filter	Filter	Filter	Filter	Filter
1	101	Northfold	Liam	9 Old Mill Rd.	Londonderry	NH	03053	603-555-7563
2	102	Ocean	Arnold	2332 South St...	Springfield	MA	01101	413-555-3212
3	103	Kasuma	Sujata	132 Main St. #1	East Hartford	CT	06108	860-555-0703
4	104	Goff	Ryan	164A South B...	Lowell	MA	01854	781-555-8423
5	105	McLean	Kyle	345 Lower Ave.	Wolcott	NY	14590	585-555-5321
6	106	Morontoia	Joseph	156 Scholar St.	Johnston	RI	02919	401-555-4848
7	107	Marchand	Quinn	76 Cross Rd.	Bath	NH	03740	603-555-0456
8	108	Rulf	Uschi	32 Sheep Sto...	Edinboro	PA	16412	814-555-5521
9	109	Caron	Jean Luc	10 Greenfield ...	Rome	ME	04963	207-555-9643
10	110	Bers	Martha	65 Granite St.	York	NY	14592	585-555-0111
11	112	Jones	Laura	373 Highland ...	Somerville	MA	02143	857-555-6258
12	115	Vaccari	Adam	1282 Ocean ...	Ocean City	NJ	08226	609-555-5231
13	116	Murakami	Iris	7 Cherry Blos...	Weymouth	MA	02188	617-555-6665
14	119	Chau	Clement	18 Ark Ledge ...	Londonderry	VT	05148	802-555-3096
15	120	Gernowski	Sadie	24 Stump Rd.	Athens	ME	04912	207-555-4507
16	121	Bretton-Borak	Siam	10 Old Main St.	Cambridge	VT	05444	802-555-3443
17	122	Hefferson	Orlagh	132 South St....	Manchester	NH	03101	603-555-3476
18	123	Barnett	Larry	25 Stag Rd.	Fairfield	CT	06824	860-555-9876
19	124	Busa	Karen	12 Foster St.	South Windsor	CT	06074	857-555-5532
20	125	Peterson	Becca	51 Fredrick St.	Albion	NY	14411	585-555-0900
21	126	Brown	Brianne	154 Central St.	Vernon	CT	06066	860-555-3234

New Database | Open Database | Write Changes | Revert Changes | Open Project | Save Project | Attach Database | Close Database

