

ITMD 523	Advanced Topics in Data Management	Final Project

Student Name *Sivaranjani Prabasankar*

Section

Central City Shopping Mall

1. Preliminary Investigation

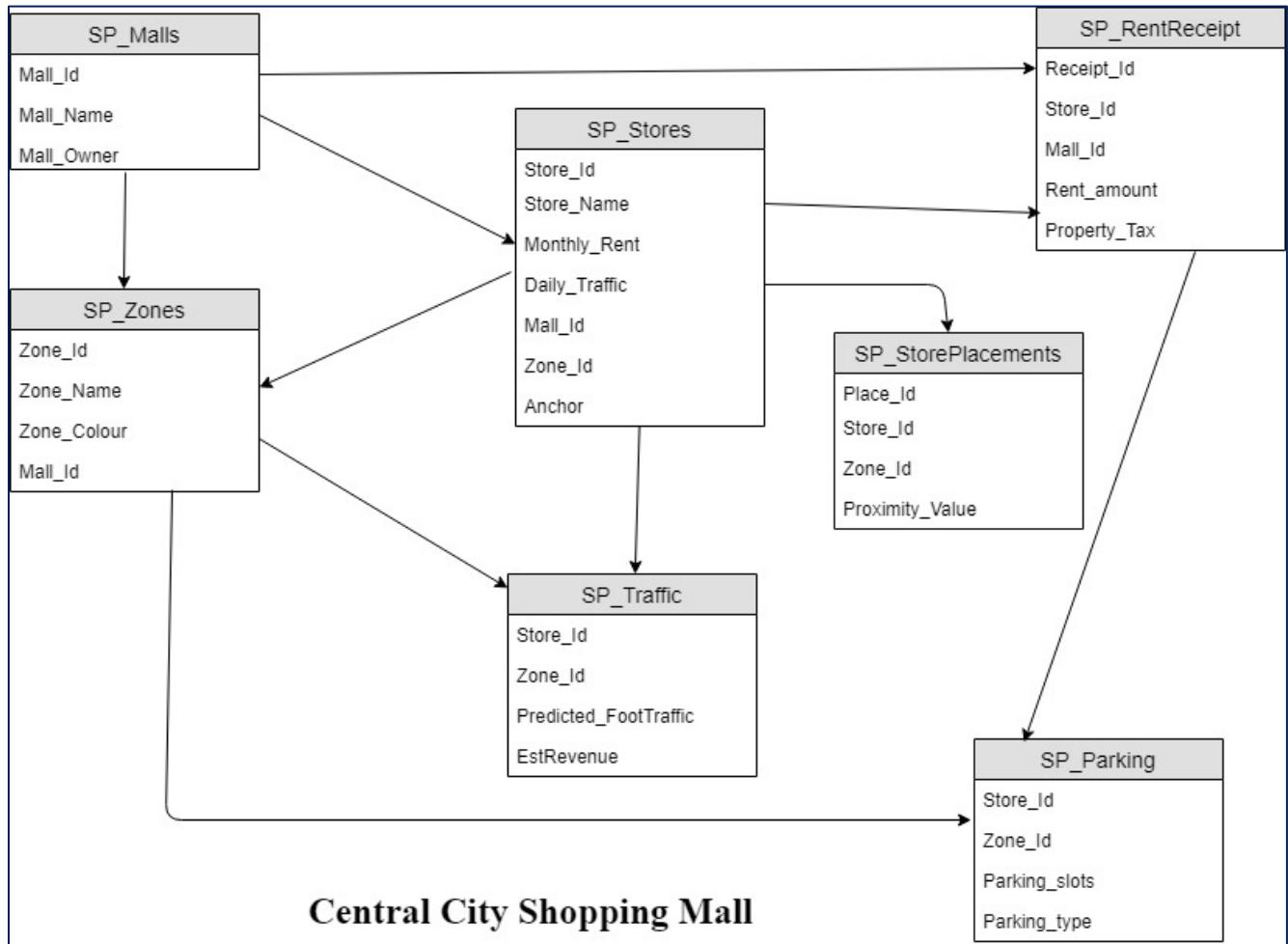
- ⇒ Every mall should have unique mall ID
- ⇒ Each zone should have unique zone id and corresponding mall id
- ⇒ Every Store should have only one store ID
- ⇒ Each Store should may or may not parking lot
- ⇒ Receipt ID should be only numeric and unique
- ⇒ Proximity value should be less than 0
- ⇒ Main Entrance distance should be measured in terms of blocks.
- ⇒ Zone color should be limited to certain colors
- ⇒ Every Zone should have a unique color
- ⇒ Each Mall should have at least one Store
- ⇒ Every parking ID should be linked to each Store
- ⇒ Store area should be mentioned in square feet.
- ⇒ Traffic table should be linked with storeID and Zone ID
- ⇒ Parking table should be linked with storeID and Zone ID
- ⇒ Parking type can be Free, paid, hourly or reserved parking

ITMD 523	Advanced Topics in Data Management	Final Project
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Student Name *Sivaranjani Prabasankar*

Section

2. Designing the Conceptual Model

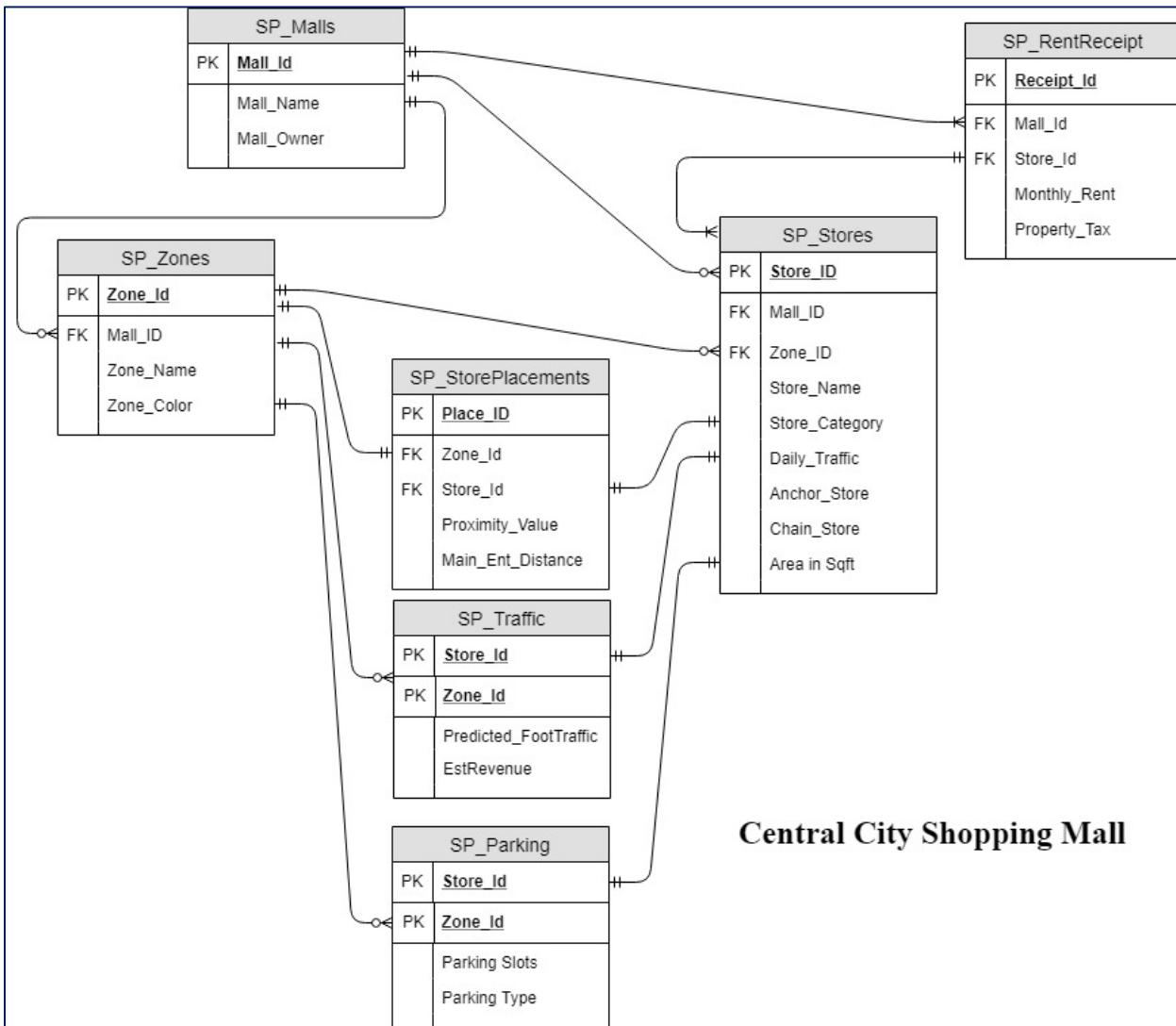


ITMD 523	Advanced Topics in Data Management	Final Project
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Student Name *Sivaranjani Prabasankar*

Section

3. Developing the Logical Model



4. Discussing the Business Analytics

- ⇒ Stores who's monthly rent is more than 50K.
- ⇒ Sum, Maximum, Minimum and average Predicted Foot Traffic.
- ⇒ Standard deviation of estimated revenue.
- ⇒ Store which is having more than 100 visitors.
- ⇒ Retrieve Mall details by using mall owner

ITMD 523	Advanced Topics in Data Management	Final Project
-----------------	---	----------------------

