Semester Project

**Name: T.S.**

***City Boomers is a professional soccer team. City Boomers Database will keep track of the following:***

* For each game, gameid (unique), as well as game date and game opponent
* For each sales transaction, stid (unique) and the payment method
* For each sales person, spid (unique) and spname
* For each merchandise, mid (unique), mtype and mprice
* For each ticket, ticketid (unique), price, seat type, and payment method
* For each agent, aid (unique), and agent name
* For each advertiser, companyid (unique), and company name
* Each sales transaction involves one sales person
* Each sales person participates in between zero and many sales transactions
* Each sales transaction includes one or more merchandise
* Each merchandise is included in one or more transactions
* For every instance of a merchandise included in a transaction, we keep track of the quantity of that merchandise in that transaction
* Each sale transaction occurs in one game
* Each game has one or more sales transactions occurring during it
* Each ticket is sold for exactly one game
* Each game has between zero and many tickets sold
* We keep track of the number of tickets sold for each game
* Each ticket is sold by one or no agents
* Each agent sells between zero and many tickets
* Each game has between zero and many advertisers promoting at it
* Each advertiser promotes at between zero and many games
* For each instance of an advertiser promoting at a game, we keep track of the fee charged to that advertiser to promote at that game
* Each advertiser is a competitor with between zero and many other advertisers
* Each advertiser has between zero and many other advertisers as competitors

***Data for the City Boomers Database:***

Two salespersons:

* Mallory
* Patrick

Two agents:

* Bryce
* Olivia

Five different types of merchandise for sale:

* Jersey, cost: $100.00 each
* Souvenir Ball, cost: $40.00 each
* Water Bottle, cost: $15.00 each
* T-Shirt, cost: $25.00 each
* Autographed Picture, cost: $75.00 each

Five different advertisers:

* Koma Cola, pays $200.00 per game
* City Hardware, pays $250.00 per game
* Showtime Grill, pays $150.00 per game
* NAC Beverages, pays $300.00 per game
* Day Street Diner, pays $100.00 per game

Payment method, two types:

* Credit Card
* Cash

Two games:

* 07-Mar-20 the home team Zoomers play the Loomers
  + The following advertisers pay for advertisement at this game:
    - Koma Cola
    - Showtime Grill
    - NAC Beverages
  + The following merchandise and the number of items were sold at this game by Mallory
    - Souvenir Ball, 2, paid by Credit Card
    - Water Bottle, 3, paid by Credit Card
    - Autographed Picture, 1, paid by Credit Card
  + The following merchandise and the number of items were sold at this game by Patrick
    - Souvenir Ball, 2, paid by Credit Card
* 14-Mar-20 the home team Loomers play the Zoomers
  + The following advertisers pay for advertisement at this game:
    - Koma Cola
    - NAC Beverages
    - Day Street Diner
  + The following merchandise and the amount were sold at this game by Patrick
    - T-Shirt, 5, paid by cash
    - Souvenir Ball, 1, paid by cash

Nine tickets sold:

* Sideline for $150.00, Credit Card, Game on the 07-Mar-20, Agent is Bryce
* Lower Bowl for $100.00, Cash, Game on the 07-Mar-20
* Upper Deck for $50.00, Credit Card, Game on the 07-Mar-20, Agent is Bryce
* Upper Deck for $50.00, Credit Card, Game on the 07-Mar-20
* Suite for $250.00, Cash, Game on the 14-Mar-20, Agent is Bryce
* Sideline for $150.00, Credit Card, Game on the 14-Mar-20, Agent is Olivia
* Lower Bowl for $100.00, Credit Card, Game on the 14-Mar-20
* Lower Bowl for $100.00, Cash, Game on the 14-Mar-20
* Upper Deck for $50.00, Credit Card, Game on the 14-Mar-20, Agent is Olivia

**Implementation:**

The database design should be implemented using draw.io or similar diagraming program and MS SQL Server.

The deliverables include:

1. Normalization Diagram (20%**)** Create a 1NF, 2NF and 3NF diagram. A 2NF diagram may not be needed.

Diagram, engineering drawing

Description automatically generated

Table

Description automatically generated

1. E-R diagram (20%**)** Create an ERD or EERDfrom the Normalization Diagram in step 1.

Diagram

Description automatically generated

1. Data Definition Language (DDL)/Data Manipulation Language (DML) (20%):

* Create tables statements and insert statements.