Database Structure | Browse Data | Edit Pragmas | Execute SQL

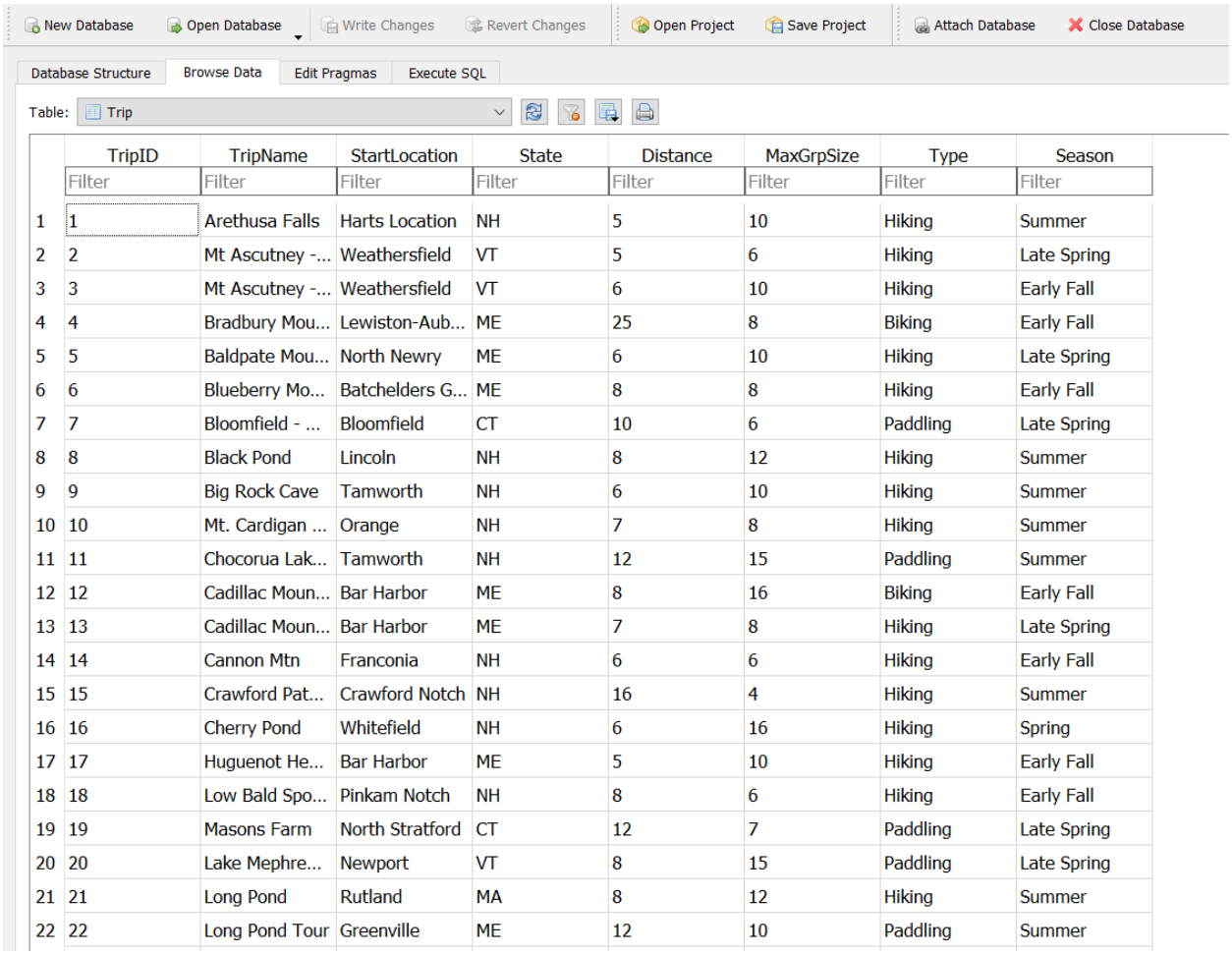
Table: Guide

	GuideNum	LastName	FirstName	Address	City	State	PostalCode	PhoneNum	HireDate
	Filter	Filter	Filter	Filter	Filter	Filter	Filter	Filter	Filter
1	AM01	Abrams	Miles	54 Quest Ave.	Williamsburg	MA	01096	617-555-6032	2012-6-3
2	BR01	Boyers	Rita	140 Oakton Rd.	Jaffrey	NH	03452	603-555-2134	2012-3-4
3	DH01	Devon	Harley	25 Old Ranch...	Sunderland	MA	01375	781-555-7767	2012-1-8
4	GZ01	Gregory	Zach	7 Moose Hea...	Dummer	NH	03588	603-555-8765	2012-11-4
5	KS01	Kiley	Susan	943 Oakton Rd.	Jaffrey	NH	03452	603-555-1230	2013-4-8
6	KS02	Kelly	Sam	9 Congaree A...	Fraconia	NH	03580	603-555-0003	2013-6-10
7	MR01	Marston	Ray	24 Shenando...	Springfield	MA	01101	781-555-2323	2015-9-14
8	RH01	Rowan	Hal	12 Heather Rd.	Mount Desert	ME	04660	207-555-9009	2014-6-2
9	SL01	Stevens	Lori	15 Riverton Rd.	Coventry	VT	05825	802-555-3339	2014-9-5
10	UG01	Unser	Glory	342 Pineview ...	Danbury	CT	06810	203-555-8534	2015-2-2

