**Project Description:**

Design a database for a web based commercial real estate deal (sales and loans) tracking system for use by commercial real estate brokers. (both sales and financing). The system will track deals, which consists of one or properties and the quotes that an investor or lender will provider. In addition, the system will track the fees or revenue that broker receives for each deal. The workflow will consist of moving the deal through a pipeline from prospect to close. Each step will be described as a deal status. If the broker is unable to find an investor or lender the deal will be placed in the lost deal status.

**Stakeholders**:

**Brokers:**

Analyst – primary user. Task with managing the daily task of the applicable.

Originators – Act as the direct intermediary between borrowers

Manager – Will use the database for reporting. To managed deal status and overall revenue

**Lenders/Investors**: Individuals looking to either purchase a property or provide a loan for property. Will quote or pass on a deal based upon portfolio/investment critera

Repeatable Script:

-- drop all tables in reverse order of their dependenciesIF OBJECT\_ID('dbo.quote', 'U') IS NOT NULL

DROP TABLE dbo.quote;

go

IF OBJECT\_ID('dbo.bridge\_deal\_contact', 'U') IS NOT NULL

DROP TABLE dbo.bridge\_deal\_contact;

go

IF OBJECT\_ID('dbo.deal', 'U') IS NOT NULL

DROP TABLE dbo.deal;

go

IF OBJECT\_ID('dbo.contact', 'U') IS NOT NULL

DROP TABLE dbo.contact;

go

IF OBJECT\_ID('dbo.organization', 'U') IS NOT NULL

DROP TABLE dbo.organization;

go

IF OBJECT\_ID('dbo.organization\_type', 'U') IS NOT NULL

DROP TABLE dbo.organization\_type;

go

IF OBJECT\_ID('dbo.contact\_type', 'U') IS NOT NULL

DROP TABLE dbo.contact\_type;

go

IF OBJECT\_ID('dbo.city', 'U') IS NOT NULL

DROP TABLE dbo.city;

go

IF OBJECT\_ID('dbo.state', 'U') IS NOT NULL

DROP TABLE dbo.state;

go

IF OBJECT\_ID('dbo.property\_type', 'U') IS NOT NULL

DROP TABLE dbo.property\_type;

go

IF OBJECT\_ID('dbo.deal\_status', 'U') IS NOT NULL

DROP TABLE dbo.deal\_status;

go

-- create all tables in order of their dependencies

--

-- Table structure for table city

--

CREATE TABLE city (

city\_id int NOT NULL IDENTITY,

city varchar(50) NOT NULL,

state\_code varchar(4) NOT NULL,

CONSTRAINT pk\_city PRIMARY KEY (city\_id),

);

go

-- --------------------------------------------------------

--

-- Table structure for table organization\_type

--

CREATE TABLE organization\_type (

organization\_type\_id int NOT NULL IDENTITY,

name varchar(100) NOT NULL,

CONSTRAINT pk\_organization\_type PRIMARY KEY (organization\_type\_id),

);

go

-- --------------------------------------------------------

--

-- Table structure for table property\_type

--

CREATE TABLE property\_type (

property\_type\_id int NOT NULL IDENTITY,

name varchar(50) NOT NULL,

CONSTRAINT pk\_property\_type PRIMARY KEY (property\_type\_id),

);

go

-- --------------------------------------------------------

--

-- Table structure for table deal\_status

--

CREATE TABLE deal\_status (

deal\_status\_id int NOT NULL IDENTITY,

name varchar(20) NOT NULL

CONSTRAINT pk\_deal\_status PRIMARY KEY (deal\_status\_id),

);

go

-- --------------------------------------------------------

--

-- Table structure for table state

--

CREATE TABLE state (

state\_id int NOT NULL IDENTITY,

state varchar(22) NOT NULL,

state\_code char(4) NOT NULL,

country\_code varchar(10) NOT NULL,

CONSTRAINT pk\_state PRIMARY KEY (state\_id),

);

go

-- --------------------------------------------------------

--

-- Table structure for table contact\_type

--

CREATE TABLE contact\_type (

contact\_type\_id int NOT NULL IDENTITY,

name varchar(20) NOT NULL

CONSTRAINT pk\_contact\_type PRIMARY KEY (contact\_type\_id),

);

go

-- --------------------------------------------------------

--

-- Table structure for table organization

--

CREATE TABLE organization (

organization\_id int NOT NULL IDENTITY,

name varchar(100) NOT NULL,

organization\_type\_id int NULL,

address varchar(100) NOT NULL,

city\_id int NULL,

state\_id int NULL,

CONSTRAINT pk\_organization PRIMARY KEY (organization\_id),

CONSTRAINT fk1\_organization\_type FOREIGN KEY (organization\_type\_id) REFERENCES dbo.organization\_type (organization\_type\_id)

