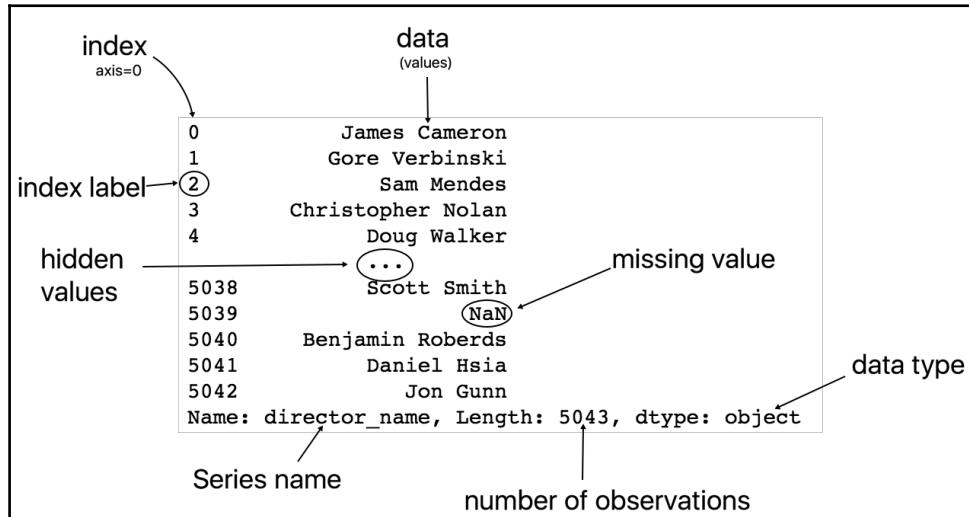
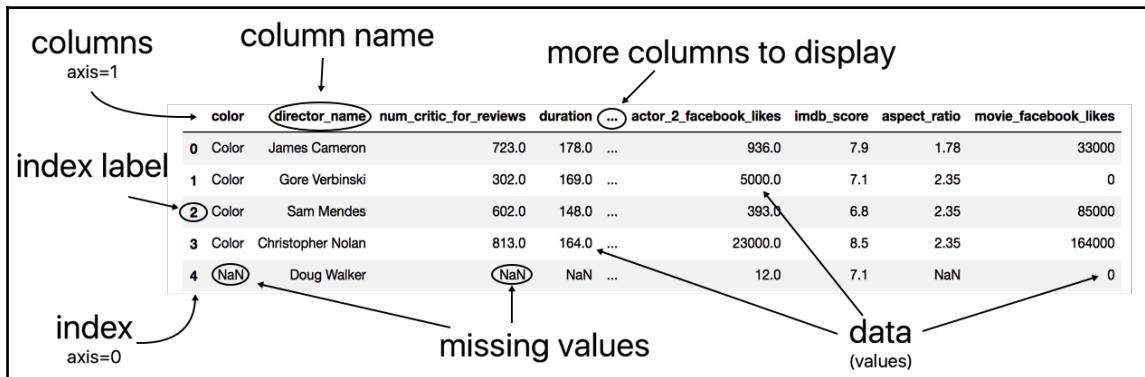


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Graphics Bundle

Chapter 1: Pandas Foundation



```

movie.director_name.|_
movie.director_name.abs
movie.director_name.add
movie.director_name.add_prefix
movie.director_name.add_suffix
movie.director_name.agg
movie.director_name.aggregate
movie.director_name.align
movie.director_name.all
movie.director_name.any
movie.director_name.append

```

	color	director_name	num_critic_for_reviews	duration	...	actor_2_facebook_likes	imdb_score	aspect_ratio	movie_facebook_likes
movie_title									
Avatar	Color	James Cameron	723.0	178.0	...	936.0	7.9	1.78	33000
Pirates of the Caribbean: At World's End	Color	Gore Verbinski	302.0	169.0	...	5000.0	7.1	2.35	0
Spectre	Color	Sam Mendes	602.0	148.0	...	393.0	6.8	2.35	85000
The Dark Knight Rises	Color	Christopher Nolan	813.0	164.0	...	23000.0	8.5	2.35	164000
Star Wars: Episode VII - The Force Awakens	NaN	Doug Walker	NaN	NaN	...	12.0	7.1	NaN	0

	color	Director Name	Critical Reviews	duration	...	actor_2_facebook_likes	imdb_score	aspect_ratio	movie_facebook_likes
movie_title									
Ratava	Color	James Cameron	723.0	178.0	...	936.0	7.9	1.78	33000
Pirates of the Caribbean: At World's End	Color	Gore Verbinski	302.0	169.0	...	5000.0	7.1	2.35	0
Erceps	Color	Sam Mendes	602.0	148.0	...	393.0	6.8	2.35	85000
The Dark Knight Rises	Color	Christopher Nolan	813.0	164.0	...	23000.0	8.5	2.35	164000
Star Wars: Episode VII - The Force Awakens	NaN	Doug Walker	NaN	NaN	...	12.0	7.1	NaN	0

Chapter 2: Essential DataFrame Operations

	actor_1_name	actor_2_name	actor_3_name	director_name
0	CCH Pounder	Joel David Moore	Wes Studi	James Cameron
1	Johnny Depp	Orlando Bloom	Jack Davenport	Gore Verbinski
2	Christoph Waltz	Rory Kinnear	Stephanie Sigman	Sam Mendes
3	Tom Hardy	Christian Bale	Joseph Gordon-Levitt	Christopher Nolan
4	Doug Walker	Rob Walker	NaN	Doug Walker

	director_name
0	James Cameron
1	Gore Verbinski
2	Sam Mendes
3	Christopher Nolan
4	Doug Walker

movie_title	num_voted_users	cast_total_facebook_likes	movie_facebook_likes
Avatar	886204	4834	33000
Pirates of the Caribbean: At World's End	471220	48350	0
Spectre	275868	11700	85000
The Dark Knight Rises	1144337	106759	164000
Star Wars: Episode VII - The Force Awakens	8	143	0

movie_title	num_critic_for_reviews	duration	director_facebook_likes	actor_3_facebook_likes	actor_1_facebook_likes	gross	num_voted_users
Avatar	723.0	178.0	0.0	855.0	1000.0	760505847.0	886204
Pirates of the Caribbean: At World's End	302.0	169.0	563.0	1000.0	40000.0	309404152.0	471220
Spectre	602.0	148.0	0.0	161.0	11000.0	200074175.0	275868
The Dark Knight Rises	813.0	164.0	22000.0	23000.0	27000.0	448130642.0	1144337
Star Wars: Episode VII - The Force Awakens	Nan	Nan	131.0	Nan	131.0	Nan	8
movie_title	director_facebook_likes	actor_3_facebook_likes	actor_1_facebook_likes	cast_total_facebook_likes	actor_2_facebook_likes	movie_facebook_likes	
Avatar	0.0	855.0	1000.0	4834	936.0	33000	
Pirates of the Caribbean: At World's End	563.0	1000.0	40000.0	48350	5000.0	0	
Spectre	0.0	161.0	11000.0	11700	393.0	85000	
The Dark Knight Rises	22000.0	23000.0	27000.0	106759	23000.0	164000	
Star Wars: Episode VII - The Force Awakens	131.0	Nan	131.0	143	12.0	0	
movie_title	actor_3_facebook_likes	actor_2_name	actor_1_facebook_likes	actor_1_name	actor_3_name	actor_2_facebook_likes	
Avatar	855.0	Joel David Moore	1000.0	CCH Pounder	Wes Studi	936.0	
Pirates of the Caribbean: At World's End	1000.0	Orlando Bloom	40000.0	Johnny Depp	Jack Davenport	5000.0	
Spectre	161.0	Rory Kinnear	11000.0	Christoph Waltz	Stephanie Sigman	393.0	
The Dark Knight Rises	23000.0	Christian Bale	27000.0	Tom Hardy	Joseph Gordon-Levitt	23000.0	
Star Wars: Episode VII - The Force Awakens	Nan	Rob Walker	131.0	Doug Walker	Nan	12.0	

	color	director_name	num_critic_for_reviews	duration	director_facebook_likes	actor_3_facebook_likes	actor_2_name	actor_1_facebook_likes	gross	
0	Color	James Cameron	723.0	178.0	0.0	855.0	Joel David Moore	1000.0	760505847.0	
1	Color	Gore Verbinski	302.0	169.0	563.0	1000.0	Orlando Bloom	40000.0	309404152.0	
2	Color	Sam Mendes	602.0	148.0	0.0	161.0	Rory Kinnear	11000.0	200074175.0	
3	Color	Christopher Nolan	813.0	164.0	22000.0	23000.0	Christian Bale	27000.0	448130642.0	
4	Nan	Doug Walker	Nan	Nan	131.0	Nan	Rob Walker	131.0	Nan	
movie_title	title_year	content_rating	genres	director_name	actor_1_name	actor_2_name	actor_3_name	color	country	language
0	Avatar	2009.0	PG-13	Action Adventure Fantasy Sci-Fi	James Cameron	CCH Pounder	Joel David Moore	Wes Studi	Color	USA English
1	Pirates of the Caribbean: At World's End	2007.0	PG-13	Action Adventure Fantasy	Gore Verbinski	Johnny Depp	Orlando Bloom	Jack Davenport	Color	USA English
2	Spectre	2015.0	PG-13	Action Adventure Thriller	Sam Mendes	Christoph Waltz	Rory Kinnear	Stephanie Sigman	Color	UK English
3	The Dark Knight Rises	2012.0	PG-13	Action Thriller	Christopher Nolan	Tom Hardy	Christian Bale	Joseph Gordon-Levitt	Color	USA English
4	Star Wars: Episode VII - The Force Awakens	Nan	Nan	Documentary	Doug Walker	Doug Walker	Rob Walker	Nan	Nan	Nan
num_critic_for_reviews	duration	director_facebook_likes	actor_3_facebook_likes	actor_1_facebook_likes	gross					
count	4867.000000	4901.000000	4814.000000	4893.000000	4909.000000 4.054000e+03					
mean	137.988905	107.090798	691.014541	631.276313	6494.488491 4.764451e+07					
std	120.239379	25.286015	2832.954125	1625.874802	15106.986884 6.737255e+07					
min	1.000000	7.000000	0.000000	0.000000	0.000000 1.620000e+02					
25%	49.000000	93.000000	7.000000	132.000000	607.000000 5.019656e+06					
50%	108.000000	103.000000	48.000000	366.000000	982.000000 2.504396e+07					
75%	191.000000	118.000000	189.750000	633.000000	11000.000000 6.110841e+07					
max	813.000000	511.000000	23000.000000	23000.000000	640000.000000 7.605058e+08					

	num_critic_for_reviews	duration	director_facebook_likes	actor_3_facebook_likes	actor_1_facebook_likes	gross			
count	4867.000000	4901.000000	4814.000000	4893.000000	4909.000000	4.054000e+03			
mean	137.988905	107.090798	691.014541	631.276313	6494.488491	4.764451e+07			
std	120.239379	25.286015	2832.954125	1625.874802	15106.986884	6.737255e+07			
min	1.000000	7.000000	0.000000	0.000000	0.000000	1.620000e+02			
1%	2.000000	43.000000	0.000000	0.000000	0.000000	6.080000	8.474800e+03		
30%	60.000000	95.000000	11.000000	176.000000	694.000000	7.914069e+06			
50%	108.000000	103.000000	48.000000	366.000000	982.000000	2.504396e+07			
99%	546.680000	189.000000	16000.000000	11000.000000	44920.000000	3.264128e+08			
max	813.000000	511.000000	23000.000000	23000.000000	640000.000000	7.605058e+08			
color	director_name	num_critic_for_reviews	duration	director_facebook_likes	actor_3_facebook_likes	actor_2_name	actor_1_facebook_likes	gross	genres
0	False	False	False	False	False	False	False	False	False
1	False	False	False	False	False	False	False	False	False
2	False	False	False	False	False	False	False	False	False
3	False	False	False	False	False	False	False	False	False
4	True	False	True	True	False	True	False	False	True
INSTNM									
UGDS_WHITE UGDS_BLACK UGDS_HISP UGDS_ASIAN UGDS_AIAN UGDS_NHPI UGDS_2MOR UGDS_NRA UGDS_UNKN									
INSTNM									
Alabama A & M University 0.0333 0.9353 0.0055 0.0019 0.0024 0.0019 0.0000 0.0059 0.0138									
University of Alabama at Birmingham 0.5922 0.2600 0.0283 0.0518 0.0022 0.0007 0.0368 0.0179 0.0100									
Amridge University 0.2990 0.4192 0.0069 0.0034 0.0000 0.0000 0.0000 0.0000 0.2715									
University of Alabama in Huntsville 0.6988 0.1255 0.0382 0.0376 0.0143 0.0002 0.0172 0.0332 0.0350									
Alabama State University 0.0158 0.9208 0.0121 0.0019 0.0010 0.0006 0.0098 0.0243 0.0137									
INSTNM									
UGDS_WHITE UGDS_BLACK UGDS_HISP UGDS_ASIAN UGDS_AIAN UGDS_NHPI UGDS_2MOR UGDS_NRA UGDS_UNKN									
INSTNM									
Alabama A & M University 0.03831 0.94031 0.01051 0.00691 0.00741 0.00691 0.00501 0.01091 0.01881									
University of Alabama at Birmingham 0.59721 0.26501 0.03331 0.05681 0.00721 0.00571 0.04181 0.02291 0.01501									
Amridge University 0.30401 0.42421 0.01191 0.00841 0.00501 0.00501 0.00501 0.00501 0.27651									
University of Alabama in Huntsville 0.70381 0.13051 0.04321 0.04261 0.01931 0.00521 0.02221 0.03821 0.04001									
Alabama State University 0.02081 0.92581 0.01711 0.00691 0.00601 0.00561 0.01481 0.02931 0.01871									
INSTNM									
UGDS_WHITE UGDS_BLACK UGDS_HISP UGDS_ASIAN UGDS_AIAN UGDS_NHPI UGDS_2MOR UGDS_NRA UGDS_UNKN									
INSTNM									
Alabama A & M University 3.0 94.0 1.0 0.0 0.0 0.0 0.0 1.0 1.0									
University of Alabama at Birmingham 59.0 26.0 3.0 5.0 0.0 0.0 4.0 2.0 1.0									
Amridge University 30.0 42.0 1.0 0.0 0.0 0.0 0.0 0.0 27.0									
University of Alabama in Huntsville 70.0 13.0 4.0 4.0 1.0 0.0 2.0 3.0 4.0									
Alabama State University 2.0 92.0 1.0 0.0 0.0 0.0 1.0 2.0 1.0									