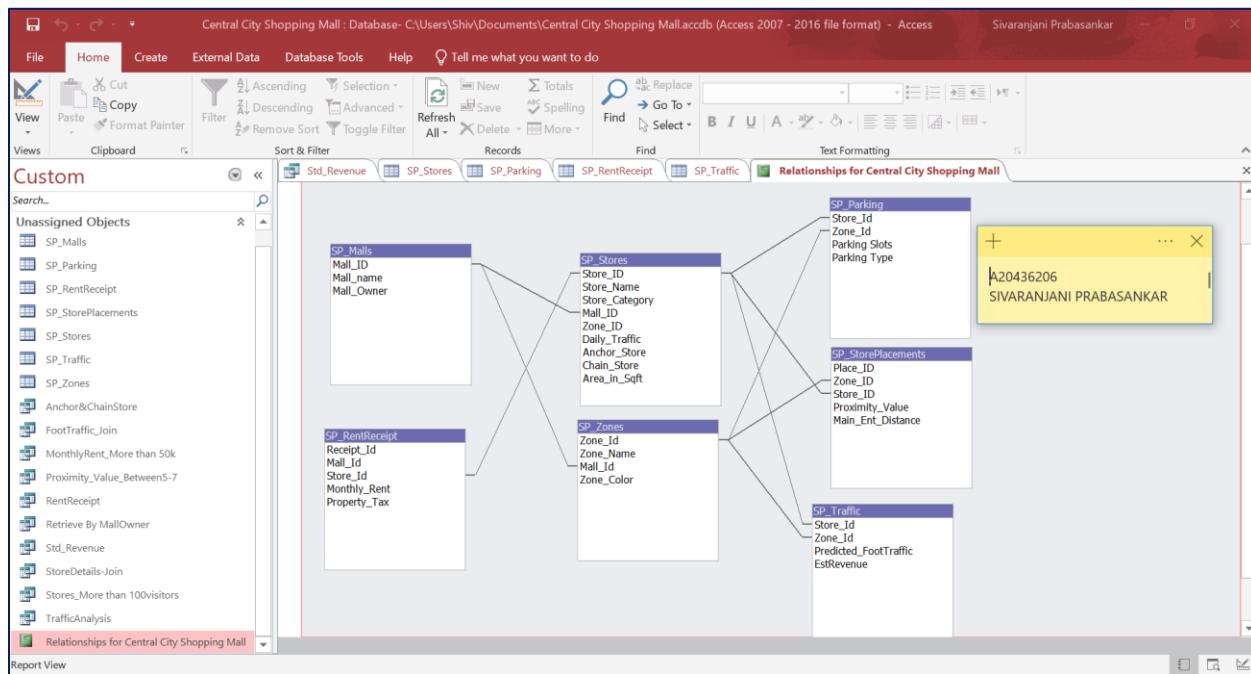
Student Name Sivarajani Prabasankar

Section

- ⇒ Store details with proximity range between 5 and 7.
- ⇒ Store name and id details for anchor and chain store.
- ⇒ Delete store details by using Store id.
- ⇒ Retrieve Store details along with predicted foot traffic
- ⇒ Store Details with Zone details.
- ⇒ How many stores can be placed in a zone?
- ⇒ How many zones can be placed in a mall?
- ⇒ Can a zone have more than one anchor store?

5. Review of Relationship Status

We drafted Model diagrams for Mall Database management project and ensured the relationship between tables by enforcing referential integrity.



ITMD 523	Advanced Topics in Data Management	Final Project
-----------------	---	----------------------

Student Name *Sivaranjani Prabasankar*

Section

6. Designing the Physical Application

Table 1: Mall

Field Name	Data Type	Description (Optional)
Mall_ID	Number	
Mall_name	Short Text	
Mall_Owner	Short Text	

Table 2: Zones

Field Name	Data Type	Description (Optional)
Store_Id	Number	
Zone_Id	Short Text	
Parking Slots	Number	
Parking Type	Short Text	

ITMD 523	Advanced Topics in Data Management	Final Project
-----------------	---	----------------------

Student Name *Sivaranjani Prabasankar*

Section

Table 3: Stores

Field Name	Data Type	Description (Optional)
Store_ID	Number	
Store_Name	Short Text	
Store_Category	Short Text	
Mall_ID	Number	
Zone_ID	Short Text	
Daily_Traffic	Number	
Anchor_Store	Yes/No	
Chain_Store	Yes/No	
Area_in_Sqft	Number	

General | Lookup

A field name can be up to 64 characters long including spaces. Press F1 for help on field.

Table 4: Rent Receipt

Field Name	Data Type	Description (Optional)
Receipt_Id	Number	
Mail_Id	Number	
Store_Id	Number	
Monthly_Rent	Number	
Property_Tax	Number	

General | Lookup

A field name can be up to 64 characters long including spaces. Press F1 for help on field.

ITMD 523	Advanced Topics in Data Management	Final Project
-----------------	---	----------------------

Student Name *Sivaranjani Prabasankar*

Section

Table 5: Traffic

Design view. F6 = Switch panes. F1 = Help.

Field Name	Data Type	Description (Optional)
Store_Id	Number	
Zone_Id	Short Text	
Predicted_FootTraffic	Number	
EstRevenue	Number	

General Lookup

A field name can be up to 64 characters long, including spaces. Press F1 for help on field names.

Table 6: Store Placement

Design view. F6 = Switch panes. F1 = Help.

Field Name	Data Type	Description (Optional)
Place_ID	Number	
Zone_ID	Short Text	
Store_ID	Number	
Proximity_Value	Number	
Main_Ent_Distance	Number	

General Lookup

A field name can be up to 64 characters long, including spaces. Press F1 for help on field names.

ITMD 523	Advanced Topics in Data Management	Final Project
-----------------	---	----------------------

Student Name *Sivaranjani Prabasankar*

Section

Table 7: Parking

The screenshot shows the Microsoft Access 'Design' view for the 'SP_Parking' table. The table has four fields: 'Store_Id' (Number), 'Zone_Id' (Short Text), 'Parking Slots' (Number), and 'Parking Type' (Short Text). A tooltip for the 'Parking Type' field displays the value 'A20436206' and the name 'SIVARANJANI PRABASANKAR'. The status bar at the bottom right indicates: 'The field description is optional. It helps you describe the field and is also displayed in the status bar when you select this field on a form. Press F1 for help on descriptions.'

Field Name	Data Type	Description (Optional)
Store_Id	Number	
Zone_Id	Short Text	
Parking Slots	Number	
Parking Type	Short Text	A20436206 SIVARANJANI PRABASANKAR

7. Loading the Tables with Valid Data

Insert Table 1: Malls

The screenshot shows the Microsoft Access 'Datasheet' view for the 'SP_Malls' table. The table has four columns: 'Mall_ID', 'Mall_name', 'Mall_Owner', and 'Click to Add'. The data includes rows for 'Century City', 'Phoenix', 'Garuda', 'Metro City', 'Millennium', and 'Orion'. A tooltip for the 'Mall_Owner' column displays the value 'A20436206' and the name 'SIVARANJANI PRABASANKAR'.

Mall_ID	Mall_name	Mall_Owner
100	Century City	Northfield Mall
101	Phoenix	Prestige
102	Garuda	Kingfisher
110	Metro City	Northfield Mall
120	Millennium	Prestige
130	Orion	Royal Challenge

ITMD 523	Advanced Topics in Data Management	Final Project
-----------------	---	----------------------

Student Name Sivaranjani Prabasankar

Section

Insert Table 2: Zones

Zone_Id	Zone_Name	Mall_Id	Zone_Color	Click_to_Add
A	North	100	Blue	
B	NorthEast	100	Red	
C	OnTheBoulevard	100	White	
D	West	110	Green	
E	NorthEast	110	Red	
F	Front Entrance	130	Purple	
G	Rear Entrance	102	Violet	
*		0		

