**SCRIPT**

**INDEXING QUERIES**

**1.List Incident Id and category names where offense type is 'criminal-trespassing' or 'drug-methampetamine-possess' or 'disturbing-the-peace'**

select C.\_INCIDENT\_ID\_,o.\_OFFENSE\_CATEGORY\_NAME\_ from [denver\_crime].[dbo].[crime] c

, [denver\_crime].[dbo].[offense\_codes2] o

where o.[\_OFFENSE\_TYPE\_ID\_]= c.[\_OFFENSE\_TYPE\_ID\_]

and C.[\_OFFENSE\_TYPE\_ID\_] IN('criminal-trespassing','drug-methampetamine-possess','disturbing-the-peace')

**Clustered Index on Offense Category name:**

USE [denver\_crime]

GO

SET ANSI\_PADDING ON

GO

CREATE CLUSTERED INDEX [ClusteredIndex-20190429-155454] ON [dbo].[offense\_codes2]

(

[\_OFFENSE\_CATEGORY\_NAME\_] ASC

)WITH (PAD\_INDEX = OFF, STATISTICS\_NORECOMPUTE = OFF, SORT\_IN\_TEMPDB = OFF, DROP\_EXISTING = OFF, ONLINE = OFF, ALLOW\_ROW\_LOCKS = ON, ALLOW\_PAGE\_LOCKS = ON) ON [PRIMARY]

GO

**Create Non-clustered Index:**

USE [denver\_crime]

GO

SET ANSI\_PADDING ON

GO

/\*\*\*\*\*\* Object: Index [NonClusteredIndex-20190429-155827] Script Date: 4/29/2019 3:58:50 PM \*\*\*\*\*\*/

CREATE NONCLUSTERED INDEX [NonClusteredIndex-20190429-155827] ON [dbo].[offense\_codes2]

(

[\_OFFENSE\_TYPE\_ID\_] ASC

)WITH (PAD\_INDEX = OFF, STATISTICS\_NORECOMPUTE = OFF, SORT\_IN\_TEMPDB = OFF, DROP\_EXISTING = OFF, ONLINE = OFF, ALLOW\_ROW\_LOCKS = ON, ALLOW\_PAGE\_LOCKS = ON) ON [PRIMARY]

GO

**Drop the clustered Index created so the Indexing has only on Non-Clustered Index:**

USE [denver\_crime]

GO

DROP INDEX [ClusteredIndex-20190429-155454] ON [dbo].[offense\_codes2] WITH ( ONLINE = OFF )

GO

**2. List Incident ID where crime is reported in a different year than the crime has actually occured**

SELECT o.\_OFFENSE\_CATEGORY\_NAME\_, c.\_REPORTED\_DATE\_, c.\_FIRST\_OCCURRENCE\_DATE\_

FROM [denver\_crime].[dbo].[crime] c

LEFT JOIN [denver\_crime].[dbo]. [offense\_codes]

on o.[\_OFFENSE\_TYPE\_ID\_]= c.[\_OFFENSE\_TYPE\_ID\_]

WHERE c.[\_REPORTED\_DATE\_])> c.[\_FIRST\_OCCURRENCE\_DATE\_])

**Non-Clustered Index on Reported Date and First Occurrence date:**

CREATE NONCLUSTERED INDEX [NonClusteredIndex-20190429-161717] ON [dbo].[crime]

(

[\_FIRST\_OCCURRENCE\_DATE\_] ASC

)

CREATE NONCLUSTERED INDEX [NonClusteredIndex-20190429-161656] ON [dbo].[crime]

(

[\_REPORTED\_DATE\_] ASC

)

**Create a clustered index on \_INCIDENT\_ID**

CREATE CLUSTERED INDEX [ClusteredIndex-20190429-162234] ON [dbo].[crime]

(

[\_INCIDENT\_ID\_] ASC

)

**Create Clustered Index on \_OFFENSE\_CATEGORY\_NAME\_**

CREATE CLUSTERED INDEX [ClusteredIndex-20190429-163004] ON [dbo].[offense\_codes2]

