

**PROJECT TITLE: RECREATIONAL SPRING OPEN GYM ACTIVITIES**

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## I. OVERVIEW:

The data is about **Recreational Spring Open Gym Activities**, comes from this website: <https://catalog.data.gov/dataset/recreation-spring-open-gym-activities>. It tells us about different activities, where they happen when they occur, and who can join. Using this data, we could see what activities are available when they happen, and for whom they are meant, all during the spring season.

## II. NORMALISATION:

### 1. WHY IS THIS TABLE NOT IN 1NF?

Activity	Recreation Center	Address	Phone Number	Age Requirements	Days of Week	Times	Address/Location
Volleyball	Praisner Community Center	14906 Old Columbia Pike	240-777-4970	18 & Up	Thursday	7:00pm - 9:30pm	14906 Old
Basketball	Upper County Community Center	8201 Emory Grove Rd	240-777-8077	17 & Under	Monday & Wednesday	6:00pm - 8:00pm	8201 Emory Grove
Basketball	North Potomac Community Center	13850 Travilah Rd	240-773-4800	All Ages	Sunday	12:00pm - 4:00pm	13850 Travilah Rd
Pickleball	Upper County Community Center	8201 Emory Grove Rd	240-777-8077	18 & Up	Monday	10:00am - 12:00pm	8201 Emory Grove
Badminton	North Potomac Community Center	13850 Travilah Rd	240-773-4800	17 & Under	Thursday	3:00pm - 6:00pm	13850 Travilah Rd

- In the given data, the house number and street address are combined in the same cell. This violates the principle of atomicity since a cell should only contain a single value.
- Two address columns suggest the presence of a repeating group, as each row should ideally represent a single entity. So, I have removed 1 address column to eliminate redundancy and conform to the first normal form (1NF). And, having two addresses indicates that there is a repeating group, as each should represent a single entity.

I have deleted the redundant address column and retained only a single column for the address, then I have removed the redundancy and taken a step toward conforming to the first normal form (1NF).

Activity	Recreation Center	Phone Number	Age Requirements	Days of Week	Times	Address/Location
Volleyball	Praisner Community Center	240-777-4970	18 & Up	Thursday	7:00pm - 9:30pm	14906 Old
Basketball	Upper County Community Center	240-777-8077	17 & Under	Monday & Wednesday	6:00pm - 8:00pm	8201 Emory Grove
Basketball	North Potomac Community Center	240-773-4800	All Ages	Sunday	12:00pm - 4:00pm	13850 Travilah Rd
Pickleball	Upper County Community Center	240-777-8077	18 & Up	Monday	10:00am - 12:00pm	8201 Emory Grove
Badminton	North Potomac Community Center	240-773-4800	17 & Under	Thursday	3:00pm - 6:00pm	13850 Travilah Rd

### 2. 0NF – 1NF

Activity	Recreation Center	Phone Number	Age Requirements	Days of Week	Times	Address/Location
Volleyball	Praisner Community Center	240-777-4970	18 & Up	Thursday	7:00pm - 9:30pm	14906 Old
Basketball	Upper County Community Center	240-777-8077	17 & Under	Monday & Wednesday	6:00pm - 8:00pm	8201 Emory Grove
Basketball	North Potomac Community Center	240-773-4800	All Ages	Sunday	12:00pm - 4:00pm	13850 Travilah Rd
Pickleball	Upper County Community Center	240-777-8077	18 & Up	Monday	10:00am - 12:00pm	8201 Emory Grove
Badminton	North Potomac Community Center	240-773-4800	17 & Under	Thursday	3:00pm - 6:00pm	13850 Travilah Rd

- I have restructured the data into separate columns for the start time, end time, house number, street, latitude, and longitude.

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A	B	C	D	E	F	G	H	I	J	K	L	M
Activity	Recreation Center	House Number	Street Address	Latitude	Longitude	Phone Number	Age Requirements	Days of Week	Start Time	End Time	Recreation_Info_Id	Activivity_schedule_id
A	B	C	D	E	F	G	H	I	J	K	L	M
Volleyball	Praisner Community Center	14906	Old Columbia Pike	-76.940764	39.101353	240-777-4970	18 & Up	Thursday	7:00pm	9:30pm	1	11
Basketball	Upper County Community Center	8201	Emory Grove Rd	-77.168899	39.149651	240-777-8077	17 & Under	Monday	6:00pm	8:00pm	2	12
Basketball	Upper County Community Center	8201	Emory Grove Rd	-77.168899	39.149651	240-777-8077	17 & Under	Wednesday	6:00pm	8:00pm	3	13
Basketball	North Potomac Community Center	13850	Travilah Rd	-77.232348	39.082916	240-773-4800	All Ages	Sunday	12:00pm	4:00pm	4	14
Pickleball	Upper County Community Center	8201	Emory Grove Rd	-77.168899	39.149651	240-777-8077	18 & Up	Monday	10:00am	12:00pm	5	15
Badminton	North Potomac Community Center	13850	Travilah Rd	-77.232348	39.082916	240-773-4800	17 & Under	Thursday	3:00pm	6:00pm	6	16

### FIND ALL FUNCTIONAL DEPENDENCY:

A	B	C	D	E	F	G	H	I	J	K	L	M
Activity	Recreation Center	House Number	Street Address	Latitude	Longitude	Phone Number	Age Requirements	Days of Week	Start Time	End Time	Recreation_Info_Id	Activivity_schedule_id
A	B	C	D	E	F	G	H	I	J	K	L	M
Volleyball	Praisner Community Center	14906	Old Columbia Pike	-76.940764	39.101353	240-777-4970	18 & Up	Thursday	7:00pm	9:30pm	1	11
Basketball	Upper County Community Center	8201	Emory Grove Rd	-77.168899	39.149651	240-777-8077	17 & Under	Monday	6:00pm	8:00pm	2	12
Basketball	Upper County Community Center	8201	Emory Grove Rd	-77.168899	39.149651	240-777-8077	17 & Under	Wednesday	6:00pm	8:00pm	3	13
Basketball	North Potomac Community Center	13850	Travilah Rd	-77.232348	39.082916	240-773-4800	All Ages	Sunday	12:00pm	4:00pm	4	14
Pickleball	Upper County Community Center	8201	Emory Grove Rd	-77.168899	39.149651	240-777-8077	18 & Up	Monday	10:00am	12:00pm	5	15
Badminton	North Potomac Community Center	13850	Travilah Rd	-77.232348	39.082916	240-773-4800	17 & Under	Thursday	3:00pm	6:00pm	6	16

B,L-> C,D,E,F,G

A,I,J,K,L,M ->H

### FIND THE MINIMUM COVER:

- B,L-> C,D,E,F,G
- A,I,J,K,L,M->H

**Step 1:** Remove trivial FD.

None Found.

**Step 2:** Reduce the Right-Hand Side.

- B,L-> C
- B,L->D
- B,L->E
- B,L->F
- B,L ->G
- A,I,J,K,L,M -> H

**Step 3:** Reduce the Left-Hand Side.

- B-> C
- B->D
- B->E
- B->F
- B->G
- L-> C
- L->D
- L->E
- L->F

- L->G
  - A->H
  - I->H
  - J->H
  - K->H
  - L->H
- 
- M->H

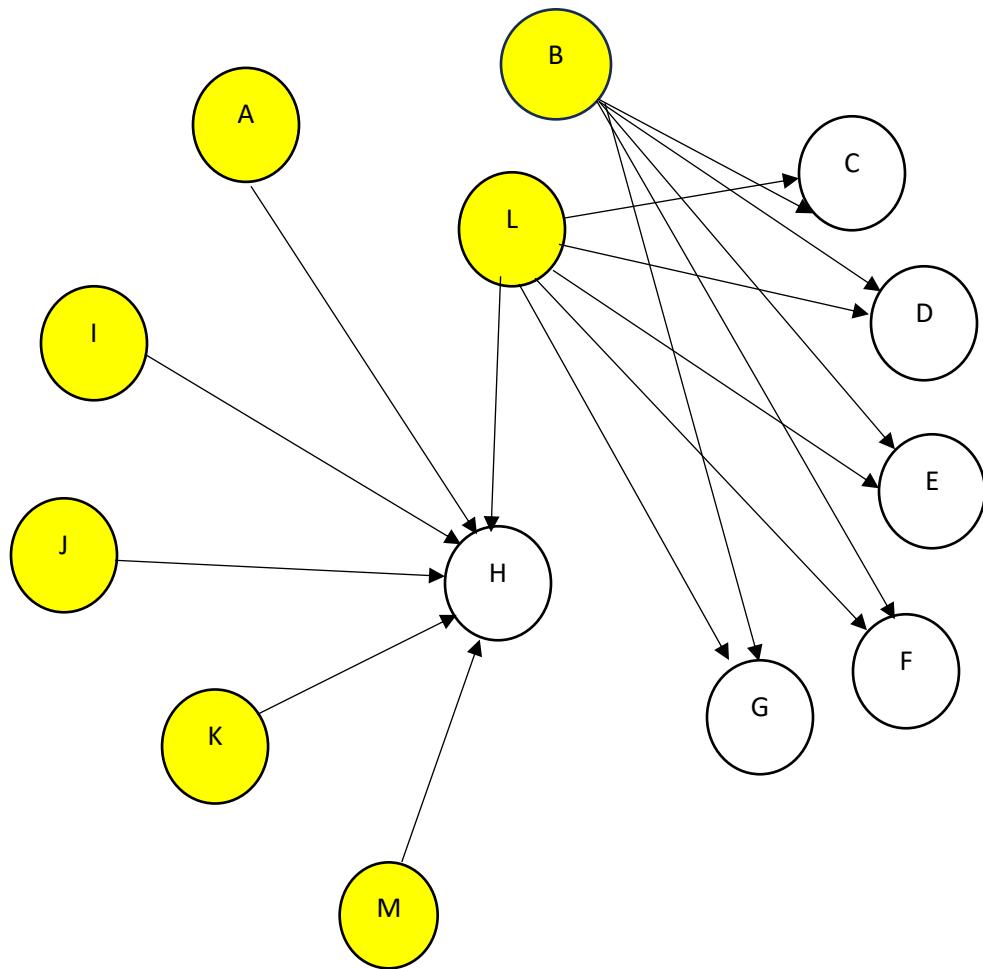
**Step 4:** Eliminate Redundancy.

