NYC Parking Tickets: An Exploratory Analysis

(Big Data)

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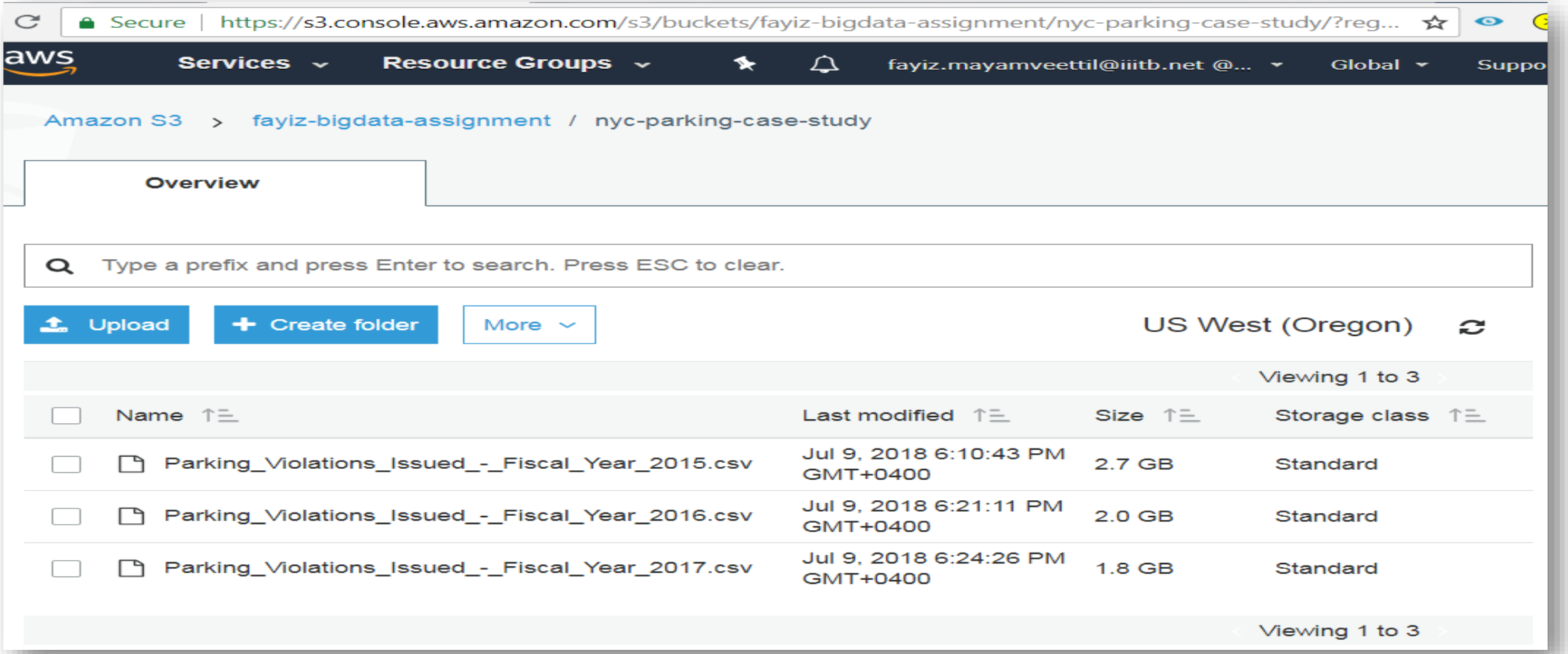