Question 3 DDL

CREATE DATABASE CityBoomers;

USE CityBoomers;

Create table game

create table game (

gameId INT not null,

gameDate VARCHAR(20),

gameOpponent VARCHAR(50),

PRIMARY KEY (gameId)

)

Create table advertiser

create table advertiser (

companyId INT not null,

companyName VARCHAR(100),

adPrice money ,

PRIMARY KEY (companyId)

)

Salesperson

create table salesPerson (

spId INT not null,

spName VARCHAR(100),

PRIMARY KEY (spId)

)

Create table merchandise

create table merchandise (

mId INT not null,

mType VARCHAR(250),

mPrice money,

PRIMARY KEY (mId)

)

Create Agent table

create table agent (

aId INT not null,

agentName VARCHAR(250),

PRIMARY KEY (aId)

)

Create table salesTransaction

create table salesTransaction (

stId INT not null,

paymentMethod VARCHAR(250),

mquantity VARCHAR(20),

mID int,

spId int,

gameId int,

PRIMARY KEY (stId),

FOREIGN KEY (mID) REFERENCES merchandise(mId),

FOREIGN KEY (spId) REFERENCES salesPerson(spId),

FOREIGN KEY (gameID) REFERENCES game(gameId)

)

Create ticket table

create table ticket (

ticketId INT not null,

tPrice money,

seatType VARCHAR(250),

paymentMethod VARCHAR(20),

agentID int,

gameId int,

PRIMARY KEY (ticketId),

FOREIGN KEY (agentID) REFERENCES agent(aId),

FOREIGN KEY (gameID) REFERENCES game(gameId)

)

Game

INSERT INTO game (gameId,gameDate,gameOpponent)

VALUES (1,'07-Mar-20','Loomers');

INSERT INTO game (gameId,gameDate,gameOpponent)

VALUES (2,'14-Mar-20','Zoomers');

Advertiser

INSERT INTO advertiser (companyId,companyName,adPrice)

VALUES (52,'Koma cola',$200.00);

INSERT INTO advertiser (companyId,companyName,adPrice)

VALUES (53,'city hardware',$250.00);

INSERT INTO advertiser (companyId,companyName,adPrice)

VALUES (54,'showtime Grill',$150.00);

INSERT INTO advertiser (companyId,companyName,adPrice)

VALUES (55,'NAC Beverage',$300.00);

INSERT INTO advertiser (companyId,companyName,adPrice)

VALUES (56,'Day Street Diner',$100.00);

SalePerson

INSERT INTO SalesPerson(spId,spName)

VALUES (34,'Mallory');

INSERT INTO SalesPerson(spId,spName)

VALUES (35,'Patrick');

Agent

INSERT INTO agent (aId,agentName)

VALUES (23,'Bryce');

INSERT INTO agent (aId,agentName)

VALUES (24,'Olivia');

Merchandise

INSERT INTO merchandise(mId,mType,mPrice)

VALUES (11,'Jersey',$100.00);

INSERT INTO merchandise(mId,mType,mPrice)

VALUES (12,'Souvenir Ball',$40.00);

INSERT INTO merchandise(mId,mType,mPrice)

VALUES (13,'water bottle',$15.00);

INSERT INTO merchandise(mId,mType,mPrice)

VALUES (14,'T-shirt',$25.00);

INSERT INTO merchandise(mId,mType,mPrice)

VALUES (15,'Autographed Picture',$75.00);

Ticket

INSERT INTO ticket(ticketId,tPrice,seatType,paymentMethod,agentId,gameId)

VALUES (101,$150.00,'sideline','credit card',23,1);

INSERT INTO ticket(ticketId,tPrice,seatType,paymentMethod,agentId,gameId)

VALUES (102, $100.00,'lower bowl','cash',null,1);

INSERT INTO ticket(ticketId,tPrice,seatType,paymentMethod,agentId,gameId)

VALUES (103,$50.00,'upper deck','credit card',23,1);

INSERT INTO ticket(ticketId,tPrice,seatType,paymentMethod,agentId,gameId)