- B-> C
- B->D
- B->E
- B->F
- B->G
- L-> C
- L->D
- L->E
- L->F
- L->G
- A->H
- I->H
- J->H
- K->H
- L->H
- M->H

**SUPER KEY:**

- B-> C
- B->D
- B->E
- B->F
- B->G
- L-> C
- L->D
- L->E
- L->F
- L->G
- A->H
- I->H

- J->H
- K->H
- L->H
- M->H



**2 NF:**

It is in 1NF.

Now, each relation is in 2NF because all non-prime attributes in each relation depend on the entire candidate key. There is no partial dependency, hence it is fully dependent on candidate keys.

$$R(ABDEFGHIJKLM) \Rightarrow R(\underline{BLCDEFG}) + R(\underline{AIJKMLH})$$

Now, it's in 2NF.

**3NF:**

It's in 2NF.

There is no transitive dependency. Hence, it is in 3NF form.

**FINAL RELATIONS:**

$$R(\underline{BLCDEFG})$$

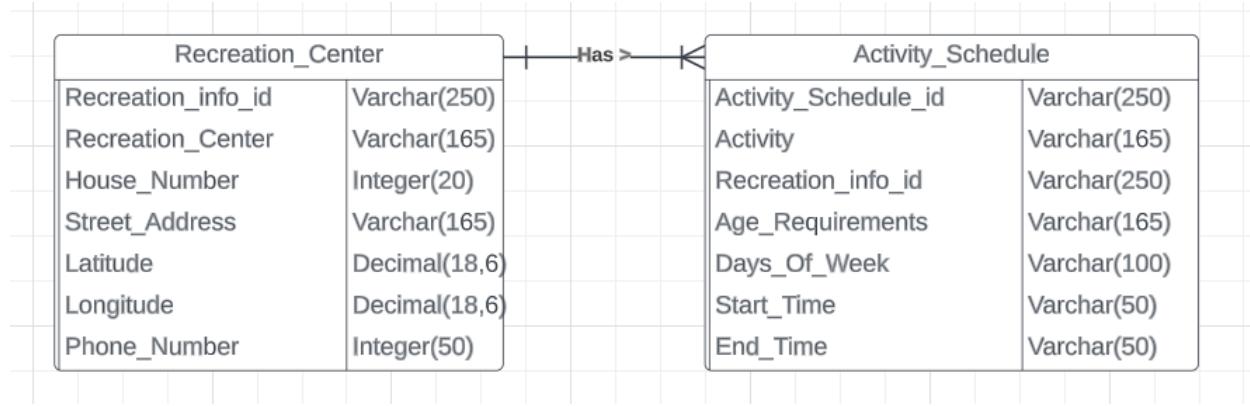
Recreation Center B	House Number C	Street Address D	Latitude E	Longitude F	Phone Number G	Recreation_info_id L
Praisner Community Center	14906	Old Columbia Pike	-76.940764	39.101353	240-777-4970	1
Upper County Community Center	8201	Emory Grove Rd	-77.168899	39.149651	240-777-8077	2
Upper County Community Center	8201	Emory Grove Rd	-77.168899	39.149651	240-777-8077	3
North Potomac Community Center	13850	Travilah Rd	-77.232348	39.082916	240-773-4800	4
Upper County Community Center	8201	Emory Grove Rd	-77.168899	39.149651	240-777-8077	5
North Potomac Community Center	13850	Travilah Rd	-77.232348	39.082916	240-773-4800	6

$$R(\underline{AIJKMLH})$$

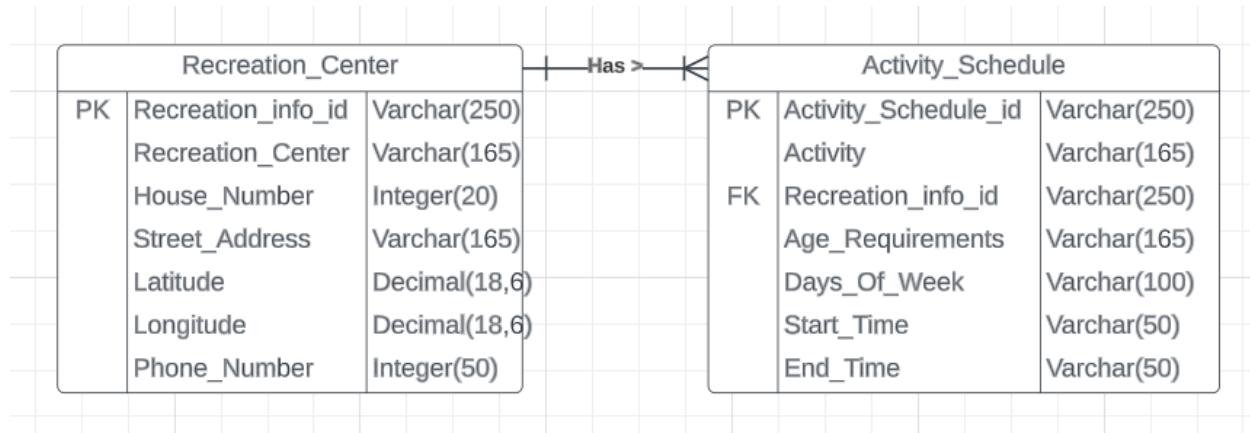
Activity A	Age Requirements H	Days of Week I	Start Time J	End Time K	Recreation_info_id L	Activitivity_schedule_id M
Volleyball	18 & Up	Thursday	7:00pm	9:30pm	1	11
Basketball	17 & Under	Monday	6:00pm	8:00pm	2	12
Basketball	17 & Under	Wednesday	6:00pm	8:00pm	3	13
Basketball	All Ages	Sunday	12:00pm	4:00pm	4	14
Pickleball	18 & Up	Monday	10:00am	12:00pm	5	15
Badminton	17 & Under	Thursday	3:00pm	6:00pm	6	16

### III. DATA MODELS:

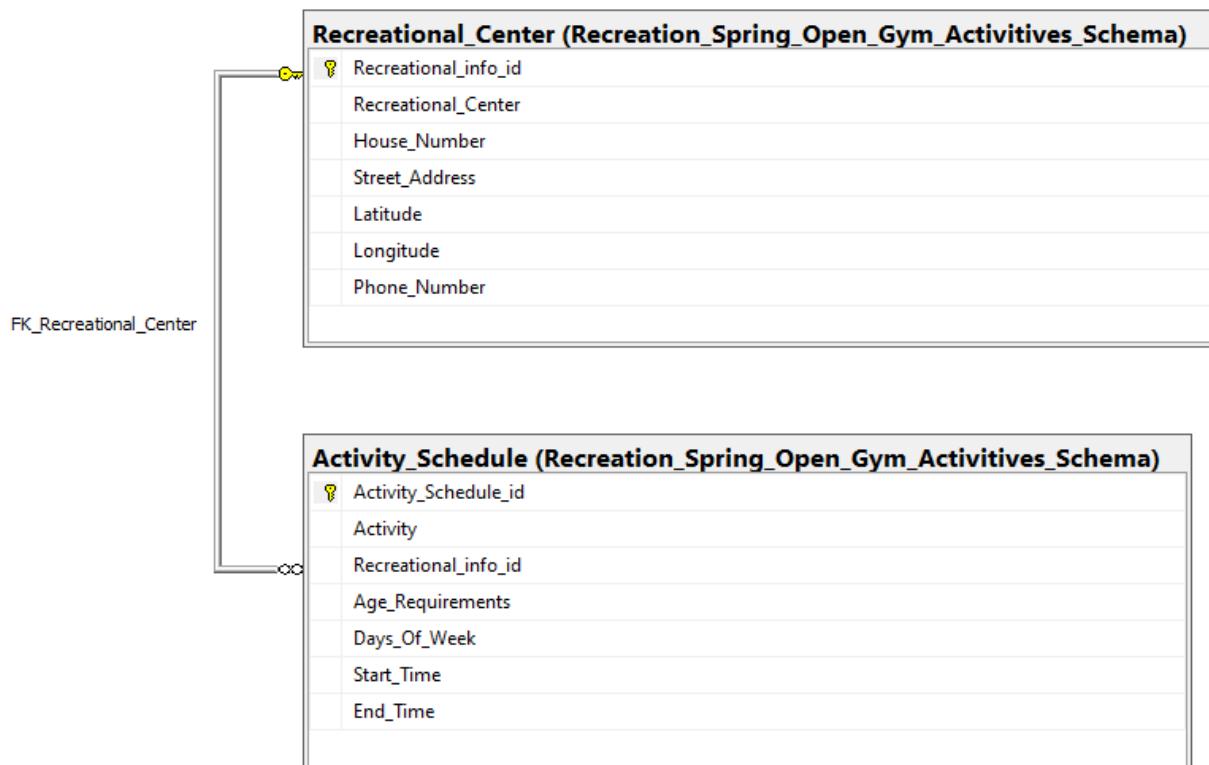
#### CONCEPTUAL DATA MODEL:



#### LOGICAL DATA MODEL:

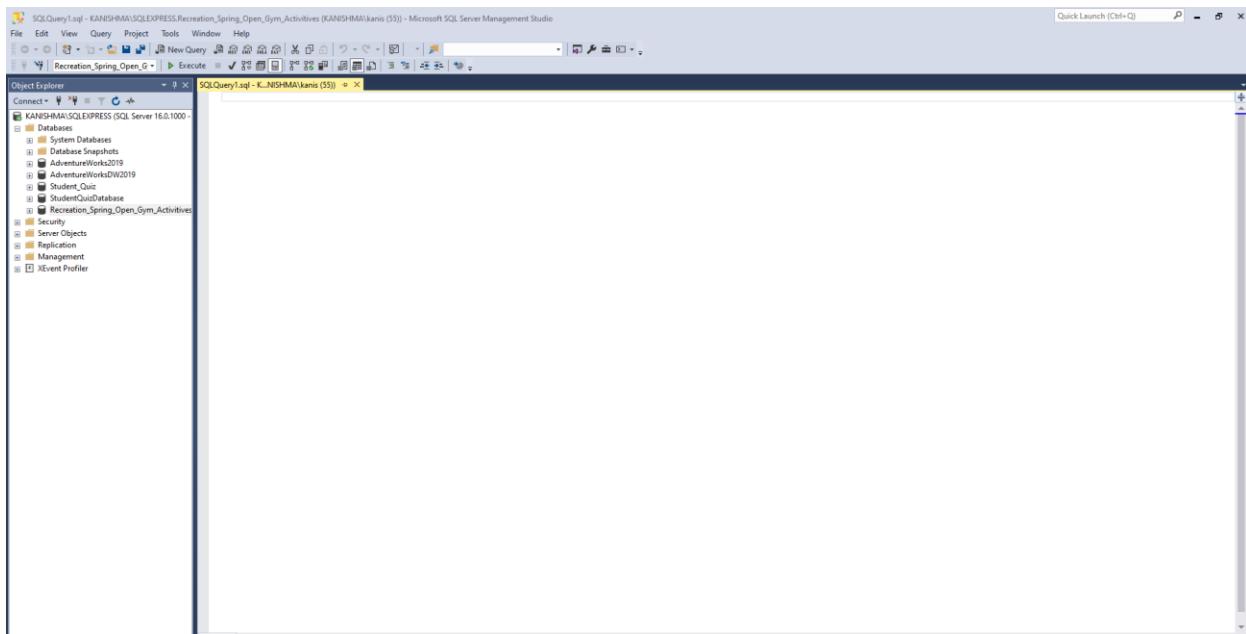


## PHYSICAL DATA MODEL:



## IV. DDL STATEMENT:

### 1) CREATE DATABASE:



### 2) CREATE SCHEMA:

```
USE [Recreation_Spring_Open_Gym_Activities];
GO
CREATE SCHEMA[Recreation_Spring_Open_Gym_Activities_Schema];
GO
```

The screenshot shows the results of the schema creation command. The status bar at the bottom indicates "Commands completed successfully." and the completion time "2023-10-29T15:41:45.9850423-04:00".