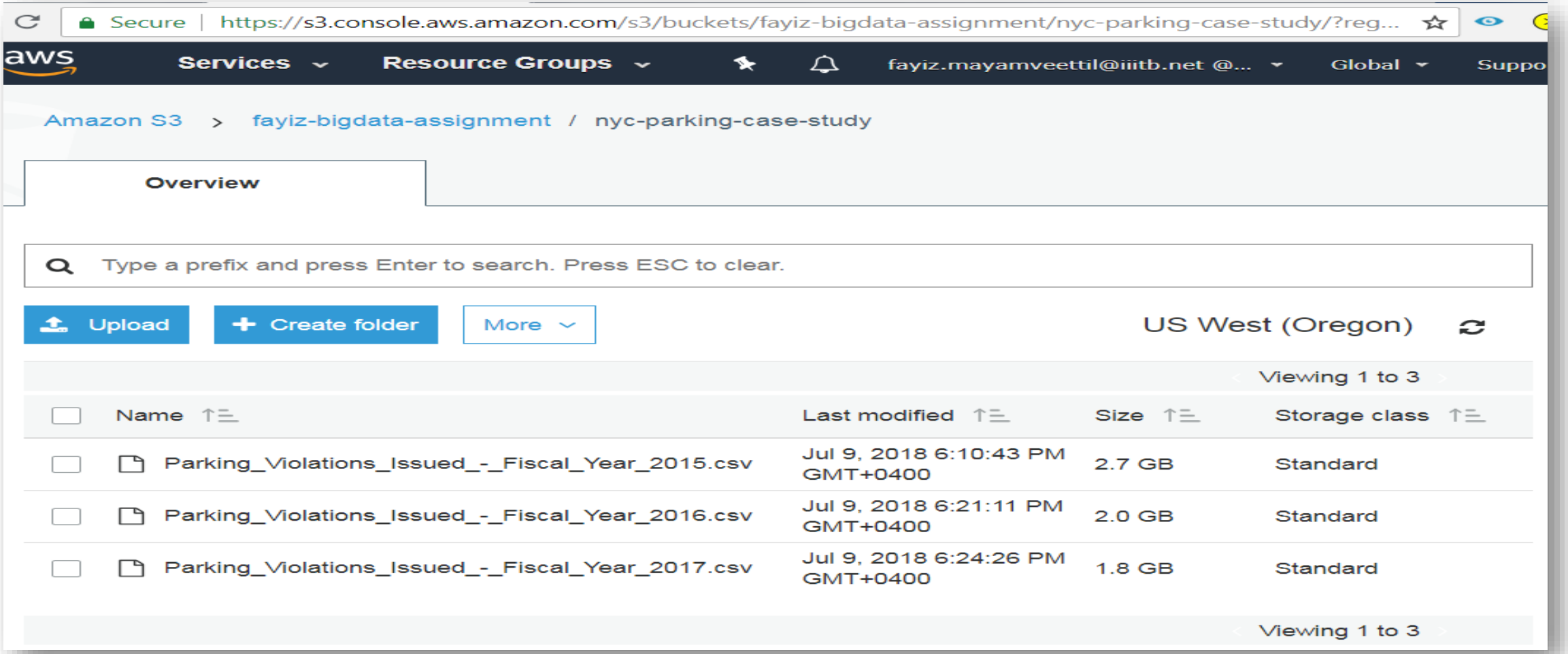
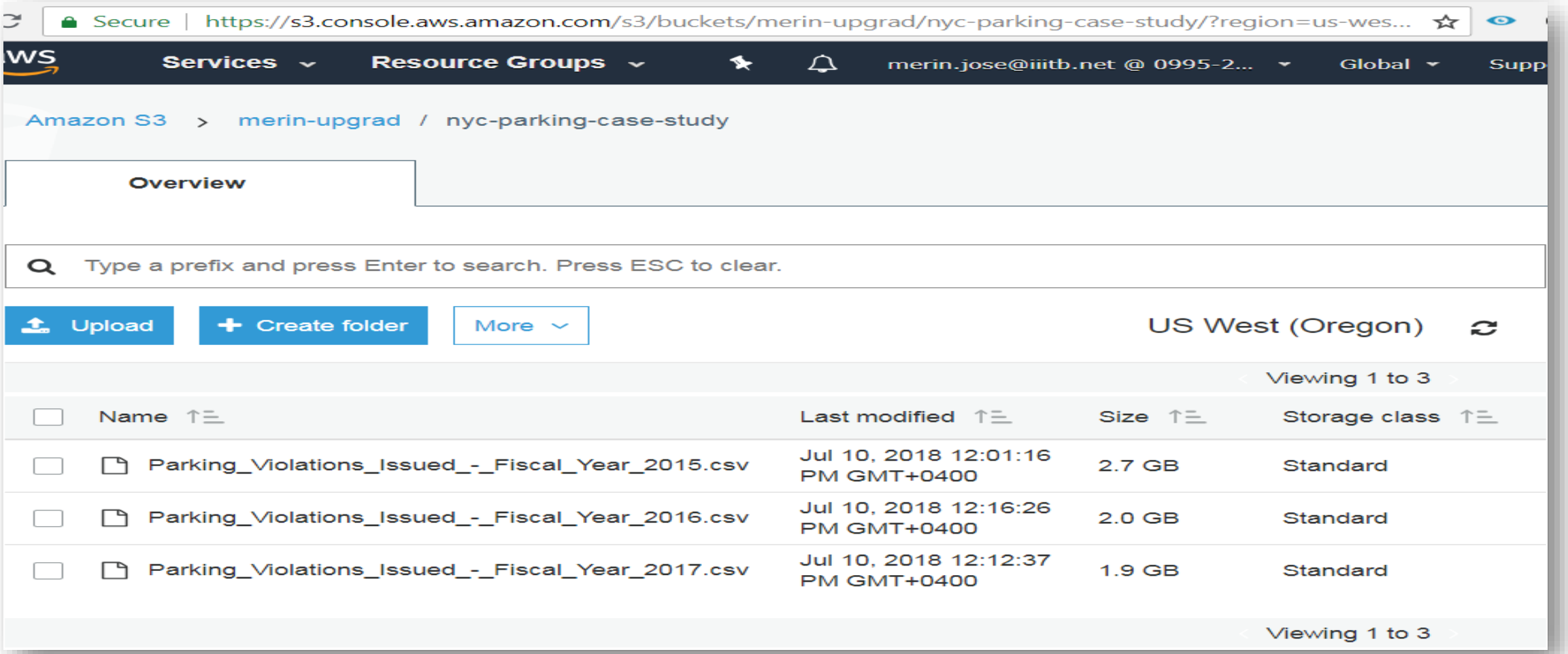
S3 Bucket: Deepak Aneja (Bucket Path: s3://???????/nyc-parking-case-study/)