INSTNM	UGDS_WHITE	UGDS_BLACK	UGDS_HISP	UGDS_ASIAN	UGDS_AIAN	UGDS_NHPI	UGDS_2MOR	UGDS_NRA	UGDS_UNKN
Alabama A & M University	0.03	0.94	0.01	0.00	0.00	0.0	0.00	0.01	0.01
University of Alabama at Birmingham	0.59	0.26	0.03	0.05	0.00	0.0	0.04	0.02	0.01
Amridge University	0.30	0.42	0.01	0.00	0.00	0.0	0.00	0.00	0.27
University of Alabama in Huntsville	0.70	0.13	0.04	0.04	0.01	0.0	0.02	0.03	0.04
Alabama State University	0.02	0.92	0.01	0.00	0.00	0.0	0.01	0.02	0.01
INSTNM	UGDS_WHITE	UGDS_BLACK	UGDS_HISP	UGDS_ASIAN	UGDS_AIAN	UGDS_NHPI	UGDS_2MOR	UGDS_NRA	UGDS_UNKN
Alabama A & M University	False	False	False	True	False	True	False	False	False
University of Alabama at Birmingham	False	False	False	False	False	False	False	False	False
Amridge University	False	False	False	False	False	False	False	False	False
University of Alabama in Huntsville	False	False	False	False	False	False	False	False	False
Alabama State University	False	False	False	True	False	False	False	False	False
INSTNM	UGDS_WHITE	UGDS_BLACK	UGDS_HISP	UGDS_ASIAN	UGDS_AIAN	UGDS_NHPI	UGDS_2MOR	UGDS_NRA	UGDS_UNKN
Alabama A & M University	True	True	True	True	True	True	True	True	True
University of Alabama at Birmingham	True	True	True	True	True	True	True	True	True
Amridge University	True	True	True	True	True	True	True	True	True
University of Alabama in Huntsville	True	True	True	True	True	True	True	True	True
Alabama State University	True	True	True	True	True	True	True	True	True
INSTNM	UGDS_WHITE	UGDS_BLACK	UGDS_HISP	UGDS_ASIAN	UGDS_AIAN	UGDS_NHPI	UGDS_2MOR	UGDS_NRA	UGDS_UNKN
Alabama A & M University	0.0333	0.9353	0.0055	0.0019	0.0024	0.0019	0.0000	0.0059	0.0138
University of Alabama at Birmingham	0.5922	0.2600	0.0283	0.0518	0.0022	0.0007	0.0368	0.0179	0.0100
Amridge University	0.2990	0.4192	0.0069	0.0034	0.0000	0.0000	0.0000	0.0000	0.2715
University of Alabama in Huntsville	0.6988	0.1255	0.0382	0.0376	0.0143	0.0002	0.0172	0.0332	0.0350
Alabama State University	0.0158	0.9208	0.0121	0.0019	0.0010	0.0006	0.0098	0.0243	0.0137
INSTNM	UGDS_WHITE	UGDS_BLACK	UGDS_HISP	UGDS_ASIAN	UGDS_AIAN	UGDS_NHPI	UGDS_2MOR	UGDS_NRA	UGDS_UNKN
Alabama A & M University	0.0333	0.9686	0.9741	0.9760	0.9784	0.9803	0.9803	0.9862	1.0000
University of Alabama at Birmingham	0.5922	0.8522	0.8805	0.9323	0.9345	0.9352	0.9720	0.9899	0.9999
Amridge University	0.2990	0.7182	0.7251	0.7285	0.7285	0.7285	0.7285	0.7285	1.0000
University of Alabama in Huntsville	0.6988	0.8243	0.8625	0.9001	0.9144	0.9146	0.9318	0.9650	1.0000
Alabama State University	0.0158	0.9366	0.9487	0.9506	0.9516	0.9522	0.9620	0.9863	1.0000

School	Diversity Index
Rutgers University--Newark Newark, NJ	0.76
Andrews University Berrien Springs, MI	0.74
Stanford University Stanford, CA	0.74
University of Houston Houston, TX	0.74
University of Nevada--Las Vegas Las Vegas, NV	0.74
University of San Francisco San Francisco, CA	0.74
San Francisco State University San Francisco, CA	0.73
University of Illinois--Chicago Chicago, IL	0.73
New Jersey Institute of Technology Newark, NJ	0.72
Texas Woman's University Denton, TX	0.72

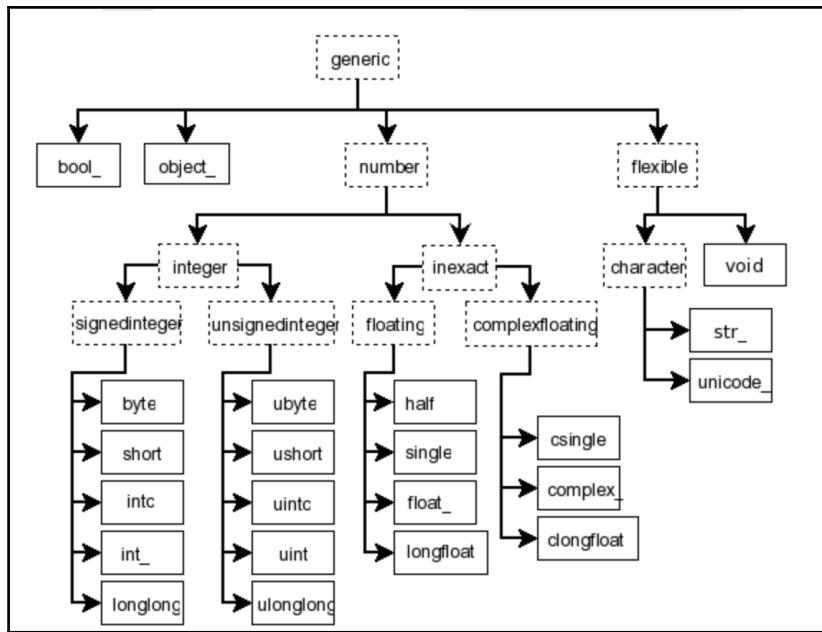
INSTNM	UGDS_WHITE	UGDS_BLACK	UGDS_HISP	UGDS_ASIAN	UGDS_AIAN	UGDS_NHPI	UGDS_2MOR	UGDS_NRA	UGDS_UNKN
Regency Beauty Institute-Austin	0.1867	0.2133	0.1600	0.0000	0.0	0.0	0.1733	0.0	0.2667
Central Texas Beauty College-Temple	0.1616	0.2323	0.2626	0.0202	0.0	0.0	0.1717	0.0	0.1515

Chapter 03: Beginning Data Analysis

	INSTNM	CITY	STABBR	HBCU	MENONLY	WOMENONLY	RELAFFIL	SATVRMID	SATMTMID	DISTANCEONLY	UGDS_2MOR	UGDS_NRA
0	Alabama A & M University	Normal	AL	1.0	0.0	0.0	0	424.0	420.0	0.0	0.0000	0.0059
1	University of Alabama at Birmingham	Birmingham	AL	0.0	0.0	0.0	0	570.0	565.0	0.0	0.0368	0.0179
2	Amridge University	Montgomery	AL	0.0	0.0	0.0	1	NaN	NaN	1.0	0.0000	0.0000
3	University of Alabama in Huntsville	Huntsville	AL	0.0	0.0	0.0	0	595.0	590.0	0.0	0.0172	0.0332
4	Alabama State University	Montgomery	AL	1.0	0.0	0.0	0	425.0	430.0	0.0	0.0098	0.0243

	count	mean	std	min	25%	50%	75%	max
HBCU	7164.0	0.014238	0.118478	0.0	0.0000	0.00000	0.000000	1.0
MENONLY	7164.0	0.009213	0.095546	0.0	0.0000	0.00000	0.000000	1.0
WOMENONLY	7164.0	0.005304	0.072642	0.0	0.0000	0.00000	0.000000	1.0
RELAFFIL	7535.0	0.190975	0.393096	0.0	0.0000	0.00000	0.000000	1.0
...
CURROPER	7535.0	0.923291	0.266146	0.0	1.0000	1.00000	1.000000	1.0
PCTPELL	6849.0	0.530643	0.225544	0.0	0.3578	0.52150	0.712900	1.0
PCTFLOAN	6849.0	0.522211	0.283616	0.0	0.3329	0.58330	0.745000	1.0
UG25ABV	6718.0	0.410021	0.228939	0.0	0.2415	0.40075	0.572275	1.0

	count	unique	top	freq
INSTNM	7535	7535	University of Phoenix-Illinois	1
CITY	7535	2514	New York	87
STABBR	7535	59	CA	773
MD_EARN_WNE_P10	6413	598	PrivacySuppressed	822
GRAD_DEBT_MDN_SUPP	7503	2038	PrivacySuppressed	1510



	count	mean	std	min	1%	5%	10%	25%	50%	75%	90%	95%	99%	max
HBCU	7164.0	0.014238	0.118478	0.0	0.0000	0.0000	0.0000	0.0000	0.00000	0.00000	0.00000	0.00000	1.00000	1.0
MENONLY	7164.0	0.009216	0.095520	0.0	0.0000	0.0000	0.0000	0.0000	0.00000	0.00000	0.00000	0.00000	0.00000	1.0
...
PCTFLOAN	6849.0	0.522211	0.283616	0.0	0.0000	0.0000	0.0000	0.3329	0.58330	0.745000	0.84752	0.89792	0.986368	1.0
UG25ABV	6718.0	0.410021	0.228939	0.0	0.0025	0.0374	0.0899	0.2415	0.40075	0.572275	0.72666	0.80000	0.917383	1.0

	column_name	description	
0	INSTNM	Institution Name	
1	CITY	City Location	
2	STABBR	State Abbreviation	
3	HBCU	Historically Black College or University	
...
23	PCTFLOAN	Percent Students with federal loan	
24	UG25ABV	Percent Students Older than 25	
25	MD_EARN_WNE_P10	Median Earnings 10 years after enrollment	
26	GRAD_DEBT_MDN_SUPP	Median debt of completers	

RELAFFIL	SATMTMID	CURROPER	INSTNM	STABBR
0	0	420.0	1 Alabama A & M University	AL
1	0	565.0	1 University of Alabama at Birmingham	AL
2	1	NaN	1 Amridge University	AL
3	0	590.0	1 University of Alabama in Huntsville	AL
4	0	430.0	1 Alabama State University	AL

	movie_title	imdb_score	budget
0	Avatar	7.9	237000000.0
1	Pirates of the Caribbean: At World's End	7.1	300000000.0
2	Spectre	6.8	245000000.0
3	The Dark Knight Rises	8.5	250000000.0
4	Star Wars: Episode VII - The Force Awakens	7.1	NaN

	movie_title	imdb_score	budget
2725	Towering Inferno	9.5	NaN
1920	The Shawshank Redemption	9.3	25000000.0
3402	The Godfather	9.2	6000000.0
2779	Dekalog	9.1	NaN
4312	Kickboxer: Vengeance	9.1	17000000.0

	movie_title	imdb_score	budget
4804	Butterfly Girl	8.7	180000.0
4801	Children of Heaven	8.5	180000.0
4706	12 Angry Men	8.9	350000.0
4550	A Separation	8.4	500000.0
4636	The Other Dream Team	8.4	500000.0

	movie_title	title_year	imdb_score
2366	Fight Valley	2016.0	5.0
3817	Yoga Hosers	2016.0	4.8
1367	The 5th Wave	2016.0	5.2
1742	The Boss	2016.0	5.3
519	The Secret Life of Pets	2016.0	6.8

	movie_title	title_year	imdb_score
4409	Kickboxer: Vengeance	2016.0	9.1
4372	A Beginner's Guide to Snuff	2016.0	8.7
3870	Airlift	2016.0	8.5
27	Captain America: Civil War	2016.0	8.2
98	Godzilla Resurgence	2016.0	8.2

	movie_title	title_year	imdb_score
4409	Kickboxer: Vengeance	2016.0	9.1
3816	Running Forever	2015.0	8.6
4468	Queen of the Mountains	2014.0	8.7
4017	Batman: The Dark Knight Returns, Part 2	2013.0	8.4
3	The Dark Knight Rises	2012.0	8.5

	movie_title	title_year	content_rating	budget
4108	Compadres	2016.0	R	3000000.0
4772	Fight to the Finish	2016.0	PG-13	150000.0
4775	Rodeo Girl	2016.0	PG	500000.0
3309	The Wailing	2016.0	Not Rated	NaN
4773	Alleluia! The Devil's Carnival	2016.0	NaN	500000.0
4848	Bizarre	2015.0	Unrated	500000.0
821	The Ridiculous 6	2015.0	TV-14	NaN
4956	The Gallows	2015.0	R	100000.0
4948	Romantic Schemer	2015.0	PG-13	125000.0
3868	R.L. Stine's Monsterville: The Cabinet of Souls	2015.0	PG	4400000.0

	movie_title	imdb_score	budget
4804	Butterfly Girl	8.7	180000.0
4801	Children of Heaven	8.5	180000.0
4706	12 Angry Men	8.9	350000.0
4550	A Separation	8.4	500000.0
4636	The Other Dream Team	8.4	500000.0

	movie_title	imdb_score	budget
4815	A Charlie Brown Christmas	8.4	150000.0
4801	Children of Heaven	8.5	180000.0
4804	Butterfly Girl	8.7	180000.0
4706	12 Angry Men	8.9	350000.0
4636	The Other Dream Team	8.4	500000.0

	movie_title	imdb_score	budget
4815	A Charlie Brown Christmas	8.4	150000.0
4801	Children of Heaven	8.5	180000.0
4804	Butterfly Girl	8.7	180000.0
4706	12 Angry Men	8.9	350000.0
4636	The Other Dream Team	8.4	500000.0

	movie_title	imdb_score	budget
3799	Anne of Green Gables	8.4	NaN
3777	Requiem for a Dream	8.4	4500000.0
3935	Batman: The Dark Knight Returns, Part 2	8.4	3500000.0
4636	The Other Dream Team	8.4	500000.0
2455	Aliens	8.4	18500000.0

Date	Open	High	Low	Close	Volume
2017-01-03	214.86	220.33	210.96	216.99	5923254
2017-01-04	214.75	228.00	214.31	226.99	11213471
2017-01-05	226.42	227.48	221.95	226.75	5911695
2017-01-06	226.93	230.31	225.45	229.01	5527893
2017-01-09	228.97	231.92	228.00	231.28	3979484
2017-01-10	232.00	232.00	226.89	229.87	3659955
2017-01-11	229.07	229.98	226.68	229.73	3650825
2017-01-12	229.06	230.70	225.58	229.59	3790229