);

go

-- --------------------------------------------------------

--

-- Table structure for table contact

--

CREATE TABLE contact (

contact\_id int NOT NULL IDENTITY,

email varchar(50) NOT NULL,

organization\_id int NOT NULL,

username varchar(50) NOT NULL,

password varchar(50) NOT NULL,

first\_name varchar(25) NOT NULL,

last\_name varchar(25) NOT NULL,

CONSTRAINT pk\_contact PRIMARY KEY (contact\_id),

CONSTRAINT fk1\_organization FOREIGN KEY (organization\_id) REFERENCES dbo.organization (organization\_id)

);

go

--

-- Table structure for table deal

--

CREATE TABLE deal (

deal\_id int NOT NULL IDENTITY,

name varchar(50) NOT NULL,

amount int NOT NULL,

originator\_id int NOT NULL,

analyst\_id int NOT NULL,

borrower\_id int NOT NULL,

fee int NOT NULL,

deal\_status\_id int NOT NULL,

property\_type\_id int NOT NULL,

city\_id int NOT NULL,

state\_id int NOT NULL,

address varchar(50) NULL,

date\_active date NULL,

date\_accepted date NULL,

date\_closed date NULL,

date\_modified date NOT NULL,

CONSTRAINT pk\_deal PRIMARY KEY (deal\_id),

CONSTRAINT fk1\_deal\_status FOREIGN KEY (deal\_status\_id) REFERENCES dbo.deal\_status (deal\_status\_id),

CONSTRAINT fk1\_property\_type FOREIGN KEY (property\_type\_id) REFERENCES dbo.property\_type (property\_type\_id),

CONSTRAINT fk1\_city FOREIGN KEY (city\_id) REFERENCES dbo.city (city\_id),

CONSTRAINT fk1\_state FOREIGN KEY (state\_id) REFERENCES dbo.state (state\_id),

CONSTRAINT fk2\_contact1 FOREIGN KEY (originator\_id) REFERENCES dbo.contact (contact\_id),

CONSTRAINT fk2\_contact2 FOREIGN KEY (analyst\_id) REFERENCES dbo.contact (contact\_id),

CONSTRAINT fk2\_contact3 FOREIGN KEY (borrower\_id) REFERENCES dbo.contact (contact\_id),

);

go

-- --------------------------------------------------------

--

-- Table structure for table bridge\_deal\_contact

--

CREATE TABLE bridge\_deal\_contact (

bridge\_dc\_id int NOT NULL IDENTITY,

deal\_id int NOT NULL,

contact\_id int NOT NULL,

organization\_id int NOT NULL,

contact\_type\_id int NOT NULL,

CONSTRAINT pk\_bridge\_dc PRIMARY KEY (bridge\_dc\_id),

CONSTRAINT fk1\_deal FOREIGN KEY (deal\_id) REFERENCES dbo.deal (deal\_id),

CONSTRAINT fk2\_contact FOREIGN KEY (contact\_id) REFERENCES dbo.contact (contact\_id),

CONSTRAINT fk3\_organization FOREIGN KEY (organization\_id) REFERENCES dbo.organization (organization\_id),

CONSTRAINT fk4\_contact\_type FOREIGN KEY (contact\_type\_id) REFERENCES dbo.contact\_type (contact\_type\_id)

);

go

-- --------------------------------------------------------

--

-- Table structure for table quote

--

CREATE TABLE quote (

quote\_id int NOT NULL IDENTITY,

deal\_id int NOT NULL,

contact\_id int NOT NULL,

amount int NOT NULL,

is\_winning\_quote int NULL,

CONSTRAINT pk\_quote PRIMARY KEY (quote\_id),

CONSTRAINT fk1\_quote\_deal FOREIGN KEY (deal\_id) REFERENCES dbo.deal (deal\_id),

CONSTRAINT fk2\_quote\_contact FOREIGN KEY (contact\_id) REFERENCES dbo.contact (contact\_id),