### 3) CREATE A DDL STATEMENT FOR ALL NORMALIZED TABLES, WITH PRIMARY AND FOREIGN KEYS:

```
SQLQuery2.sql - K_NISHMA\kanis (55)* �新
CREATE TABLE Recreation_Spring_Open_Gym_Activitives_Schema.Recreational_Center(
    Recreational_Info_Id VARCHAR(250) NOT NULL,
    Recreational_Center VARCHAR(250) NOT NULL,
    House_Number INT NOT NULL,
    Street_Address VARCHAR(165) NOT NULL,
    Latitude DECIMAL(18,6),
    Longitude DECIMAL(18,6),
    Phone_Number INT
    CONSTRAINT PK_Recreational_Center PRIMARY KEY(Recreational_Info_Id),
    CONSTRAINT Recreational_Center_Unique UNIQUE (Recreational_Center)
)
GO

100 % �新
Messages
Commands completed successfully.
Completion time: 2023-10-29T18:16:52.9660810-04:00
```

```
SQLQuery1.sql - K_NISHMA\kanis (55)* �新
CREATE TABLE Recreation_Spring_Open_Gym_Activitives_Schema.Activity_Schedule (
    Activity_Schedule_Id VARCHAR(250) NOT NULL,
    Activity VARCHAR(165) NOT NULL,
    Recreational_Info_Id VARCHAR(250) NOT NULL,
    Age_Requirements VARCHAR(165) NOT NULL,
    Duration VARCHAR(50) NOT NULL,
    Start_Time VARCHAR(50) NOT NULL,
    End_Time VARCHAR(50) NOT NULL,
    CONSTRAINT PK_Activity PRIMARY KEY (Activity_Schedule_id),
    CONSTRAINT FK_Recreational_Center
        FOREIGN KEY (Recreational_info_id)
        REFERENCES Recreation_Spring_Open_Gym_Activitives_Schema.Recreational_Center(Recreational_info_id)
)
GO

100 % �新
Messages
Commands completed successfully.
Completion time: 2023-10-29T18:45:05.8638626-04:00
```

## PHYSICAL TABLES IN SQL SERVER DATABASE:

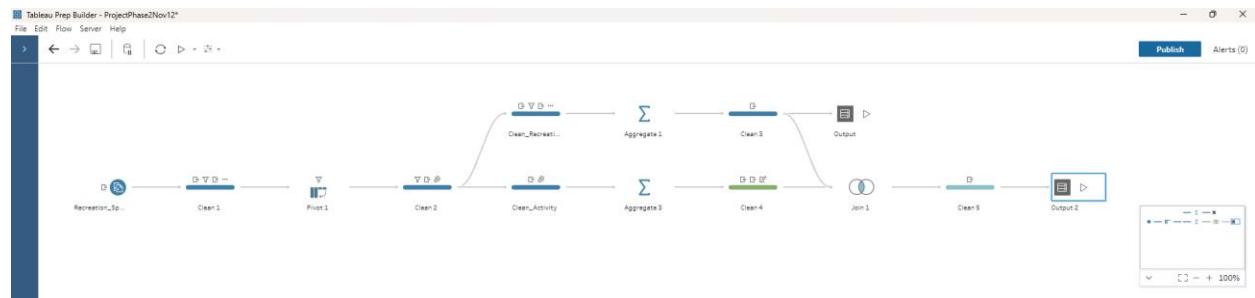
	Column Name	Data Type	Allow Nulls
PK	Recreational_info_id	varchar(250)	<input type="checkbox"/>
	Recreational_Center	varchar(165)	<input type="checkbox"/>
	House_Number	int	<input type="checkbox"/>
	Street_Address	varchar(165)	<input type="checkbox"/>
	Latitude	decimal(18, 6)	<input type="checkbox"/>
	Longitude	decimal(18, 6)	<input type="checkbox"/>
PK	Phone_Number	int	<input type="checkbox"/>
			<input type="checkbox"/>

	Column Name	Data Type	Allow Nulls
PK	Activity_Schedule_id	varchar(250)	<input type="checkbox"/>
	Activity	varchar(165)	<input type="checkbox"/>
	Recreational_info_id	varchar(250)	<input type="checkbox"/>
	Age_Requirements	varchar(165)	<input type="checkbox"/>
	Days_Of_Week	varchar(100)	<input type="checkbox"/>
	Start_Time	varchar(50)	<input type="checkbox"/>
	End_Time	varchar(50)	<input type="checkbox"/>
			<input type="checkbox"/>

These are the 2 physical tables I created in the SQL Server Database.

## V. WORKFLOW OF THE ETL MODEL:

In the project the ETL data modeling is done, and the workflow is as follows.



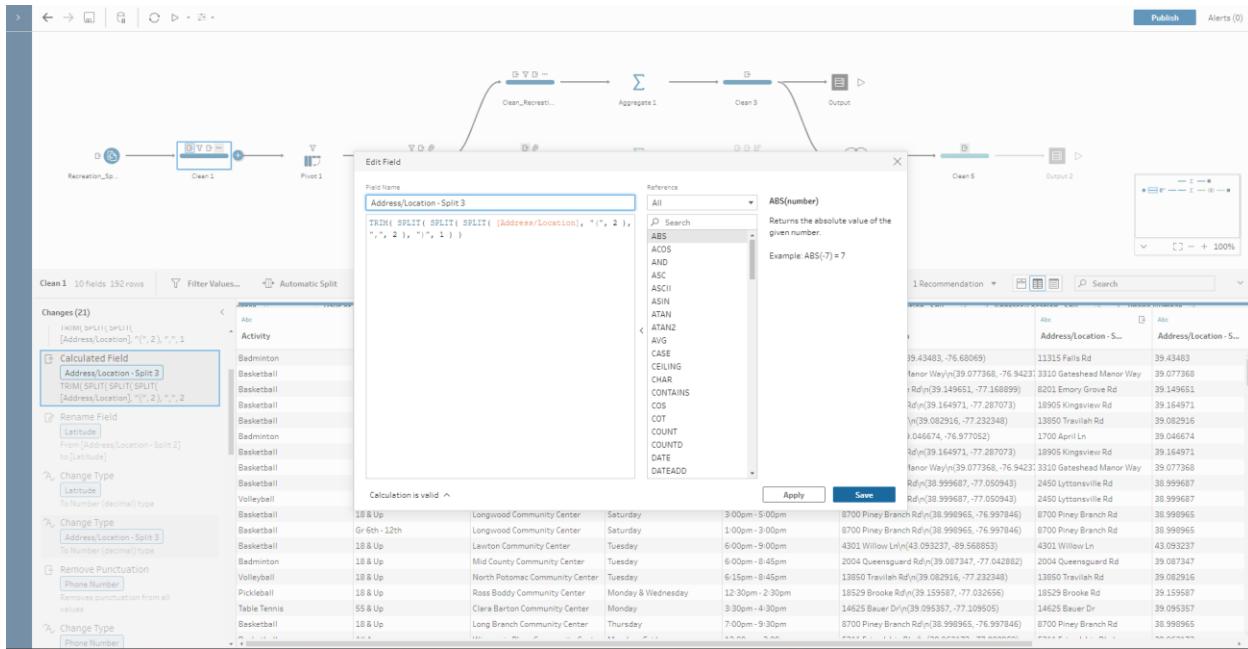
## RENAME:

From the below screenshot, I have renamed the Address/Location – Split 2 field to Latitude field.

## DATA CLEAN\_UP:

### TRIM:

The below picture shows that I have cleaned up the trim spaces that has been unwantedly equipped by the Address/Location – Split 3 Attribute. Thus, Spaces have been removed from beginning and end of the field.



**REMOVE PUNCTUATIONS:** Removing punctuation is also one of the clean up step. Where I could get the entire column by eliminating punctuations from it.

The screenshot shows a Tableau Prep Builder workflow. A source node 'Recreation\_Sp...' feeds into a 'Clean 1' node. This is followed by a 'Pivot 1' node, then a 'Clean\_Replace...' node where the 'Field name' is 'Phone Number' and the 'Value' is 'REGEXP\_REPLACE([Phone Number], '[[:punct:]]', '')'. An 'Aggregate 1' node follows, then another 'Clean 3' node, and finally an 'Output' node. The 'Clean 1' node has a 'Changes' section expanded, showing various cleaning steps like 'Remove Punctuation' for 'Phone Number' and 'Days of Week'.

## FILTERING DATA:

I need to filter out the null values from the list, in order to do that I have used Exclude by using filter option.

The screenshot shows a similar Tableau Prep Builder workflow. It includes a 'Clean 1' node with a 'Changes' section containing a 'Filter' step for 'Days of Week' with the condition 'Exclude null'. This is followed by a 'Pivot 1' node, a 'Clean\_Replace...' node (using REGEXP\_REPLACE), an 'Aggregate 1' node, another 'Clean 3' node, and an 'Output' node. The 'Clean 1' node also contains calculated fields for splitting 'Days of Week' into multiple columns.