Chapter 4: Selecting Subsets of Data

INSTNM	CITY	STABBR	HBCU	MENONLY	WOMENONLY	RELAFFIL	SATVRMID	SATMTMID	DISTANCEONLY	UGDS	...	UGDS_2MOR
Alabama A & M University	Normal	AL	1.0	0.0	0.0	0	424.0	420.0	0.0	4206.0	...	0.0000
University of Alabama at Birmingham	Birmingham	AL	0.0	0.0	0.0	0	570.0	565.0	0.0	11383.0	...	0.0368
Amridge University	Montgomery	AL	0.0	0.0	0.0	1	NaN	NaN	1.0	291.0	...	0.0000
University of Alabama in Huntsville	Huntsville	AL	0.0	0.0	0.0	0	595.0	590.0	0.0	5451.0	...	0.0172
Alabama State University	Montgomery	AL	1.0	0.0	0.0	0	425.0	430.0	0.0	4811.0	...	0.0098

INSTNM	CITY	STABBR	HBCU	MENONLY	WOMENONLY	RELAFFIL	SATVRMID	SATMTMID	DISTANCEONLY	UGDS	...	UGDS_2MOR
University of Alaska Anchorage	Anchorage	AK	0.0	0.0	0.0	0	NaN	NaN	0.0	12865.0	...	0.0980
International Academy of Hair Design	Tempe	AZ	0.0	0.0	0.0	0	NaN	NaN	0.0	188.0	...	0.0160
University of Alabama in Huntsville	Huntsville	AL	0.0	0.0	0.0	0	595.0	590.0	0.0	5451.0	...	0.0172

INSTNM	CITY	STABBR	HBCU	MENONLY	WOMENONLY	RELAFFIL	SATVRMID	SATMTMID	DISTANCEONLY	UGDS	...	UGDS_2MOR
International Academy of Hair Design	Tempe	AZ	0.0	0.0	0.0	0	NaN	NaN	0.0	188.0	...	0.0160
GateWay Community College	Phoenix	AZ	0.0	0.0	0.0	0	NaN	NaN	0.0	5211.0	...	0.0127
Mesa Community College	Mesa	AZ	0.0	0.0	0.0	0	NaN	NaN	0.0	19055.0	...	0.0205

	CITY	STABBR	HBCU	MENONLY
INSTNM				
Alabama A & M University	Normal	AL	1.0	0.0
University of Alabama at Birmingham	Birmingham	AL	0.0	0.0
Amridge University	Montgomery	AL	0.0	0.0

	WOMENONLY	SATVRMID
INSTNM		
Alabama A & M University	0.0	424.0
University of Alabama at Birmingham	0.0	570.0
Amridge University	0.0	NaN
University of Alabama in Huntsville	0.0	595.0
Alabama State University	0.0	425.0

	SATMTMID	UGDS_NHPI
INSTNM		
GateWay Community College	NaN	0.0029
American Baptist Seminary of the West	NaN	NaN

INSTNM	UGDS_WHITE	UGDS_BLACK	UGDS_HISP	UGDS_ASIAN	UGDS_AIAN	UGDS_NHPI	UGDS_2MOR	UGDS_NRA	UGDS_UNKN
Alabama A & M University	0.0333	0.9353	0.0055	0.0019	0.0024	0.0019	0.0000	0.0059	0.0138
University of Alabama at Birmingham	0.5922	0.2600	0.0283	0.0518	0.0022	0.0007	0.0368	0.0179	0.0100
Amridge University	0.2990	0.4192	0.0069	0.0034	0.0000	0.0000	0.0000	0.0000	0.2715
University of Alabama in Huntsville	0.6988	0.1255	0.0382	0.0376	0.0143	0.0002	0.0172	0.0332	0.0350
Alabama State University	0.0158	0.9208	0.0121	0.0019	0.0010	0.0006	0.0098	0.0243	0.0137

INSTNM	CITY	STABBR	HBCU	MENONLY	WOMENONLY	RELAFFIL	SATVRMID	SATMTMID	DISTANCEONLY	UGDS	...	UGDS_2MOR	UGDS_NR
Birmingham Southern College	Birmingham	AL	0.0	0.0	0.0	1	560.0	560.0	0.0	1180.0	...	0.0051	0.000
Concordia College Alabama	Selma	AL	1.0	0.0	0.0	1	420.0	400.0	0.0	322.0	...	0.0031	0.046
Enterprise State Community College	Enterprise	AL	0.0	0.0	0.0	0	NaN	NaN	0.0	1729.0	...	0.0254	0.001
Faulkner University	Montgomery	AL	0.0	0.0	0.0	1	NaN	NaN	0.0	2367.0	...	0.0173	0.018
New Beginning College of Cosmetology	Albertville	AL	0.0	0.0	0.0	0	NaN	NaN	0.0	115.0	...	0.0000	0.000

INSTNM	CITY	STABBR	HBCU	MENONLY	WOMENONLY	RELAFFIL	SATVRMID	SATMTMID	DISTANCEONLY	UGDS	...	UGDS_2MOR	UGDS_NRA
Mesa Community College	Mesa	AZ	0.0	0.0	0.0	0	NaN	NaN	0.0	19055.0	...	0.0205	0.0257
Hair Academy Inc-New Carrollton	New Carrollton	MD	0.0	0.0	0.0	0	NaN	NaN	0.0	504.0	...	0.0000	0.0000
National College of Natural Medicine	Portland	OR	0.0	0.0	0.0	0	NaN	NaN	0.0	NaN	...	NaN	NaN

INSTNM	CITY	STABBR	HBCU	MENONLY	WOMENONLY	RELAFFIL	SATVRMID	SATMTMID	DISTANCEONLY	UGDS	...	UGDS_2MOR	UGDS_NRA
Spa Tech Institute-Ipswich	Ipswich	MA	0.0	0.0	0.0	0	NaN	NaN	0.0	37.0	...	0.000	0.0
Spa Tech Institute-Plymouth	Plymouth	MA	0.0	0.0	0.0	0	NaN	NaN	0.0	153.0	...	0.000	0.0
Spa Tech Institute-Westboro	Westboro	MA	0.0	0.0	0.0	0	NaN	NaN	0.0	90.0	...	0.000	0.0
...
Stylemaster College of Hair Design	Longview	WA	0.0	0.0	0.0	0	NaN	NaN	0.0	77.0	...	0.013	0.0
Styles and Profiles Beauty College	Selmer	TN	0.0	0.0	0.0	0	NaN	NaN	0.0	31.0	...	0.000	0.0
Styletrends Barber and Hairstyling Academy	Rock Hill	SC	0.0	0.0	0.0	0	NaN	NaN	0.0	45.0	...	0.000	0.0

201 rows × 26 columns

	CITY	STABBR	HBCU	MENONLY	WOMENONLY	RELAFFIL	SATVRMID	SATMTMID	DISTANCEONLY	UGDS	...	UGDS_2MOR
INSTNM												
Dyersburg State Community College	Dyersburg	TN	0.0	0.0	0.0	0	NaN	NaN	0.0	2001.0	...	0.0185
Dutchess Community College	Poughkeepsie	NY	0.0	0.0	0.0	0	NaN	NaN	0.0	6885.0	...	0.0446
Dutchess BOCES-Practical Nursing Program	Poughkeepsie	NY	0.0	0.0	0.0	0	NaN	NaN	0.0	155.0	...	0.0581
...
BJ's Beauty & Barber College	Auburn	WA	0.0	0.0	0.0	0	NaN	NaN	0.0	28.0	...	0.0714
BIR Training Center	Chicago	IL	0.0	0.0	0.0	0	NaN	NaN	0.0	2132.0	...	0.0000
B M Spurr School of Practical Nursing	Glen Dale	WV	0.0	0.0	0.0	0	NaN	NaN	0.0	31.0	...	0.0000

1411 rows × 26 columns

Chapter 5: Boolean Indexing

movie_title	color	director_name	num_critic_for_reviews	duration	director_facebook_likes	actor_3_facebook_likes	actor_2_name	actor_1_facebook_likes
Avatar	Color	James Cameron	723.0	178.0	0.0	855.0	Joel David Moore	1000.0
Pirates of the Caribbean: At World's End	Color	Gore Verbinski	302.0	169.0	563.0	1000.0	Orlando Bloom	40000.0
Spectre	Color	Sam Mendes	602.0	148.0	0.0	161.0	Rory Kinnear	11000.0
The Dark Knight Rises	Color	Christopher Nolan	813.0	164.0	22000.0	23000.0	Christian Bale	27000.0
Star Wars: Episode VII - The Force Awakens	NaN	Doug Walker	NaN	NaN	131.0	NaN	Rob Walker	131.0

movie_title	color	director_name	num_critic_for_reviews	duration	director_facebook_likes	actor_3_facebook_likes	actor_2_name	actor_1_facebook_likes
The Dark Knight Rises	Color	Christopher Nolan	813.0	164.0	22000.0	23000.0	Christian Bale	27000.0
The Avengers	Color	Joss Whedon	703.0	173.0	0.0	19000.0	Robert Downey Jr.	26000.0
Captain America: Civil War	Color	Anthony Russo	516.0	147.0	94.0	11000.0	Scarlett Johansson	21000.0
Guardians of the Galaxy	Color	James Gunn	653.0	121.0	571.0	3000.0	Vin Diesel	14000.0
Interstellar	Color	Christopher Nolan	712.0	169.0	22000.0	6000.0	Anne Hathaway	11000.0

		imdb_score	content_rating	title_year
	movie_title			
	The Dark Knight Rises	8.5	PG-13	2012.0
	The Avengers	8.1	PG-13	2012.0
	Captain America: Civil War	8.2	PG-13	2016.0
	Guardians of the Galaxy	8.1	PG-13	2014.0
	Interstellar	8.6	PG-13	2014.0
	Inception	8.8	PG-13	2010.0
	The Martian	8.1	PG-13	2015.0
	Town & Country	4.4	R	2001.0
	Sex and the City 2	4.3	R	2010.0
	Rollerball	3.0	R	2002.0

	INSTNM	CITY	STABBR	HBCU	MENONLY	WOMENONLY	RELAFFIL	SATVRMID	SATMTMID	DISTANCEONLY
3610	Abilene Christian University	Abilene	TX	0.0	0.0	0.0	1	530.0	545.0	0.0
3611	Alvin Community College	Alvin	TX	0.0	0.0	0.0	0	NaN	NaN	0.0
3612	Amarillo College	Amarillo	TX	0.0	0.0	0.0	0	NaN	NaN	0.0
3613	Angelina College	Lufkin	TX	0.0	0.0	0.0	0	NaN	NaN	0.0
3614	Angelo State University	San Angelo	TX	0.0	0.0	0.0	0	475.0	490.0	0.0

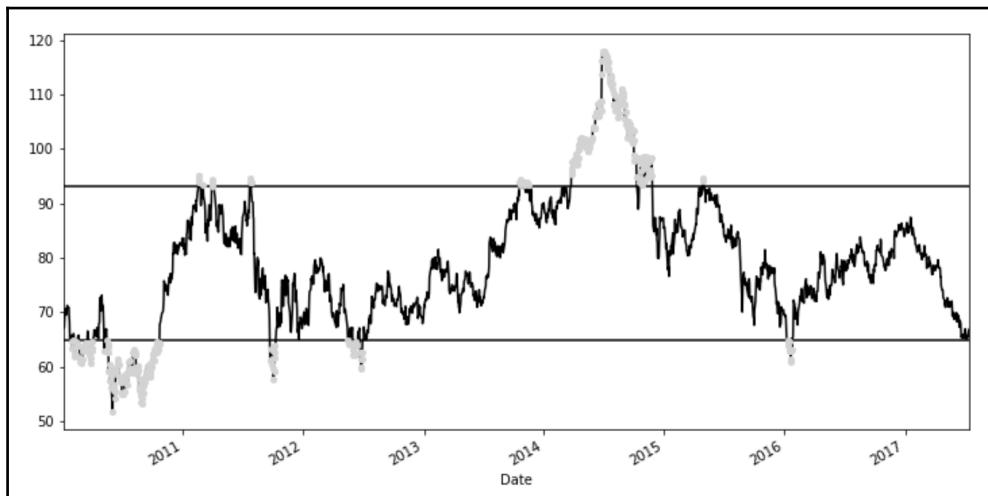
	INSTNM	CITY	HBCU	MENONLY	WOMENONLY	RELAFFIL	SATVRMID	SATMTMID	DISTANCEONLY	UGDS
STABBR										
TX	Abilene Christian University	Abilene	0.0	0.0	0.0	1	530.0	545.0	0.0	3572.0
TX	Alvin Community College	Alvin	0.0	0.0	0.0	0	NaN	NaN	0.0	4682.0
TX	Amarillo College	Amarillo	0.0	0.0	0.0	0	NaN	NaN	0.0	9346.0
TX	Angelina College	Lufkin	0.0	0.0	0.0	0	NaN	NaN	0.0	3825.0
TX	Angelo State University	San Angelo	0.0	0.0	0.0	0	475.0	490.0	0.0	5290.0

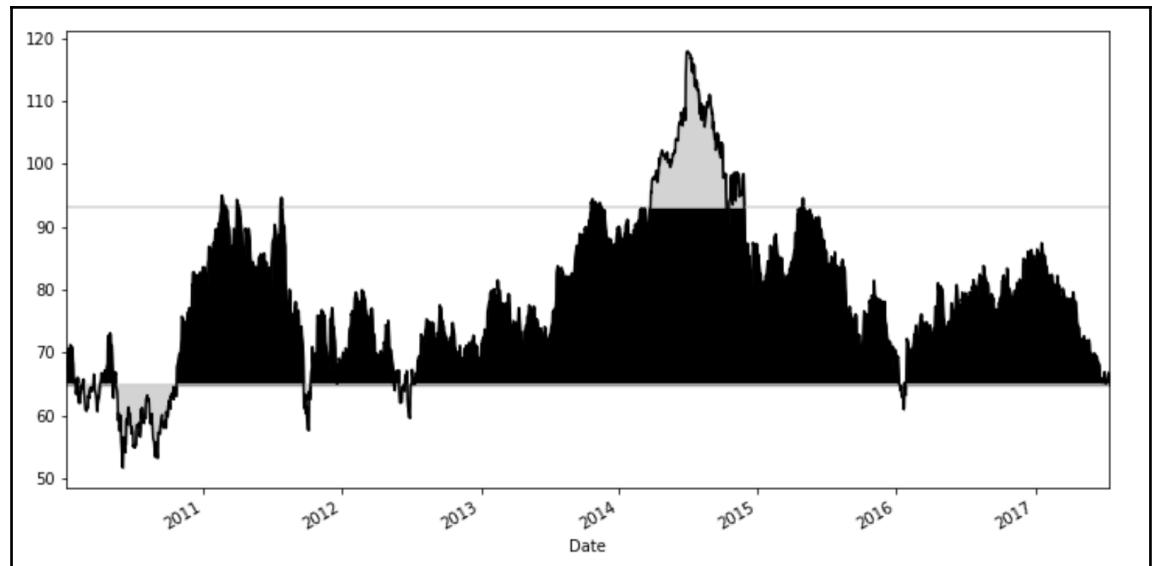
	INSTNM	CITY	STABBR	HBCU	MENONLY	WOMENONLY	RELAFFIL	SATVRMID	SATMTMID	DISTANCEONLY	UGDS_2MOR	UGDS_NRA
4217	Stanford University	Stanford	CA	0.0	0.0	0.0	0	730.0	745.0	0.0	0.1067	0.0819