VALUES (104,$50.00,'upper deck','credit card',null,1);

INSERT INTO ticket(ticketId,tPrice,seatType,paymentMethod,agentId,gameId)

VALUES (105,$150.00,'sideline','credit card',24,2);

INSERT INTO ticket(ticketId,tPrice,seatType,paymentMethod,agentId,gameId)

VALUES (106,$250.00,'suite','cash',23,2);

INSERT INTO ticket(ticketId,tPrice,seatType,paymentMethod,agentId,gameId)

VALUES (107,$100.00,'Lower Bowl','credit card',null,2);

INSERT INTO ticket(ticketId,tPrice,seatType,paymentMethod,agentId,gameId)

VALUES (108,$100.00,'lower deck','cash',null,2);

INSERT INTO ticket(ticketId,tPrice,seatType,paymentMethod,agentId,gameId)

VALUES (109,$50.00,'upper deck','credit card',24,2);

SaleTransaction

INSERT INTO salesTransaction (stId,paymentMethod,mquantity,mID,spId,gameId)

VALUES (120,'credit card',2,12,34,1);

INSERT INTO salesTransaction (stId,paymentMethod,mquantity,mID,spId,gameId)

VALUES (121,'credit card',1,12,34,1);

INSERT INTO salesTransaction (stId,paymentMethod,mquantity,mID,spId,gameId)

VALUES (122,'credit card',2,12,35,1);

INSERT INTO salesTransaction (stId,paymentMethod,mquantity,mID,spId,gameId)

VALUES (123,'credit card',3,13,34,1);

INSERT INTO salesTransaction (stId,paymentMethod,mquantity,mID,spId,gameId)

VALUES (124,'cash',5,14,35,2);

INSERT INTO salesTransaction (stId,paymentMethod,mquantity,mID,spId,gameId)

VALUES (125,'cash',1,15,35,2);

1. SQL reports (40%) SQL code and copies of the output for each of the following situations:
2. What is the sum of ticket sales for both games sold by agent Bryce?

Query goes here

select format(SUM(tprice), 'c') as 'Agent Bryce Ticket Sales'

from ticket

where agentID = 23

Screen Shot goes hereGraphical user interface, text, application, email

Description automatically generated

1. What is the sum of ticket sales for both games sold by neither Bryce nor Olivia?

Query goes here

select format(SUM(tprice), 'c') as 'Total Ticket Sales No Agent'

from ticket

where agentID IS NULL

Graphical user interface, text, application, email

Description automatically generated

Screen Shot goes here

1. List the location of seats that were not sold for the game on March 7, 2020.

Query goes here

SELECT seatType as Seats

from ticket

where agentID is null

and

gameId = 1

Graphical user interface, application

Description automatically generated

1. Write a query to list the type of merchandise and price for all merchandise with a price lower than the average price of all the merchandise.

Query goes here

SELECT mType as Merchandise, format(mPrice, 'c') as Price

from merchandise

where mPrice < ( select AVG(mPrice) from merchandise )

Table

Description automatically generated with medium confidence

Screen Shot goes here

1. List the game date once and the total amount of merchandise sold at each game, include the total amount in a separate row.

Query goes here

select g.gameDate as Game

, SUM(mPrice \* mquantity) as Total

from salesTransaction s

join game g on g.gameId = s.gameId

join merchandise m on m.mId = s.mID

GROUP by gameDate

union

select 'All Merchandise'

, SUM(mPrice \* mquantity)

from salesTransaction s

join game g on g.gameId = s.gameId

join merchandise m on m.mId = s.mID

order by game

Screen Shot goes here

Text

Description automatically generated

1. Building on Query 5 add the amount spent on advertising for each game and the total in a separate row. (EXTRA CREDIT + 10 POINTS)

Query goes here

select g.gameDate as Game

, SUM(mPrice \* mquantity) as Total

from salesTransaction s

join game g on g.gameId = s.gameId

join merchandise m on m.mId = s.mID

GROUP by gameDate, mPrice

union

select 'All Merchandise'

, SUM(mPrice \* mquantity)

from salesTransaction s

join game g on g.gameId = s.gameId

join merchandise m on m.mId = s.mID

order by game

Table

Description automatically generated with medium confidence