## CALCULATED FIELD:

To add an auto generated field to construct Recreational\_Center\_ID, I have created a calculated field by using the formula {ORDERBY [Recreation\_Center] ASC:ROW\_NUMBER()}.

The screenshot shows the Tableau Prep Builder interface. A calculated field named 'Recreational\_Center\_ID' is being defined. The formula is set to {ORDERBY [Recreation\_Center] ASC:ROW\_NUMBER()}. A tooltip for 'ABS(number)' indicates it returns the absolute value of the given number. The preview pane shows 10 rows of data, each with a unique ID from 1 to 10 and the name of a community center.

## LOADING THE DATA TO THE TABLES:

At last, after cleaning, joining and aggregation process are dataset is ready to get deployed. I have connected to the MICROSOFT SQL SERVER, to load the data directly from staging tables to normalized tables. Below given are the screenshots.

The screenshot shows the Tableau Prep Builder output flow. It is saving 7 fields to the table 'Stg\_Recreational\_Center' in the KANISHMA\SQLEXPRESS database. The connection is set to 'KANISHMA\SQLEXPRESS'. The data is being loaded in full refresh mode. The preview pane shows the 20 rows of data from the previous screenshot.

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Output 2 7 fields

Save output to Database

Settings Custom SQL

Table Connection KANISHMA\SQLEXPRESS

Write 7 of 7 fields to the table "Stg\_Activity\_Schedule" in KANISHMA\SQLEXPRESS

Activity Activity\_Schedule\_ID Recreational\_Center\_ID Age Requirements Days of Week Start Time End Time

Badminton 1	4	All Ages	Saturday	12:00pm	2:00pm
Badminton 2	10	18 & Up	Tuesday	6:00pm	9:45pm
Badminton 3	7	18 & Up	Thursday	6:00pm	9:00pm
Badminton 4	18	18 & Up	Wednesday	6:00pm	8:45pm
Badminton 5	17	18 & Up	Saturday	9:00am	11:00am
Badminton 6	6	18 & Up	Sunday	2:30pm	4:45pm
Badminton 7	12	All Ages	Saturday	10:15am	12:00pm
Badminton 8	1	18 & Up	Tuesday	6:00pm	9:45pm
Badminton 9	19	18 & Up	Monday	5:00pm	9:00pm
Badminton 10	12	18 & Up	Monday	6:15pm	8:00pm
Badminton 11	11	17 & Under	Thursday	3:00pm	6:00pm
Badminton 12	13	12 & Up	Saturday	2:00pm	4:45pm
Badminton 13	5	18 & Up	Thursday	6:00pm	9:00pm
Badminton 14	11	55 & Up	Thursday	9:00am	12:00pm
Badminton 15	19	18 & Up	Saturday	9:30am	12:00pm
Badminton 16	11	18 & Up	Thursday	6:15pm	8:45pm
Badminton 17	3	18 & Up	Thursday	6:00pm	8:45pm
Badminton 18	11	All Ages	Sunday	12:00pm	4:00pm
Badminton 19	17	18 & Up	Tuesday	6:00pm	9:30pm
Badminton 20	14	18 & Up	Tuesday	6:30pm	8:30pm
Badminton 21	6	18 & Up	Thursday	6:00pm	8:45pm

Run Flow

**Cont...**

## VI. RESULTS OF LOADING in SQL Server:

By using a select query, the results show that the raw data has been cleaned and loaded into the finalized two tables and they are:

### RECREATION TABLE:

The screenshot shows the SQL Server Management Studio interface. At the top, there are two tabs: "SQLQuery7.sql - K...NISHMA\kanis (58)\*" and "SQLQuery6.sql - K...NISHMA\kanis (71)\*". The "SQLQuery6.sql" tab is active, displaying the following SQL code:

```
SELECT * FROM dbo.Stg_Recreational_Center;
```

Below the code, the results pane is visible. It shows a table with 19 rows of data, each representing a recreation center. The columns are: Recreation Center, Recreational\_Center\_ID, House Number, Street Name, Latitude, Longitude, and Phone Number. The data includes various community centers like Bauer Drive Community Center, Clara Barton Community Center, etc., with their respective addresses, coordinates, and phone numbers.

	Recreation Center	Recreational_Center_ID	House Number	Street Name	Latitude	Longitude	Phone Number
1	Bauer Drive Community Center	1	14625	Bauer Dr	39.095357	-77.109505	2407776922
2	Clara Barton Community Center	2	14625	Bauer Dr	39.095357	-77.109505	2407776922
3	Coffield Community Center	3	2450	Lyttonsville Rd	38.999687	-77.050943	2407774900
4	Damascus Community Center	4	25520	Oak Dr	41.51656	-80.028597	2407776930
5	East County Community Center	5	3310	Gateshead Manor Way	39.077368	-76.942378	2407778090
6	Germantown Community Center	6	18905	Kingsview Rd	39.164971	-77.287073	2407778095
7	Lawton Community Center	7	4301	Willow Ln	43.093237	-89.568853	2407776855
8	Long Branch Community Center	8	8700	Piney Branch Rd	38.998965	-76.997846	2107776965
9	Longwood Community Center	9	8700	Piney Branch Rd	38.998965	-76.997846	2107776965
10	Mid County Community Center	10	2004	Queensguard Rd	39.087347	-77.042882	2407776820
11	North Potomac Community Center	11	13850	Travilah Rd	39.082916	-77.232348	24077734800
12	Plum Gar Community Center	12	19561	Scenery Dr	39.177047	-77.233861	2407774919
13	Potomac Community Center	13	11315	Falls Rd	39.43483	-76.68069	2407776960
14	Praisner Community Center	14	14906	Old Columbia Pike	39.101353	-76.940764	2407774970
15	Ross Boddy Community Center	15	18529	Brooke Rd	39.159587	-77.032656	2407778050
16	Scotland Community Center	16	7700	Scotland Drive	39.031479	-77.159068	2407778075
17	Upper County Community Center	17	8201	Emory Grove Rd	39.149651	-77.168899	2407778077
18	White Oak Community Center	18	1700	April Ln	39.046674	-76.977052	2407776940
19	Wisconsin Place Community Center	19	5311	Friendship Blvd	38.962173	-77.088959	2407778088

## ACTIVITY\_SCHEDULE TABLE:

SQLQuery7.sql - K...NISHMA\kanis (58)\* ⇡ X SQLQuery6.sql - K...NISHMA\kanis (71)\*

```
SELECT * FROM dbo.Stg_Activity_Schedule;
```

100 %

	Activity	Activity_Schedule_ID	Recreational_Center_ID	Age Requirements	Days of Week	Start Time	End Time
1	Badminton	1	4	All Ages	Saturday	12:00pm	2:00pm
2	Badminton	2	10	18 & Up	Tuesday	6:00pm	8:45pm
3	Badminton	3	7	18 & Up	Thursday	6:00pm	9:00pm
4	Badminton	4	18	18 & Up	Wednesday	6:00pm	8:45pm
5	Badminton	5	17	18 & Up	Saturday	9:00am	11:00am
6	Badminton	6	6	18 & Up	Sunday	2:30pm	4:45pm
7	Badminton	7	12	All Ages	Saturday	10:15am	12:00pm
8	Badminton	8	1	18 & Up	Tuesday	6:00pm	9:45pm
9	Badminton	9	19	18 & Up	Monday	5:00pm	9:00pm
10	Badminton	10	12	18 & Up	Monday	6:15pm	8:50pm
11	Badminton	11	11	17 & Under	Thursday	3:00pm	6:00pm
12	Badminton	12	13	12 & Up	Saturday	2:00pm	4:45pm
13	Badminton	13	5	18 & Up	Thursday	6:00pm	9:00pm
14	Badminton	14	11	55 & Up	Thursday	9:00am	12:00pm
15	Badminton	15	19	18 & Up	Saturday	9:30am	12:00pm
16	Badminton	16	11	18 & Up	Thursday	6:15pm	8:45pm
17	Badminton	17	3	18 & Up	Thursday	6:00pm	8:45pm
18	Badminton	18	11	All Ages	Sunday	12:00pm	4:00pm
19	Badminton	19	17	18 & Up	Tuesday	6:00pm	9:30pm
20	Badminton	20	14	18 & Up	Tuesday	6:30pm	8:30pm
21	Badminton	21	6	18 & Up	Thursday	6:00pm	8:45pm
22	Basketball	22	11	55 & Up	Wednesday	9:00am	12:00pm
23	Basketball	23	12	Middle & High School	Monday	2:30pm	4:30pm
24	Basketball	24	19	18 & Up	Sunday	3:00pm	5:00pm
25	Basketball	25	18	Ages 11-17	Friday	3:00pm	6:00pm
26	Basketball	26	11	17 & Under	Monday	3:00pm	6:00pm
27	Basketball	27	7	17 & Under	Monday	3:00pm	5:00pm
28	Basketball	28	3	All Ages	Saturday	9:30am	6:00pm
29	Basketball	29	5	18 & Up	Monday	10:00am	2:00pm
30	Basketball	30	9	Gr 8th - 12th	Thursday	3:00pm	5:45pm
31	Basketball	31	1	Ages 12 - 17	Monday	2:30pm	5:45pm
32	Basketball	32	10	19 & 11+	Saturday	3:00pm	5:00pm

Query executed successfully.