	INSTNM	CITY	STABBR	HBCU	MENONLY	WOMENONLY	RELAFFIL	SATVRMID	SATMTMID	DISTANCEONLY	UGDS_2MOR
ARTESIA, CA	Angeles Institute	ARTESIA	CA	0.0	0.0	0.0	0	NaN	NaN	0.0	0.0175
Aberdeen, SD	Presentation College	Aberdeen	SD	0.0	0.0	0.0	1	440.0	480.0	0.0	0.0284
Aberdeen, SD	Northern State University	Aberdeen	SD	0.0	0.0	0.0	0	480.0	475.0	0.0	0.0219
Aberdeen, WA	Grays Harbor College	Aberdeen	WA	0.0	0.0	0.0	0	NaN	NaN	0.0	0.0937
Abilene, TX	Hardin-Simmons University	Abilene	TX	0.0	0.0	0.0	1	508.0	515.0	0.0	0.0298

		INSTNM	CITY	STABBR	HBCU	MENONLY	WOMENONLY	RELAFFIL	SATVRMID	SATMTMID	DISTANCEONLY	...	UGDS_2MOR
Miami, FL	New Professions Technical Institute	Miami	Miami	FL	0.0	0.0	0.0	0	NaN	NaN	0.0	...	0.0000
Miami, FL	Management Resources College	Miami	Miami	FL	0.0	0.0	0.0	0	NaN	NaN	0.0	...	0.0000
Miami, FL	Strayer University- Doral	Miami	Miami	FL	NaN	NaN	NaN	1	NaN	NaN	NaN	...	NaN
Miami, FL	Keiser University- Miami	Miami	Miami	FL	NaN	NaN	NaN	1	NaN	NaN	NaN	...	NaN
Miami, FL	George T Baker Aviation Technical College	Miami	Miami	FL	0.0	0.0	0.0	0	NaN	NaN	0.0	...	0.0046

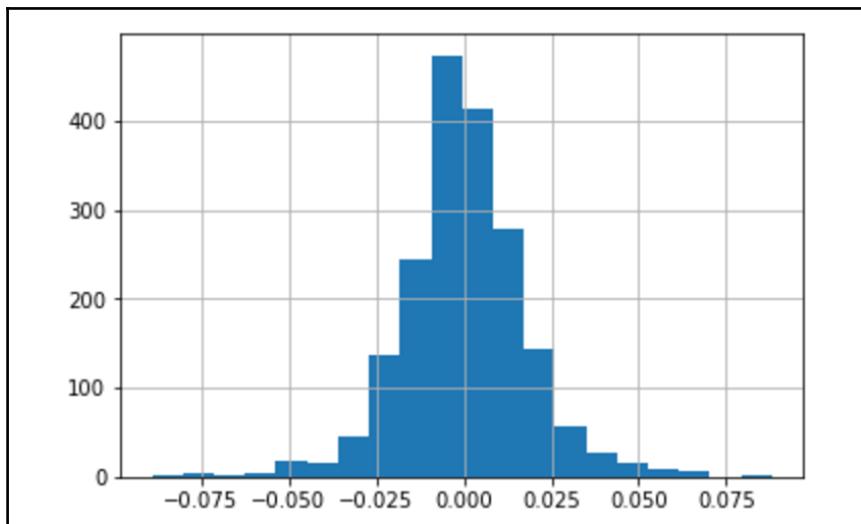
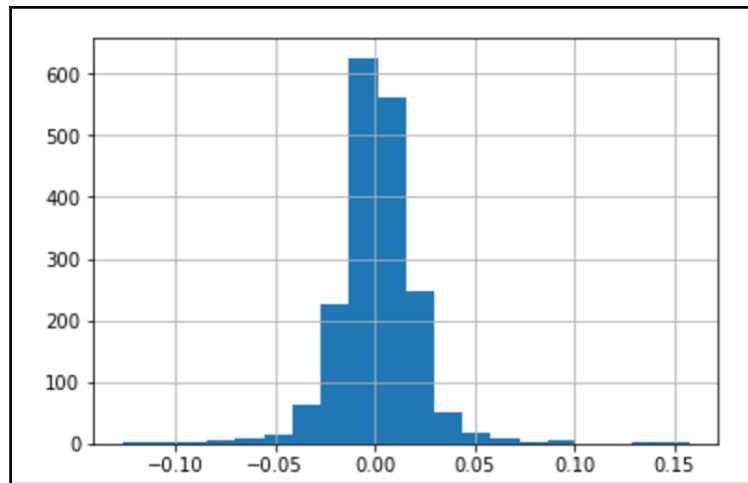
Date	Open	High	Low	Close	Volume
2010-01-04	66.39	67.20	66.12	67.11	5771234
2010-01-05	66.99	67.62	66.73	67.30	7366270
2010-01-06	67.17	68.94	67.03	68.80	9949946
2010-01-07	68.49	69.81	68.21	69.51	7700297
2010-01-08	69.19	72.00	69.09	70.65	13487621





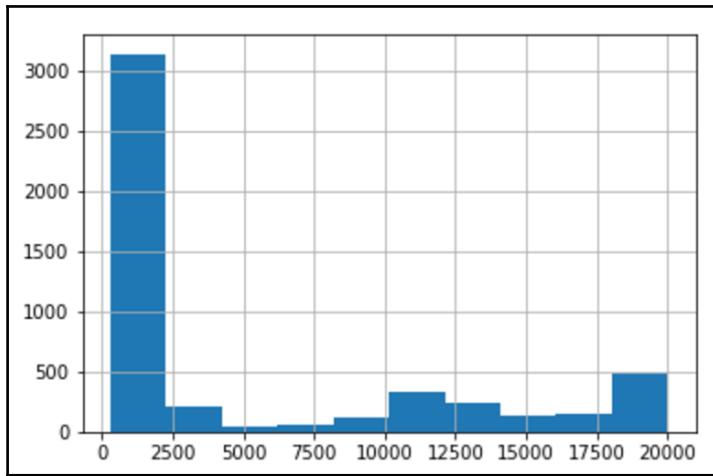
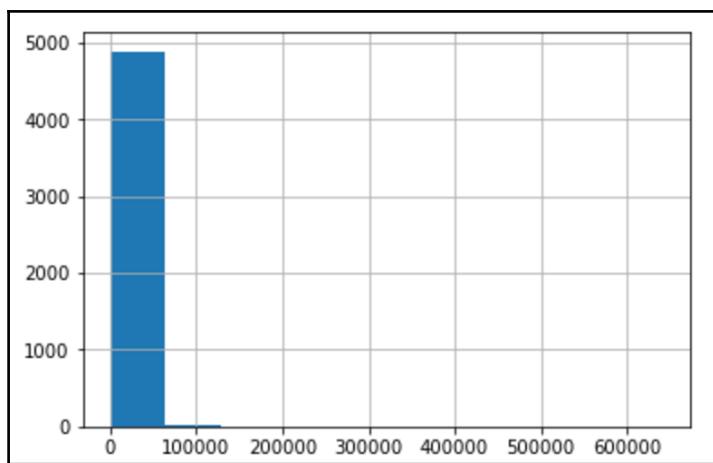
UNIQUE_ID		DEPARTMENT	GENDER	BASE_SALARY
61	11087	Houston Fire Department (HFD)	Female	96668.0
136	6146	Houston Police Department-HPD	Female	81239.0
367	7589	Houston Police Department-HPD	Female	86534.0
474	5407	Houston Police Department-HPD	Female	91181.0
513	6252	Houston Police Department-HPD	Female	81239.0

Date	Open	High	Low	Close	Volume
2010-01-04	136.25	136.61	133.14	133.90	7600543
2010-01-05	133.43	135.48	131.81	134.69	8856456
2010-01-06	134.60	134.73	131.65	132.25	7180977
2010-01-07	132.01	132.32	128.80	130.00	11030124
2010-01-08	130.56	133.68	129.03	133.52	9833829



UNIQUE_ID		DEPARTMENT	GENDER	BASE_SALARY
61	11087	Houston Fire Department (HFD)	Female	96668.0
136	6146	Houston Police Department-HPD	Female	81239.0
367	7589	Houston Police Department-HPD	Female	86534.0
474	5407	Houston Police Department-HPD	Female	91181.0
513	6252	Houston Police Department-HPD	Female	81239.0

	DEPARTMENT	GENDER
0	Municipal Courts Department	Female
73	Human Resources Dept.	Female
96	City Controller's Office	Female
117	Legal Department	Female
146	Houston Information Tech Svcs	Female



movie_title								
	color	director_name	num_critic_for_reviews	duration	director_facebook_likes	actor_3_facebook_likes	actor_2_name	actor_1_facebook_likes
Avatar	Color	James Cameron	723.0	178.0	0.0	855.0	Joel David Moore	1000.0
Pirates of the Caribbean: At World's End	Color	Gore Verbinski	302.0	169.0	563.0	1000.0	Orlando Bloom	40000.0
Spectre	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
The Dark Knight Rises	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
Star Wars: Episode VII - The Force Awakens	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN

movie_title								
	color	director_name	num_critic_for_reviews	duration	director_facebook_likes	actor_3_facebook_likes	actor_2_name	actor_1_facebook_likes
Avatar	Color	James Cameron	723.0	178.0	0.0	855.0	Joel David Moore	1000.0
Pirates of the Caribbean: At World's End	Color	Gore Verbinski	302.0	169.0	563.0	1000.0	Orlando Bloom	40000.0
Star Wars: Episode VII - The Force Awakens	NaN	Doug Walker	NaN	NaN	131.0	NaN	Rob Walker	131.0
Spider-Man 3	Color	Sam Raimi	392.0	156.0	0.0	4000.0	James Franco	24000.0
Harry Potter and the Half-Blood Prince	Color	David Yates	375.0	153.0	282.0	10000.0	Daniel Radcliffe	25000.0

movie_title	color	director_name	num_critic_for_reviews	duration	director_facebook_likes	actor_3_facebook_likes	actor_2_name	actor_1_facebook_likes
The True Story of Puss'N Boots	Color	Jérôme Deschamps	4.0	80.0	0.0	0.0	André Wilms	44.0
Doogal	Color	Dave Borthwick	31.0	77.0	3.0	593.0	Kylie Minogue	787.0
Thomas and the Magic Railroad	Color	Britt Allcroft	47.0	85.0	2.0	402.0	Colm Feore	1000.0
Barney's Great Adventure	Color	Steve Gomer	24.0	76.0	9.0	47.0	Kyla Pratt	595.0
Justin Bieber: Never Say Never	Color	Jon M. Chu	84.0	115.0	209.0	41.0	Sean Kingston	569.0

movie_title	num_voted_users	cast_total_facebook_likes	movie_facebook_likes
Avatar	886204	4834	33000
Pirates of the Caribbean: At World's End	471220	48350	0
Spectre	275868	11700	85000
The Dark Knight Rises	1144337	106759	164000
Star Wars: Episode VII - The Force Awakens	8	143	0

movie_title	content_rating	imdb_score	title_year	gross
Justin Bieber: Never Say Never	G	1.6	2011.0	73000942.0
Sunday School Musical	G	2.5	2008.0	NaN
Doogal	G	2.8	2006.0	7382993.0
Barney's Great Adventure	G	2.8	1998.0	11144518.0
The True Story of Puss'N Boots	G	2.9	2009.0	NaN
Thomas and the Magic Railroad	G	3.6	2000.0	15911333.0

	color	duration
movie_title		
Avatar	Color	178.0
Spectre	Color	148.0

Chapter 6: Index Alignment

RACE	UNIQUE_ID	POSITION_TITLE	DEPARTMENT	BASE_SALARY	EMPLOYMENT_TYPE	GENDER	EMPLOYMENT_STATUS	HIRE_DATE
Hispanic/Latino	0	ASSISTANT DIRECTOR (EX LVL)	Municipal Courts Department	121862.0	Full Time	Female	Active	2006-06-12
Hispanic/Latino	1	LIBRARY ASSISTANT	Library	26125.0	Full Time	Female	Active	2000-07-19
White	2	POLICE OFFICER	Houston Police Department-HPD	45279.0	Full Time	Male	Active	2015-02-03
White	3	ENGINEER/OPERATOR	Houston Fire Department (HFD)	63166.0	Full Time	Male	Active	1982-02-08
White	4	ELECTRICIAN	General Services Department	56347.0	Full Time	Male	Active	1989-06-19

playerID	yearID	stint	teamID	lgID	G	AB	R	H	2B	3B	...	RBI	SB	CS	BB	SO	IBB	HBP	SH	SF	GIDP
altuvjo01	2014	1	HOU	AL	158	660	85	225	47	3	...	59.0	56.0	9.0	36	53.0	7.0	5.0	1.0	5.0	20.0
cartech02	2014	1	HOU	AL	145	507	68	115	21	1	...	88.0	5.0	2.0	56	182.0	6.0	5.0	0.0	4.0	12.0
castrja01	2014	1	HOU	AL	126	465	43	103	21	2	...	56.0	1.0	0.0	34	151.0	1.0	9.0	1.0	3.0	11.0
corpoca01	2014	1	HOU	AL	55	170	22	40	6	0	...	19.0	0.0	0.0	14	37.0	0.0	3.0	1.0	2.0	3.0
dominma01	2014	1	HOU	AL	157	564	51	121	17	0	...	57.0	0.0	1.0	29	125.0	2.0	5.0	2.0	7.0	23.0

playerID	G	AB	R	H
altuvjo01	158	660	85	225
cartech02	145	507	68	115
castrja01	126	465	43	103
corpoca01	55	170	22	40
dominma01	157	564	51	121

	AB	R	H	HR
playerID				
altuvjo01	638	86	200	15
cartech02	391	50	78	24
castrja01	337	38	71	11
congeha01	201	25	46	11
correca01	387	52	108	22