);

go

----------- insert records

INSERT INTO city (city, state\_code) VALUES

('Buffalo', 'NY'),

('Rochester', 'NY'),

('Syracuse', 'NY');

go

INSERT INTO state (state, state\_code, country\_code) VALUES

('New York', 'NY', 'US');

go

INSERT INTO organization\_type (name) VALUES

('broker'),

('borrower'),

('lender');

go

INSERT INTO property\_type (name) VALUES

('Retail'),

('MultiFamily'),

('Hotel'),

('Office');

go

INSERT INTO contact\_type (name) VALUES

('originator'),

('analyst'),

('borrower'),

('lender');

go

INSERT INTO deal\_status (name) VALUES

('active'),

('accepted'),

('closed'),

('lost');

go

INSERT INTO organization (name, organization\_type\_id, address, city\_id, state\_id) VALUES

('International Development Company', (select distinct organization\_type\_id from organization\_type where name='borrower'), '210 City Building', '1', '1'),

('Upstate Developer LLC', (select distinct organization\_type\_id from organization\_type where name='borrower'), '2 River Road', '1', '1'),

('Real Estate Advisors, Inc.', (select distinct organization\_type\_id from organization\_type where name='broker'), '123 Main Street', '3', '1'),

('River Capital', (select distinct organization\_type\_id from organization\_type where name='lender'), '555 main street', '2', '1'),

('REIT Investment Trust', (select distinct organization\_type\_id from organization\_type where name='lender'), '1818 Main Street', '2', '1'),

('Liberty Bank', (select distinct organization\_type\_id from organization\_type where name='lender'), '315 Main Street', '2', '1'),

('Financial Group', (select distinct organization\_type\_id from organization\_type where name='lender'), '115 Lawrence Drive', '1', '1'),

('Star Bank', (select distinct organization\_type\_id from organization\_type where name='lender'), '85 Main Street', '1', '1'),

('USA Realty Captital', (select distinct organization\_type\_id from organization\_type where name='lender'), '330 Madison Avenue, 22nd Floor', '3', '1'),

('Global Markets, Inc.', (select distinct organization\_type\_id from organization\_type where name='lender'), '11 Greenwich Street', '3', '1');

go

INSERT INTO contact (email, organization\_id, username, password, first\_name, last\_name) VALUES

('bill@thecat.com', (select distinct organization\_id from organization where name = 'Upstate Developer LLC'), 'bill', 'bill', 'Bill', 'Clinton'),

('chelsea@hillary.com', (select distinct organization\_id from organization where name like '%Real Estate Advisors%'), 'Chelsea', 'Chelsea', 'Chelsea', 'Clinton'),

('hilary@hillary.com', (select distinct organization\_id from organization where name like '%Real Estate Advisors%'), 'hillary', 'hill', 'Clinton', 'Hillary'),

('george@bush.com', (select distinct organization\_id from organization where name = 'River Capital'), 'George', 'bush', 'George ', 'Bush'),

('Jim@Carry.com', (select distinct organization\_id from organization where name = 'REIT Investment Trust'), 'Jim', 'Carrey', 'Jim ', 'Carrey'),

('Eddie@Murphy.com', (select distinct organization\_id from organization where name = 'Liberty Bank'), 'Eddie', 'Murphy', 'Eddie ', 'Murphy'),

('Dave@Chappelle.com', (select distinct organization\_id from organization where name = 'Financial Group'), 'Dave', 'Chappelle', 'Dave ', 'Chappelle'),

('Chevy@Chase.com', (select distinct organization\_id from organization where name = 'Star Bank'), 'Chevy', 'Chevy', 'Chevy ', 'Chase'),

('Steve@Allen.com', (select distinct organization\_id from organization where name = 'Global Markets, Inc.'), 'Steve', 'Steve', 'Steven ', 'Allen');

go

INSERT INTO deal (name, amount, deal\_status\_id, date\_modified, property\_type\_id, city\_id, state\_id, address, fee, date\_active, date\_accepted, date\_closed,originator\_id,analyst\_id,borrower\_id) VALUES

('1234 FIELDHOUSE ', 5400000, (select distinct deal\_status\_id from deal\_status where name='active'), GetDate(), (select distinct property\_type\_id from property\_type where name='Retail'), (Select distinct city\_id from city where city='Syracuse'), '1', 'New Place', 13200, GetDate(), NULL, NULL, (Select distinct contact\_id from contact where username='hillary'),(Select distinct contact\_id from contact where username='Chelsea'),(Select distinct contact\_id from contact where username='bill') ),