## VII. TABLEAU ANALYSIS:

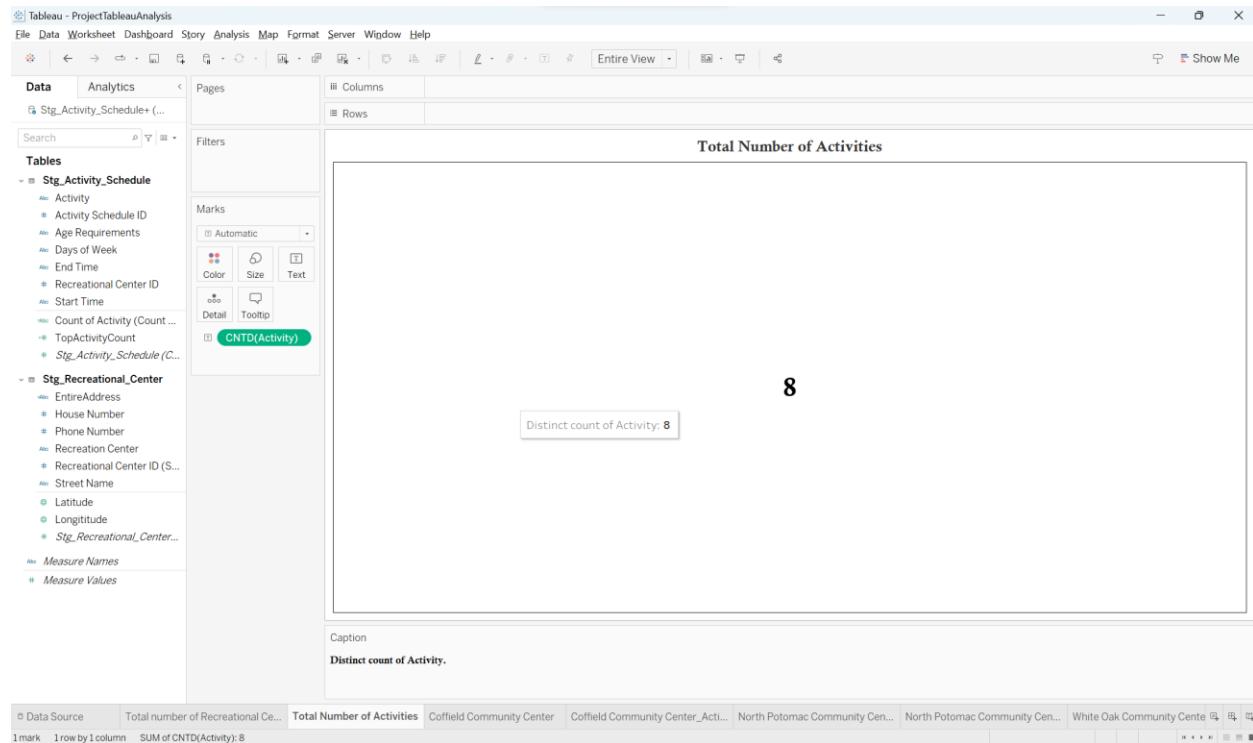
Both the staging tables are joined together and extracted in to Tableau for further analysis.

The screenshot shows the Tableau Data Source interface. On the left, the 'Connections' section lists 'LOLITA-SOLEXPRESS Microsoft SQL Server'. The 'Database' section shows 'Recreation\_Spring\_Open\_Gym\_Acti...' and contains two tables: 'Stg\_Activity\_Schedule' and 'Stg\_Recreational\_Center'. Below these are options for 'New Custom SQL', 'New Union', and 'New Table Extension'. The main workspace displays the schema of 'Stg\_Activity\_Schedule'. It shows a relationship between 'Stg\_Activity\_Schedule' and 'Stg\_Recreational\_Center'. The schema details columns: Activity (Activity ID, Activity Schedule ID, Recreational Center ID, Age Requirements), Days of Week, and Activity Schedule ID. Buttons for 'Update Now' and 'Update Automatically' are visible. The bottom navigation bar includes tabs for 'Data Source', 'Total number of Recreational Ce...', 'Total Number of Activities', 'Coffield Community Center', 'Coffield Community Center\_Acti...', 'North Potomac Community Cen...', 'North Potomac Community Cen...', and 'White Oak Community Cent...'. A status bar at the bottom indicates '1 mark 1 row by 1 column SUM OF CNTD(Recreation Center): 19'.

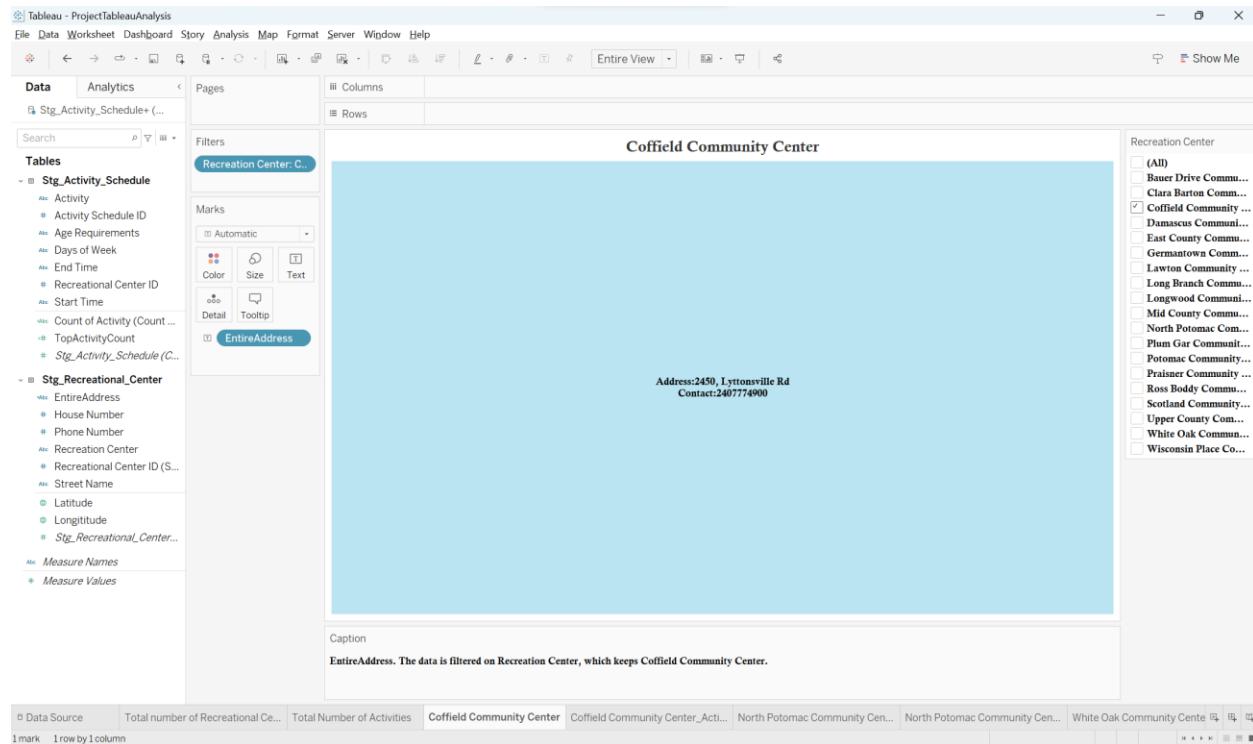
## BELOW GIVEN ARE SOME OF THE TABLES CREATED TO MAKE A DASHBOARD TOTAL NUMBER OF RECREATIONAL CENTER:

The screenshot shows a Tableau dashboard. On the left, the 'Data' pane lists the data source 'Stg\_Activity\_Schedule+'. The 'Tables' section includes 'Stg\_Activity\_Schedule' and 'Stg\_Recreational\_Center'. The 'Marks' section is set to 'Automatic' with 'Color' selected. The main canvas displays a single value card titled 'Total Recreational Centers' with the value '19'. Below the card is a caption: 'Distinct count of Recreation Center.' The bottom navigation bar includes tabs for 'Data Source', 'Total number of Recreational ...', 'Total Number of Activities', 'Coffield Community Center', 'Coffield Community Center\_Acti...', 'North Potomac Community Cen...', 'North Potomac Community Cen...', and 'White Oak Community Cent...'. A status bar at the bottom indicates '1 mark 1 row by 1 column SUM OF CNTD(Recreation Center): 19'.

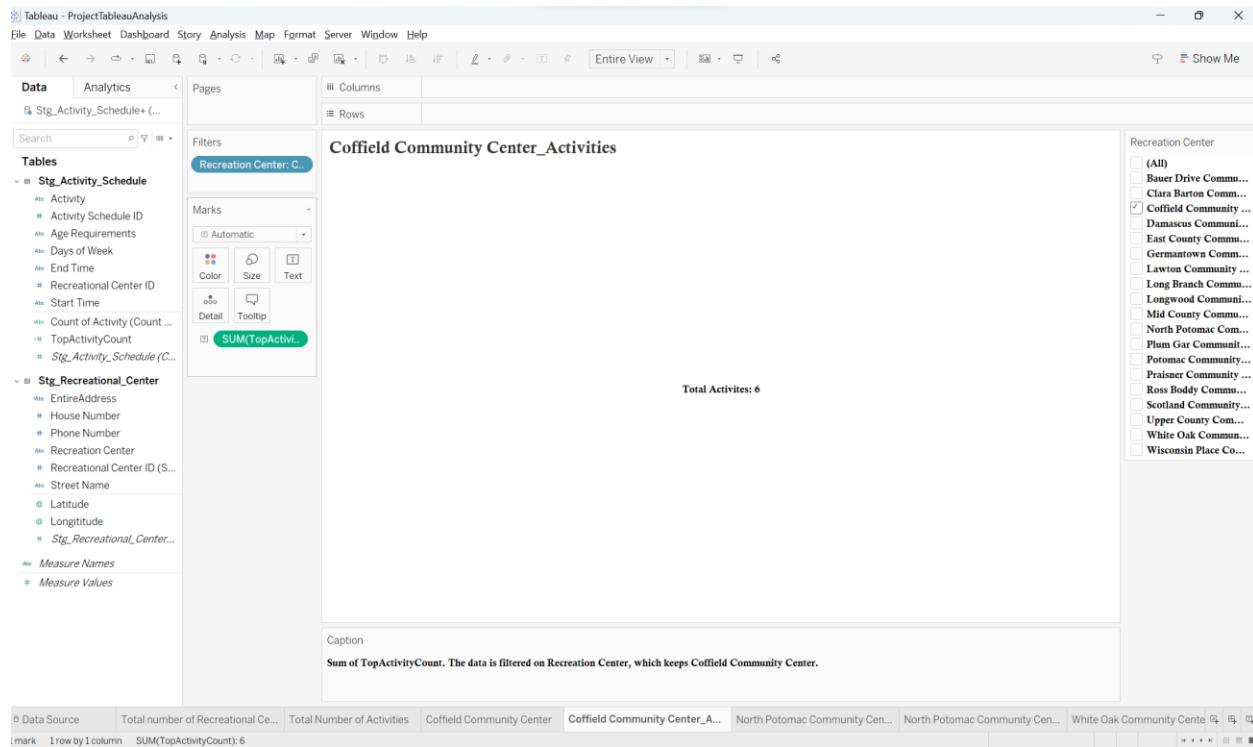
## TOTAL NUMBER OF ACTIVITIES:



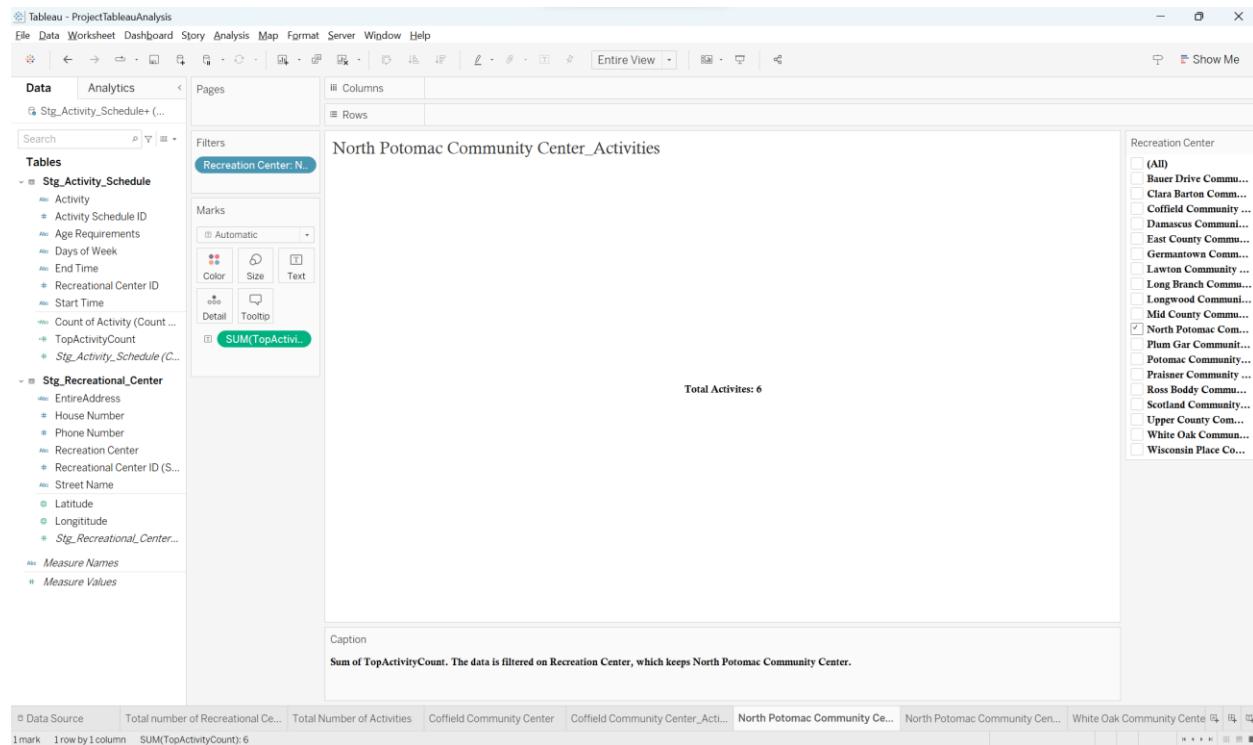
## COFFIELD COMMUNITY CENTER:



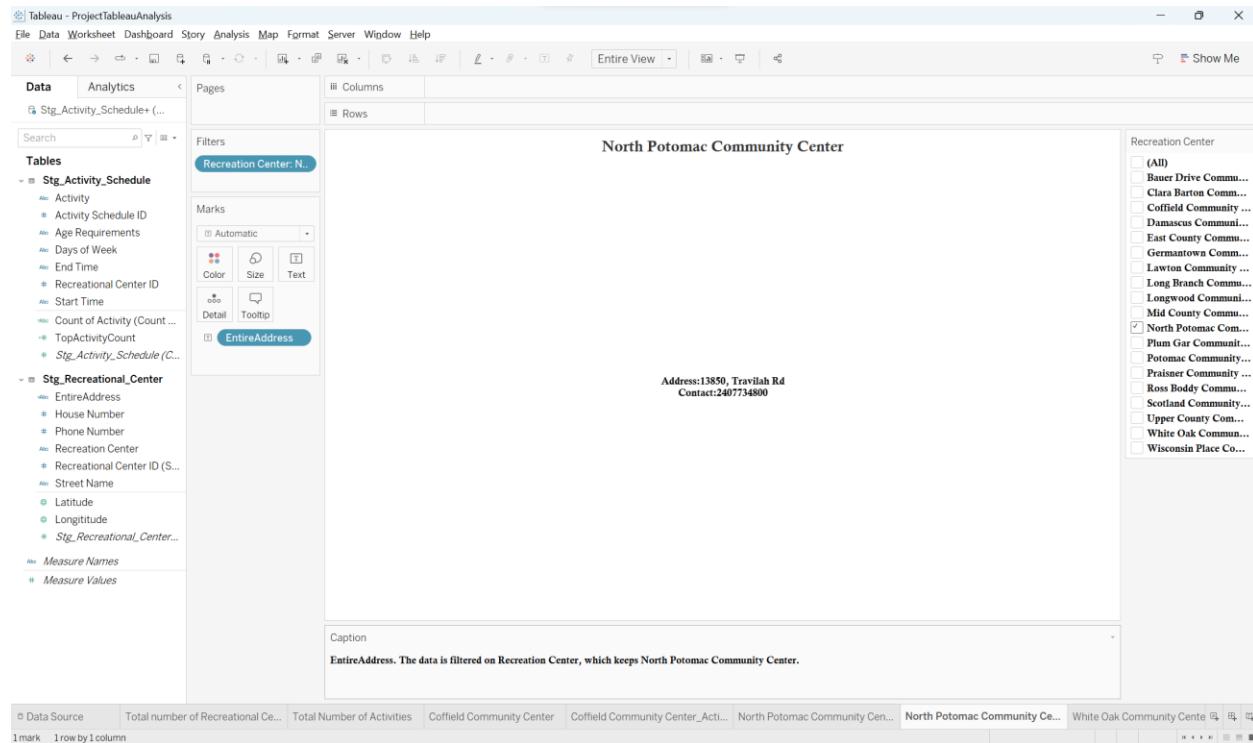
## COFFIELD COMMUNITY CENTER\_ACTIVITIES:



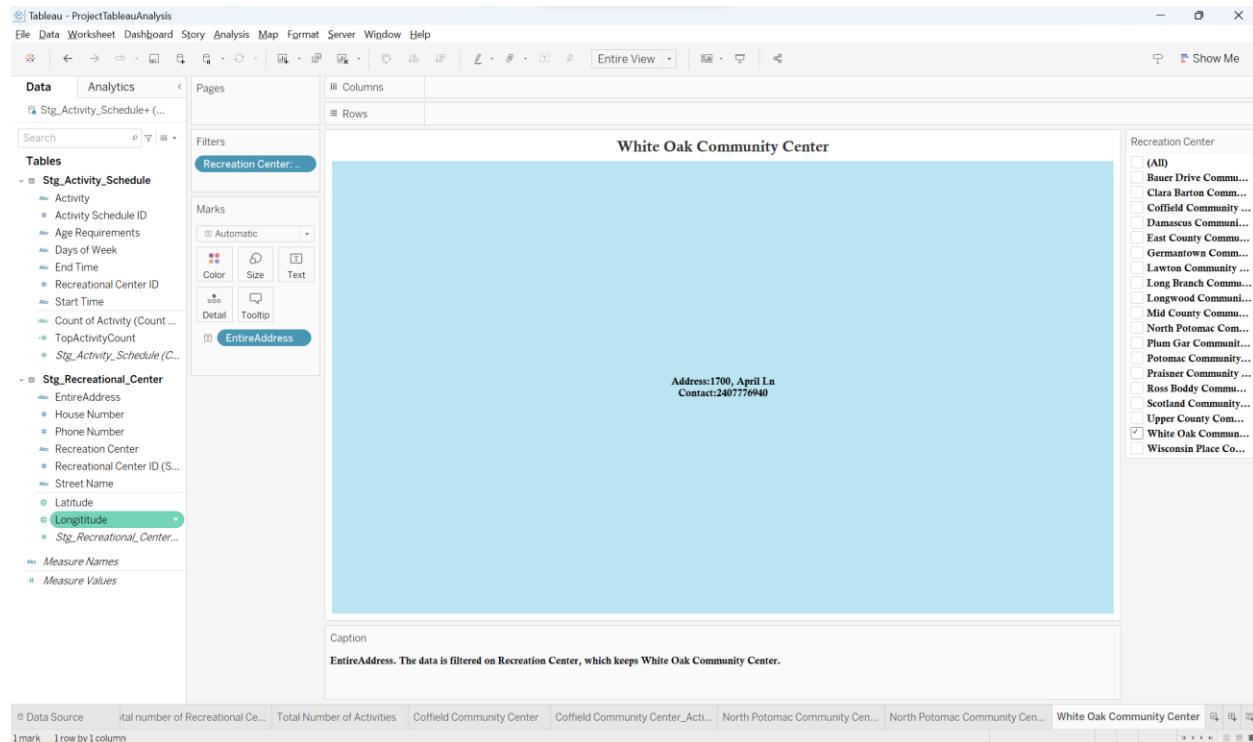
## NORTH POTOMAC COMMUNITY CENTER\_ACTIVITIES:



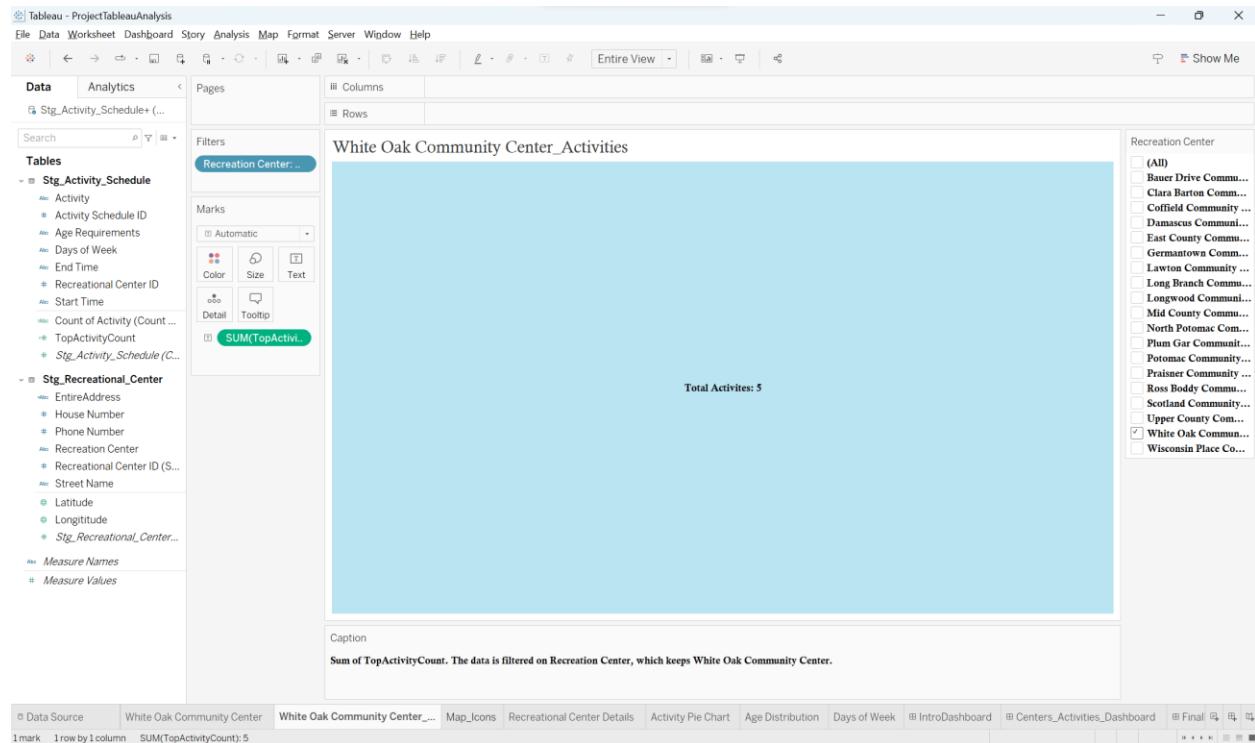
## NORTH POTOMAC COMMUNITY CENTER:



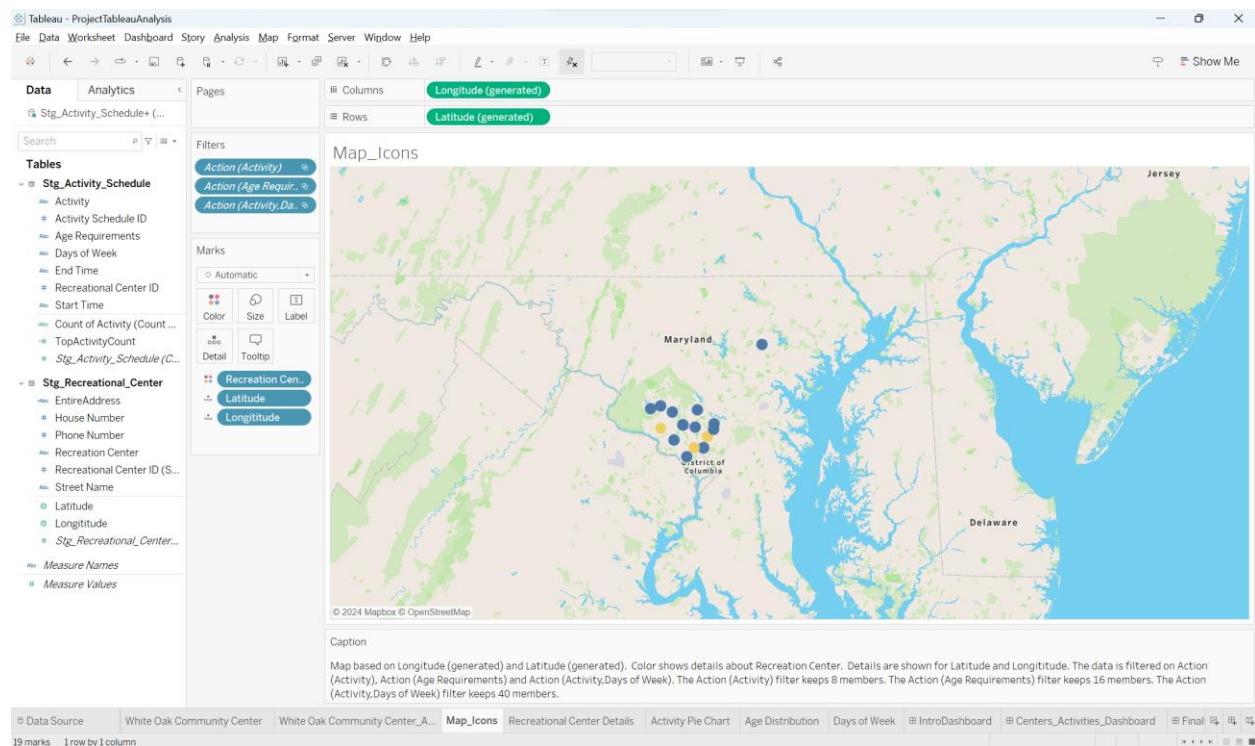
## WHITE OAK COMMUNITY CENTER:



## WHITE OAK COMMUNITY CENTER\_ACTIVITIES:



## MAP\_ICONS:



## RECREATIONAL CENTER DETAILS:

Tableau - ProjectTableauAnalysis

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Data Analytics < Pages Columns Rows Recreation Center Phone Number House Number

Filters Recreational Center Details

Tooltip (Latitude,Longitude,Recreation Center)

Marks Automatic Color Size Text Detail Tooltip Street Name

Recreation Center	Phone Number	House Number
Bauer Drive Community Center	2407776922	14625
Clara Barton Community Center	2407776922	14625
Coffield Community Center	2407774900	2450
Damascus Community Center	2407776930	2520
East County Community Center	2407778090	3310
Germantown Community Center	2407778095	18905
Lyonettes Community Center	2407776855	430
Long Branch Community Center	2107776965	8700
Longwood Community Center	2107776965	8700
Mid County Community Center	2407776820	2004
North Potomac Community Center	2407734800	13850
Plum Gar Community Center	2407774910	19561
Potomac Community Center	2407774910	1115
Prairie Community Center	2407774970	14906
Ross Boddy Community Center	2407778050	18529
Scotland Community Center	2407778075	7700
Upper County Community Center	2407778077	8201
White Oak Community Center	2407776940	1700
Wisconsin Place Community Center	2407778088	5311

Caption  
Street Name broken down by Recreation Center, Phone Number and House Number. The data is filtered on Tooltip (Latitude,Longitude,Recreation Center), which keeps 19 members.

Data Source White Oak Community Center White Oak Community Center\_A... Map\_Icons Recreational Center Details Activity Pie Chart Age Distribution Days of Week IntroDashboard Centers\_Activities\_Dashboard Final

19 marks 19 rows by 1 column

## ACTIVITY PIE CHART:

Tableau - ProjectTableauAnalysis

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Data Analytics < Pages Columns Rows

Filters Activity Pie Chart

Marks Pie Color Size Label Detail Angle Activity CNT/Count of... Activity CNT/Count of...

Activity

- (All)
- Badminton
- Basketball
- Floor Hockey
- Microfliers
- Pickleball
- Table Tennis
- Tiny Tots
- Volleyball

Activity

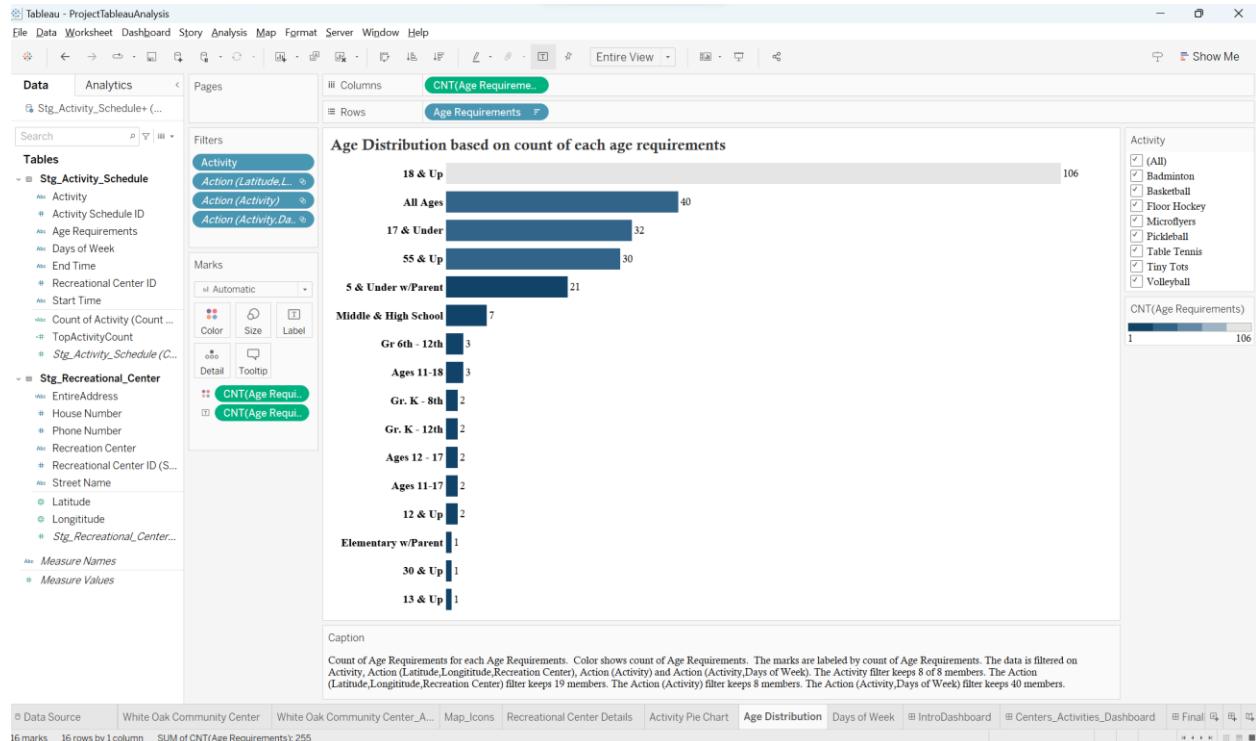
- Badminton
- Basketball
- Floor Hockey
- Microfliers
- Pickleball
- Table Tennis
- Tiny Tots
- Volleyball

Caption  
Activity and count of Count of Activity. Color shows details about Activity. The marks are labeled by Activity and count of Count of Activity. The data is filtered on Recreation Center, Action (Latitude,Longitude,Recreation Center), Action (Age Requirements) and Action (Activity,Days of Week). The Recreation Center filter keeps multiple members. The Action (Latitude,Longitude,Recreation Center) filter keeps 19 members. The Action (Age Requirements) filter keeps 16 members. The Action (Activity,Days of Week) filter keeps all members. The view is filtered on Activity, which keeps 8 of 8 members.