	AB	G	H	HR	R
playerID					
altuvjo01	1298	nan	425	nan	171
cartech02	898	nan	193	nan	118
castrja01	802	nan	174	nan	81
congeha01	nan	nan	nan	nan	nan
corpoca01	nan	nan	nan	nan	nan
correca01	nan	nan	nan	nan	nan
dominma01	nan	nan	nan	nan	nan
fowlede01	nan	nan	nan	nan	nan
gattiev01	nan	nan	nan	nan	nan
gomezca01	nan	nan	nan	nan	nan

	AB	G	H	HR	R
playerID					
altuvjo01	1298	158	425	15	171
cartech02	898	145	193	24	118
castrja01	802	126	174	11	81
congeha01	201	nan	46	11	25
corpoca01	170	55	40	nan	22
correca01	387	nan	108	22	52
dominma01	564	157	121	nan	51
fowlede01	434	116	120	nan	61
gattiev01	566	nan	139	27	66
gomezca01	149	nan	36	4	19

	DEPARTMENT	BASE_SALARY
1494	Admn. & Regulatory Affairs	140416.0
149	City Controller's Office	64251.0
236	City Council	100000.0
647	Convention and Entertainment	38397.0
1500	Dept of Neighborhoods (DON)	89221.0

DEPARTMENT	UNIQUE_ID	POSITION_TITLE	BASE_SALARY	...	HIRE_DATE	JOB_DATE	MAX_DEPT_SALARY
Municipal Courts Department	0	ASSISTANT DIRECTOR (EX LVL)	121862.0	...	2006-06-12	2012-10-13	121862.0
Library	1	LIBRARY ASSISTANT	26125.0	...	2000-07-19	2010-09-18	107763.0
Houston Police Department-HPD	2	POLICE OFFICER	45279.0	...	2015-02-03	2015-02-03	199596.0
Houston Fire Department (HFD)	3	ENGINEER/OPERATOR	63166.0	...	1982-02-08	1991-05-25	210588.0
General Services Department	4	ELECTRICIAN	56347.0	...	1989-06-19	1994-10-22	89194.0

	UNIQUE_ID	POSITION_TITLE	BASE_SALARY	...	HIRE_DATE	JOB_DATE	MAX_DEPT_SALARY
DEPARTMENT							
0 rows × 10 columns							

DEPARTMENT	BASE_SALARY
Public Works & Engineering-PWE	50586.0
Houston Police Department-HPD	66614.0
Houston Police Department-HPD	66614.0
Housing and Community Devp.	78853.0
Houston Police Department-HPD	66614.0
Parks & Recreation	NaN
Public Works & Engineering-PWE	37211.0
Public Works & Engineering-PWE	54683.0
Human Resources Dept.	58474.0
Health & Human Services	47050.0

INSTNM	HBCU	MENONLY	WOMENONLY	...	UG25ABV	MD_EARN_WNE_P10	GRAD_DEBT_MDN_SUPP
Alabama A & M University	1.0	0.0	0.0	...	0.1049	30300.0	33888.0
University of Alabama at Birmingham	0.0	0.0	0.0	...	0.2422	39700.0	21941.5
Amridge University	0.0	0.0	0.0	...	0.8540	40100.0	23370.0
University of Alabama in Huntsville	0.0	0.0	0.0	...	0.2640	45500.0	24097.0
Alabama State University	1.0	0.0	0.0	...	0.1270	26600.0	33118.5

INSTNM	SATVRMID	SATMTMID	UGDS	...	UG25ABV	MD_EARN_WNE_P10	GRAD_DEBT_MDN_SUPP
Alabama A & M University	424.0	420.0	4206.0	...	0.1049	30300.0	33888.0
University of Alabama at Birmingham	570.0	565.0	11383.0	...	0.2422	39700.0	21941.5
Amridge University	NaN	NaN	291.0	...	0.8540	40100.0	23370.0
University of Alabama in Huntsville	595.0	590.0	5451.0	...	0.2640	45500.0	24097.0
Alabama State University	425.0	430.0	4811.0	...	0.1270	26600.0	33118.5

INSTNM	SATVRMID	SATMTMID	UGDS	UGDS_WHITE	UGDS_BLACK	UGDS_HISP	UGDS_ASIAN	UGDS_AIAN	UGDS_NHPI	UGDS_2MOR	UGDS_NRA	UGDS_UNKN
California Institute of Technology	765	785	983	0.2787	0.0153	0.1221	0.4385					
University of Phoenix-Arizona	nan	nan	151558	0.3098	0.1555	0.076	0.0082					
Mr Leon's School of Hair Design-Moscow	nan	nan	16	1	0	0	0					
Velvatex College of Beauty Culture	nan	nan	25	0	1	0	0					
Thunderbird School of Global Management	nan	nan	1	0	0	1	0					
Cosmopolitan Beauty and Tech School	nan	nan	110	0.0091	0	0.0182	0.9727					

INSTNM	UGDS_WHITE	UGDS_BLACK	UGDS_HISP	UGDS_ASIAN	UGDS_AIAN	UGDS_NHPI	UGDS_2MOR	UGDS_NRA	UGDS_UNKN
Alabama A & M University	0.0333	0.9353	0.0055	0.0019	0.0024	0.0019	0	0.0059	0.0138
University of Alabama at Birmingham	0.5922	0.26	0.0283	0.0518	0.0022	0.0007	0.0368	0.0179	0.01
Amridge University	0.299	0.4192	0.0069	0.0034	0	0	0	0	0.2715
University of Alabama in Huntsville	0.6988	0.1255	0.0382	0.0376	0.0143	0.0002	0.0172	0.0332	0.035
Alabama State University	0.0158	0.9208	0.0121	0.0019	0.001	0.0006	0.0098	0.0243	0.0137

INSTNM	SATVRMID	SATMTMID	UGDS	UGDS_WHITE	UGDS_BLACK	UGDS_HISP	UGDS_ASIAN	UGDS_AIAN	UGDS_NHPI	UGDS_2MOR
Alabama A & M University	False	False	False	False	False	False	False	False	False	False
University of Alabama at Birmingham	False	False	False	False	False	False	False	False	False	False
Amridge University	False	False	False	False	False	False	False	False	False	False
University of Alabama in Huntsville	False	False	False	False	False	False	False	False	False	False
Alabama State University	False	False	False	False	False	False	False	False	False	False

	SATVRMID	SATMTMID	UGDS	UGDS_WHITE	UGDS_BLACK	UGDS_HISP	UGDS_ASIAN	UGDS_AIAN	UGDS_NHPI	UGDS_2MOR
INSTNM										
Alabama A & M University	0	0	0	0	0	0	0	0	0	0
University of Alabama at Birmingham	0	0	0	0	0	0	0	0	0	0
Amridge University	0	0	0	0	0	0	0	0	0	0
...
National Personal Training Institute of Cleveland	1	1	1	109	28	136	1	2	1	1
Bay Area Medical Academy - San Jose Satellite Location	1	1	1	109	28	136	1	2	1	1
Excel Learning Center-San Antonio South	1	1	1	109	28	136	1	2	1	1

7535 rows × 18 columns

	SATVRMID	SATMTMID	UGDS	UGDS_WHITE	UGDS_BLACK	UGDS_HISP	UGDS_ASIAN	UGDS_AIAN	UGDS_NHPI	UGDS_2MOR	UGDS_NRA
INSTNM											
Alabama A & M University	0	0	0	0	0	0	0	0	0	0	0
University of Alabama at Birmingham	0	0	0	0	0	0	0	0	0	0	0
Amridge University	0	0	0	0	0	0	0	0	0	0	0
...
National Personal Training Institute of Cleveland	7307	7307	417	379968	73163	341375	985	11386	3318	5058	1078
Bay Area Medical Academy - San Jose Satellite Location	7308	7308	418	380077	73191	341511	986	11388	3319	5059	1079
Excel Learning Center-San Antonio South	7309	7309	419	380186	73219	341647	987	11390	3320	5060	1080

INSTNM	UGDS_WHITE	UGDS_BLACK	UGDS_HISP	UGDS_ASIAN	UGDS_AIAN	UGDS_NHPI	UGDS_2MOR	UGDS_NRA	UGDS_UNKN
Alabama A & M University	0.0333	0.9353	0.0055	0.0019	0.0024	0.0019	0.0000	0.0059	0.0138
University of Alabama at Birmingham	0.5922	0.2600	0.0283	0.0518	0.0022	0.0007	0.0368	0.0179	0.0100
Amridge University	0.2990	0.4192	0.0069	0.0034	0.0000	0.0000	0.0000	0.0000	0.2715
University of Alabama in Huntsville	0.6988	0.1255	0.0382	0.0376	0.0143	0.0002	0.0172	0.0332	0.0350
Alabama State University	0.0158	0.9208	0.0121	0.0019	0.0010	0.0006	0.0098	0.0243	0.0137

Chapter 7: Grouping for Aggregation, Filtration, and Transformation

MONTH	WEEKDAY	AIRLINE	ORG_AIR	DEST_AIR	SCHED_DEP	DEP_DELAY	AIR_TIME	DIST	SCHED_ARR	ARR_DELAY	DIVERTED	CANCELLED
0	1	4	WN	LAX	SLC	1625	58.0	94.0	590	1905	65.0	0
1	1	4	UA	DEN	IAD	823	7.0	154.0	1452	1333	-13.0	0
2	1	4	MQ	DFW	VPS	1305	36.0	85.0	641	1453	35.0	0
3	1	4	AA	DFW	DCA	1555	7.0	126.0	1192	1935	-7.0	0
4	1	4	WN	LAX	MCI	1720	48.0	166.0	1363	2225	39.0	0

ARR_DELAY	
AIRLINE	
AA	5.542661
AS	-0.833333
B6	8.692593
DL	0.339691
EV	7.034580

AIRLINE	WEEKDAY	CANCELLED		DIVERTED	
		sum	mean	sum	mean
AA	1	41	0.032106	6	0.004699
	2	9	0.007341	2	0.001631
	3	16	0.011949	2	0.001494
	4	20	0.015004	5	0.003751
	5	18	0.014151	1	0.000786
	6	21	0.018667	9	0.008000
	7	29	0.021837	1	0.000753

		CANCELLED		AIR_TIME		
ORG_AIR	DEST_AIR	sum	mean	size	mean	var
ATL	ABE	0	0.0	31	96.387097	45.778495
	ABQ	0	0.0	16	170.500000	87.866667
	ABY	0	0.0	19	28.578947	6.590643
	ACY	0	0.0	6	91.333333	11.466667
	AEX	0	0.0	40	78.725000	47.332692

		DIST		ARR_DELAY		
AIRLINE	WEEKDAY	sum	mean	min	max	
AA	1	1455386	1139	-60	551	
	2	1358256	1107	-52	725	
	3	1496665	1117	-45	473	
	4	1452394	1089	-46	349	
	5	1427749	1122	-41	732	
	6	1265340	1124	-50	858	
	7	1461906	1100	-49	626	

		DIST_sum	DIST_mean	ARR_DELAY_min	ARR_DELAY_max
AIRLINE	WEEKDAY				
AA	1	1455386	1139	-60	551
	2	1358256	1107	-52	725
	3	1496665	1117	-45	473
	4	1452394	1089	-46	349
	5	1427749	1122	-41	732
	6	1265340	1124	-50	858
	7	1461906	1100	-49	626

	AIRLINE	WEEKDAY	DIST_sum	DIST_mean	ARR_DELAY_min	ARR_DELAY_max
0	AA	1	1455386	1139	-60	551
1	AA	2	1358256	1107	-52	725
2	AA	3	1496665	1117	-45	473
3	AA	4	1452394	1089	-46	349
4	AA	5	1427749	1122	-41	732
5	AA	6	1265340	1124	-50	858
6	AA	7	1461906	1100	-49	626

	AIRLINE	DIST
0	AA	1114.0
1	AS	1066.0
2	B6	1772.0
3	DL	866.0
4	EV	460.0
5	F9	970.0
6	HA	2615.0
7	MQ	404.0
8	NK	1047.0
9	OO	511.0
10	UA	1231.0
11	US	1181.0
12	VX	1240.0
13	WN	810.0

	mean	std
STABBR		
AK	2493.0	4052.0
AL	2790.0	4658.0
AR	1644.0	3143.0
AS	1276.0	NaN
AZ	4130.0	14894.0

	UGDS	SATVRMID	SATMTMID
STABBR			
AK	2.6	NaN	NaN
AL	5.8	1.6	1.8
AR	6.3	2.2	2.3
AS	NaN	NaN	NaN
AZ	9.9	1.9	1.4

STABBR	RELAFFIL	UGDS			SATVRMID			SATMTMID		
		max_deviation	mean	std	max_deviation	mean	std	max_deviation	mean	std
AK	0	2.1	3508.9	4539.5	NaN	NaN	NaN	NaN	NaN	NaN
	1	1.1	123.3	132.9	NaN	555.0	NaN	NaN	503.0	NaN
AL	0	5.2	3248.8	5102.4	1.6	514.9	56.5	1.7	515.8	56.7
	1	2.4	979.7	870.8	1.5	498.0	53.0	1.4	485.6	61.4
AR	0	5.8	1793.7	3401.6	1.9	481.1	37.9	2.0	503.6	39.0

STABBR	RELAFFIL	UGDS			SATVRMID			SATMTMID		
		Max Deviation	mean	std	Max Deviation	mean	std	Max Deviation	mean	std
AK	0	2.1	3508.9	4539.5	NaN	NaN	NaN	NaN	NaN	NaN
	1	1.1	123.3	132.9	NaN	555.0	NaN	NaN	503.0	NaN
AL	0	5.2	3248.8	5102.4	1.6	514.9	56.5	1.7	515.8	56.7
	1	2.4	979.7	870.8	1.5	498.0	53.0	1.4	485.6	61.4
AR	0	5.8	1793.7	3401.6	1.9	481.1	37.9	2.0	503.6	39.0

		mean	pct_1_3k	pct_10_30k
STABBR	RELAFFIL			
AK	0	3508.857143	0.142857	0.142857
	1	123.333333	0.000000	0.000000
AL	0	3248.774648	0.236111	0.083333
	1	979.722222	0.333333	0.000000
AR	0	1793.691176	0.279412	0.014706

	CITY	CURROPER	DISTANCEONLY	GRAD_DEBT_MDN_SUPP	HBCU	INSTNM	MD_EARN_WNE_P10	MENONLY	PCTFLOAN	PCTPELL
712	Graceville	1	0.0	20052	0.0	The Baptist College of Florida	30800	0.0	0.5602	0.5878
713	Miami	1	0.0	28250	0.0	Barry University	44100	0.0	0.6733	0.5045
714	Panama City	0	0.0	PrivacySuppressed	0.0	Gooding Institute of Nurse Anesthesia	NaN	0.0	NaN	NaN
715	Daytona Beach	1	0.0	36250	1.0	Bethune-Cookman University	29400	0.0	0.8867	0.7758
724	Kissimmee	1	0.0	20199	0.0	Johnson University Florida	26300	0.0	0.7384	0.6689

('AK' , 0)

	INSTNM	CITY	STABBR	HBCU	MENONLY	WOMENONLY	RELAFFIL	SATVRMID	SATMTMID	DISTANCEONLY
60	University of Alaska Anchorage	Anchorage	AK	0.0	0.0	0.0	0	NaN	NaN	0.0
62	University of Alaska Fairbanks	Fairbanks	AK	0.0	0.0	0.0	0	NaN	NaN	0.0

2 rows × 27 columns

('AK' , 1)

	INSTNM	CITY	STABBR	HBCU	MENONLY	WOMENONLY	RELAFFIL	SATVRMID	SATMTMID	DISTANCEONLY
61	Alaska Bible College	Palmer	AK	0.0	0.0	0.0	1	NaN	NaN	0.0 ..
64	Alaska Pacific University	Anchorage	AK	0.0	0.0	0.0	1	555.0	503.0	0.0 ..

2 rows × 27 columns

('AL' , 0)

	INSTNM	CITY	STABBR	HBCU	MENONLY	WOMENONLY	RELAFFIL	SATVRMID	SATMTMID	DISTANCEONLY
0	Alabama A & M University	Normal	AL	1.0	0.0	0.0	0	424.0	420.0	0.0
1	University of Alabama at Birmingham	Birmingham	AL	0.0	0.0	0.0	0	570.0	565.0	0.0

2 rows × 27 columns

	INSTNM	CITY	STABBR	HBCU	MENONLY	WOMENONLY	RELAFFIL	SATVRMID	SATMTMID	DISTANCEONLY	UGDS_2MOR	UGDS_NRA
0	Alabama A & M University	Normal	AL	1.0	0.0	0.0	0	424.0	420.0	0.0 ...	0.0000	0.0059
1	University of Alabama at Birmingham	Birmingham	AL	0.0	0.0	0.0	0	570.0	565.0	0.0 ...	0.0368	0.0179
2	Amridge University	Montgomery	AL	0.0	0.0	0.0	1	NaN	NaN	1.0 ...	0.0000	0.0000
10	Birmingham Southern College	Birmingham	AL	0.0	0.0	0.0	1	560.0	560.0	0.0 ...	0.0051	0.0000
43	Prince Institute-Southeast	Elmhurst	IL	0.0	0.0	0.0	0	NaN	NaN	0.0 ...	0.0000	0.0000
60	University of Alaska Anchorage	Anchorage	AK	0.0	0.0	0.0	0	NaN	NaN	0.0 ...	0.0980	0.0181

	CITY	CURROPER	DISTANCEONLY	GRAD_DEBT_MDN_SUPP	HBCU	INSTNM	MD_EARN_WNE_P10	MENONLY	PCTFLOAN
STABBR	RELAFFIL								
AK	0	Fairbanks	1	0.0	19355	0.0	University of Alaska Fairbanks	36200	0.0 0.2550
	0	Barrow	1	0.0	PrivacySuppressed	0.0	Iliagvik College	24900	0.0 0.0000
	1	Anchorage	1	0.0	23250	0.0	Alaska Pacific University	47000	0.0 0.5297
	1	Soldotna	1	0.0	PrivacySuppressed	0.0	Alaska Christian College	NaN	0.0 0.6792
	0	Birmingham	1	0.0	21941.5	0.0	University of Alabama at Birmingham	39700	0.0 0.5214
	0	Dothan	1	0.0	PrivacySuppressed	0.0	Alabama College of Osteopathic Medicine	NaN	0.0 NaN
AL	1	Birmingham	1	0.0	27000	0.0	Birmingham Southern College	44200	0.0 0.4809
	1	Huntsville	1	NaN	36173.5	NaN	Strayer University-Huntsville Campus	49200	NaN NaN

INSTNM	CITY	STABBR	HBCU	MENONLY	WOMENONLY	RELAFFIL	SATVRMID	SATMTMID	DISTANCEONLY	UGDS
Everest College-Phoenix	Phoenix	AZ	0.0	0.0	0.0	1	NaN	NaN	0.0	4102.0
Collins College	Phoenix	AZ	0.0	0.0	0.0	0	NaN	NaN	0.0	83.0
Empire Beauty School-Paradise Valley	Phoenix	AZ	0.0	0.0	0.0	1	NaN	NaN	0.0	25.0
Empire Beauty School-Tucson	Tucson	AZ	0.0	0.0	0.0	0	NaN	NaN	0.0	126.0
Thunderbird School of Global Management	Glendale	AZ	0.0	0.0	0.0	0	NaN	NaN	0.0	1.0

	Name	Month	Week	Weight
0	Bob	Jan	Week 1	291
1	Amy	Jan	Week 1	197
2	Bob	Jan	Week 2	288
3	Amy	Jan	Week 2	189
4	Bob	Jan	Week 3	283
5	Amy	Jan	Week 3	189
6	Bob	Jan	Week 4	283
7	Amy	Jan	Week 4	190

	Name	Month	Week	Weight	Perc Weight Loss
0	Bob	Jan	Week 1	291	0.000
2	Bob	Jan	Week 2	288	-0.010
4	Bob	Jan	Week 3	283	-0.027
6	Bob	Jan	Week 4	283	-0.027
8	Bob	Feb	Week 1	283	0.000
10	Bob	Feb	Week 2	275	-0.028
12	Bob	Feb	Week 3	268	-0.053
14	Bob	Feb	Week 4	268	-0.053

	Name	Month	Week	Weight	Perc Weight Loss
6	Bob	Jan	Week 4	283	-0.027
7	Amy	Jan	Week 4	190	-0.036
14	Bob	Feb	Week 4	268	-0.053
15	Amy	Feb	Week 4	173	-0.089
22	Bob	Mar	Week 4	261	-0.026
23	Amy	Mar	Week 4	170	-0.017
30	Bob	Apr	Week 4	250	-0.042
31	Amy	Apr	Week 4	161	-0.053

Name	Amy	Bob
Month		
Apr	-0.053	-0.042
Feb	-0.089	-0.053
Jan	-0.036	-0.027
Mar	-0.017	-0.026

Name	Amy	Bob	Winner
Month			
Apr	-0.053	-0.042	Amy
Feb	-0.089	-0.053	Amy
Jan	-0.036	-0.027	Amy
Mar	-0.017	-0.026	Bob

Name	Amy	Bob
Month		
Jan	-0.036	-0.027
Feb	-0.089	-0.053
Mar	-0.017	-0.026
Apr	-0.053	-0.042

	INSTNM	CITY	HBCU	MENONLY	WOMENONLY	RELAFFIL	SATVRMID	SATMTMID	DISTANCEONLY	UGDS
STABBR										
AK	503	503	503	503		503	503	503	503	503
AL	536	536	536	536		536	536	536	536	536
AR	529	529	529	529		529	529	529	529	529
AZ	569	569	569	569		569	569	569	569	569
CA	564	564	564	564		564	564	564	564	564

	weighted_math_avg	weighted_verbal_avg	math_avg	verbal_avg	count
STABBR					
AK	503	555	503	555	1
AL	536	533	504	508	21
AR	529	504	515	491	16
AZ	569	557	536	538	6
CA	564	539	562	549	72
CO	553	547	540	537	14
CT	545	533	522	517	14
DC	621	623	588	589	6
DE	569	553	495	486	3
FL	565	565	521	529	38

	SATMTMID	SATVRMID	count
STABBR			
AK	Arithmetic	503	555
	Weighted	503	555
	Geometric	503	555
	Harmonic	503	555
AL	Arithmetic	504	508
	Weighted	536	533
	Geometric	500	505
	Harmonic	497	502
AR	Arithmetic	515	491
	Weighted	529	504
	Geometric	514	489
	Harmonic	513	487

MONTH	DAY	WEEKDAY	AIRLINE	ORG_AIR	DEST_AIR	SCHED_DEP	DEP_DELAY	AIR_TIME	DIST	SCHED_ARR	ARR_DELAY	DIVERTED	CANCELLED	
0	1	1	4	WN	LAX	SLC	1625	58.0	94.0	590	1905	65.0	0	0
1	1	1	4	UA	DEN	IAD	823	7.0	154.0	1452	1333	-13.0	0	0
2	1	1	4	MQ	DFW	VPS	1305	36.0	85.0	641	1453	35.0	0	0
3	1	1	4	AA	DFW	DCA	1555	7.0	126.0	1192	1935	-7.0	0	0
4	1	1	4	WN	LAX	MCI	1720	48.0	166.0	1363	2225	39.0	0	0

AIRLINE	AA	AS	B6	DL	EV	F9	HA	MQ	NK	OO	UA	US	VX	WN
DIST														
Under an Hour	0.052	nan	nan	0.086	0.289	nan	nan	0.211	nan	0.326	0.027	nan	nan	0.009
1 Hour	0.071	0.001	0.007	0.189	0.156	0.005	nan	0.1	0.012	0.159	0.062	0.016	0.028	0.194
1-2 Hours	0.144	0.023	0.003	0.206	0.101	0.038	nan	0.051	0.03	0.106	0.131	0.025	0.004	0.138
2-4 Hours	0.264	0.016	0.003	0.165	0.016	0.031	nan	0.003	0.045	0.046	0.199	0.04	0.012	0.16
4+ Hours	0.212	0.012	0.08	0.171	nan	0.004	0.028	nan	0.019	nan	0.289	0.065	0.074	0.046

	ORG_AIR	DEST_AIR
0	LAX	SLC
1	DEN	IAD
2	DFW	VPS
3	DCA	DFW
4	LAX	MCI

AIRLINE	ORG_AIR	ON_TIME
0	WN	LAX
1	UA	DEN
2	MQ	DFW
3	AA	DFW
4	WN	LAX
5	UA	IAH
6	AA	DFW
7	F9	SFO
8	AA	ORD
9	UA	IAH

AIRLINE	ORG_AIR	mean	size	max_streak
AIRLINE ORG_AIR				
AA	ATL	0.82	233	15
	DEN	0.74	219	17
	DFW	0.78	4006	64
	IAH	0.80	196	24
	LAS	0.79	374	29

AIRLINE	ORG_AIR	streak_row	MONTH	DAY	streak
AIRLINE ORG_AIR streak_row					
AA	DFW	first	2.0	26.0	38.0
		last	3.0	1.0	38.0
MQ	ORD	first	1.0	6.0	28.0
		last	1.0	12.0	28.0
NK	ORD	first	2.0	21.0	25.0
		last	2.0	26.0	25.0
DL	ATL	first	6.0	7.0	15.0
		last	6.0	18.0	15.0

Chapter 8: Restructuring Data into a Tidy Form

	Apple	Orange	Banana
Texas	12	10	40
Arizona	9	7	12
Florida	0	14	190

	level_0	level_1	0
0	Texas	Apple	12
1	Texas	Orange	10
2	Texas	Banana	40
3	Arizona	Apple	9
4	Arizona	Orange	7
5	Arizona	Banana	12
6	Florida	Apple	0
7	Florida	Orange	14
8	Florida	Banana	190

	state	fruit	weight
0	Texas	Apple	12
1	Texas	Orange	10
2	Texas	Banana	40
3	Arizona	Apple	9
4	Arizona	Orange	7
5	Arizona	Banana	12
6	Florida	Apple	0
7	Florida	Orange	14
8	Florida	Banana	190

	State	Apple	Orange	Banana
0	Texas	12	10	40
1	Arizona	9	7	12
2	Florida	0	14	190

	State	Apple	Orange	Banana
0	Texas	12	10	40
1	Arizona	9	7	12
2	Florida	0	14	190

	State	variable	value
0	Texas	Apple	12
1	Arizona	Apple	9
2	Florida	Apple	0
3	Texas	Orange	10
4	Arizona	Orange	7
5	Florida	Orange	14
6	Texas	Banana	40
7	Arizona	Banana	12
8	Florida	Banana	190

	State	Fruit	Weight
0	Texas	Apple	12
1	Arizona	Apple	9
2	Florida	Apple	0
3	Texas	Orange	10
4	Arizona	Orange	7
5	Florida	Orange	14
6	Texas	Banana	40
7	Arizona	Banana	12
8	Florida	Banana	190

	variable	value
0	State	Texas
1	State	Arizona
2	State	Florida
3	Apple	12
4	Apple	9
5	Apple	0
6	Orange	10
7	Orange	7
8	Orange	14
9	Banana	40
10	Banana	12
11	Banana	190

	movie_title	actor_1_name	actor_2_name	actor_3_name	actor_1_facebook_likes	actor_2_facebook_likes	actor_3_facebook_likes
0	Avatar	CCH Pounder	Joel David Moore	Wes Studi	1000.0	936.0	855.0
1	Pirates of the Caribbean: At World's End	Johnny Depp	Orlando Bloom	Jack Davenport	40000.0	5000.0	1000.0
2	Spectre	Christoph Waltz	Rory Kinnear	Stephanie Sigman	11000.0	393.0	161.0
3	The Dark Knight Rises	Tom Hardy	Christian Bale	Joseph Gordon-Levitt	27000.0	23000.0	23000.0
4	Star Wars: Episode VII - The Force Awakens	Doug Walker	Rob Walker	NaN	131.0	12.0	NaN

	movie_title	actor_1	actor_2	actor_3	actor_facebook_likes_1	actor_facebook_likes_2	actor_facebook_likes_3
0	Avatar	CCH Pounder	Joel David Moore	Wes Studi	1000.0	936.0	855.0
1	Pirates of the Caribbean: At World's End	Johnny Depp	Orlando Bloom	Jack Davenport	40000.0	5000.0	1000.0
2	Spectre	Christoph Waltz	Rory Kinnear	Stephanie Sigman	11000.0	393.0	161.0
3	The Dark Knight Rises	Tom Hardy	Christian Bale	Joseph Gordon-Levitt	27000.0	23000.0	23000.0
4	Star Wars: Episode VII - The Force Awakens	Doug Walker	Rob Walker	NaN	131.0	12.0	NaN

	movie_title	actor_num	actor	actor_facebook_likes
0	Avatar	1	CCH Pounder	1000.0
1	Pirates of the Caribbean: At World's End	1	Johnny Depp	40000.0
2	Spectre	1	Christoph Waltz	11000.0
3	The Dark Knight Rises	1	Tom Hardy	27000.0
4	Star Wars: Episode VII - The Force Awakens	1	Doug Walker	131.0

	State	Country	a1	b2	Test	d	e
0	TX	US	0.45	0.3	Test1	2	6
1	MA	US	0.03	1.2	Test2	9	7
2	ON	CAN	0.70	4.2	Test3	4	2

	State	Country	group1_a1	group1_b2	Test	group2_a1	group2_b2
0	TX	US	0.45	0.3	Test1	2	6
1	MA	US	0.03	1.2	Test2	9	7
2	ON	CAN	0.70	4.2	Test3	4	2

State	Country	Test	group1		group2
			a1	b2	
TX	US	Test1	0.45	0.3	2
				0.30	6
MA	US	Test2	a1	0.03	9
				1.20	7
ON	CAN	Test3	a1	0.70	4
				4.20	2

INSTNM	UGDS_WHITE	UGDS_BLACK	UGDS_HISP	UGDS_ASIAN	UGDS_AIAN	UGDS_NHPI	UGDS_2MOR	UGDS_NRA	UGDS_UNKN
Alabama A & M University	0.0333	0.9353	0.0055	0.0019	0.0024	0.0019	0.0000	0.0059	0.0138
University of Alabama at Birmingham	0.5922	0.2600	0.0283	0.0518	0.0022	0.0007	0.0368	0.0179	0.0100
Amridge University	0.2990	0.4192	0.0069	0.0034	0.0000	0.0000	0.0000	0.0000	0.2715
University of Alabama in Huntsville	0.6988	0.1255	0.0382	0.0376	0.0143	0.0002	0.0172	0.0332	0.0350
Alabama State University	0.0158	0.9208	0.0121	0.0019	0.0010	0.0006	0.0098	0.0243	0.0137

	INSTNM	UGDS_WHITE	UGDS_BLACK	UGDS_HISP	UGDS_ASIAN	UGDS_AIAN	UGDS_NHPI	UGDS_2MOR	UGDS_NRA	UGDS_UNKN
0	Alabama A & M University	0.0333	0.9353	0.0055	0.0019	0.0024	0.0019	0.0000	0.0059	0.0138
1	University of Alabama at Birmingham	0.5922	0.2600	0.0283	0.0518	0.0022	0.0007	0.0368	0.0179	0.0100
2	Amridge University	0.2990	0.4192	0.0069	0.0034	0.0000	0.0000	0.0000	0.0000	0.2715
3	University of Alabama in Huntsville	0.6988	0.1255	0.0382	0.0376	0.0143	0.0002	0.0172	0.0332	0.0350
4	Alabama State University	0.0158	0.9208	0.0121	0.0019	0.0010	0.0006	0.0098	0.0243	0.0137

	INSTNM	Race	Percentage
0	Alabama A & M University	UGDS_WHITE	0.0333
1	University of Alabama at Birmingham	UGDS_WHITE	0.5922
2	Amridge University	UGDS_WHITE	0.2990
3	University of Alabama in Huntsville	UGDS_WHITE	0.6988
4	Alabama State University	UGDS_WHITE	0.0158

Race	INSTNM	UGDS_2MOR	UGDS_AIAN	UGDS_ASIAN	UGDS_BLACK	UGDS_HISP	UGDS_NHPI	UGDS_NRA	UGDS_UNKN	UGDS_WHITE
A & W Healthcare Educators		0.0000	0.0	0.0000	0.9750	0.0250	0.0	0.0000	0.0000	0.0000
A T Still University of Health Sciences		NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
ABC Beauty Academy		0.0000	0.0	0.9333	0.0333	0.0333	0.0	0.0000	0.0000	0.0000
ABC Beauty College Inc		0.0000	0.0	0.0000	0.6579	0.0526	0.0	0.0000	0.0000	0.2895
AI Miami International University of Art and Design		0.0018	0.0	0.0018	0.0198	0.4773	0.0	0.0025	0.4644	0.0324

INSTNM	Alabama A & M University	University of Alabama at Birmingham	Amridge University	University of Alabama in Huntsville	Alabama State University	The University of Alabama	Central Alabama Community College	Athens State University	Auburn University at Montgomery	Auburn University	...
UGDS_WHITE	0.0333	0.5922	0.2990	0.6988	0.0158	0.7825	0.7255	0.7823	0.5328	0.8507	...
UGDS_BLACK	0.9353	0.2600	0.4192	0.1255	0.9208	0.1119	0.2613	0.1200	0.3376	0.0704	...
UGDS_HISP	0.0055	0.0283	0.0069	0.0382	0.0121	0.0348	0.0044	0.0191	0.0074	0.0248	...
UGDS_ASIAN	0.0019	0.0518	0.0034	0.0376	0.0019	0.0106	0.0025	0.0053	0.0221	0.0227	...
UGDS_AIAN	0.0024	0.0022	0.0000	0.0143	0.0010	0.0038	0.0044	0.0157	0.0044	0.0074	...
UGDS_NHPI	0.0019	0.0007	0.0000	0.0002	0.0006	0.0009	0.0000	0.0010	0.0016	0.0000	...
UGDS_2MOR	0.0000	0.0368	0.0000	0.0172	0.0098	0.0261	0.0000	0.0174	0.0297	0.0000	...
UGDS_NRA	0.0059	0.0179	0.0000	0.0332	0.0243	0.0268	0.0000	0.0057	0.0397	0.0100	...
UGDS_UNKN	0.0138	0.0100	0.2715	0.0350	0.0137	0.0026	0.0019	0.0334	0.0246	0.0140	...

GENDER	Female	Male
RACE		
American Indian or Alaskan Native	60238	60305
Asian/Pacific Islander	63226	61033
Black or African American	48915	51082
Hispanic/Latino	46503	54782
Others	63785	38771
White	66793	63940

RACE	American Indian or Alaskan Native	Asian/Pacific Islander	Black or African American	Hispanic/Latino	Others	White
GENDER						
Female	60238	63226	48915	46503	63785	66793
Male	60305	61033	51082	54782	38771	63940

RACE	GENDER	mean	max	min
American Indian or Alaskan Native	Female	60238	98536	26125
	Male	60305	81239	26125
Asian/Pacific Islander	Female	63226	130416	26125
	Male	61033	163228	27914
Black or African American	Female	48915	150416	24960
	Male	51082	275000	26125
Hispanic/Latino	Female	46503	126115	26125
	Male	54782	165216	26104
Others	Female	63785	63785	63785
	Male	38771	38771	38771
White	Female	66793	178331	27955
	Male	63940	210588	26125

GENDER	mean		max		min	
	Female	Male	Female	Male	Female	Male
RACE						
American Indian or Alaskan Native	60238	60305	98536	81239	26125	26125
Asian/Pacific Islander	63226	61033	130416	163228	26125	27914
Black or African American	48915	51082	150416	275000	24960	26125
Hispanic/Latino	46503	54782	126115	165216	26125	26104
Others	63785	38771	63785	38771	63785	38771
White	66793	63940	178331	210588	27955	26125

ORG_AIR	ATL	DEN	DFW	IAH	LAS	LAX	MSP	ORD	PHX	SFO
AIRLINE										
AA	3	4	86	3	3	11	3	35	4	2
AS	0	0	0	0	0	0	0	0	0	0
B6	0	0	0	0	0	0	0	0	0	1
DL	28	1	0	0	1	1	4	0	1	2
EV	18	6	27	36	0	0	6	53	0	0

AIRLINE	MONTH	mean										... sum										
		DEP_DELAY										... DIST										
		ORG_AIR	ATL	DEN	DFW	IAH	LAS	... LAX	MSP	ORD	PHX	SFO	CANCELLED	0	1	0	1	0	1	0	1	0
AA		1	-3.250000	0	7.062500	0	11.977591	-3.0	9.750000	0	32.375000	0	...	135921	2475	7281	0	129334	0	21018	0	33483
		2	-3.000000	0	5.461538	0	8.756579	0.0	1.000000	0	-3.055556	0	...	113483	5454	5040	0	120572	5398	17049	868	32110
		3	-0.166667	0	7.666667	0	15.383784	0.0	10.900000	0	12.074074	0	...	131836	1744	14471	0	127072	802	25770	0	43580
		4	0.071429	0	20.266667	0	10.501493	0.0	6.933333	0	27.241379	0	...	170285	0	4541	0	152154	4718	17727	0	51054
		5	5.777778	0	23.466667	0	16.798780	0.0	3.055556	0	2.818182	0	...	167484	0	6298	0	110864	1999	11164	0	40233

STABBR	RELAFFIL	UGDS			SATMTMID		
		count	min	max	count	min	max
AK	0	7	109.0	12865.0	0	NaN	NaN
	1	3	27.0	275.0	1	503.0	503.0
AL	0	71	12.0	29851.0	13	420.0	590.0
	1	18	13.0	3033.0	8	400.0	560.0
AR	0	68	18.0	21405.0	9	427.0	565.0
	1	14	20.0	4485.0	7	495.0	600.0

STABBR	RELAFFIL	AGG_COLS	UGDS			SATMTMID		
			AGG_FUNCS	count	min	max	count	min
AK	0	7	109.0	12865.0	0	NaN	NaN	
	1	3	27.0	275.0	1	503.0	503.0	
AL	0	71	12.0	29851.0	13	420.0	590.0	
	1	18	13.0	3033.0	8	400.0	560.0	
AR	0	68	18.0	21405.0	9	427.0	565.0	
	1	14	20.0	4485.0	7	495.0	600.0	

STABBR	RELAFFIL	AGG_FUNCS	AGG_COLS	UGDS	SATMTMID
			0	count	7.0
AK	0		min	109.0	NaN
	1		max	12865.0	NaN
AL	0		count	3.0	1.0
	1		min	27.0	503.0

	AGG_COLS	UGDS	SATMTMID	
AGG_FUNCS	RELAFFIL	STABBR		
count	0	AK	7.0	0.0
min	0	AK	109.0	NaN
max	0	AK	12865.0	NaN
count	1	AK	3.0	1.0
min	1	AK	27.0	503.0

	AGG_COLS	SATMTMID	UGDS	
AGG_FUNCS	RELAFFIL	STABBR		
count	0	AK	0.0	7.0
		AL	13.0	71.0
		AR	9.0	68.0
min	0	AK	NaN	109.0
		AL	420.0	12.0
		AR	427.0	18.0

AGG_COLS	UGDS	SATMTMID												
RELAFFIL	0	1	0	1	0	1	0	1	0	1	0	1	0	1
STABBR	AK	AK	AL	AL	AR	AR	AK	AK	AL	AL	AR	AR	AR	AR
AGG_FUNCS														
count	7.0	3.0	71.0	18.0	68.0	14.0	0.0	1.0	13.0	8.0	9.0	7.0		
min	109.0	27.0	12.0	13.0	18.0	20.0	NaN	503.0	420.0	400.0	427.0	495.0		
max	12865.0	275.0	29851.0	3033.0	21405.0	4485.0	NaN	503.0	590.0	560.0	565.0	600.0		

UGDS				SATMTMID			
	count	min	max	count	min	max	
AK	0	7	109.0	12865.0	0	NaN	NaN
	1	3	27.0	275.0	1	503.0	503.0
AL	0	71	12.0	29851.0	13	420.0	590.0
	1	18	13.0	3033.0	8	400.0	560.0
AR	0	68	18.0	21405.0	9	427.0	565.0
	1	14	20.0	4485.0	7	495.0	600.0

Weight Category	M35 35-39	M40 40-44	M45 45-49	M50 50-54	M55 55-59	M60 60-64	M65 65-69	M70 70-74	M75 75-79	M80 80+	
0	56	137	130	125	115	102	92	80	67	62	55
1	62	152	145	137	127	112	102	90	75	67	57
2	69	167	160	150	140	125	112	97	82	75	60
3	77	182	172	165	150	135	122	107	90	82	65
4	85	192	182	175	160	142	130	112	95	87	70
5	94	202	192	182	167	150	137	120	100	90	75
6	105	210	200	190	175	157	142	122	102	95	80
7	105+	217	207	197	182	165	150	127	107	100	85

Weight Category	sex_age	Qual Total
0	56 M35 35-39	137
1	62 M35 35-39	152
2	69 M35 35-39	167
3	77 M35 35-39	182
4	85 M35 35-39	192

0	1
0	M35 35-39
1	M35 35-39
2	M35 35-39
3	M35 35-39
4	M35 35-39

	Sex	Age Group
0	M35	35-39
1	M35	35-39
2	M35	35-39
3	M35	35-39
4	M35	35-39

	Sex	Age Group
0	M	35-39
1	M	35-39
2	M	35-39
3	M	35-39
4	M	35-39

	Sex	Age Group	Weight Category	Qual Total
0	M	35-39	56	137
1	M	35-39	62	152
2	M	35-39	69	167
3	M	35-39	77	182
4	M	35-39	85	192

	attribute	value
0	variable_1	value_1
1	variable_2	value_2
2	variable_3	value_3
3	variable_1	value_1
4	variable_2	value_2
5	variable_3	value_3

	variable_1	variable_2	variable_3
0	value_1	value_2	value_3
1	value_1	value_2	value_3

	Name	Date	Info	Value
0	E & E Grill House	2017-08-08	Borough	MANHATTAN
1	E & E Grill House	2017-08-08	Cuisine	American
2	E & E Grill House	2017-08-08	Description	Non-food contact surface improperly constructe...
3	E & E Grill House	2017-08-08	Grade	A
4	E & E Grill House	2017-08-08	Score	9.0
5	PIZZA WAGON	2017-04-12	Borough	BROOKLYN
6	PIZZA WAGON	2017-04-12	Cuisine	Pizza
7	PIZZA WAGON	2017-04-12	Description	Food contact surface not properly washed, rins...
8	PIZZA WAGON	2017-04-12	Grade	A
9	PIZZA WAGON	2017-04-12	Score	10.0

	Value		
	Name	Date	Info
E & E Grill House	2017-08-08	Borough	MANHATTAN
		Cuisine	American
		Description	Non-food contact surface improperly constructe...
		Grade	A
		Score	9.0
PIZZA WAGON	2017-04-12	Borough	BROOKLYN
		Cuisine	Pizza
		Description	Food contact surface not properly washed, rins...
		Grade	A
		Score	10.0

Name	Value						
	Info	Borough	Cuisine	Description		Grade	Score
	Date						
3 STAR JUICE CENTER	2017-05-10	BROOKLYN	Juice, Smoothies, Fruit Salads	Facility not vermin proof. Harborage or condit...	A	12.0	
A & L PIZZA RESTAURANT	2017-08-22	BROOKLYN	Pizza	Facility not vermin proof. Harborage or condit...	A	9.0	
AKSARAY TURKISH CAFE AND RESTAURANT	2017-07-25	BROOKLYN	Turkish	Plumbing not properly installed or maintained;...	A	13.0	
ANTOJITOS DELI FOOD	2017-06-01	BROOKLYN	Latin (Cuban, Dominican, Puerto Rican, South &...)	Live roaches present in facility's food and/or...	A	10.0	
BANGIA	2017-06-16	MANHATTAN	Korean	Covered garbage receptacle not provided or ina...	A	9.0	