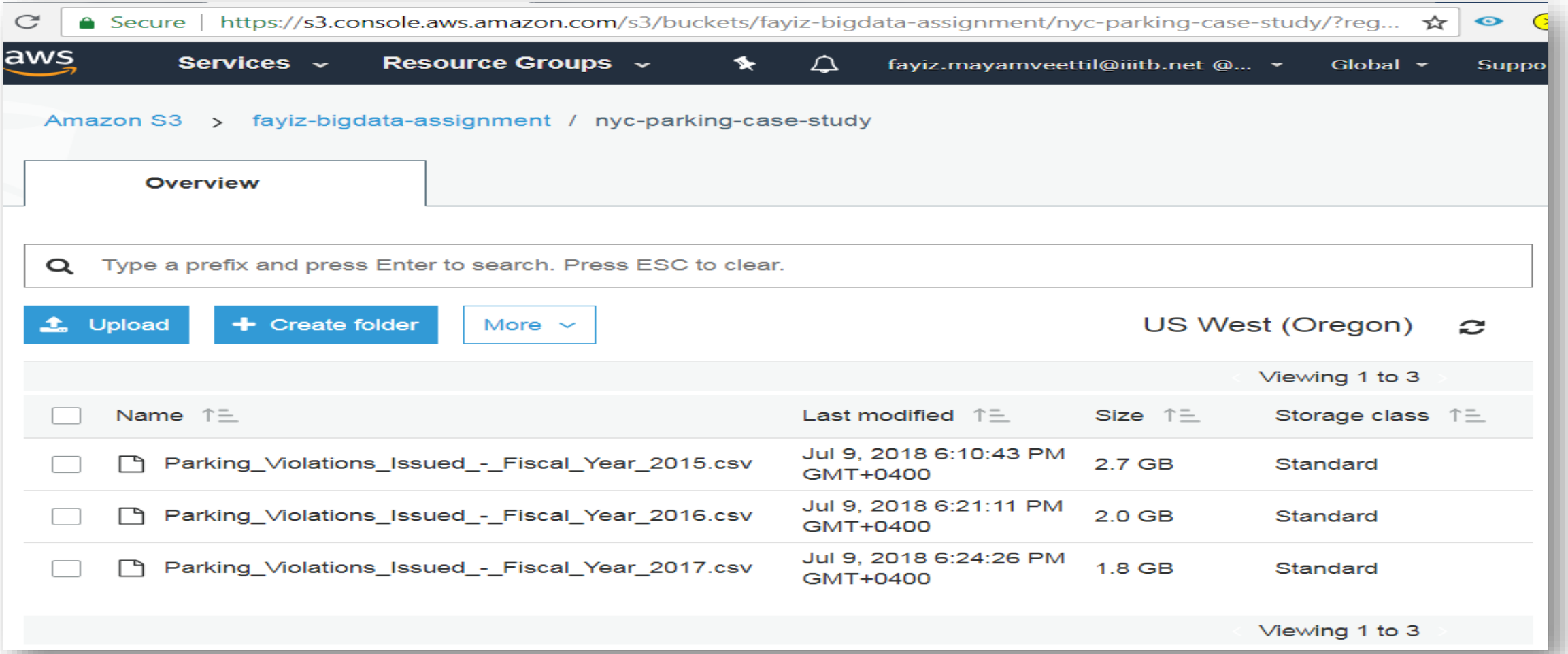
S3 Bucket: Suresh Balla (Bucket Path: s3://data-science-big-data-analytics-suresh/nyc-parking-case-study/)



S3 Bucket: Merin Jose (Bucket Path: s3://merin-upgrad/nyc-parking-case-study/)