(

[\_OFFENSE\_CATEGORY\_NAME\_] ASC

)

**3.List the count of offense type ID from the entity Crime.**

SELECT \_OFFENSE\_TYPE\_ID\_, count(\_OFFENSE\_TYPE\_ID\_) as offensetypecount

FROM [denver\_crime].[dbo].[crime]

GROUP BY \_OFFENSE\_TYPE\_ID\_

ORDER BY \_OFFENSE\_TYPE\_ID\_ DESC

**Create Clustered Index on \_OFFENSE\_TYPE\_ID\_ DESC**

CREATE CLUSTERED INDEX [ClusteredIndex-20190429-203810] ON [dbo].[crime]

(

[\_OFFENSE\_TYPE\_ID\_] DESC

)

**Create non-clustered Index by dropping the clustered index on the same column \_OFFENSE\_TYPE\_ID\_**

DROP INDEX [ClusteredIndex-20190429-203810] ON [dbo].[crime]

CREATE NONCLUSTERED INDEX [NonClusteredIndex-20190429-204016] ON [dbo].[crime]

( [\_OFFENSE\_TYPE\_ID\_] DESC

)

**4. List the incident id’s, category name of offense and if the incident is crime**

select C.[\_INCIDENT\_ID\_],C.[\_IS\_CRIME\_],O.[\_OFFENSE\_CATEGORY\_NAME\_]

from [denver\_crime].[dbo].[crime] c

, [denver\_crime].[dbo].[offense\_codes2] o

where o.[\_OFFENSE\_TYPE\_ID\_]= c.[\_OFFENSE\_TYPE\_ID\_]

AND C.[\_OFFENSE\_CATEGORY\_ID\_]='drug-alcohol'

**create non clustered indexes on \_IS\_CRIME\_ AND \_OFFENSE\_CATEGORY\_NAME\_**

CREATE NONCLUSTERED INDEX [NonClusteredIndex-20190429-210559] ON [dbo].[offense\_codes2]

(

[\_OFFENSE\_CATEGORY\_NAME\_] ASC,

[\_IS\_CRIME\_] ASC

)

**5. List of all incidents where the offense type is traffic-accident**

select c.[\_INCIDENT\_ID\_],c.[\_IS\_CRIME\_],O.[\_OFFENSE\_CATEGORY\_NAME\_]

from [denver\_crime].[dbo].[crime] c

, [denver\_crime].[dbo].[offense\_codes2] o

where o.[\_OFFENSE\_TYPE\_ID\_]= c.[\_OFFENSE\_TYPE\_ID\_]

AND c.[\_OFFENSE\_TYPE\_ID\_]='traffic-accident'

**Create clustered Index on \_OFFENSE\_TYPE\_ID\_**

CREATE CLUSTERED INDEX [ClusteredIndex-20190429-203218] ON [dbo].[offense\_codes2]

(

[\_OFFENSE\_TYPE\_ID\_] ASC

)

**6. List the incident id’s and offense type id’s for neighborhood id either overland or montclair.**

select distinct c.[\_INCIDENT\_ID\_],o.[\_OFFENSE\_TYPE\_ID\_]

from [denver\_crime].[dbo].[crime] c

, [denver\_crime].[dbo].[offense\_codes2] o

where o.[\_OFFENSE\_TYPE\_ID\_]= c.[\_OFFENSE\_TYPE\_ID\_]

and c.[\_NEIGHBORHOOD\_ID\_]

in ('overland','montclair')

**create clustered index on \_OFFENSE\_TYPE\_ID\_**

CREATE CLUSTERED INDEX [ClusteredIndex-20190429-211115] ON [dbo].[offense\_codes2]

(

[\_OFFENSE\_TYPE\_ID\_] ASC

)

**PARTITIONING QUERIES**

**1.Partitioning on Offense Code Table:**

USE [denver\_crime]

GO

BEGIN TRANSACTION

CREATE PARTITION FUNCTION [PF\_Offense\_Code](nvarchar(50)) AS RANGE LEFT FOR VALUES (N'2500', N'5000', N'7500', N'10000')