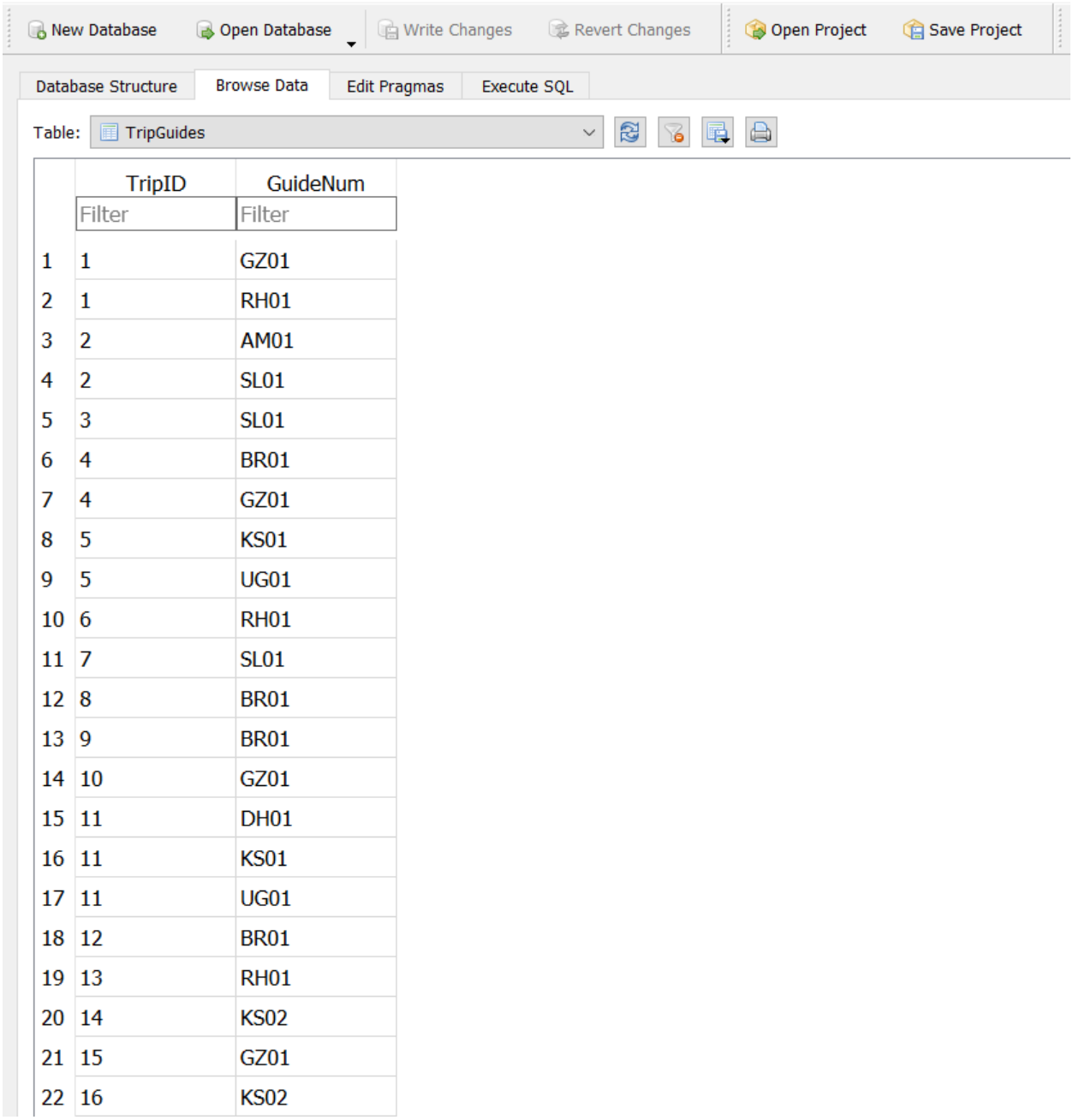
Database Structure | Browse Data | Edit Pragmas | Execute SQL