('1234 Apartment Bldg', 3200000, (select distinct deal\_status\_id from deal\_status where name='active'), GetDate(), (select distinct property\_type\_id from property\_type where name='MultiFamily'), (Select distinct city\_id from city where city='Syracuse'), '1', 'New Place', 53200, GetDate(), NULL, NULL, (Select distinct contact\_id from contact where username='hillary'),(Select distinct contact\_id from contact where username='Chelsea'),(Select distinct contact\_id from contact where username='bill') ),

('1234 Office Space', 350000, (select distinct deal\_status\_id from deal\_status where name='closed'), GetDate(), (select distinct property\_type\_id from property\_type where name='Office'), (Select distinct city\_id from city where city='Syracuse'), '1', 'New Place', 111200, GetDate(), GetDate(), GetDate(), (Select distinct contact\_id from contact where username='hillary'),(Select distinct contact\_id from contact where username='Chelsea'),(Select distinct contact\_id from contact where username='bill') ),

('1234 Retail Plaza', 120000, (select distinct deal\_status\_id from deal\_status where name='closed'), GetDate(), (select distinct property\_type\_id from property\_type where name='Retail'), (Select distinct city\_id from city where city='Syracuse'), '1', 'New Place', 143200, GetDate(), GetDate(), GetDate(), (Select distinct contact\_id from contact where username='hillary'),(Select distinct contact\_id from contact where username='hillary'),(Select distinct contact\_id from contact where username='bill') ),

('1234 Shorline Homes ', 20000, (select distinct deal\_status\_id from deal\_status where name='closed'), GetDate(), (select distinct property\_type\_id from property\_type where name='MultiFamily'), (Select distinct city\_id from city where city='Syracuse'), '1', 'New Place', 63200, GetDate(), GetDate(), GetDate(), (Select distinct contact\_id from contact where username='hillary'),(Select distinct contact\_id from contact where username='Chelsea'),(Select distinct contact\_id from contact where username='bill') ),

('1234 Big City Apartments', 450000, (select distinct deal\_status\_id from deal\_status where name='closed'), GetDate(), (select distinct property\_type\_id from property\_type where name='MultiFamily'), (Select distinct city\_id from city where city='Syracuse'), '1', 'New Place', 92200, GetDate(), GetDate(), GetDate(), (Select distinct contact\_id from contact where username='hillary'),(Select distinct contact\_id from contact where username='hillary'),(Select distinct contact\_id from contact where username='bill') ),

('1234 Lofts', 330000, (select distinct deal\_status\_id from deal\_status where name='closed'), GetDate(), (select distinct property\_type\_id from property\_type where name='MultiFamily'), (Select distinct city\_id from city where city='Syracuse'), '1', 'New Place', 53200, GetDate(), GetDate(), GetDate(), (Select distinct contact\_id from contact where username='hillary'),(Select distinct contact\_id from contact where username='Chelsea'),(Select distinct contact\_id from contact where username='bill') ),

('1234 RiverView', 22000, (select distinct deal\_status\_id from deal\_status where name='closed'), GetDate(), (select distinct property\_type\_id from property\_type where name='MultiFamily'), (Select distinct city\_id from city where city='Syracuse'), '1', 'New Place', 73200, GetDate(), GetDate(), NULL, (Select distinct contact\_id from contact where username='hillary'),(Select distinct contact\_id from contact where username='hillary'),(Select distinct contact\_id from contact where username='bill') ),

('1234 Commerce Park ',7620000, (select distinct deal\_status\_id from deal\_status where name='accepted'), GetDate(), (select distinct property\_type\_id from property\_type where name='Office'), (Select distinct city\_id from city where city='Syracuse'), '1', 'New Place', 93200, GetDate(), GetDate(), NULL, (Select distinct contact\_id from contact where username='hillary'),(Select distinct contact\_id from contact where username='Chelsea'),(Select distinct contact\_id from contact where username='bill') ),

('1234 Office Bldg', 14000000, (select distinct deal\_status\_id from deal\_status where name='accepted'), GetDate(), (select distinct property\_type\_id from property\_type where name='Office'), (Select distinct city\_id from city where city='Syracuse'), '1', 'New Place', 1143200, GetDate(), NULL, NULL, (Select distinct contact\_id from contact where username='hillary'),(Select distinct contact\_id from contact where username='hillary'),(Select distinct contact\_id from contact where username='bill') );

go

INSERT INTO quote (deal\_id, contact\_id, amount) VALUES

((select deal\_id from deal where name='1234 FIELDHOUSE'), (select contact\_id from contact where username='Chevy'), 5100000),

