ISTE-722 Database Connectivity and Access
Practice Exercise 1 - RDBMS and SQL Review

Assignment Purpose: Refresh your memory regarding SQL and reading ER diagrams.

All questions are to be answered by writing the SQL command that will produce the result that most accurately answers the question. Download travel.sql and run it to create the travel database. This database contains several tables. Following is a description and an ER diagram of the database. Review them carefully before attempting these queries.

Description

Rides'R'Us is a transportation conglomerate that transports people by bus, plane, and train. This database is used to keep track of all the trips they provide. Tracked information includes available trips, actual trips, customers, passengers, staff, and equipment.

The Trip Directory is a listing of all possible trips the company provides. Each trip is identified by a trip number and has a scheduled departure time and location, a scheduled arrival time and location, and a trip code to indicate whether it is a bus, plane, or train trip. Rather than store the word "Bus" (or "Plane" or "Train") is the table, a single-letter code is stored instead. This code is a foreign key into the TripCode table that has the full name of the trip type. Similarly, the departure and arrival locations stored in the Trip Directory table are just codes (e.g. "ROC" for Rochester, NY). Each of these fields is a foreign key into the Location table where the name of the city is stored.

The Trip Directory is simply a catalog listing of possible trips. An actual trip is stored in the Trip table and has a key made up of both trip number and date. If you've traveled much, you know that trips don't always go as planned. So, the trip table has fields to store the actual arrival time and location as well as the actual departure time and location. Just as with the trip directory table, the arrival and departure locations are codes that are foreign keys into the Location table. This trip table also has an estimated departure time and an estimated arrival time. These fields are continually updated during the day and are viewable by agents and customers. Trips also have equipment (e.g. a plane), staff, and passengers. This information is stored in other tables.

The Equipment table lists all the equipment owned by Rides'R'Us. An equipment id number identifies the name, description, and capacity of each piece of equipment.

The Staff table lists all the people who are working on a particular trip. On short trips, it is possible that one person may have several duties so this table is keyed on trip number, date, and role. Role might be "pilot", "stewardess", "driver", etc.

The Passenger table lists all people who have ever traveled on Rides'R'Us. It includes an ID as well as their name and address. Rather than store their city and state in this table, just the zip code is stored. The zip code is then used as a foreign key into the Zip Code table to look up the corresponding city and state. (While there are a few exceptions, zip code normally is a unique index to city and state.) Each passenger can also have multiple phones so this information is stored in the Phone table.

Finally, the associative table, Trip_People, links Passengers and Trips. Using a composite key

of trip number, date, and passenger id, it specifies which passengers are on which trips.

Major grading errors:

As you do the following queries, do not use codes in your WHERE clauses (location code, trip code, etc). Codes are used internally as foreign keys to link between tables. For example, in question 2 use “Bus” in your WHERE clause from the tables, not the code “B”. This means you have internal knowledge of the database. Also, be sure to use aliases for your column headers where indicated in the expected output.

1. What are the names and complete addresses of all passengers listed in order by last name?

fname	lname	street	city	state	zip
Ken	Bennet	12 Marway Circle	Rochester	NY	14624
Terry	Brown	100 Pennsylvania Ave	Framingham	MA	01701
Curtis	Brown	100 Ajax Rd	Rochester	NY	14624
Dan	Callahan	320 West Craig Hill	Rochester	NY	14626
Rich	Gleason	232 Industrial Park Dr	Frankfort	NY	13340
Patti	Hughes	280 Commerce Dr	Rochester	NY	14623
Scott	Kier	150 Highland Ave.	Rochester	NY	14618
Mark	Lucas	425 Old Center Macedon Rd	Fairport	NY	14450
Dale	Payne	34 Foley Dr	Sodus	NY	14551
Scott	Wilson	70 Bermar Park	Rochester	NY	14624

2. What are the trip numbers, departure times, and departure locations code for all bus trips?

tripnum	departuretime	departureloccode
546	3:00 PM	JFK
6432	1:00 PM	JFK

3. What are the names of the passengers who are traveling in October?

Passenger
Ken Bennet
Patti Hughes
Dale Payne
Dan Callahan
Scott Wilson

4. How many trips in the trip directory leave from each city?

Location	Number of Departures
Boston	1
Buffalo	1
Las Vegas	1
New York	2
Rochester	1

5. What staff are working the Boston to Nassau trips?

```
| name          |
+---------------+
| Greg Zalewski|
| Dan Gnagy     |
| Brad Raushey  |
+---------------+
```

6. Brian Page who works for Rides 'R' Us is from Frankfort. Who, if anyone, will he meet from his town when he works on a trip, and during what trip number?

```
+---------+--------------------+
| tripnum | People from Frankfort |
+---------+--------------------+
| 546     | Rich Gleason        |
+---------+--------------------+
```

7. What people from Rochester, travel by bus?

```
+--------+-------+
| fname  | lname |
+--------+-------+
| Curtis | Brown |
+--------+-------+
```

8. What is the description of the equipment on which Curtis Brown travels?'

```
+----------------------+
| equipmentdescription |
+----------------------+
| Coach                |
+----------------------+
```

9. The Boeing 767 is now rated for Mid-Range travel. Update the database accordingly.

```
1 row(s) affected
Rows matched: 1  Changed: 1  Warnings: 0     0.0023 sec
```

10. On how many trips has each piece of equipment been used?

```
+---------+---------------+----------+
| equipid | equipmentname | NumTrips |
+---------+---------------+----------+
```

```
|     568 | Continental   |         1 |
|     894 | Bus 264       |         1 |
|    1256 | Airbus 300    |         1 |
|    3644 | Boeing 767    |         0 |
|    5634 | Boeing 727    |         1 |
|    7624 | Bus 345       |         1 |
|    8596 | Boeing 727    |         1 |
+---------+---------------+-----------+
7 rows in set (0.00 sec)
```

Travel Database Schema