Table: Reservation

	ReservationID	TripID	TripDate	NumPersons	TripPrice	OtherFees	CustomerNum
	Filter	Filter	Filter	Filter	Filter	Filter	Filter
1	1600001	40	2018-3-26	2	55	0	101
2	1600002	21	2018-6-8	2	95	0	101
3	1600003	28	2018-9-12	1	35	0	103
4	1600004	26	2018-10-16	4	45	15	104
5	1600005	39	2018-6-25	5	55	0	105
6	1600006	32	2018-6-18	1	80	20	106
7	1600007	22	2018-7-9	8	75	10	107
8	1600008	28	2018-9-12	2	35	0	108
9	1600009	38	2018-9-11	2	90	40	109
10	1600010	2	2018-5-14	3	25	0	102
11	1600011	3	2018-9-15	3	25	0	102
12	1600012	1	2018-6-12	4	15	0	115
13	1600013	8	2018-7-9	1	20	5	116
14	1600014	12	2018-10-1	2	40	5	119
15	1600015	10	2018-7-23	1	20	0	120
16	1600016	11	2018-7-23	6	75	15	121
17	1600017	39	2018-6-18	3	20	5	122
18	1600018	38	2018-9-18	4	85	15	126
19	1600019	25	2018-8-29	2	110	25	124
20	1600020	28	2018-8-27	2	35	10	124
21	1600021	32	2018-6-11	3	90	20	112
22	1600022	21	2018-6-8	1	95	25	119



	TripID	TripName	StartLocation	State	Distance	MaxGrpSize	Type	Season
	Filter	Filter	Filter	Filter	Filter	Filter	Filter	Filter
1	1	Arethusa Falls	Harts Location	NH	5	10	Hiking	Summer
2	2	Mt Ascutney -...	Weathersfield	VT	5	6	Hiking	Late Spring
3	3	Mt Ascutney -...	Weathersfield	VT	6	10	Hiking	Early Fall
4	4	Bradbury Mou...	Lewiston-Aub...	ME	25	8	Biking	Early Fall
5	5	Baldpate Mou...	North Newry	ME	6	10	Hiking	Late Spring
6	6	Blueberry Mo...	Batchelders G...	ME	8	8	Hiking	Early Fall
7	7	Bloomfield - ...	Bloomfield	CT	10	6	Paddling	Late Spring
8	8	Black Pond	Lincoln	NH	8	12	Hiking	Summer
9	9	Big Rock Cave	Tamworth	NH	6	10	Hiking	Summer
10	10	Mt. Cardigan ...	Orange	NH	7	8	Hiking	Summer
11	11	Chocorua Lak...	Tamworth	NH	12	15	Paddling	Summer
12	12	Cadillac Moun...	Bar Harbor	ME	8	16	Biking	Early Fall
13	13	Cadillac Moun...	Bar Harbor	ME	7	8	Hiking	Late Spring
14	14	Cannon Mtn	Franconia	NH	6	6	Hiking	Early Fall
15	15	Crawford Pat...	Crawford Notch	NH	16	4	Hiking	Summer
16	16	Cherry Pond	Whitefield	NH	6	16	Hiking	Spring
17	17	Huguenot He...	Bar Harbor	ME	5	10	Hiking	Early Fall
18	18	Low Bald Spo...	Pinkam Notch	NH	8	6	Hiking	Early Fall
19	19	Masons Farm	North Stratford	CT	12	7	Paddling	Late Spring
20	20	Lake Mephre...	Newport	VT	8	15	Paddling	Late Spring
21	21	Long Pond	Rutland	MA	8	12	Hiking	Summer
22	22	Long Pond Tour	Greenville	ME	12	10	Paddling	Summer



	TripID	GuideNum
	Filter	Filter
1	1	GZ01
2	1	RH01
3	2	AM01
4	2	SL01
5	3	SL01
6	4	BR01
7	4	GZ01
8	5	KS01
9	5	UG01
10	6	RH01
11	7	SL01
12	8	BR01
13	9	BR01
14	10	GZ01
15	11	DH01
16	11	KS01
17	11	UG01
18	12	BR01
19	13	RH01
20	14	KS02
21	15	GZ01
22	16	KS02