((select deal\_id from deal where name='1234 FIELDHOUSE'), (select contact\_id from contact where username='Jim'), 5000000),

((select deal\_id from deal where name='1234 FIELDHOUSE'), (select contact\_id from contact where username='Dave'), 4900000),

((select deal\_id from deal where name='1234 Apartment Bldg'), (select contact\_id from contact where username='Jim'), 3200000),

((select deal\_id from deal where name='1234 Apartment Bldg'), (select contact\_id from contact where username='Eddie'), 3100000),

((select deal\_id from deal where name='1234 Apartment Bldg'), (select contact\_id from contact where username='Dave'), 2500000),

((select deal\_id from deal where name='1234 Office Space'), (select contact\_id from contact where username='Jim'), 330000),

((select deal\_id from deal where name='1234 Office Space'), (select contact\_id from contact where username='Chevy'), 320000),

((select deal\_id from deal where name='1234 Office Bldg'), (select contact\_id from contact where username='Dave'), 14000000),

((select deal\_id from deal where name='1234 Office Bldg'), (select contact\_id from contact where username='Jim'), 14000000),

((select deal\_id from deal where name='1234 Office Bldg'), (select contact\_id from contact where username='Chevy'), 14000000),

((select deal\_id from deal where name='1234 Office Bldg'), (select contact\_id from contact where username='Steve'), 14000000),

((select deal\_id from deal where name='1234 Office Bldg'), (select contact\_id from contact where username='George'), 14000000);

go

select \* from quote;

update quote set is\_winning\_quote = 1 where deal\_id=(select deal\_id from deal where name='1234 FIELDHOUSE') and contact\_id = (select contact\_id from contact where username='Chevy');

go

update quote set is\_winning\_quote = 1 where deal\_id=(select deal\_id from deal where name='1234 Apartment Bldg') and contact\_id = (select contact\_id from contact where username='Jim');

go

update quote set is\_winning\_quote = 1 where deal\_id=(select deal\_id from deal where name='1234 Office Space') and contact\_id = (select contact\_id from contact where username='Jim');

go

update quote set is\_winning\_quote = 1 where deal\_id=(select deal\_id from deal where name='1234 Office Bldg') and contact\_id = (select contact\_id from contact where username='Eddie');

go

-- select and update queries

select o.name, first\_name, last\_name, ot.name

from contact c

left join organization o on o.organization\_id = c.organization\_id

left join organization\_type ot on o.organization\_type\_id = ot.organization\_type\_id

where ot.name = 'lender';

select d.name, amount, fee,c.city, s.state,p.name

from deal d

left join deal\_status ds on ds.deal\_status\_id = d.deal\_status\_id

left join city c on c.city\_id = d.city\_id

left join state s on s.state\_id = d.state\_id

left join property\_type p on p.property\_type\_id = d.property\_type\_id

where ds.name = 'active';

go

update deal set deal\_status\_id = (select deal\_status\_id from deal\_status where name = 'closed')

where name='1234 FIELDHOUSE';

go

select d.name, amount, fee,c.city, s.state,p.name

from deal d

left join deal\_status ds on ds.deal\_status\_id = d.deal\_status\_id

left join city c on c.city\_id = d.city\_id

left join state s on s.state\_id = d.state\_id

left join property\_type p on p.property\_type\_id = d.property\_type\_id

where ds.name = 'active';

go

select 'Closed' as Name, sum(amount) total\_closed

from deal d

left join deal\_status ds on ds.deal\_status\_id = d.deal\_status\_id

left join city c on c.city\_id = d.city\_id

left join state s on s.state\_id = d.state\_id

left join property\_type p on p.property\_type\_id = d.property\_type\_id

where ds.name = 'closed'

select o.name, c.first\_name, c.last\_name, avg(d.amount) as amount\_average

from deal d

left join quote q on q.deal\_id = d.deal\_id

left join contact c on c.contact\_id = q.contact\_id

left join organization o on o.organization\_id = c.organization\_id

where o.name is not null

and year(d.date\_active)='2019' group by o.name, c.first\_name, c.last\_name;

-- 5 questions

select top 5 o.name, c.first\_name, c.last\_name, avg(fee) as fee\_average

from deal d

left join quote q on q.deal\_id = d.deal\_id

left join contact c on c.contact\_id = q.contact\_id

left join organization o on o.organization\_id = c.organization\_id

where o.name is not null

and year(d.date\_active)='2019'

group by o.name, c.first\_name, c.last\_name;

go

select o.name as 'Name', c.first\_name as 'First Name', c.last\_name as 'Last Name', avg(d.amount) as 'Average Amount'

from deal d

left join quote q on q.deal\_id = d.deal\_id

left join contact c on c.contact\_id = q.contact\_id

left join organization o on o.organization\_id = c.organization\_id

where o.name is not null

and year(d.date\_active)='2019' group by o.name, c.first\_name, c.last\_name;

go

select p.name,avg(fee) 'Average Fee'

from deal d

left join deal\_status ds on ds.deal\_status\_id = d.deal\_status\_id

left join city c on c.city\_id = d.city\_id

left join state s on s.state\_id = d.state\_id

left join property\_type p on p.property\_type\_id = d.property\_type\_id

where year(d.date\_active)='2019'

group by p.name

select top 5 o.name as 'Name', c.first\_name as 'First Name', c.last\_name as 'Last Name',

p.name,avg(fee) 'Average Fee', avg(d.amount) as 'Average Fee'

from deal d

left join quote q on q.deal\_id = d.deal\_id

left join contact c on c.contact\_id = q.contact\_id

left join organization o on o.organization\_id = c.organization\_id

left join property\_type p on p.property\_type\_id = d.property\_type\_id

where o.name is not null

and year(d.date\_active)='2019' group by o.name, c.first\_name, c.last\_name,p.name;

go

select o.name as 'Broker', og.first\_name as 'Originator First', og.last\_name as 'Originator Last',

anl.first\_name as 'Analyst First', anl.last\_name as 'Analyst Last',

p.name as 'Property Type',avg(fee) 'Avg Fee', avg(d.amount) as 'Avg Amount'

from deal d

left join contact anl on anl.contact\_id = d.analyst\_id

left join contact og on og.contact\_id = d.originator\_id

left join organization o on o.organization\_id = og.organization\_id

left join property\_type p on p.property\_type\_id = d.property\_type\_id

where o.name is not null

and year(d.date\_active)='2019' group by o.name,anl.first\_name, anl.last\_name, og.first\_name, og.last\_name,p.name;

go

R Code – 5 QUESTIONS

require(RODBC)

myconn <- odbcConnect("odbc64")

SqlSelectStatement <-

"select o.name, c.first\_name, c.last\_name, avg(d.fee)/100 as 'Average Fee'

from deal d

left join quote q on q.deal\_id = d.deal\_id

left join contact c on c.contact\_id = q.contact\_id

left join organization o on o.organization\_id = c.organization\_id

where o.name is not null

and year(d.date\_active)='2019'

group by o.name, c.first\_name, c.last\_name order by avg(d.fee) desc;

"

avgResult <- sqlQuery(myconn,SqlSelectStatement)

avgResult

barplot(avgResult$`Average Fee`,

main="Histogram for Average Fee By Lender",

xlab="Lender",

ylab="Average fEE",

border="blue",

names.arg = avgResult$name

)

SqlSelectStatement <-

"select o.name as 'Name', c.first\_name as 'First Name', c.last\_name as 'Last Name', avg(d.amount)/100 as 'Average Amount'

from deal d

left join quote q on q.deal\_id = d.deal\_id

left join contact c on c.contact\_id = q.contact\_id

left join organization o on o.organization\_id = c.organization\_id

where o.name is not null

and year(d.date\_active)='2019' group by o.name, c.first\_name, c.last\_name order by avg(d.amount) desc;"

avgAmount <- sqlQuery(myconn,SqlSelectStatement)

avgAmount

barplot(avgAmount$`Average Amount`,

main="Histogram for Average Amount By Lender",

xlab="Lender",

ylab="Average Amount",

border="blue",

names.arg = avgAmount$Name

)

SqlSelectStatement <-

"select p.name,avg(fee)/100 'Average Fee'

from deal d

left join deal\_status ds on ds.deal\_status\_id = d.deal\_status\_id

left join city c on c.city\_id = d.city\_id

left join state s on s.state\_id = d.state\_id

left join property\_type p on p.property\_type\_id = d.property\_type\_id

where year(d.date\_active)='2019'

group by p.name order by avg(fee) desc

"

avgPropertyResult <- sqlQuery(myconn,SqlSelectStatement)

avgPropertyResult

barplot(avgPropertyResult$`Average Fee`,

main="Histogram for Average Fee By Property Type",

xlab="Property Type",

ylab="Average Fee",

border="blue",

names.arg = avgPropertyResult$name

)

SqlSelectStatement <-

"select o.name as 'Name', c.first\_name as 'First Name', c.last\_name as 'Last Name',

p.name,avg(fee) 'Average Fee', avg(d.amount) as 'Average Amount'

from deal d

left join quote q on q.deal\_id = d.deal\_id

left join contact c on c.contact\_id = q.contact\_id

left join organization o on o.organization\_id = c.organization\_id

left join property\_type p on p.property\_type\_id = d.property\_type\_id

where o.name is not null

and year(d.date\_active)='2019' group by o.name, c.first\_name, c.last\_name,p.name order by avg(fee),avg(d.amount) desc;"

avgLenderPropertyResult <- sqlQuery(myconn,SqlSelectStatement)

avgLenderPropertyResult

SqlSelectStatement <-

"select top 5 o.name as 'Broker', og.first\_name as 'Originator First', og.last\_name as 'Originator Last',

anl.first\_name as 'Analyst First', anl.last\_name as 'Analyst Last',

p.name as 'Property Type',avg(fee) 'Avg Fee', avg(d.amount) as 'Avg Amount'

from deal d

left join contact anl on anl.contact\_id = d.analyst\_id

left join contact og on og.contact\_id = d.originator\_id

left join organization o on o.organization\_id = og.organization\_id

left join property\_type p on p.property\_type\_id = d.property\_type\_id

where o.name is not null

and year(d.date\_active)='2019' group by o.name,anl.first\_name, anl.last\_name, og.first\_name, og.last\_name,p.name;"

teamPropertyResult <- sqlQuery(myconn,SqlSelectStatement)

teamPropertyResult

**Data Questions Output:**

**Lender/Investors (L/I):**

1. Who are my top 5 for 2019 and property type
2. What is my average fee per L/I for a given time period

**Deals:**

1. How many closed deals as (company or individual) do I have for 2019(quarter/years)?
2. Who are my top producers and account teams for a property type or time frame?
3. Which property types are most profitable (based upon fee)?
4. **WHO ARE THE TOP 5 ACCOUNT TEAM FOR 2019?**

A screenshot of a social media post

Description automatically generated

1. **Who ARE THE TOP LENDERS BY PROPERTY AND FEE FOR 2019?**

A screenshot of a social media post

Description automatically generated

1. **What is the average fee by Property Type for 2019?**

A screenshot of a cell phone

Description automatically generated

A screenshot of a cell phone

Description automatically generated

1. **What is the Average Amount A lender will quote for 2019?**

A screenshot of a social media post

Description automatically generated

A screenshot of a computer

Description automatically generated

1. **What is the average fee by lender for 2019?**

A screenshot of a cell phone

Description automatically generated

A screenshot of a social media post

Description automatically generated

Implementation

Add Deal Screen:

A screenshot of a cell phone

Description automatically generated

Add Quote Screen:

A screenshot of a cell phone

Description automatically generated

Reflection:

My initial project outline was much more involved. It required a large number of joins and while doable it easily become confusion. I spent way too much time focusing on normalization the database and building too large a dataset. If I were to do it over, I would look to simplify from the outset and layer on top of that.

Data Glossary:

**2. Tables**

**2.1. Table bridge\_deal\_contact**

**Description:**bridge table used to store the many to many relationships between the deal and contact tables

2.1.1. Columns

|  |  |  |  |
| --- | --- | --- | --- |
| **Column name** | **Type** | **Properties** | **Description** |
| deal\_contact\_id | int | PK | PK for this bridge table |
| contact\_id | int | null | FK to the contact table |
| role\_id | int | null | fk to the role lookup table. this specifies the role the contact will play in the deal transactions |
| deal\_id | int | null | FK to the deal table |
| date\_created | date | null | date record was added to the table |
| date\_modified | date | null | date the record was last changed |
| is\_active | int | null | flag to determine if this record is still active. also used for historical purposes |

**2.2. Table country**

**Description:**lookup table for the country

2.2.1. Columns

|  |  |  |  |
| --- | --- | --- | --- |
| **Column name** | **Type** | **Properties** | **Description** |
| country\_id | int | PK | PK for the table |
| name | varchar(50) |  | name of the country |