Insert Table 3: Stores

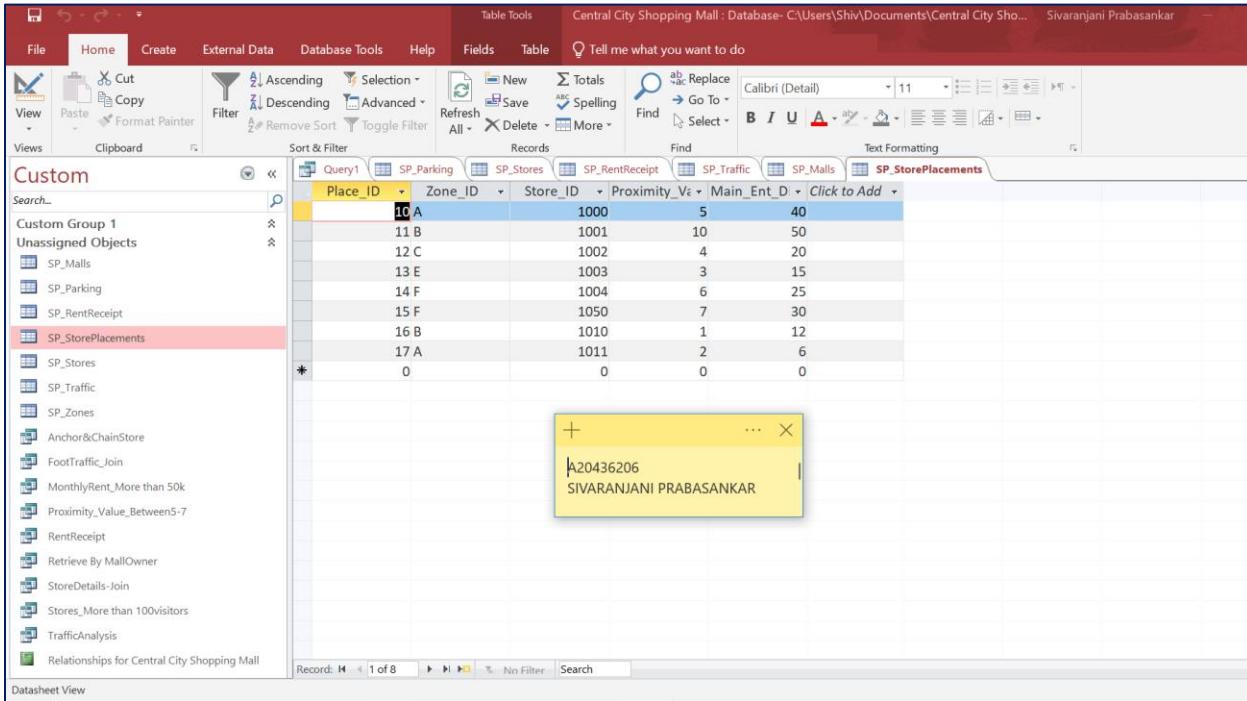
Store_ID	Store_Name	Store_Categ	Mall_ID	Zone_ID	Daily_Traffic	Anchor_Stor	Chain_Store	Area_in_Sqft
1000	Clancy's Carpets	30000	100	A	130	<input type="checkbox"/>	<input type="checkbox"/>	1000
1001	Patel Bros	10000	100	B	75	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	2000
1002	Joe's Appliance	35000	100	C	175	<input checked="" type="checkbox"/>	<input type="checkbox"/>	700
1003	Theaters	50000	110	E	100	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1300
1004	Starbucks	50000	102	F	60	<input checked="" type="checkbox"/>	<input type="checkbox"/>	500
1010	Dunkins and Donuts	50000	103	B	170	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	900
1011	Mc.Donalds	60000	102	A	200	<input type="checkbox"/>	<input checked="" type="checkbox"/>	600
1050	Starbucks	75000	130	F	100	<input type="checkbox"/>	<input type="checkbox"/>	500
*		0	0	0	0	<input type="checkbox"/>	<input type="checkbox"/>	0

ITMD 523	Advanced Topics in Data Management	Final Project
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Student Name *Sivaranjani Prabasankar*

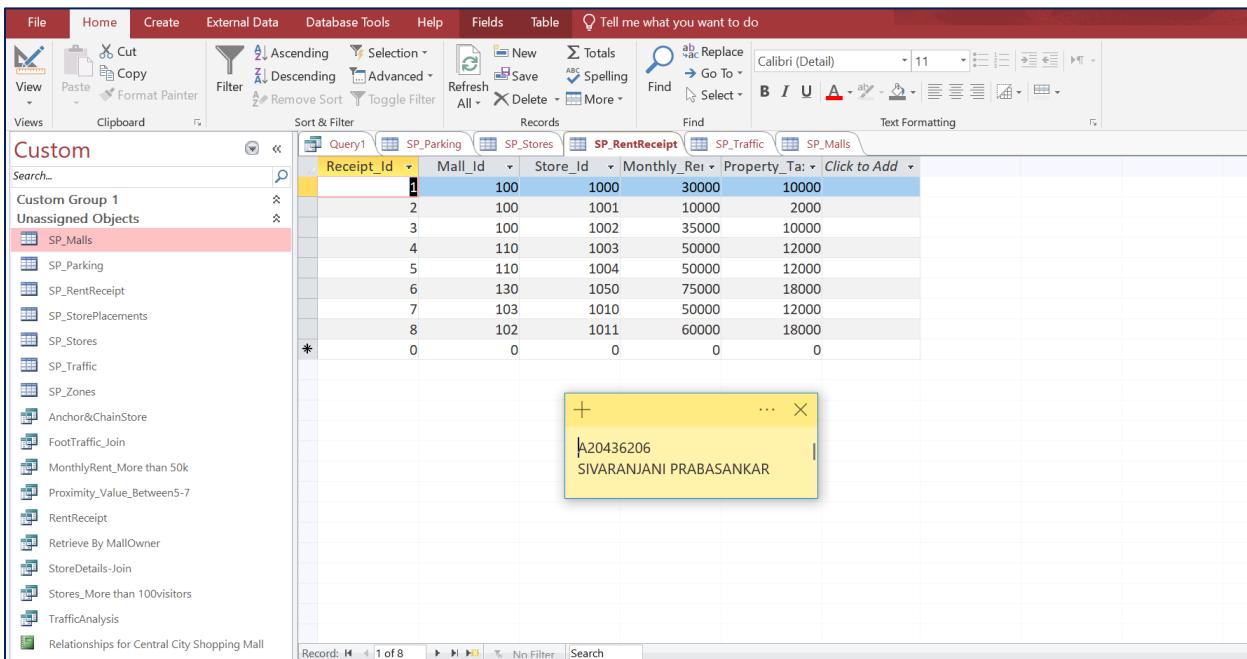
Section

Insert Table 4: Store Placement



Place_ID	Zone_ID	Store_ID	Proximity_Vt	Main_Entr_D
10 A	1000	5	40	
11 B	1001	10	50	
12 C	1002	4	20	
13 E	1003	3	15	
14 F	1004	6	25	
15 F	1050	7	30	
16 B	1010	1	12	
17 A	1011	2	6	
*	0	0	0	

Insert Table 5: Rent Receipt



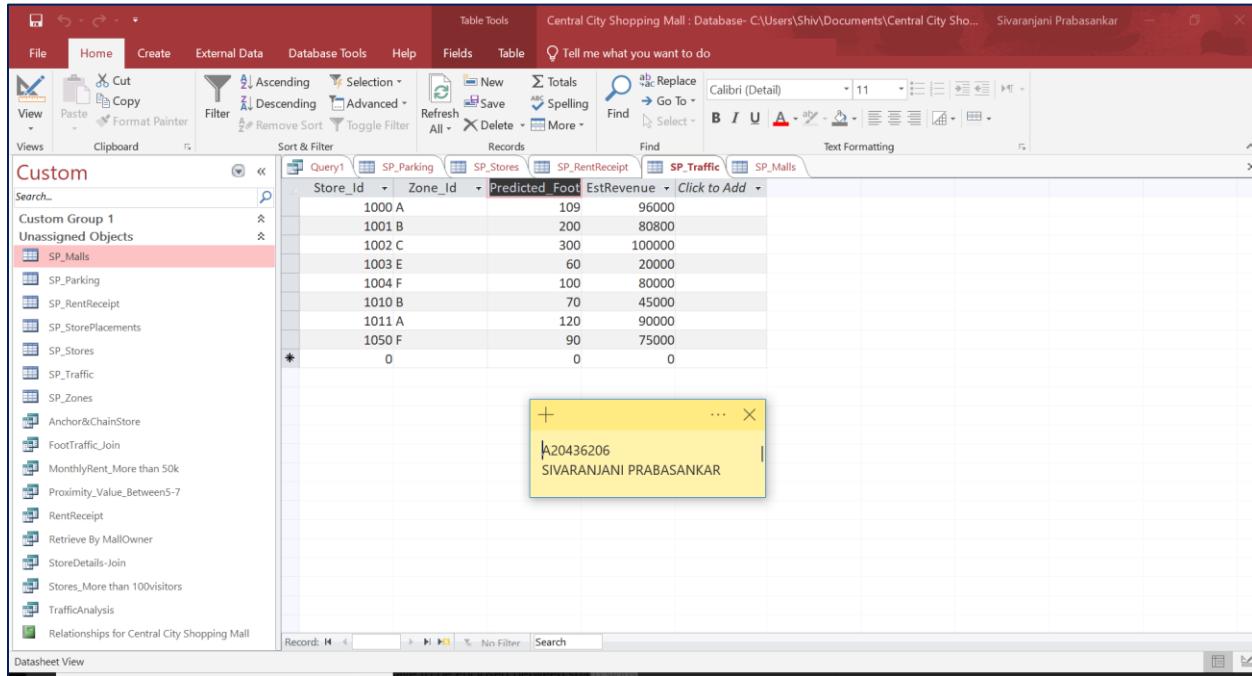
Receipt_Id	Mail_Id	Store_Id	Monthly_Rei	Property_Ta
1	100	1000	30000	10000
2	100	1001	10000	2000
3	100	1002	35000	10000
4	110	1003	50000	12000
5	110	1004	50000	12000
6	130	1050	75000	18000
7	103	1010	50000	12000
8	102	1011	60000	18000
*	0	0	0	0

ITMD 523	Advanced Topics in Data Management	Final Project
-----------------	---	----------------------

Student Name *Sivaranjani Prabasankar*

Section

Insert Table 6: Traffic

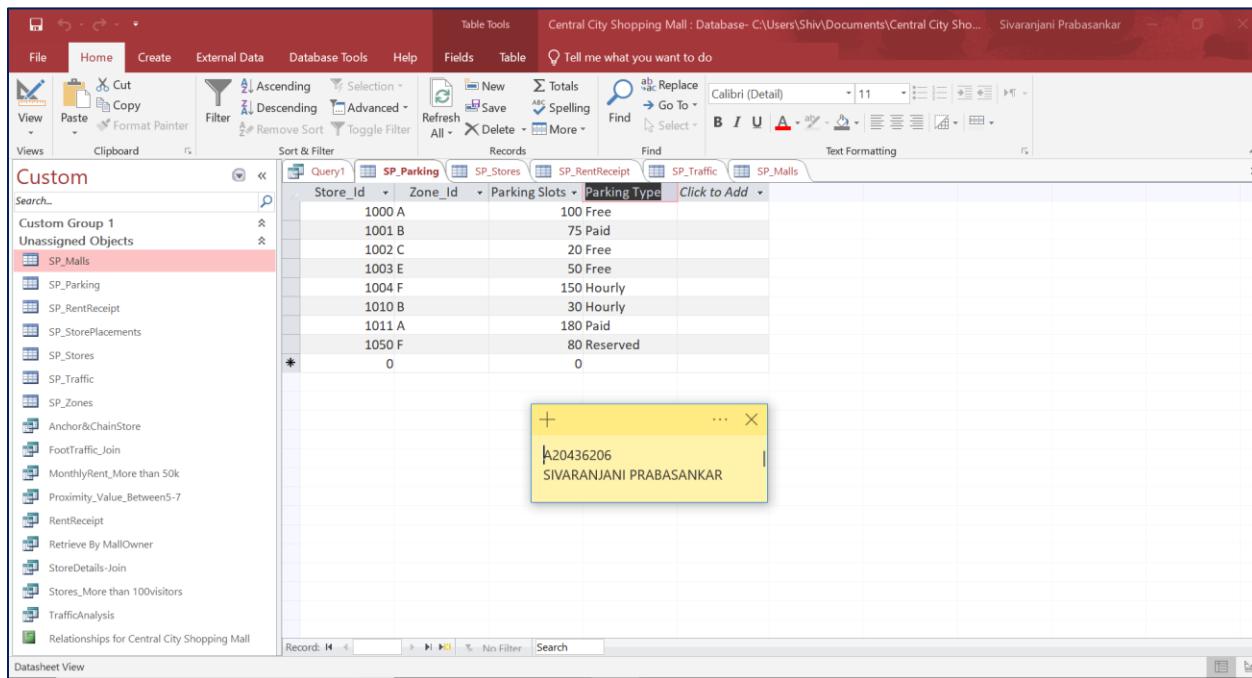


The screenshot shows a Microsoft Access window with the title bar "Central City Shopping Mall : Database- C:\Users\Shiv\Documents\Central City Sho... Sivaranjani Prabasankar". The ribbon tabs are Home, Create, External Data, Database Tools, Help, Fields, and Table. The Fields tab is selected. A query results grid is displayed with columns: Store_Id, Zone_Id, Predicted_FootEstRevenue. The data rows are:

Store_Id	Zone_Id	Predicted_FootEstRevenue
1000	A	109
1001	B	200
1002	C	300
1003	E	60
1004	F	100
1010	B	70
1011	A	120
1050	F	90
*	0	0

A yellow callout box points to the last row (Record 1050) with the text "A20436206 SIVARANJANI PRABASANKAR".

Insert Table 7: Parking



The screenshot shows a Microsoft Access window with the title bar "Central City Shopping Mall : Database- C:\Users\Shiv\Documents\Central City Sho... Sivaranjani Prabasankar". The ribbon tabs are Home, Create, External Data, Database Tools, Help, Fields, and Table. The Fields tab is selected. A query results grid is displayed with columns: Store_Id, Zone_Id, Parking Slots, Parking Type. The data rows are:

Store_Id	Zone_Id	Parking Slots	Parking Type
1000	A	100	Free
1001	B	75	Paid
1002	C	20	Free
1003	E	50	Free
1004	F	150	Hourly
1010	B	30	Hourly
1011	A	180	Paid
1050	F	80	Reserved
*	0	0	

A yellow callout box points to the last row (Record 1050) with the text "A20436206 SIVARANJANI PRABASANKAR".

ITMD 523	Advanced Topics in Data Management	Final Project
-----------------	---	----------------------

Student Name *Sivaranjani Prabasankar*

Section

8. Testing the Database System

Query 1:

```
SELECT SP_StorePlacements.Store_ID AS StoreID, SP_StorePlacements.Zone_ID AS ZoneID,
SP_StorePlacements.Proximity_Value AS ProximityValue FROM SP_StorePlacements WHERE
SP_StorePlacements.Store_ID IS NOT NULL AND SP_StorePlacements.Proximity_Value
Between 5 AND 7;
```

StoreID	ZoneID	ProximityVal
1000 A	5	
1004 F	6	
1050 F	7	
0	0	

A tooltip at the bottom right of the table displays the text: A20436206 SIVARANJANI PRABASANKAR.

Query 2: UPDATE SP_Stores set Store_Name = 'Adidas' where Store_ID = 1003;

Store_ID	Store_Name	Store_Categ	Mall_ID	Zone_ID	Daily_Traffic	Anchor_Stor	Chain_Store	Area_in_Sqft	Sqft_per_sqft
1000 Clancy's Carpets	30000	100 A	130					1000	
1001 Patel Bros	10000	100 B	75					2000	
1002 Joe's Appliance	35000	100 C	175					700	
1003 Adidas	50000	110 E	100	✓	✓	✓	✓	1300	0
1004 Starbucks	50000	102 F	60					500	
1010 Dunkins and Donuts	50000	103 B	170					900	
1011 McDonalds	60000	102 A	200					600	
1050 Starbucks	75000	130 F	100					500	
0	0	0	0					0	

A tooltip at the bottom right of the table displays the text: A20436206 SIVARANJANI PRABASANKAR.

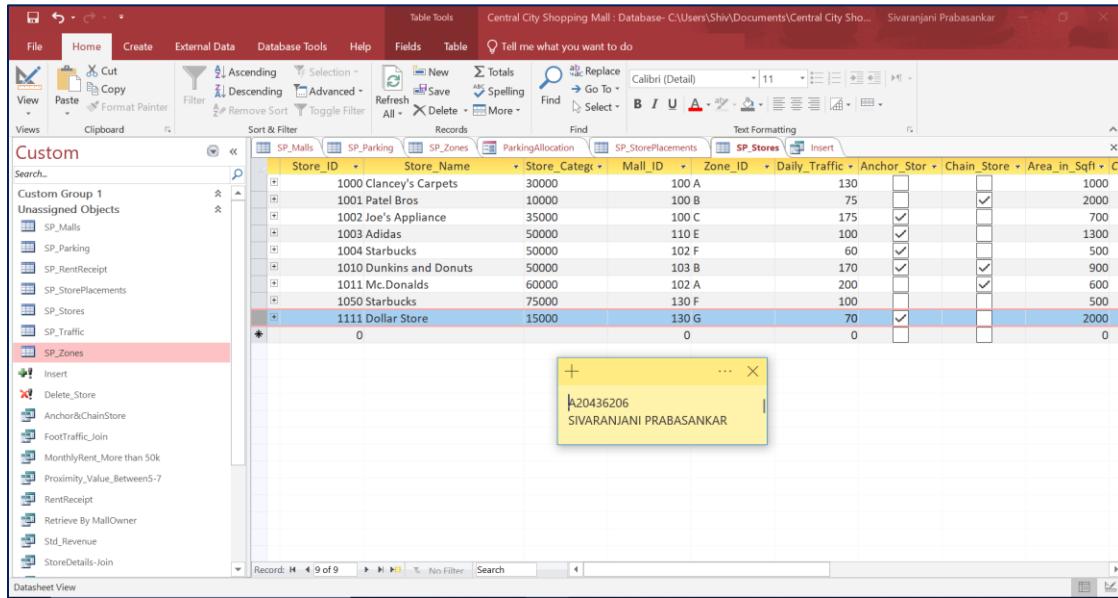
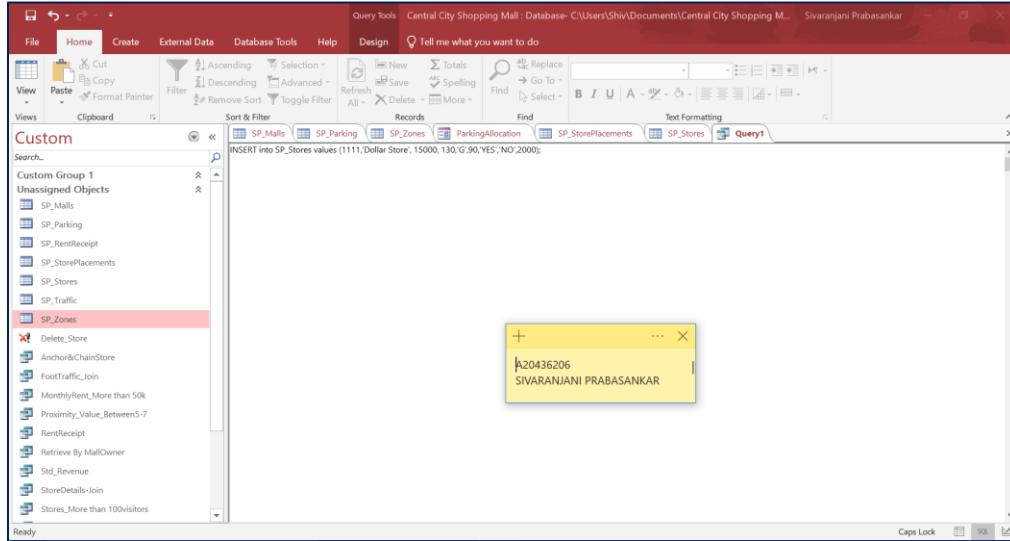
ITMD 523	Advanced Topics in Data Management	Final Project
-----------------	---	----------------------

Student Name *Sivaranjani Prabasankar*

Section

Query 3:

`INSERT into SP_Stores values (1111,'Dollar Store', 15000, 130,'G',90,'YES','NO',2000);`



Query 4:

`SELECT SP_Malls.Mall_Name, SP_Malls.Mall_Owner FROM SP_Malls WHERE (((SP_Malls.Mall_Owner)='Prestige'));`

ITMD 523	Advanced Topics in Data Management	Final Project
-----------------	---	----------------------

Student Name Sivaranjani Prabasankar

Section

The screenshot shows a Microsoft Access window with the title bar "Central City Shopping Mall : Database- C:\Users\Shiv\Documents\Central City Shopping Mall.accdb (Access 2007 - 2016 file format) - Access". The ribbon tabs are Home, Create, External Data, Database Tools, and Help. The status bar shows "Sivaranjani Prabasankar".

The left pane displays the "Custom" database objects, including "SP_Malls", "SP_Parking", "SP_RentReceipt", etc., and a highlighted "Retrieve By MallOwner" query.

The main grid shows a single record from the "RentReceipt" table:

Mall_Name	Mall_Owner
Phoenix	Prestige
Millenium	Prestige

A yellow callout box highlights the record for "A20436206" and "SIVARANJANI PRABASANKAR".

Query 5:

```
SELECT SP_RentReceipt.[Receipt_Id], SP_RentReceipt.[Mall_Id], SP_RentReceipt.[Store_Id],
SP_RentReceipt.[Monthly_Rent], SP_RentReceipt.[Property_Tax],
(SP_RentReceipt.[Monthly_Rent] + SP_RentReceipt.[Property_Tax]) AS
TOTAL_MONTHLY_RENT FROM SP_RentReceipt;
```

The screenshot shows a Microsoft Access window with the same title and interface as the previous one.

The left pane displays the "Custom" database objects, including "SP_Malls", "SP_Parking", "SP_RentReceipt", etc., and a highlighted "RentReceipt" query.

The main grid shows the results of the query:

Receipt_Id	Mall_Id	Store_Id	Monthly_Rei	Property_Ta	TOTAL_MON
1	100	1000	30000	10000	40000
2	100	1001	10000	2000	12000
3	100	1002	35000	10000	45000
4	110	1003	50000	12000	62000
5	110	1004	50000	12000	62000
6	130	1050	75000	18000	93000
7	103	1010	50000	12000	62000
8	102	1011	60000	18000	78000
*	0	0	0	0	0

A yellow callout box highlights the record for "A20436206" and "SIVARANJANI PRABASANKAR".

ITMD 523	Advanced Topics in Data Management	Final Project

Student Name *Sivaranjani Prabasankar*

Section

Query 6:

`SELECT * FROM SP_RentReceipt WHERE (((SP_RentReceipt.Monthly_Rent)>50000));`

Receipt_Id	Mall_Id	Store_Id	Monthly_Rei	Property_Ta
5	130	1050	75000	18000
8	102	1011	60000	18000
*	0	0	0	0

Query 7:

`SELECT SP_Stores.Store_ID, SP_Stores.Store_Name, SP_Traffic.Predicted_FootTraffic
FROM SP_Stores RIGHT JOIN SP_Traffic ON SP_Stores.Store_ID = SP_Traffic.Store_ID
ORDER BY SP_Traffic.Predicted_FootTraffic;`

ITMD 523	Advanced Topics in Data Management	Final Project
-----------------	---	----------------------

Student Name Sivaranjani Prabasankar

Section

The screenshot shows the Microsoft Access interface with the title bar "Central City Shopping Mall : Database- C:\Users\Shiv\Documents\Central City Shopping Mall.accdb (Access 2007 - 2016 file format) - Access". The ribbon tabs are Home, Create, External Data, Database Tools, and Help. The Home tab is selected. The status bar at the bottom right says "Sivaranjani Prabasankar".

The main area displays a Datasheet View of a query named "FootTraffic_Join". The results show the following data:

Store_ID	Store_Name	Predicted_Fc
1003	Theaters	60
1010	Dunkins and Donuts	70
1050	Starbucks	90
1004	Starbucks	100
1000	Clancey's Carpets	109
1011	Mc.Donalds	120
1001	Patel Bros	200
1002	Joe's Appliance	300

A context menu is open over the last row (1002, Joe's Appliance). The menu items shown are +, ..., and X. A yellow callout box contains the text "20436206" and "SIVARANJANI PRABASANKAR".

Query 8:

```
SELECT      SP_Stores.Store_Name,      SP_Stores.Store_ID,      SP_Stores.Anchor_Store,
SP_Stores.Chain_Store FROM SP_Stores WHERE (((SP_Stores.Anchor_Store)=True) AND
((SP_Stores.Chain_Store)=True));
```

The screenshot shows the Microsoft Access interface with the title bar "Central City Shopping Mall : Database- C:\Users\Shiv\Documents\Central City Shopping Mall.accdb (Access 2007 - 2016 file format) - Access". The ribbon tabs are Home, Create, External Data, Database Tools, and Help. The Home tab is selected. The status bar at the bottom right says "Sivaranjani Prabasankar".

The main area displays a Datasheet View of a query named "Anchor&ChainStore". The results show the following data:

Store_Name	Store_ID	Anchor_Store	Chain_Store
Dunkins and Donuts	1010	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

A context menu is open over the first row (Dunkins and Donuts). The menu items shown are +, ..., and X. A yellow callout box contains the text "20436206" and "SIVARANJANI PRABASANKAR".

ITMD 523	Advanced Topics in Data Management	Final Project
-----------------	---	----------------------

Student Name *Sivaranjani Prabasankar*

Section

Query 9:

`SELECT store_id, zone_id, store_name, anchor_store FROM SP_stores WHERE daily_traffic IN (select daily_traffic from SP_stores where daily_traffic > 100);`

The screenshot shows a Microsoft Access application window titled "Central City Shopping Mall : Database C:\Users\Shiv\Documents\Central City Shopping Mall.accdb". The ribbon menu is visible at the top. The main area displays a datasheet with the following data:

store_id	zone_id	store_name	anchor_store
1000 A		Clancey's Carpets	<input type="checkbox"/>
1002 C		Joe's Appliance	<input checked="" type="checkbox"/>
1010 B		Dunkins and Donuts	<input checked="" type="checkbox"/>
1011 A		Mc.Donalds	<input type="checkbox"/>
*	0		

A tooltip is displayed over the first row, showing the value "A20436206" and the name "SIVARANJANI PRABASANKAR". The left pane shows a list of tables and queries, with "Stores_More than 100visitors" highlighted.

Query 10:

`SELECT SP_Stores.Store_ID, SP_Stores.Store_Name, SP_Stores.Zone_ID
FROM SP_Stores INNER JOIN SP_Parking ON SP_Stores.Store_ID = SP_Parking.Store_Id;`

ITMD 523	Advanced Topics in Data Management	Final Project
-----------------	---	----------------------

Student Name Sivarajani Prabasankar

Section

The screenshot shows a Microsoft Access application window titled "Central City Shopping Mall : Database C:\Users\Shiv\Documents\Central City Shopping Mall.accdb". The ribbon tabs are Home, Create, External Data, Database Tools, and Help. The main area displays a query result grid for "MonthlyRent_More than 50k" and "Proximity_Value_Between5-7". The grid contains the following data:

Store_ID	Store_Name	Zone_ID
1000	Clancey's Carpets	A
1001	Patel Bros	B
1002	Joe's Appliance	C
1003	Theaters	E
1004	Starbucks	F
1010	Dunkins and Donuts	B
1011	Mc.Donalds	A
1050	Starbucks	F

A message box in the foreground displays the text "A20436206 SIVARANJANI PRABASANKAR".

Query 11: Delete → DELETE from SP_Stores where Store_ID = 1050;

The screenshot shows a Microsoft Access application window titled "Central City Shopping Mall : Database C:\Users\Shiv\Documents\Central City Shopping M...". The ribbon tabs are Home, Create, External Data, Database Tools, Help, Design, and a search bar. The main area displays a query design grid for "Delete_Store" and "SP_Stores". The SQL statement in the grid is:

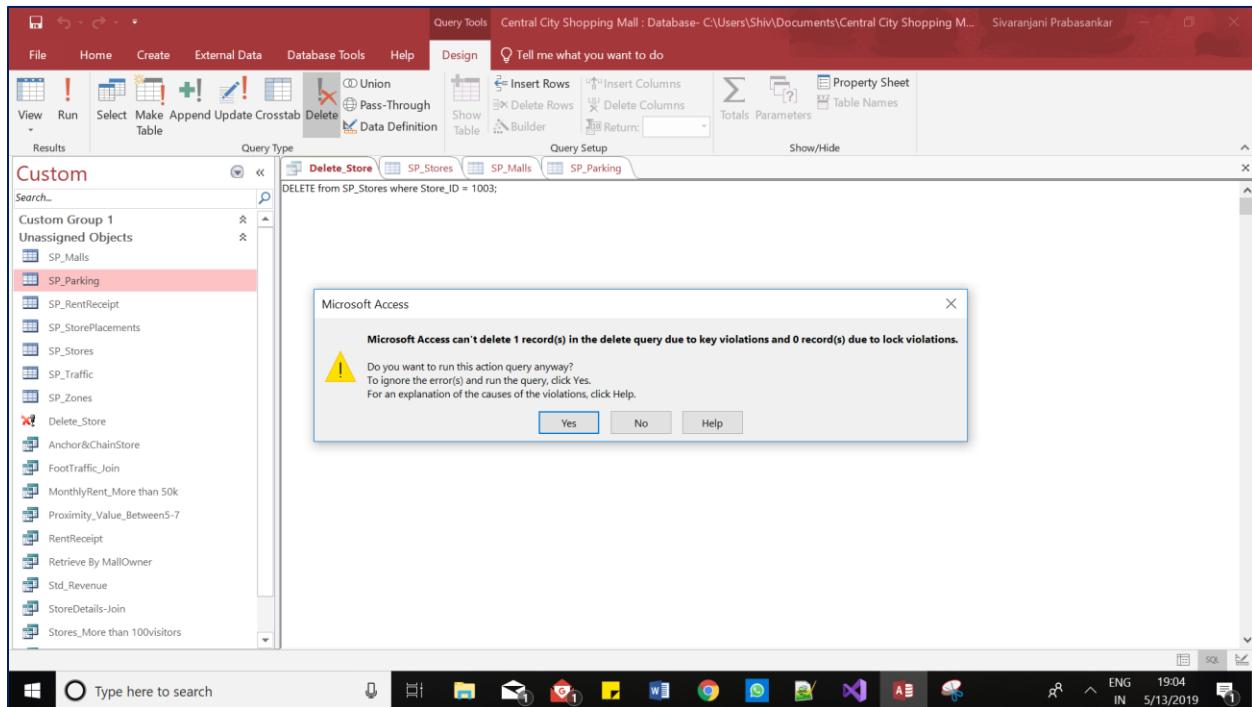
```
DELETE from SP_Stores where Store_ID = 1050;
```

A message box in the foreground displays the text "A20436206 SIVARANJANI PRABASANKAR".

ITMD 523	Advanced Topics in Data Management	Final Project
-----------------	---	----------------------

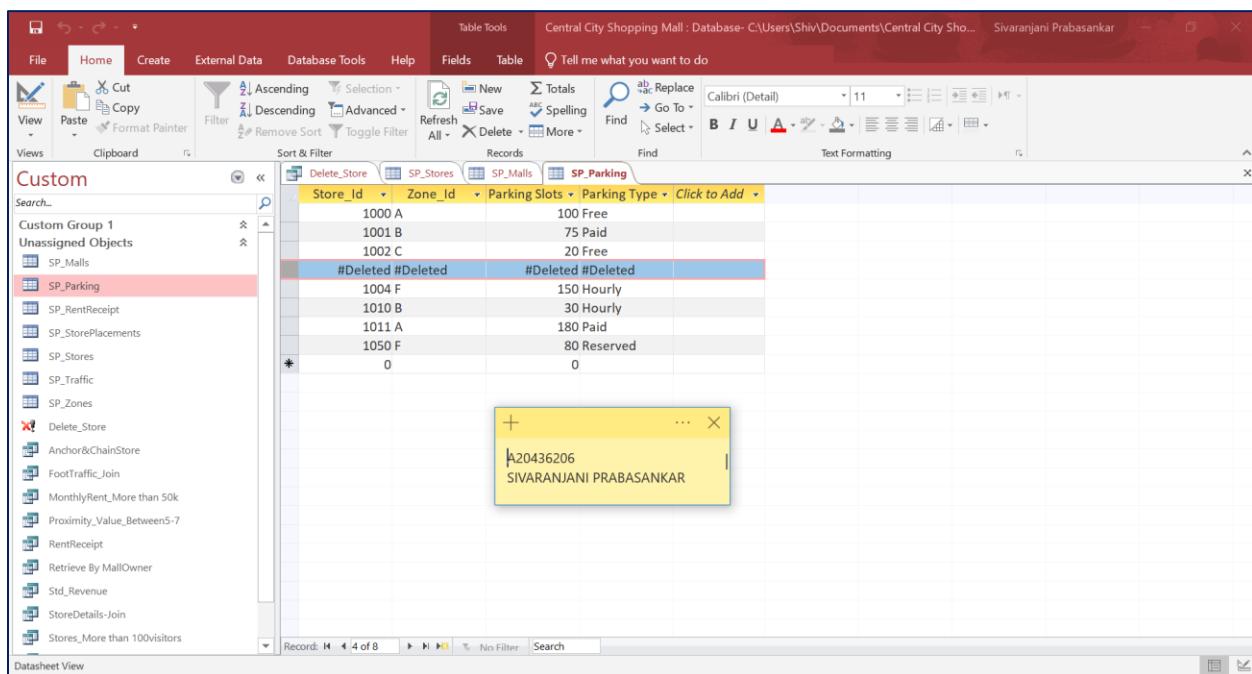
Student Name Sivaranjani Prabasankar

Section



Deleting Child records

DELETE from SP_Parking where Store_ID = 1003;



ITMD 523	Advanced Topics in Data Management	Final Project
-----------------	---	----------------------

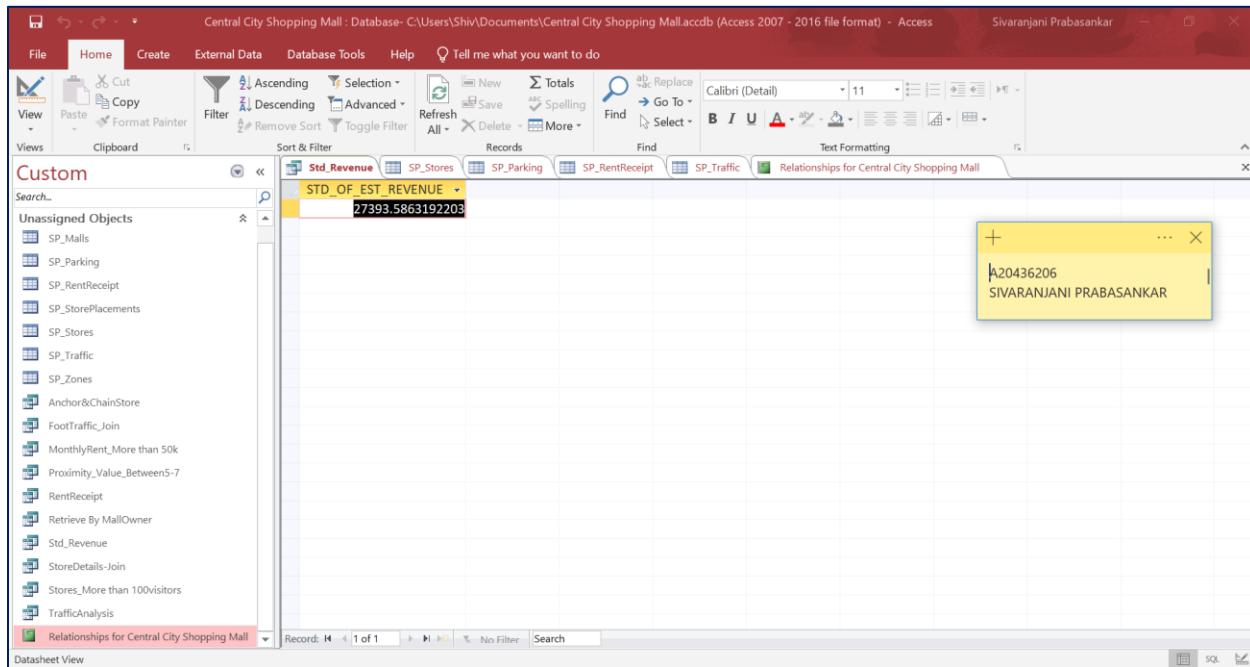
Student Name *Sivaranjani Prabasankar*

Section

9. Data Analytics Performed

Query 1:

```
SELECT STDEV( SP_Traffic.EstRevenue) as STD_OF_EST_REVENUE FROM SP_Traffic;
```



The screenshot shows a Microsoft Access window titled "Central City Shopping Mall : Database- C:\Users\Shiv\Documents\Central City Shopping Mall.accdb (Access 2007 - 2016 file format) - Access". The ribbon tabs are Home, Create, External Data, Database Tools, and Help. The Home tab is selected. The status bar shows "Sivaranjani Prabasankar". The main area displays a table with one row. The first column is labeled "Std_Revenue" and contains the value "27393.5863192203". A tooltip is visible over the value, showing "27393.5863192203 SIVARANJANI PRABASANKAR". The left pane shows the database structure with tables like SP_Malls, SP_Parking, etc.

Query 2:

```
SELECT MIN(SP_Traffic.Predicted_FootTraffic) AS LeastTraffic, MAX(SP_Traffic.Predicted_FootTraffic) AS MostTraffic, ROUND(AVG(SP_Traffic.Predicted_FootTraffic)) AS AverageTraffic, SUM (SP_Traffic.Predicted_FootTraffic) AS TotalDailyTraffic FROM SP_Traffic;
```

ITMD 523	Advanced Topics in Data Management	Final Project
-----------------	---	----------------------

Student Name Sivaranjani Prabasankar

Section

LeastTraffic	MostTraffic	AverageTraffic	TotalDailyTraffic
60	300	131	1049

10. Systems Analysis and Viewpoints

Report– Store and Traffic details

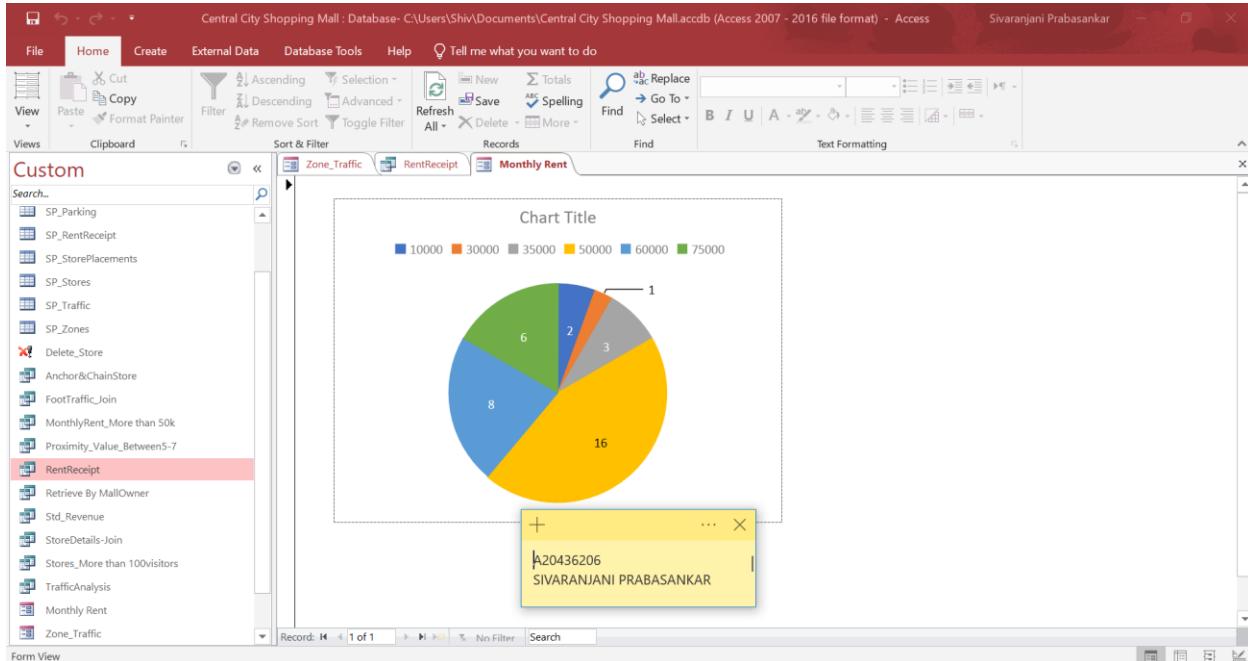
store_Id	SP_Traffic_Zone_Id	ootTraffic_venue	SP_Zones_Zone_Id	Zone_Name
1000	A	96000	109	North
1001	B	80800	200	NorthEast
1002	C	300	##### C	OnTheBoulevard
1003	E	20000	60	NorthEast
1004	F	80000	100	Front Entrance
1010	B	45000	70	NorthEast
1011	A	90000	120	North
1050	F	75000	90	Front Entrance

ITMD 523	Advanced Topics in Data Management	Final Project
-----------------	---	----------------------

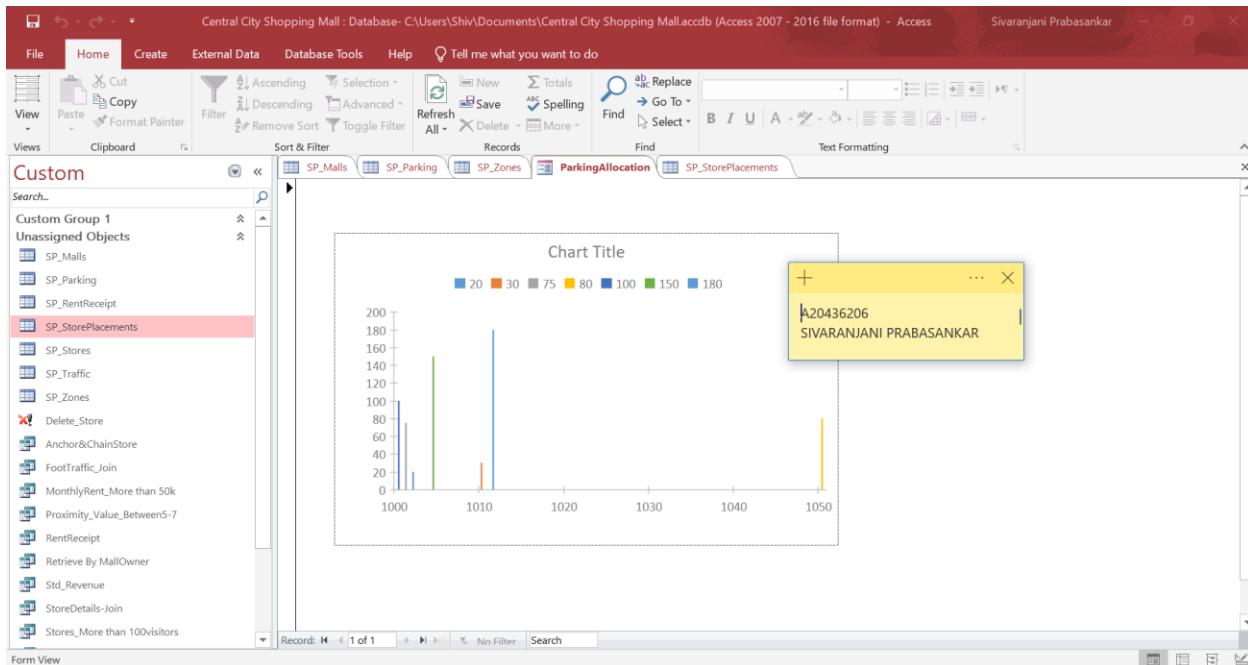
Student Name Sivaranjani Prabasankar

Section

Pie Chart – regarding Monthly rent for stores



Bar graph – Regarding parking slot allocated



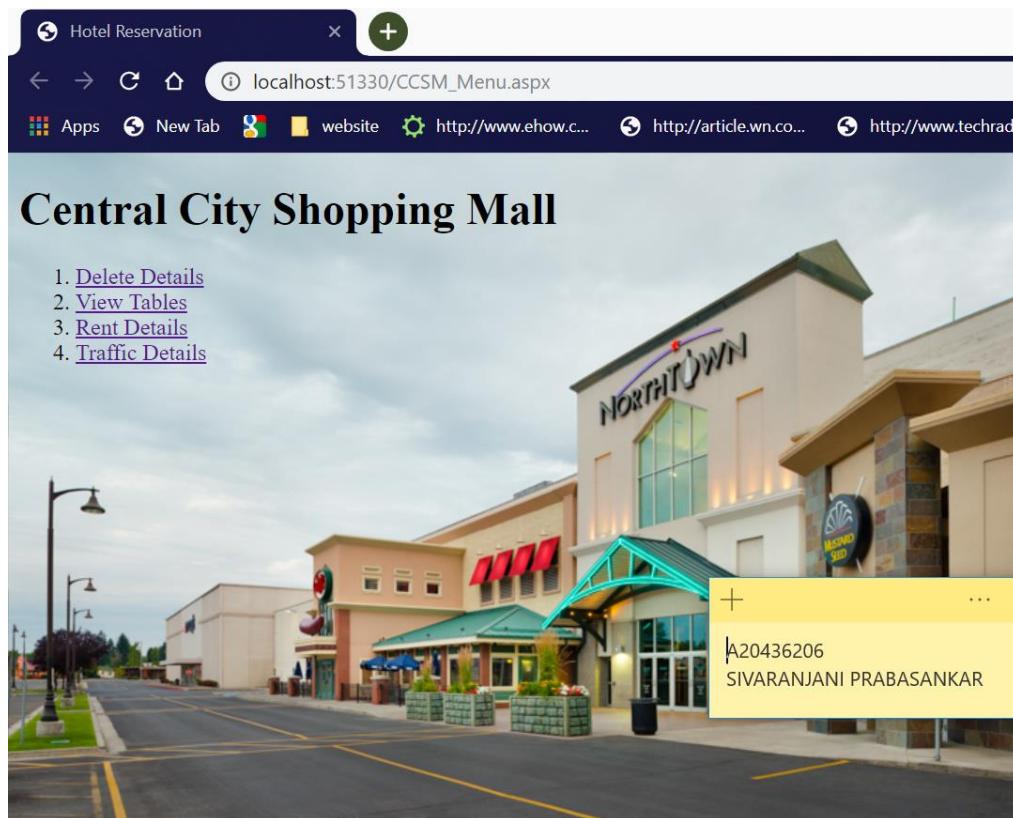
ITMD 523	Advanced Topics in Data Management	Final Project

Student Name *Sivaranjani Prabasankar*

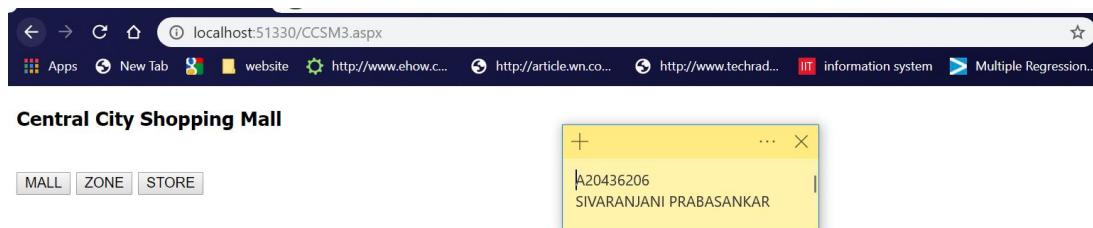
Section

11. Web Presence for Your Application

Main Page: Central City Shopping Mall



View Tables Page:



ITMD 523	Advanced Topics in Data Management	Final Project

Student Name *Sivaranjani Prabasankar*

Section

On Clicking Mall Button



localhost:51330/CCSM3.aspx

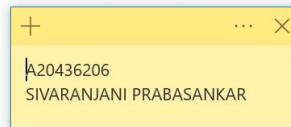
Data Found!