S3 Bucket: Fayiz Mayam Veettil (Bucket Path: s3://fayiz-bigdata-assignment/nyc-parking-case-study/)



Exploratory Data Analysis

- Check for possible data inconsistencies
  - Check for duplicate records
  - Check for NA values in the columns used for analysis
- Status of data cleaning
  - --

Examine the data

1. Find total number of tickets for each year.

Year	No. Of Tickets
2015	11,809,233
2016	10,626,899
2017	10,803,028

2. How often does each vehicle body type get a parking ticket? How about the vehicle make? (find the top 5 for both)

Year	States
2015	69
2016	68
2017	67

3. Some parking tickets don't have addresses on them, which is cause for concern. Find out how many such tickets there are.

Year	Ticket without addr.
2015	1,992,401
2016	2,035,232
2017	2,035,232

Aggregation Tasks

1. How often does each violation code occur? (frequency of violation codes - find the top 5)

Top Violation in 2015		
#	Violation Code	No. Of Violation
1	21	1,630,912
2	38	1,418,627
3	14	988,469
4	36	839,197
5	37	795,918

Top Violation in 2016		
#	Violation Code	No. Of Violation
1	21	1,531,587
2	36	1,253,512
3	38	1,143,696
4	14	875,614
5	37	686,610

Top Violation in 2017		
#	Violation Code	No. Of Violation
1	21	1,528,588
2	36	1,400,614
3	38	1,062,304
4	14	893,498
5	20	618,593

Aggregation Tasks

2. How often does each vehicle body type get a parking ticket? How about the vehicle make? (find the top 5 for both)

Top Violation By Body Type - 2015		
#	Body Tpe	No. Of Violation
1	SUBN	3,729,346
2	4DSD	3,340,014
3	VAN	1,709,091
4	DELV	892,781
5	SDN	524,596

Top Violation By Vehicle Make - 2015		
#	Body Tpe	No. Of Violation
1	FORD	1,521,874
2	TOYOT	1,217,087
3	HONDA	1,102,614
4	NISSA	908,783
5	CHEVR	897,845

Top Violation By Body Type - 2016		
#	Body Tpe	No. Of Violation
1	SUBN	3,466,037
2	4DSD	2,992,107
3	VAN	1,518,303
4	DELV	755,282
5	SDN	424,043

Top Violation By Vehicle Make - 2015		
#	Body Tpe	No. Of Violation
1	FORD	1,324,774
2	TOYOT	1,154,790
3	HONDA	1,014,074
4	NISSA	834,833
5	CHEVR	759,663

Top Violation By Body Type - 2017		
#	Body Tpe	No. Of Violation
1	SUBN	3,719,802
2	4DSD	3,082,020
3	VAN	1,411,970
4	DELV	687,330
5	SDN	438,191

Top Violation By Vehicle Make - 2015		
#	Body Tpe	No. Of Violation
1	FORD	1,280,958
2	TOYOT	1,211,451
3	HONDA	1,079,238
4	NISSA	918,590
5	CHEVR	714,655

Aggregation Tasks

3. A precinct is a police station that has a certain zone of the city under its command. Find the (5 highest) frequencies of:

Violation Precinct - 2015		
#	Violation Precinct	No. Of Violation
1	0	1,799,170
2	19	598,351
3	18	427,510
4	14	409,064
5	1	329,009

Violation Precinct - 2016		
#	Violation Precinct	No. Of Violation
1	0	1,868,655
2	19	554,465
3	18	331,704
4	14	324,467
5	1	303,850

Violation Precinct - 2017		
#	Violation Precinct	No. Of Violation
1	0	2,072,400
2	19	535,671
3	14	352,450
4	1	331,810
5	18	306,920

1. **Violating Precincts (this is the precinct of the zone where the violation occurred)**

2. **Issuing Precincts (this is the precinct that issued the ticket)**

Issuer Precinct - 2015		
#	Issuer Precinct	No. Of Violation
1	0	2,037,745
2	19	579,998
3	18	417,329
4	14	392,922
5	1	318,778

Issuer Precinct - 2016		
#	Issuer Precinct	No. Of Violation
1	0	2,140,274
2	19	540,569
3	18	323,132
4	14	315,311
5	1	295,013

Issuer Precinct - 2017		
#	Issuer Precinct	No. Of Violation
1	0	2,388,479
2	19	521,513
3	14	344,977
4	1	321,170
5	18	296,553

Aggregation Tasks

4. **Find the violation code frequency across 3 precincts which have issued the most number of tickets - do these precinct zones have an exceptionally high frequency of certain violation codes? Are these codes common across precincts?**