**2.3. Table property\_type**

**Description:**lookup table for the property types used in the system. will be used across the diff accounts

2.3.1. Columns

|  |  |  |  |
| --- | --- | --- | --- |
| **Column name** | **Type** | **Properties** | **Description** |
| property\_type\_id | int | PK | PK for this table |
| name | varchar(30) |  | property type name |

**2.4. Table organization**

**Description:**table used to store the organization or company a contact belongs to

2.4.1. Columns

|  |  |  |  |
| --- | --- | --- | --- |
| **Column name** | **Type** | **Properties** | **Description** |
| organization\_id | int | PK | primary key |
| name | varchar(50) |  | name of the organization |
| organization\_type\_id | int |  | FK to the organization type lookup table |
| city\_id | int | null | FK to the city lookup table |
| address | varchar(50) |  | organization mailing address |
| state\_id | int |  | FK to the state lookup table |
| organization\_type\_organization\_type\_id | int |  |  |

**2.6. Table quote**

**Description:**table used to link the lenders and investors response to a deal. If they like the deal they will quote. If not they will pass

2.6.1. Columns

|  |  |  |  |
| --- | --- | --- | --- |
| **Column name** | **Type** | **Properties** | **Description** |
| quote\_id | int | PK | PK for the table |
| deal\_id | int |  | FK to the deal. used to link a deal to a quote |
| amount | int | null | the amount the contact is willing to quote. this should default to 0 |

**2.7. Table states**

**Description:**lookup table for a state or province

2.7.1. Columns

|  |  |  |  |
| --- | --- | --- | --- |
| **Column name** | **Type** | **Properties** | **Description** |
| state\_id | int | PK | PK for the table |
| name | varchar(100) |  | State Name |

**2.9. Table city**

**Description:**lookup table for the city

2.9.1. Columns

|  |  |  |  |
| --- | --- | --- | --- |
| **Column name** | **Type** | **Properties** | **Description** |
| city\_id | int | PK | Pk for the table |
| name | varchar(100) |  | Name of the city |

**2.10. Table deal**

**Description:**Primary deals table. Primary Key deal\_id

2.10.1. Columns

|  |  |  |  |
| --- | --- | --- | --- |
| **Column name** | **Type** | **Properties** | **Description** |
| deal\_id | int | PK | pK for deal table |
| deal\_name | varchar(50) | null | name assigned to the deal |
| amount | int | null |  |
| fee | int | null | the fee or profit the broker will charge to manage the deal |
| deal\_status\_id | int | null | FK to the deal status lookup table |
| date\_modified | datetime | null | date when this record was last changed |
| date\_updated | datetime | null | date when this record was last changed |
| zip | int |  | deal zip code |

**2.16. Table deal\_status**

**Description:**look up table for the status of the deal

2.16.1. Columns

|  |  |  |  |
| --- | --- | --- | --- |
| **Column name** | **Type** | **Properties** | **Description** |
| deal\_status\_id | int | PK | PK for the table |
| name | varchar(50) |  | deal status name |

**2.17. Table contact**

**Description:**table will store all system users.

2.17.1. Columns

|  |  |  |  |
| --- | --- | --- | --- |
| **Column name** | **Type** | **Properties** | **Description** |
| contact\_id | int | PK |  |
| first\_name | varchar(50) |  | contact first name |
| last\_name | varchar(50) |  | contact last name |
| username | varchar(50) | null | contact username used to log into the system |
| password | varchar(50) | null | the password used to log into the system. Would be good if this was bcrytped |
| email | varchar(50) | null | contact email address |
| organization\_id | int |  | Foreign Key to the organization table. Used to identify the organization/company the contact belongs to |

**2.18. Table account**

**Description:**the table that specifies which organization controls the system being used

2.18.1. Columns

|  |  |  |  |
| --- | --- | --- | --- |
| **Column name** | **Type** | **Properties** | **Description** |
| account\_id | int | PK | PK for the account table. used as an FK in other tables |
| name | varchar(50) |  | account name |
| is\_active | int |  | flag to determine if the account is active or not. 1 active 0: inactive |
| api\_username | varchar(50) | null | api username to access the data via application program interface |
| api\_password | varchar(50) | null | api password to access the data via the application program interface |
| date\_created | datetime | null | date record added |
| date\_modified | datetime |  | date record modified |
| organization\_id | int | null | FK to the organization table. the organization this account was set up for |

**Conceptual Models**

**A close up of text on a white background

Description automatically generated**

**Logical Model**

**A close up of text on a white background

Description automatically generated**