Central City Shopping Mall

MALL	ZONE	STORE
------	------	-------

Mall ID Mall Name Mall Owner

100 Century City Northfield Malls
 101 Phoenix Prestige
 102 Garuda Kingfisher
 110 Metro City Northfield Malls
 130 Orion Royal Challenger



On Clicking Zone Button



localhost:51330/CCSM3.aspx

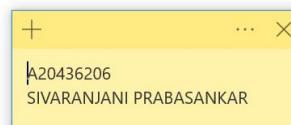
Data Found!

Central City Shopping Mall

MALL	ZONE	STORE
------	------	-------

Zone ID Zone Name Mall ID Zone Color

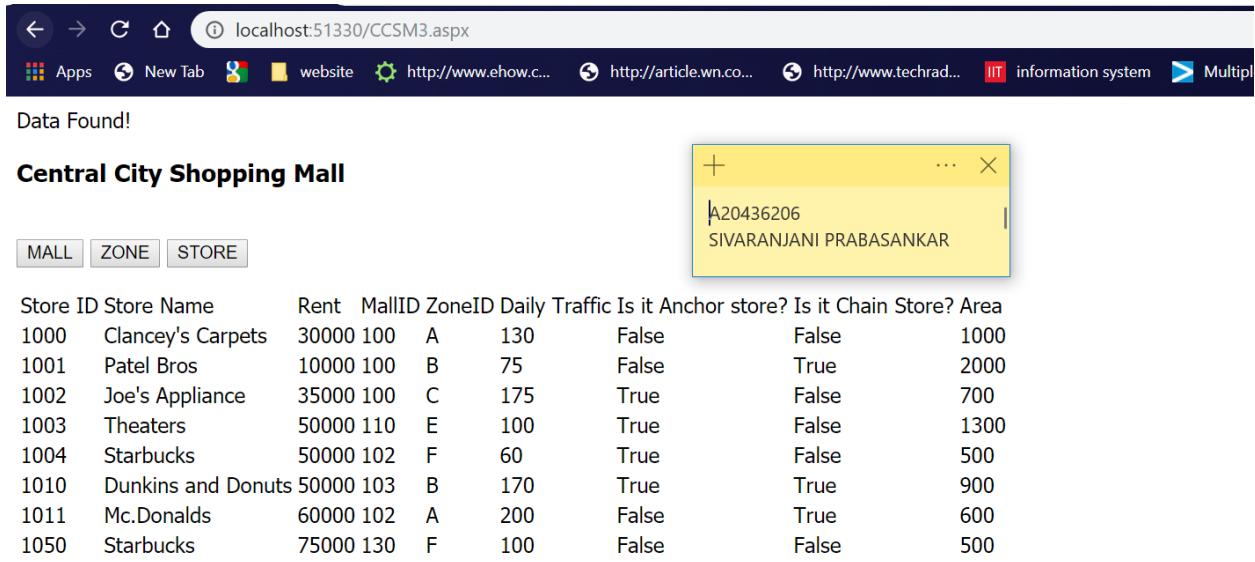
A North 100 Blue
 B NorthEast 100 Red
 C OnTheBoulevard 100 White
 D West 110 Green
 E NorthEast 110 Red
 F Front Entrance 130 Purple
 G Rear Entrance 102 Violet



ITMD 523	Advanced Topics in Data Management	Final Project

Student Name Sivaranjani Prabasankar **Section**

On Clicking Store Button



The screenshot shows a web browser window with the URL `localhost:51330/CCSM3.aspx`. The page title is "Central City Shopping Mall". Below the title, there are three buttons: "MALL", "ZONE", and "STORE", with "STORE" being the active one. A table lists 11 stores with columns: Store ID, Store Name, Rent, MallID, ZoneID, Daily Traffic, Is it Anchor store?, Is it Chain Store?, and Area. A modal dialog box is overlaid on the page, containing a yellow header with a plus sign (+), three dots (...), and a close button (X). The main content area of the dialog displays the store ID "A20436206" and the name "SIVARANJANI PRABASANKAR".

Store ID	Store Name	Rent	MallID	ZoneID	Daily Traffic	Is it Anchor store?	Is it Chain Store?	Area
1000	Clancey's Carpets	30000	100	A	130	False	False	1000
1001	Patel Bros	10000	100	B	75	False	True	2000
1002	Joe's Appliance	35000	100	C	175	True	False	700
1003	Theaters	50000	110	E	100	True	False	1300
1004	Starbucks	50000	102	F	60	True	False	500
1010	Dunkins and Donuts	50000	103	B	170	True	True	900
1011	Mc.Donalds	60000	102	A	200	False	True	600
1050	Starbucks	75000	130	F	100	False	False	500

Rent Details Page



The screenshot shows a web browser window with the URL `localhost:51330/CCSM4.aspx`. The page title is "Central City Shopping Mall". Below the title, there are two buttons: "Monthly Store Rent Details" and "Monthly Mall Rent Details", with "Monthly Store Rent Details" being the active one. A modal dialog box is overlaid on the page, containing a yellow header with a plus sign (+), three dots (...), and a close button (X). The main content area of the dialog displays the store ID "A20436206" and the name "SIVARANJANI PRABASANKAR".

On Clicking Monthly Store rent details Button

ITMD 523	Advanced Topics in Data Management	Final Project
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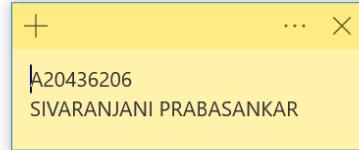
Student Name *Sivaranjani Prabasankar*

Section

Data Found!

Central City Shopping Mall

Store ID	Store Name	Monthly Rent
1000	Clancey's Carpets	30000
1001	Patel Bros	10000
1002	Joe's Appliance	35000
1003	Theaters	50000
1004	Starbucks	50000
1010	Dunkins and Donuts	50000
1011	Mc.Donalds	60000
1050	Starbucks	75000

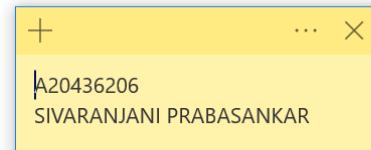


On Clicking Monthly Mall rent details Button

Data Found!

Central City Shopping Mall

Mall ID	Monthly Rent	Property Tax
100	75000	22000
110	100000	24000
130	75000	18000



ITMD 523	Advanced Topics in Data Management	Final Project

Student Name *Sivaranjani Prabasankar* **Section**

Traffic Details page

localhost:51330/CCSM5.aspx

Central City Shopping Mall

Daily Traffic Details

A20436206
SIVARANJANI PRABASANKAR

localhost:51330/CCSM5.aspx

Data Found!

Central City Shopping Mall

Daily Traffic Details

+ ... X

A20436206
SIVARANJANI PRABASANKAR

Minimum Maximum Average Total
60 300 131 1049

Delete Receipt details page

localhost:51330/CCSM2.aspx

Enter Receipt Details

ID

Delete

+ ... X

A20436206
SIVARANJANI PRABASANKAR

Entering details to delete

ITMD 523	Advanced Topics in Data Management	Final Project
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Student Name *Sivaranjani Prabasankar*

Section

The screenshot shows a browser window with the URL `localhost:51330/CCSM2.aspx`. A message "Data Deleted Successfully!" is displayed. Below it, a modal dialog titled "Enter Receipt Details" shows an ID field containing "A20436206" and a name field containing "SIVARANJANI PRABASANKAR".

12. Conclusion

As Data Scientist, I will use Shopping Mall Analytics as measures to evaluate quality of the mall-store relationships. We are analyzing the shopper's mentality and how they are been attracted towards a store by tracking foot traffic. The quantitative value of the relationship between shopping malls and physical retail is provided by Mall Analytics.

The main Performance Indicators for Mall Stores are

- Foot traffic of store
- Revenue calculation
- Nearby Anchor store
- In-Mall Marketing
- Store Proximity Traffic
- Store Sales Conversion

There are two sides to the contract between the mall and the store. The shopping mall receives fees for leasing. Payments often include fixed rent plus a sales percentage. In return, retailers expect to generate traffic for their mall stores from the mall owners. Individual tracking technology detects, identifies and captures people's time and location positions (objects in motion). Shoppers' tracking data analytics paints a picture of how mall stores perform in the mall's context. There are three key pillars in the concept. First, a mall is no longer a shopping destination. People can shop online easily for a product or a brand. Rather, the malls had evolved into a destination themselves.

Proximity Rate measures the value of the mall to the store. For mall traffic to be viable, people need to pass close to the store.

Proximity Traffic = Counts of People Passing Near Store

Since Proximity Traffic measures the "close enough" demand to the store, we can think in term of Online Warm Traffic. We get the number of people passing by either from the shopping mall or from the retailer's Store Systems. Shopping malls are becoming "community centers of experience."