CREATE PARTITION SCHEME [PS\_Offense\_Code] AS PARTITION [PF\_Offense\_Code] TO ([FG\_2500], [FG\_5000], [FG\_7500], [FG\_10000], [PRIMARY])

**Assigning the created Partition to the Table:**

USE [denver\_crime]

GO

SET ANSI\_NULLS ON

GO

SET QUOTED\_IDENTIFIER ON

GO

CREATE TABLE [dbo].[offense\_codes2](

[\_OFFENSE\_CODE\_] [nvarchar](50) NOT NULL,

[\_OFFENSE\_CODE\_EXTENSION\_] [nvarchar](50) NOT NULL,

[\_OFFENSE\_TYPE\_ID\_] [nvarchar](50) NOT NULL,

[\_OFFENSE\_TYPE\_NAME\_] [nvarchar](100) NOT NULL,

[\_OFFENSE\_CATEGORY\_ID\_] [nvarchar](50) NOT NULL,

[\_OFFENSE\_CATEGORY\_NAME\_] [nvarchar](50) NOT NULL,

[\_IS\_CRIME\_] [nvarchar](50) NOT NULL,

[\_IS\_TRAFFIC\_] [nvarchar](50) NOT NULL

)

ON PS\_OccurenceDate(\_OFFENSE\_CODE\_)

GO

USE [denver\_crime]

GO

**2.Partitioning on table CRIME:**

USE [denver\_crime]

GO

BEGIN TRANSACTION

CREATE PARTITION FUNCTION [\_PF\_CRIME\_YEAR\_](varchar(50)) AS RANGE LEFT FOR VALUES (N'2016', N'2017', N'2018')

CREATE PARTITION SCHEME [\_PF\_CRIME\_YEAR\_] AS PARTITION [PF\_CRIME\_YEAR\_] TO ([FG\_2015], [FG\_2016], [FG\_2017], [PRIMARY])

**Assigning the created Partition to the Table:**

USE [denver\_crime]

GO

SET ANSI\_NULLS ON

GO

SET QUOTED\_IDENTIFIER ON

GO

CREATE TABLE [dbo].[crime2](

[\_CRIME\_YEAR\_][varchar](50) NOT NULL,

[\_INCIDENT\_ID\_] [nvarchar](50) NOT NULL,

[\_OFFENSE\_ID\_] [nvarchar](50) NOT NULL,

[\_OFFENSE\_CODE\_] [nvarchar](50) NOT NULL,

[\_OFFENSE\_CODE\_EXTENSION\_] [nvarchar](50) NOT NULL,

[\_OFFENSE\_TYPE\_ID\_] [nvarchar](50) NOT NULL,

[\_OFFENSE\_CATEGORY\_ID\_] [nvarchar](50) NOT NULL,

[\_FIRST\_OCCURRENCE\_DATE\_] [nvarchar](50) NOT NULL,

[\_LAST\_OCCURRENCE\_DATE\_] [nvarchar](50) NOT NULL,

[\_REPORTED\_DATE\_] [nvarchar](50) NOT NULL,

[\_INCIDENT\_ADDRESS\_] [nvarchar](50) NOT NULL,

[\_GEO\_X\_] [nvarchar](50) NOT NULL,

[\_GEO\_Y\_] [nvarchar](50) NOT NULL,

[\_GEO\_LON\_] [nvarchar](50) NOT NULL,

[\_GEO\_LAT\_] [nvarchar](50) NOT NULL,

[\_DISTRICT\_ID\_] [nvarchar](50) NOT NULL,

[\_PRECINCT\_ID\_] [nvarchar](50) NOT NULL,

[\_NEIGHBORHOOD\_ID\_] [nvarchar](50) NOT NULL,

[\_IS\_CRIME\_] [nvarchar](50) NOT NULL,

[\_IS\_TRAFFIC\_] [nvarchar](50) NOT NULL

)

ON PS\_CRIME\_YEAR\_(\_CRIME\_YEAR\_)

GO

USE [denver\_crime]

GO