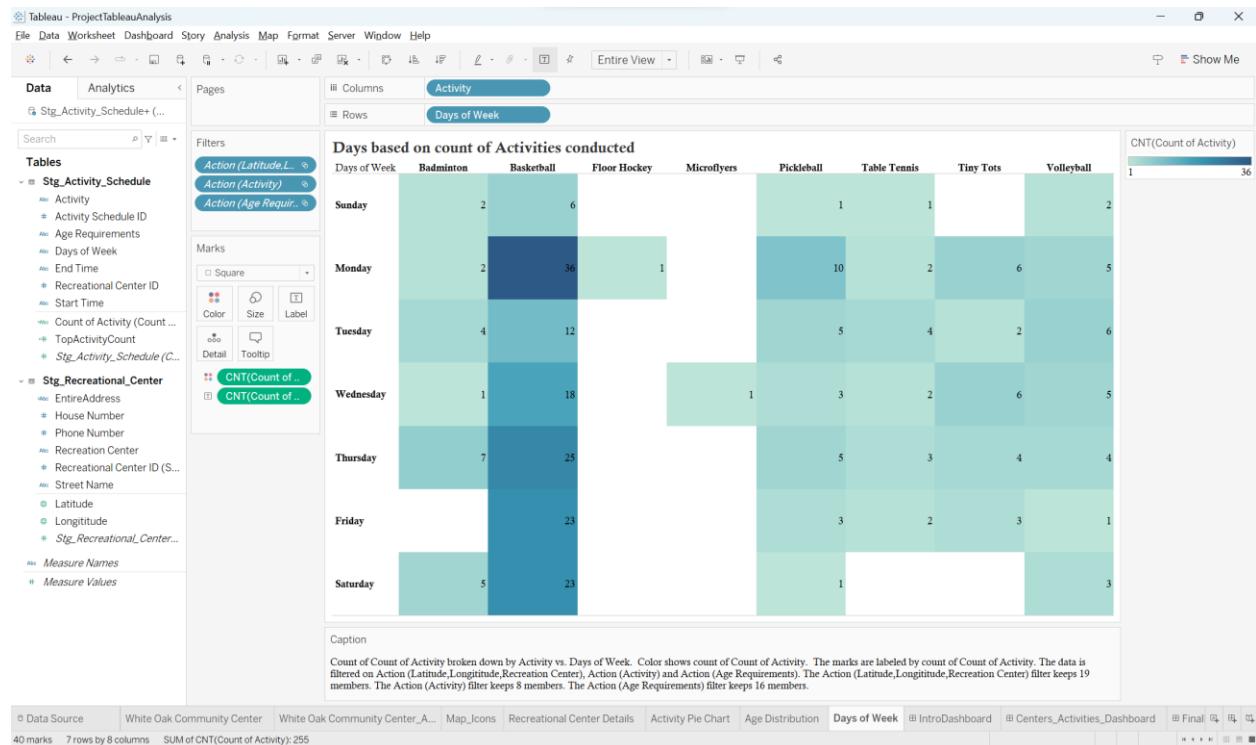
Data Source White Oak Community Center White Oak Community Center\_A... Map\_Icons Recreational Center Details Activity Pie Chart Age Distribution Days of Week IntroDashboard Centers\_Activities\_Dashboard Final

8 marks 1 row by 1 column SUM of CNT(COUNT(Activitiy)): 255

## AGE DISTRIBUTION:



## DAYS OF WEEK:



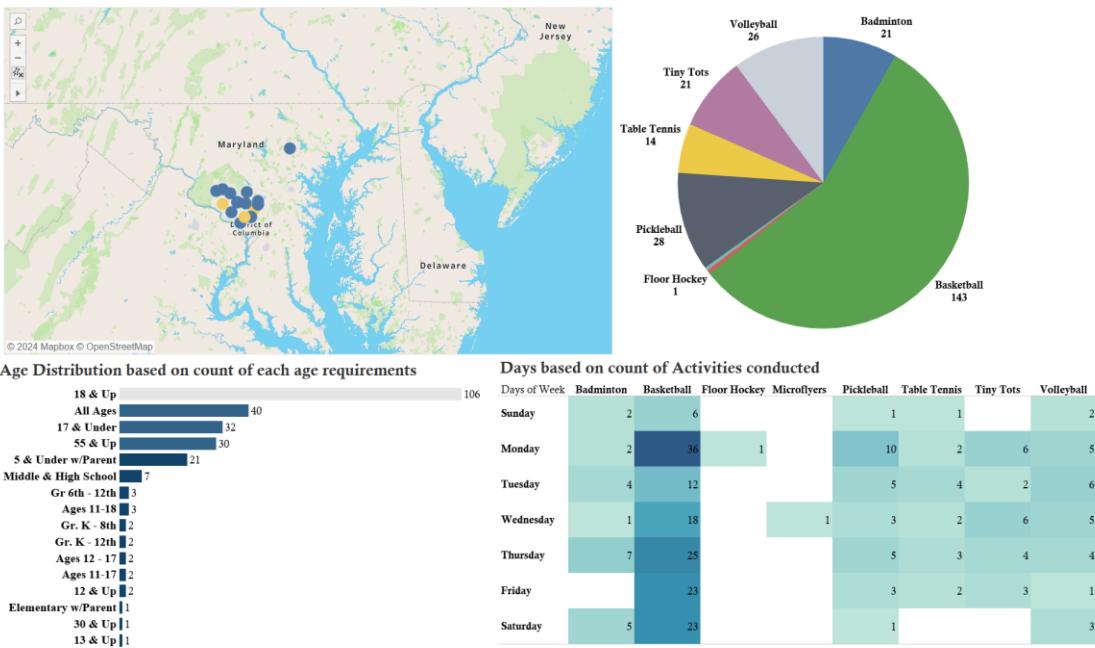
## INTRODASHBOARD:

It is the interactive dashboard which tells us more about the total number of recreational centers and number of activites that is happening in the Gym. Also, it shows the main areas where the Gym is situated, its details according to the data present in the dataset. The image is used to surf in detail about the particular Gym in website.

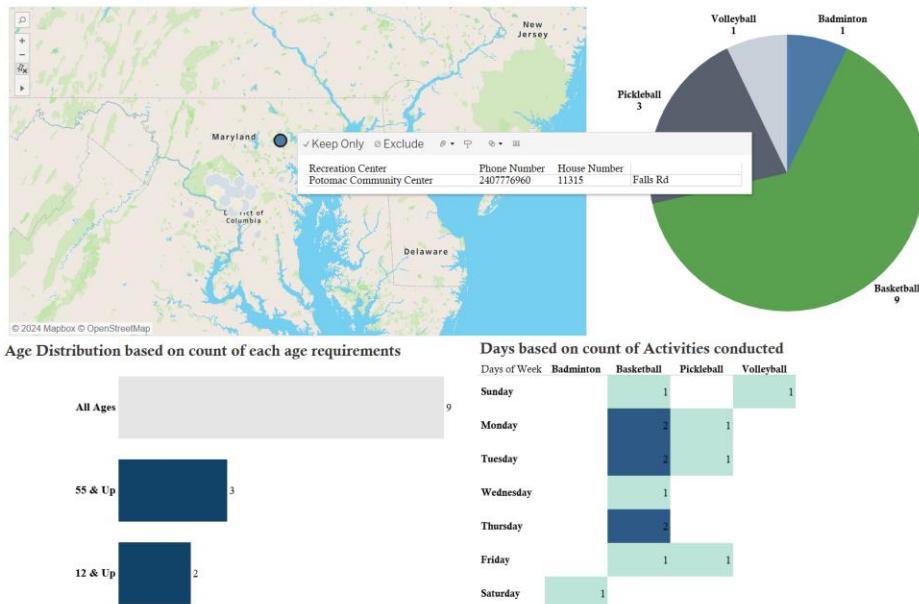


## CENTERS\_ACTIVITIES\_DASHBOARD:

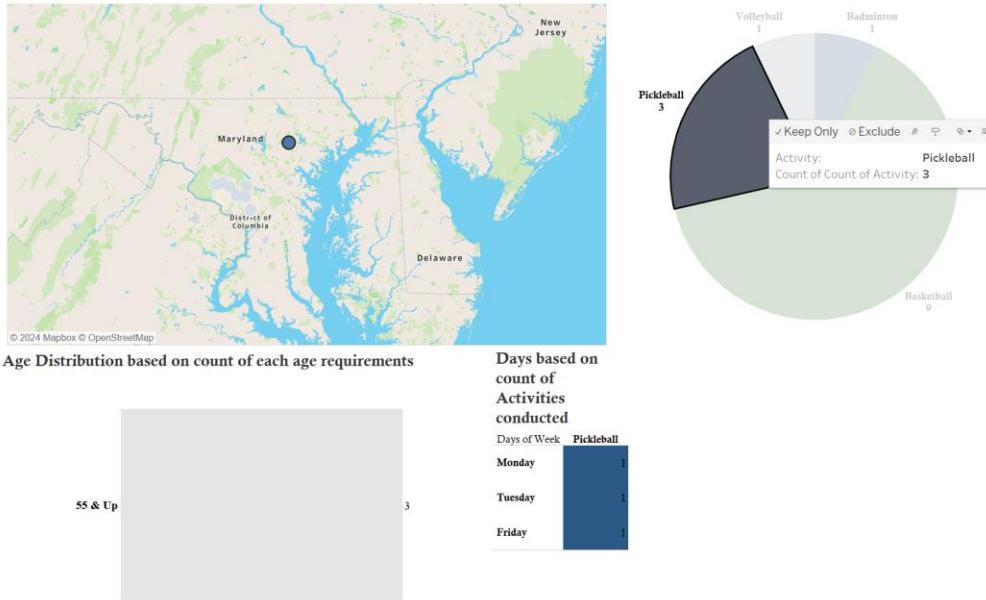
The dashboard shows the number of places the Gym is situated in map, and followed by a Pie chart which represents the data total number of activities happening in the Gym. The total age distribution is also calculated by using horizontal bar chart. And finally, days based on the count of activities conducted is displayed in a highlighted table chart.



Then, Dashboard Action Filter is used to click on particular circle/icon in the map to filter the particular gym, as given in the below picture.



Followed by I could also use the next chart to filter particular activity that could show us the result number of age count in the particular activity are present in the specific gym.



And it is applied to all the chart in a sequential order that helps us to segregate the necessary information about the Gym, activity, age, and days.

### FINAL DASHBOARD:

