# Project name: Housing Smurfs

# Data Sources

A. Websites:

We have used several websites to collect review, reviewer, utilities, review response, owner and apartment information. The data from the following websites was used to create our database

- Google Reviews: https://www.google.com/search?gs_
- Yelp : https://www.yelp.com/nearme/apartments
- Apartments.com:https://www.apartments.com/
- Apartment Ratings:https://www.apartmentratings.com/

B. Survey:

To collect the lease information which was not available easily on the websites, we created a survey using google forms and sent it out to umd students. Link: Survey link

# Testing our Project

1. Creating Tables:

The Project_0507_DDL.sql file has the create table and insert commands which create and insert the data into tables used in our project. Running this query in the Microsoft server management studio after connecting to the rhsmith sql server will create all the required tables and insert the data into the tables. The screenshots of the tables created and the insert data commands are attached below.
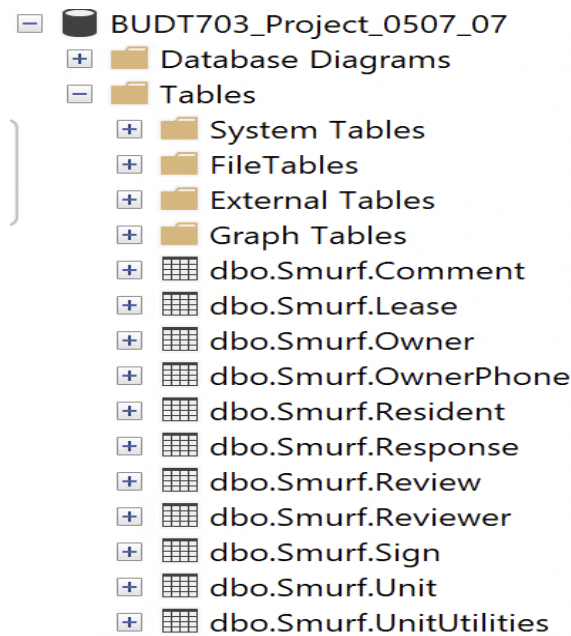
Fig.1 All the tables created

```sql
CREATE TABLE [Smurf.Sign](
    residentId CHAR(3) NOT NULL,
    leaseId CHAR(3),
    unitId CHAR(3),
    signDate DATE
    CONSTRAINT PK_Sign_residentId PRIMARY KEY (residentId),
    CONSTRAINT FK_Sign_residentId FOREIGN KEY (residentId)
            REFERENCES [Smurf.Resident] (residentId)
            ON DELETE NO ACTION ON UPDATE CASCADE,
    CONSTRAINT FK_Sign_leaseId FOREIGN KEY (leaseId)
            REFERENCES [Smurf.Lease] (leaseId)
            ON DELETE NO ACTION ON UPDATE NO ACTION,
    CONSTRAINT FK_Sign_unitId FOREIGN KEY (unitId)
            REFERENCES [Smurf.Unit] (unitId)
            ON DELETE NO ACTION ON UPDATE NO ACTION);
```

Fig.2 Create table command

```
INSERT INTO [Smurf.Owner] VALUES
    ('O01', 'Willow Wick Residential', NULL, NULL),
    ('O02', 'Scion', NULL, NULL),
    ('O03', 'Southern Management Companies', NULL, NULL),
    ('O04', 'Graduate Gardens', NULL, NULL),
    ('O05', 'Greystar', NULL, NULL),
    ('O06', 'Vie Management', NULL, NULL),
    ('O07', 'Cardinal Group', NULL, NULL),
    ('O08', 'BHOM Student Living', NULL, NULL),
    ('O09', 'UDR', NULL, NULL),
    ('O10', 'Dolben', NULL, NULL),
    ('O11', 'Paul', NULL, 'Swerdlow'),
    ('O12', 'Live ParkSide Apartment', NULL, NULL)

INSERT INTO [Smurf.Unit] VALUES
    ('U01', 'The Alloy', '4700 Berwyn House Road', 'College Park', 'MD', '20740', 'Apartment', 0.1, 'O01'),
    ('U02', 'University View', '8204 Baltimore Avenue', 'College Park', 'MD', '20740', 'Apartment', 0.08, 'O02'),
    ('U03', 'Graduate Hills', '3424 Tulane Drive', 'Hyattsville', 'MD', '20783', 'Apartment', 0.1, 'O03'),
    ('U04', 'Graduate Garden', '4318 Rowalt Dr', 'College Park', 'MD', '20740', 'Apartment', 0.5, 'O04'),
    ('U05', 'The Varsity', '8150 Baltimore Ave', 'College Park', 'MD', '20740', 'Apartment', 0.2, 'O05'),
    ('U06', 'Vie Tower', '6515 Belcrest Rd', 'Hyattsville', 'MD', '20782', 'Apartment', 1.3, 'O06'),
    ('U07', 'Landmark', '4500 College Avenue', 'College Park', 'MD', '20740', 'Apartment', 0.1, 'O07'),
    ('U08', 'Terrapin Row', '4300 Hartwick Rd.', 'College Park', 'MD', '20740', 'Apartment', 0.5, 'O08'),
    ('U09', 'Domain', '3711 Campus Dr', 'College Park', 'MD', '20740', 'Apartment', 0.0, 'O09'),
```

Fig.3: Data insertion Commands

2. Business Transactions in SQL:

The file Project_0507_DML.sql contains the SQL commands for all the business transactions of our project. Running this query in the Microsoft server management studio after connecting to the rhsmith sql server will give the sql table outputs for our business transactions. The screenshots of the outputs are attached below

```
SELECT DISTINCT u.unitName, CONVERT(DECIMAL(3,2), ua.AvgRate) AS 'Average Rate', l.leaseBedroom, l.leaseBathroom,
CONVERT(DECIMAL(10,1), AVG(l.leasePrice)) AS 'Average Price', ua.[Review Numbers], o.ownerPhone AS 'Contact Info'
FROM [Smurf.Unit] u, [Smurf.unitAvgRate] ua, [Smurf.Lease] l, [Smurf.Sign] s, [Smurf.OwnerPhone] o
WHERE u.unitId = ua.unitId AND u.unitId = s.unitId AND l.leaseId = s.leaseId AND u.ownerId = o.ownerId
GROUP BY u.unitName, CONVERT(DECIMAL(3,2), ua.AvgRate), l.leaseBathroom, l.leaseBedroom, ua.[Review Numbers], o.ownerPhone
```

| | unitName | Average Rate | leaseBedroom | leaseBathroom | Average Price | Review Numbers |
|---|---|---|---|---|---|---|
| 1 | Domain | 3.80 | 1 | 1 | 2400.0 | 10 |
| 2 | Domain | 3.80 | 2 | 2 | 3250.0 | 10 |
| 3 | Graduate Garden | 4.33 | 2 | 1 | 720.0 | 3 |
| 4 | Graduate Hills | 3.08 | 2 | 1 | 780.0 | 19 |
| 5 | Parkside | 4.50 | 2 | 2 | 775.0 | 2 |
| 6 | Terrapin Row | 2.75 | 4 | 4 | 1362.5 | 2 |
| 7 | The Alloy | 3.93 | 2 | 2 | 1689.5 | 14 |
| 8 | University View | 3.83 | 2 | 2 | 1432.0 | 12 |

Query executed successfully.          doitsqlx.rhsmith.umd.edu,97...  BUDT703_Student_269 (65)  BUDT703_Project_0507_07  00:00:00  11 rows
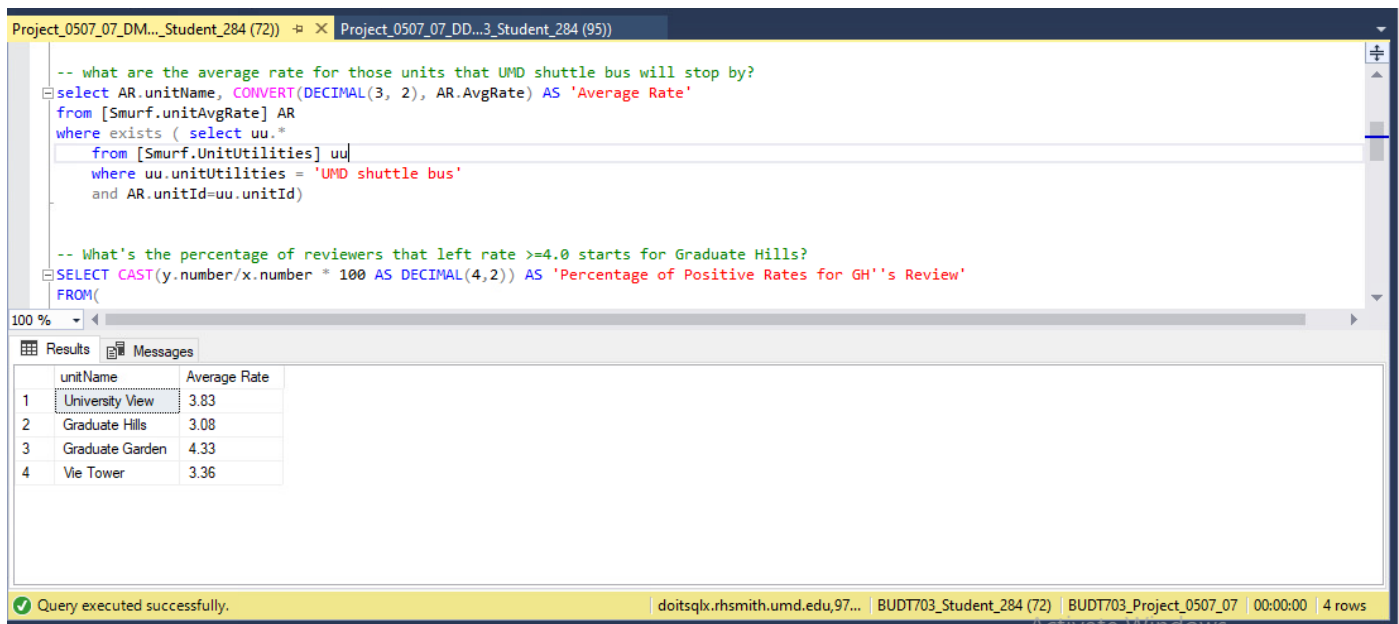
Fig.4 Business Transaction 1
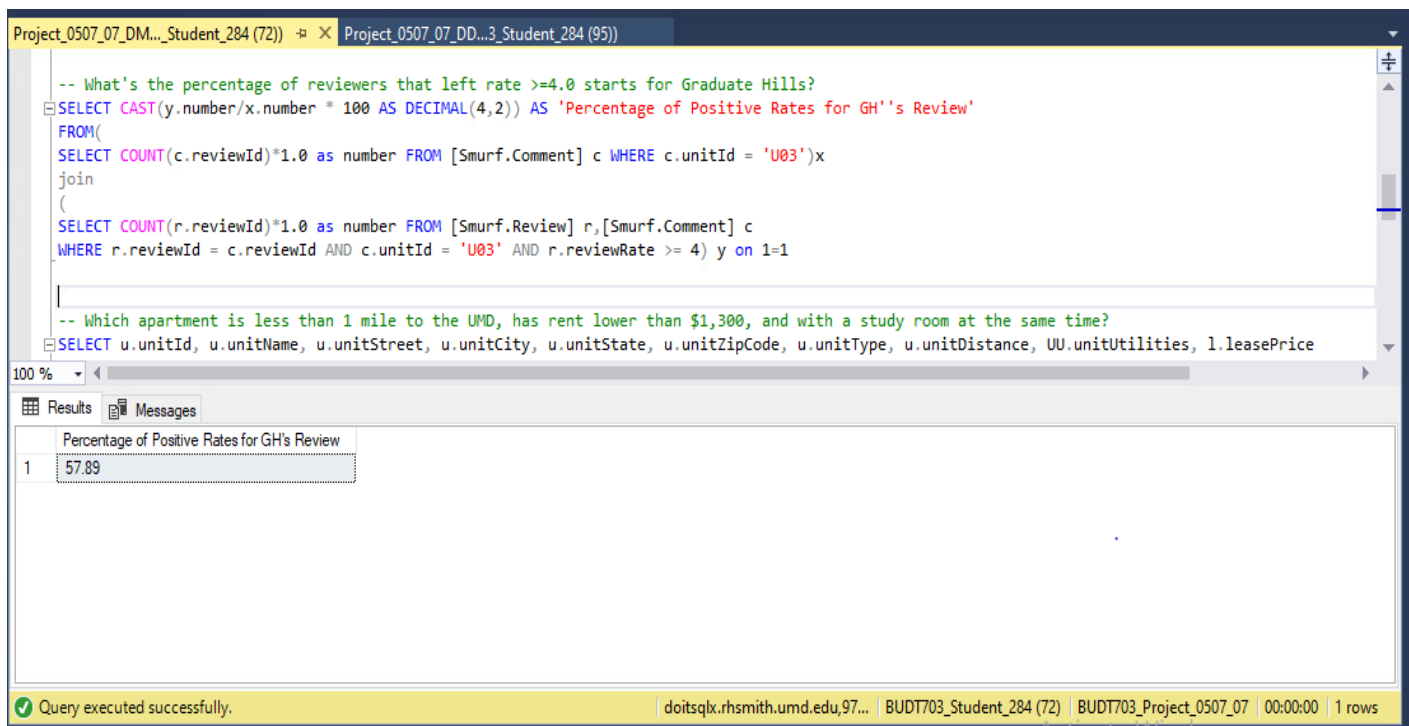
Fig.5 Business Transaction 2
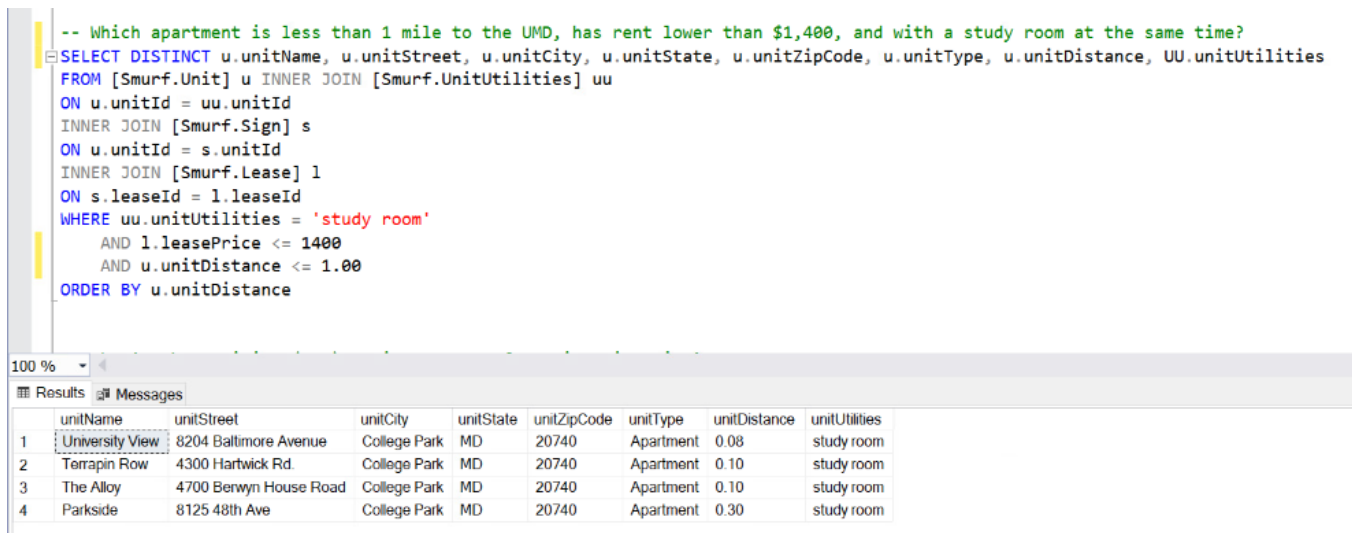


Fig.6: Business Transaction 3

```
-- Which apartment is less than 1 mile to the UMD, has rent lower than $1,400, and with a study room at the same time?
SELECT DISTINCT u.unitName, u.unitStreet, u.unitCity, u.unitState, u.unitZipCode, u.unitType, u.unitDistance, UU.unitUtilities
FROM [Smurf.Unit] u INNER JOIN [Smurf.UnitUtilities] uu
ON u.unitId = uu.unitId
INNER JOIN [Smurf.Sign] s
ON u.unitId = s.unitId
INNER JOIN [Smurf.Lease] l
ON s.leaseId = l.leaseId
WHERE uu.unitUtilities = 'study room'
    AND l.leasePrice <= 1400
    AND u.unitDistance <= 1.00
ORDER BY u.unitDistance
```

100 %

⊞ Results  Messages

| | unitName | unitStreet | unitCity | unitState | unitZipCode | unitType | unitDistance | unitUtilities |
|---|---|---|---|---|---|---|---|---|
| 1 | University View | 8204 Baltimore Avenue | College Park | MD | 20740 | Apartment | 0.08 | study room |
| 2 | Terrapin Row | 4300 Hartwick Rd. | College Park | MD | 20740 | Apartment | 0.10 | study room |
| 3 | The Alloy | 4700 Berwyn House Road | College Park | MD | 20740 | Apartment | 0.10 | study room |
| 4 | Parkside | 8125 48th Ave | College Park | MD | 20740 | Apartment | 0.30 | study room |

Fig.7: Business Transaction 4

Project_0507_07_DM..._Student_284 (72))  ⊞ ✕  Project_0507_07_DD...3_Student_284 (95))

```
-- What's the positive (>=4) review content for University View?
SELECT CONVERT(DECIMAL(3, 2), r.reviewRate) AS 'Average Rate', r.reviewContent
FROM [Smurf.Review] r, [Smurf.Comment] c
WHERE r.reviewId = c.reviewId AND r.reviewRate >= 4.0 AND c.unitId = 'U01' AND r.reviewContent IS NOT NULL
```

100 %

⊞ Results  Messages

| | Average Rate | reviewContent |
|---|---|---|
| 1 | 4.00 | The Alloy is a wonderful place to live. The rent is ... |
| 2 | 4.00 | Alloy is conveniently located near UMD, yet affor... |
| 3 | 5.00 | the tour was absolutely wonderful gorgeous Mallo... |
| 4 | 5.00 | Great location! The staff is nice and super accom... |
| 5 | 5.00 | I recently contacted Alloy by Alta this past weeke... |
| 6 | 5.00 | Mainly rate for Marquita Wiggins! She always giv... |
| 7 | 4.00 | Great amenities, friendly staff, rooms are very spa... |
| 8 | 4.00 | Good quality but overpriced. |

✓ Query executed successfully. | doitsqlx.rhsmith.umd.edu,97... | BUDT703_Student_284 (72) | BUDT703_Project_0507_07 | 00:00:00 | 9 rows
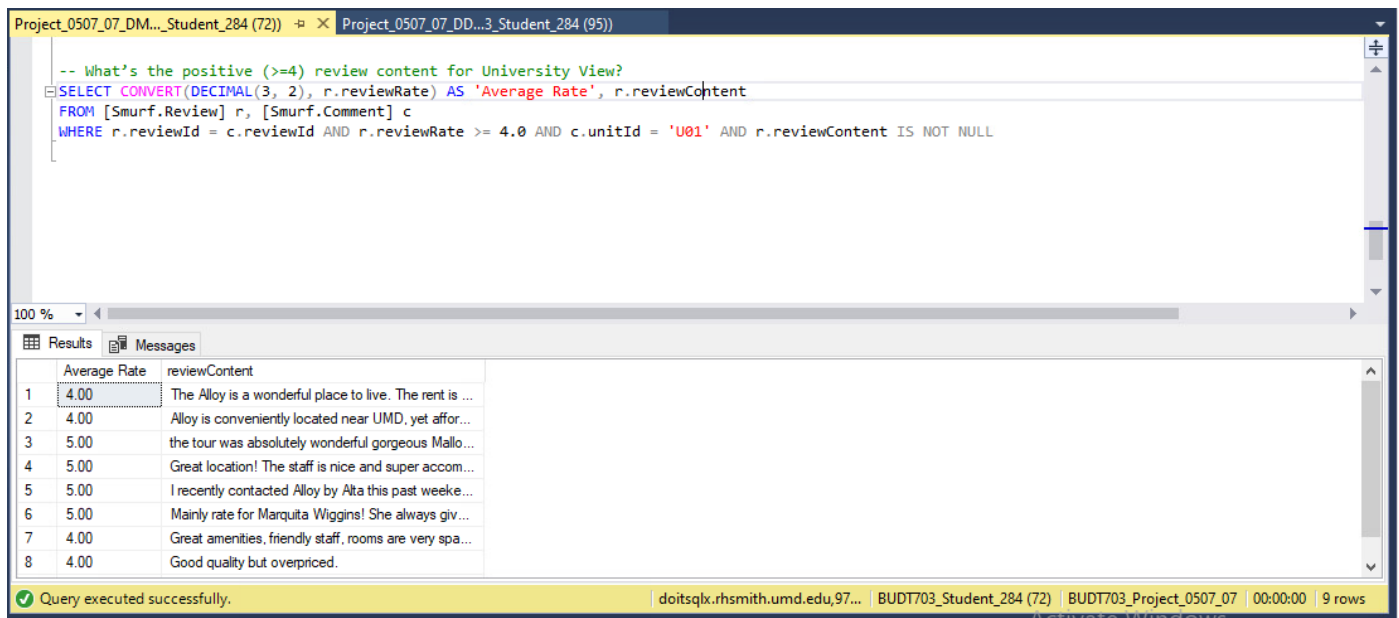
Fig.8:  Business Transaction 5

3.  Business Transaction Visualization in Tableau:

The Project_507_Tableau.twb file has the data connections, the business transactions visualization and dashboard of our project. Open the file in Tableau and login to the rhsmith sql server to access the data connections, visualization and the dashboard. The screenshots of the connections, visualization and dashboard are attached below.
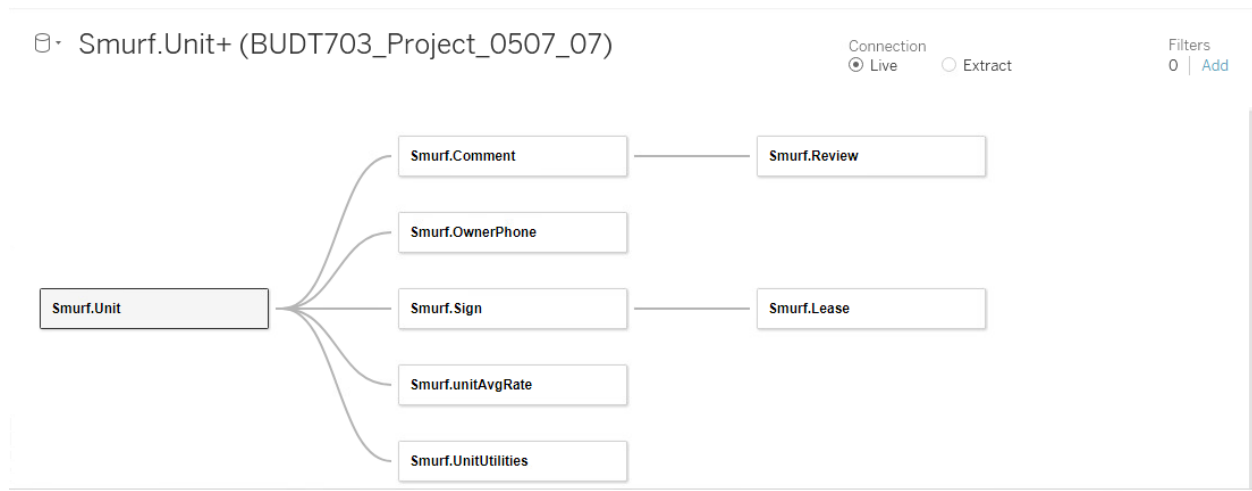
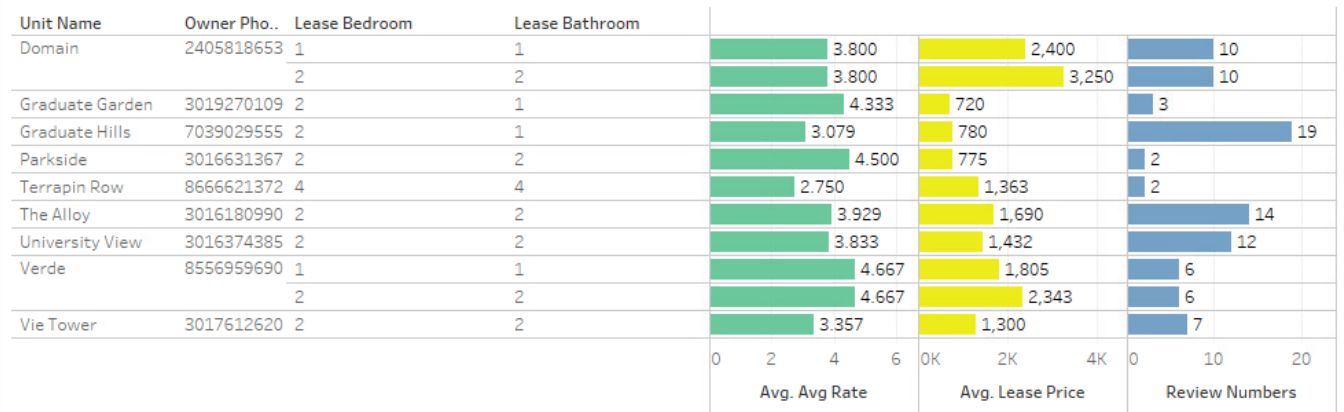Fig.9: Data connections



Fig.10: Business Transaction 1 visualization

For all the apartments that the UMD shuttle bus will pass, what's the average rate?
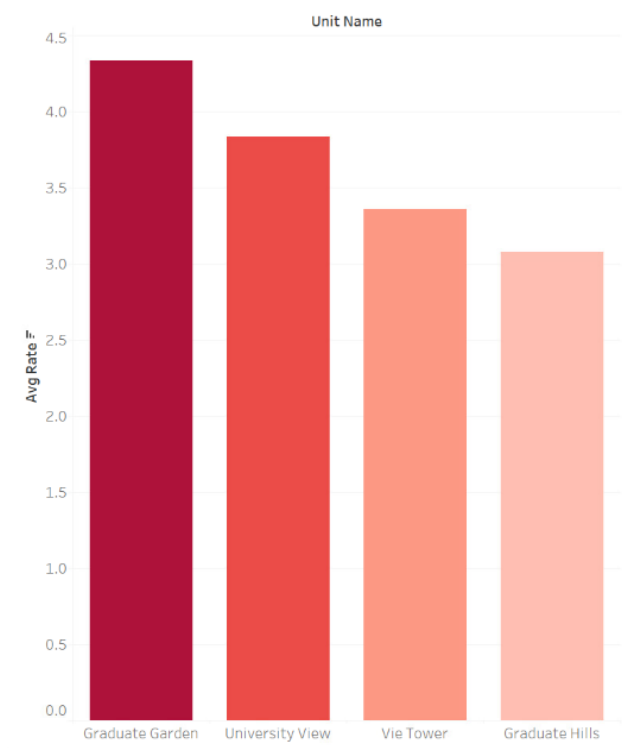


Fig.11 Business Transaction 2 visualization

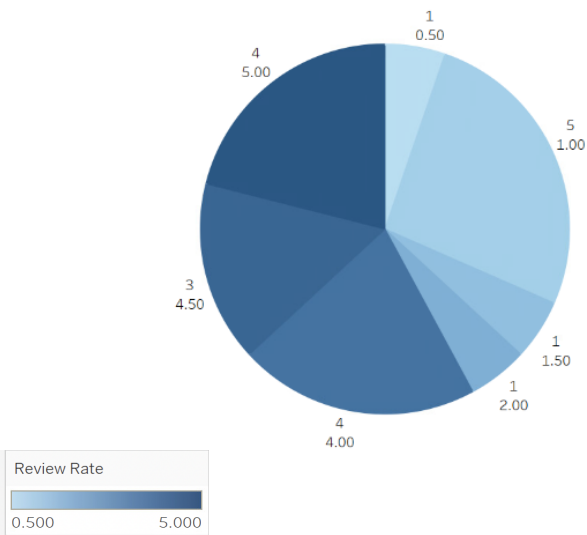What's the percentage of reviewers that left rate >=4.0 starts for Graduate Hills?



Fig.12 Business Transaction 3 visualization

Which apartment is less than 1 mile to the UMD, has rent lower than $1,400, and with a study room at the same time?
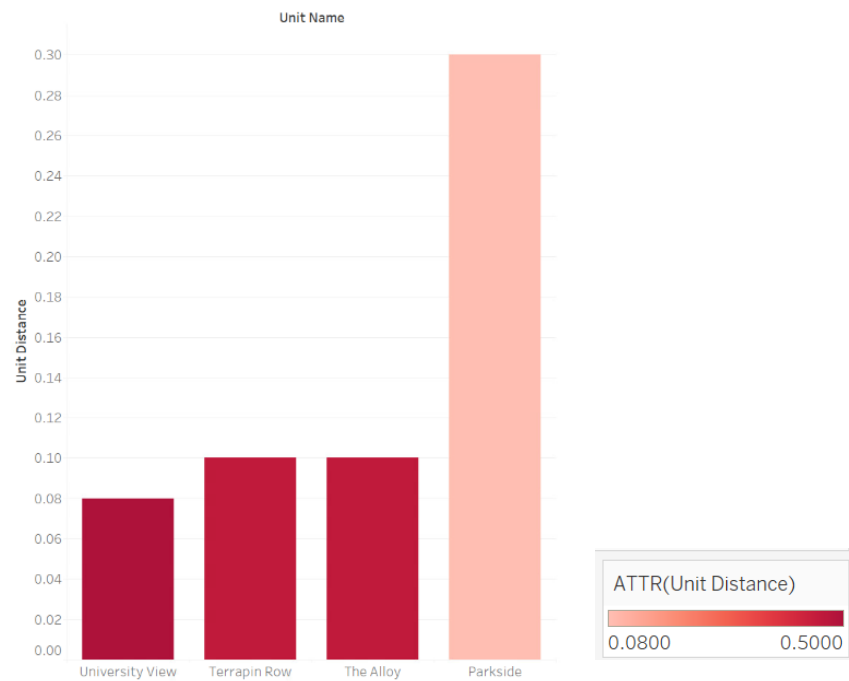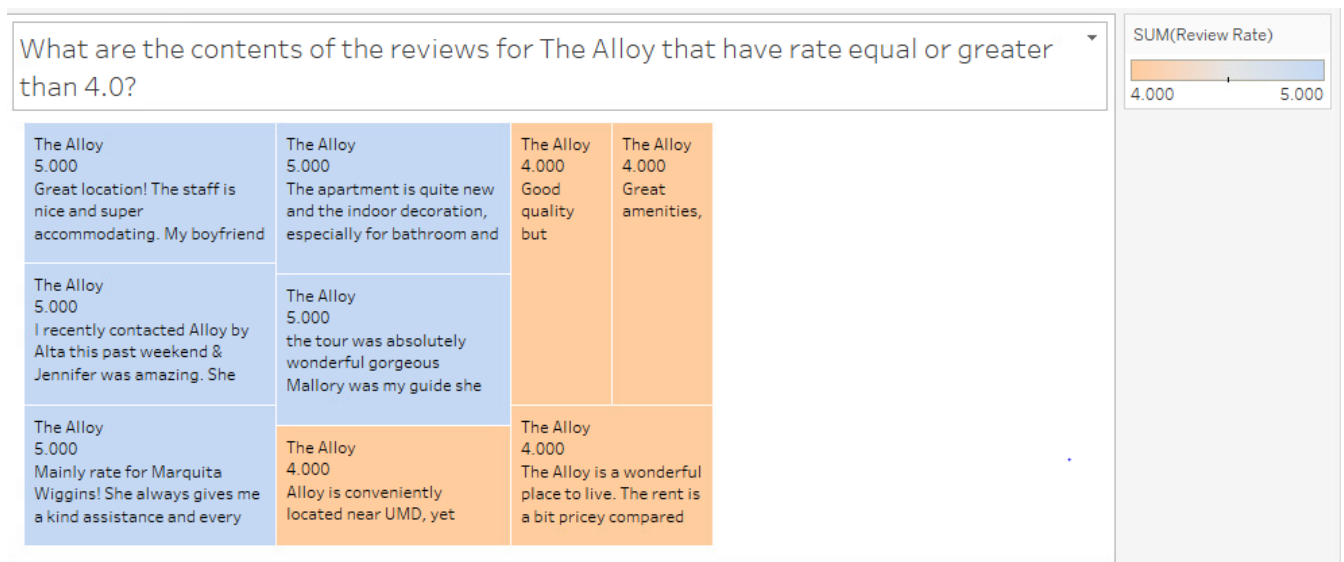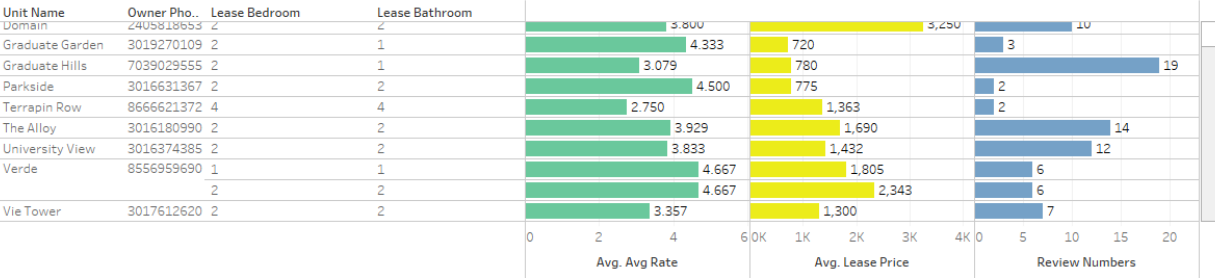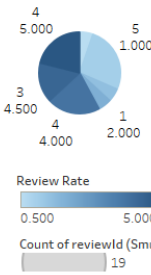


Fig.13 Business Transaction 4 visualization

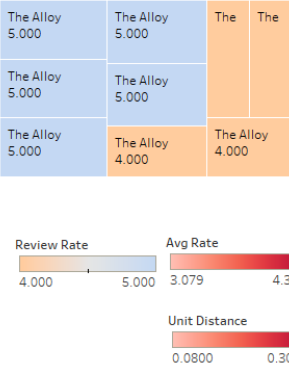

Fig.14 Business Transaction 5 visualization

What are the unit name, rate, number of bedrooms, bathrooms, rent per person, number of reviews and contact info for every unit?
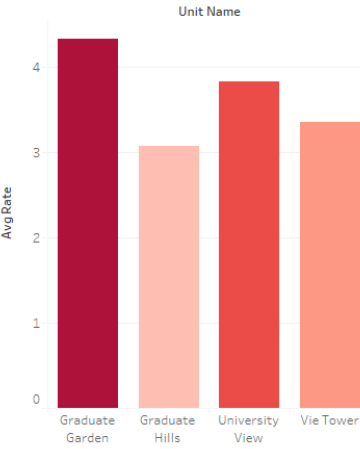
| Unit Name | Owner Pho.. | Lease Bedroom | Lease Bathroom | Avg. Avg Rate | Avg. Lease Price | Review Numbers |
|---|---|---|---|---|---|---|
| Domain | 2405818653 | 2 | 2 | 3.800 | 3,250 | 10 |
| Graduate Garden | 3019270109 | 2 | 1 | 4.333 | 720 | 3 |
| Graduate Hills | 7039029555 | 2 | 1 | 3.079 | 780 | 19 |
| Parkside | 3016631367 | 2 | 2 | 4.500 | 775 | 2 |
| Terrapin Row | 8666621372 | 4 | 4 | 2.750 | 1,363 | 2 |
| The Alloy | 3016180990 | 2 | 2 | 3.929 | 1,690 | 14 |
| University View | 3016374385 | 2 | 2 | 3.833 | 1,432 | 12 |
| Verde | 8556959690 | 1 | 1 | 4.667 | 1,805 | 6 |
| | | 2 | 2 | 4.667 | 2,343 | 6 |
| Vie Tower | 3017612620 | 2 | 2 | 3.357 | 1,300 | 7 |

Avg. Avg Rate scale: 0, 2, 4, 6
Avg. Lease Price scale: 0K, 1K, 2K, 3K, 4K
Review Numbers scale: 0, 5, 10, 15, 20

**What's the percentage of reviewers that left rate >=4.0 starts for Graduate Hills?**

Pie chart segments:
- 4 / 5.000
- 5 / 1.000
- 3 / 4.500
- 1 / 2.000
- 4 / 4.000

Review Rate: 0.500 — 5.000
Count of reviewId (Smu..): 19

**What are the contents of the reviews for The Alloy that have rate equal or greater than 4.0?**

| The Alloy 5.000 | The Alloy 5.000 | The | The |
|---|---|---|---|
| The Alloy 5.000 | The Alloy 5.000 | | |
| The Alloy 5.000 | The Alloy 4.000 | The Alloy 4.000 | |

Review Rate: 4.000 — 5.000

**For all the apartments that the UMD shuttle bus will pass, what's the average rate?**

Unit Name (bar chart — Avg Rate)
- Graduate Garden
- Graduate Hills
- University View
- Vie Tower

Avg Rate: 3.079 — 4.333
Unit Distance: 0.0800 — 0.3000

**Which apartment is less than 1 mile to the UMD, has rent lower than $1,400, and with a study room at the same time?**

Unit Name (bar chart — Unit Distance)
- Parkside
- Terrapin Row
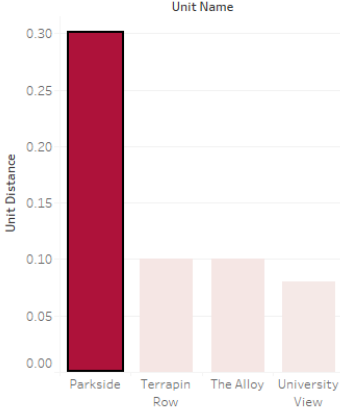- The Alloy
- University View

Unit Distance scale: 0.00, 0.05, 0.10, 0.15, 0.20, 0.25, 0.30

Fig 15. Business Transactions Dashboard