Info	Name	Value						
		Date	Borough	Cuisine	Description		Grade	Score
0	3 STAR JUICE CENTER	2017-05-10	BROOKLYN	Juice, Smoothies, Fruit Salads	Facility not vermin proof. Harborage or condit...	A	12.0	
1	A & L PIZZA RESTAURANT	2017-08-22	BROOKLYN	Pizza	Facility not vermin proof. Harborage or condit...	A	9.0	
2	AKSARAY TURKISH CAFE AND RESTAURANT	2017-07-25	BROOKLYN	Turkish	Plumbing not properly installed or maintained;...	A	13.0	
3	ANTOJITOS DELI FOOD	2017-06-01	BROOKLYN	Latin (Cuban, Dominican, Puerto Rican, South &...)	Live roaches present in facility's food and/or...	A	10.0	
4	BANGIA	2017-06-16	MANHATTAN	Korean	Covered garbage receptacle not provided or ina...	A	9.0	

	Name	Date	Borough	Cuisine	Description	Grade	Score
0	3 STAR JUICE CENTER	2017-05-10	BROOKLYN	Juice, Smoothies, Fruit Salads	Facility not vermin proof. Harborage or condit...	A	12.0
1	A & L PIZZA RESTAURANT	2017-08-22	BROOKLYN	Pizza	Facility not vermin proof. Harborage or condit...	A	9.0
2	AKSARAY TURKISH CAFE AND RESTAURANT	2017-07-25	BROOKLYN	Turkish	Plumbing not properly installed or maintained;...	A	13.0
3	ANTOJITOS DELI FOOD	2017-06-01	BROOKLYN	Latin (Cuban, Dominican, Puerto Rican, South &...)	Live roaches present in facility's food and/or...	A	10.0
4	BANGIA	2017-06-16	MANHATTAN	Korean	Covered garbage receptacle not provided or ina...	A	9.0

	City	Geolocation
0	Houston	29.7604° N, 95.3698° W
1	Dallas	32.7767° N, 96.7970° W
2	Austin	30.2672° N, 97.7431° W

	latitude	latitude direction	longitude	longitude direction
0	29.7604	N	95.3698	W
1	32.7767	N	96.7970	W
2	30.2672	N	97.7431	W

	City	latitude	latitude direction	longitude	longitude direction
0	Houston	29.7604		N	95.3698
1	Dallas	32.7767		N	96.7970
2	Austin	30.2672		N	97.7431

	Group	Property	2012	2013	2014	2015	2016
0	A	Pressure	928	873	814	973	870
1	A	Temperature	1026	1038	1009	1036	1042
2	A	Flow	819	806	861	882	856
3	B	Pressure	817	877	914	806	942
4	B	Temperature	1008	1041	1009	1002	1013
5	B	Flow	887	899	837	824	873

	Group	Property	Year	value
0	A	Pressure	2012	928
1	A	Temperature	2012	1026
2	A	Flow	2012	819
3	B	Pressure	2012	817
4	B	Temperature	2012	1008
5	B	Flow	2012	887

Group	Year	Flow	Pressure	Temperature
0	A 2012	819	928	1026
1	A 2013	806	873	1038
2	A 2014	861	814	1009
3	A 2015	882	973	1036
4	A 2016	856	870	1042
5	B 2012	887	817	1008
6	B 2013	899	877	1041
7	B 2014	837	914	1009
8	B 2015	824	806	1002
9	B 2016	873	942	1013

	title	rating	year	duration	director_1	director_fb_likes_1	actor_1	actor_2	actor_3	actor_fb_likes_1	actor_fb_likes_2	actor_fb_likes_3
0	Avatar	PG-13	2009.0	178.0	James Cameron	0.0	CCH Pounder	Joel David Moore	Wes Studi	1000.0	936.0	855.0
1	Pirates of the Caribbean: At World's End	PG-13	2007.0	169.0	Gore Verbinski	563.0	Johnny Depp	Orlando Bloom	Jack Davenport	40000.0	5000.0	1000.0
2	Spectre	PG-13	2015.0	148.0	Sam Mendes	0.0	Christoph Waltz	Rory Kinnear	Stephanie Sigman	11000.0	393.0	161.0
3	The Dark Knight Rises	PG-13	2012.0	164.0	Christopher Nolan	22000.0	Tom Hardy	Christian Bale	Joseph Gordon-Levitt	27000.0	23000.0	23000.0
4	Star Wars: Episode VII - The Force Awakens	NaN	NaN	NaN	Doug Walker	131.0	Doug Walker	Rob Walker	NaN	131.0	12.0	NaN

id	title	rating	year	duration	director_1	director_fb_likes_1	actor_1	actor_2	actor_3	actor_fb_likes_1	actor_fb_likes_2	actor_fb_likes_3
0	Avatar	PG-13	2009.0	178.0	James Cameron	0.0	CCH Pounder	Joel David Moore	Wes Studi	1000.0	936.0	855.0
1	Pirates of the Caribbean: At World's End	PG-13	2007.0	169.0	Gore Verbinski	563.0	Johnny Depp	Orlando Bloom	Jack Davenport	40000.0	5000.0	1000.0
2	Spectre	PG-13	2015.0	148.0	Sam Mendes	0.0	Christoph Waltz	Rory Kinnear	Stephanie Sigman	11000.0	393.0	161.0
3	The Dark Knight Rises	PG-13	2012.0	164.0	Christopher Nolan	22000.0	Tom Hardy	Christian Bale	Joseph Gordon-Levitt	27000.0	23000.0	23000.0
4	Star Wars: Episode VII - The Force Awakens	NaN	NaN	NaN	Doug Walker	131.0	Doug Walker	Rob Walker	NaN	131.0	12.0	NaN

id	num	year	duration	rating	title	director	director_fb_likes	actor	actor_fb_likes	
0	0	1	2009.0	178.0	PG-13	Avatar	James Cameron	0.0	CCH Pounder	1000.0
1	0	2	2009.0	178.0	PG-13	Avatar	NaN	NaN	Joel David Moore	936.0
2	0	3	2009.0	178.0	PG-13	Avatar	NaN	NaN	Wes Studi	855.0
3	1	1	2007.0	169.0	PG-13	Pirates of the Caribbean: At World's End	Gore Verbinski	563.0	Johnny Depp	40000.0
4	1	2	2007.0	169.0	PG-13	Pirates of the Caribbean: At World's End	NaN	NaN	Orlando Bloom	5000.0
5	1	3	2007.0	169.0	PG-13	Pirates of the Caribbean: At World's End	NaN	NaN	Jack Davenport	1000.0
6	2	1	2015.0	148.0	PG-13	Spectre	Sam Mendes	0.0	Christoph Waltz	11000.0
7	2	2	2015.0	148.0	PG-13	Spectre	NaN	NaN	Rory Kinnear	393.0
8	2	3	2015.0	148.0	PG-13	Spectre	NaN	NaN	Stephanie Sigman	161.0

id	title	year	duration	rating	id	director	num	director_fb_likes	id	actor	num	actor_fb_likes
0	Avatar	2009.0	178.0	PG-13	0	James Cameron	1	0.0	0	CCH Pounder	1	1000.0
1	Avatar	2009.0	178.0	PG-13	1	NaN	2	NaN	1	Joel David Moore	2	936.0
2	Avatar	2009.0	178.0	PG-13	2	NaN	3	NaN	2	Wes Studi	3	855.0
3	Pirates of the Caribbean: At World's End	2007.0	169.0	PG-13	3	Gore Verbinski	1	563.0	3	Johnny Depp	1	40000.0
4	Pirates of the Caribbean: At World's End	2007.0	169.0	PG-13	4	NaN	2	NaN	4	Orlando Bloom	2	5000.0
5	Pirates of the Caribbean: At World's End	2007.0	169.0	PG-13	5	NaN	3	NaN	5	Jack Davenport	3	1000.0
6	Spectre	2015.0	148.0	PG-13	6	Sam Mendes	1	0.0	6	Christoph Waltz	1	11000.0
7	Spectre	2015.0	148.0	PG-13	7	NaN	2	NaN	7	Rory Kinnear	2	393.0
8	Spectre	2015.0	148.0	PG-13	8	NaN	3	NaN	8	Stephanie Sigman	3	161.0

id	title	year	duration	rating	id	director	num	director_fb_likes
0	Avatar	2009.0	178.0	PG-13	0	James Cameron	1	0.0
1	Pirates of the Caribbean: At World's End	2007.0	169.0	PG-13	1	Gore Verbinski	1	563.0
2	Spectre	2015.0	148.0	PG-13	2	Sam Mendes	1	0.0
3	The Dark Knight Rises	2012.0	164.0	PG-13	3	Christopher Nolan	1	22000.0
4	Star Wars: Episode VII - The Force Awakens	NaN	NaN	NaN	4	Doug Walker	1	131.0

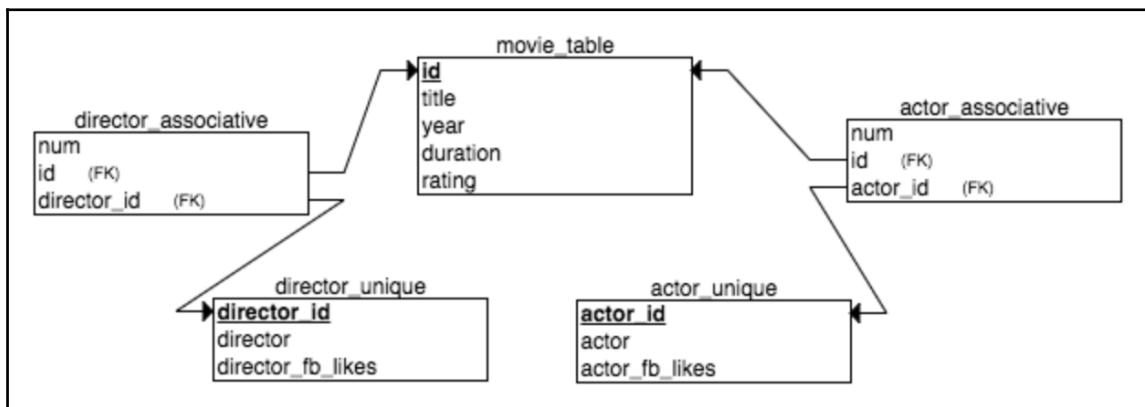
id	actor_id	actor	num	actor_fb_likes	id	director_id	director	num	director_fb_likes
0	824	CCH Pounder	1	1000.0	0	922	James Cameron	1	0.0
1	2867	Joel David Moore	2	936.0	1	794	Gore Verbinski	1	563.0
2	6099	Wes Studi	3	855.0	2	2020	Sam Mendes	1	0.0
3	2971	Johnny Depp	1	40000.0	3	373	Christopher Nolan	1	22000.0
4	4536	Orlando Bloom	2	5000.0	4	600	Doug Walker	1	131.0

	id	director_id	num
0	0	922	1
1	1	794	1
2	2	2020	1
3	3	373	1
4	4	600	1

	director_id	director	director_fb_likes
0	922	James Cameron	0.0
1	794	Gore Verbinski	563.0
2	2020	Sam Mendes	0.0
3	373	Christopher Nolan	22000.0
4	600	Doug Walker	131.0

	id	actor_id	num
0	0	824	1
1	0	2867	2
2	0	6099	3
3	1	2971	1
4	1	4536	2

	actor_id	actor	actor_fb_likes
0	824	CCH Pounder	1000.0
1	2867	Joel David Moore	936.0
2	6099	Wes Studi	855.0
3	2971	Johnny Depp	40000.0
4	4536	Orlando Bloom	5000.0



	actor_1	actor_2	actor_3	actor_fb_likes_1	actor_fb_likes_2	actor_fb_likes_3
	id					
0	CCH Pounder	Joel David Moore	Wes Studi	1000.0	936.0	855.0
1	Johnny Depp	Orlando Bloom	Jack Davenport	40000.0	5000.0	1000.0
2	Christoph Waltz	Rory Kinnear	Stephanie Sigman	11000.0	393.0	161.0
3	Tom Hardy	Christian Bale	Joseph Gordon-Levitt	27000.0	23000.0	23000.0
4	Doug Walker	Rob Walker	None	131.0	12.0	NaN

	director_1	director_fb_likes_1
id		
0	James Cameron	0.0
1	Gore Verbinski	563.0
2	Sam Mendes	0.0
3	Christopher Nolan	22000.0
4	Doug Walker	131.0

Chapter 9: Combining Pandas Objects

	Name	Age
0	Cornelia	70
1	Abbas	69
2	Penelope	4
3	Niko	2

	Name	Age
0	Cornelia	70
1	Abbas	69
2	Penelope	4
3	Niko	2
4	Aria	1

	Name	Age
0	Cornelia	70
1	Abbas	69
2	Penelope	4
3	Niko	2
4	Aria	1
five	Zach	3

	Name	Age
0	Cornelia	70
1	Abbas	69
2	Penelope	4
3	Niko	2
4	Aria	1
five	Zach	3
6	Zayd	2

	Name	Age
0	Cornelia	70
1	Abbas	69
2	Penelope	4
3	Niko	2
4	Aria	1
five	Zach	3
6	Zayd	2
7	Dean	32

	Name	Age
0	Cornelia	70
1	Abbas	69
2	Penelope	4
3	Niko	2
4	Aria	1

	Name	Age
Canada	Cornelia	70
Canada	Abbas	69
USA	Penelope	4
USA	Niko	2

	Name	Age
Canada	Cornelia	70
Canada	Abbas	69
USA	Penelope	4
USA	Niko	2
4	Zach	3

	Name	Age
Canada	Cornelia	70
Canada	Abbas	69
USA	Penelope	4
USA	Niko	2
4	Zach	3
USA	Zayd	2

playerID	yearID	stint	teamID	lgID	G	AB	R	H	2B	...	RBI	SB	CS	BB	SO	IBB	HBP	SH	SF	GDP	
0	etkiss01	2016	1	HOU	AL	181	640	168	218	42	...	96.0	30.0	10.0	60	70.0	11.0	7.0	3.0	1.0	1.0
1	frigmo01	2016	1	HOU	AL	48	291	31	83	13	...	34.0	2.0	0.0	18	52.0	0.0	0.0	0.0	1.0	1.0
2	eselp01	2016	1	HOU	AL	113	329	41	89	16	...	32.0	2.0	1.0	48	125.0	0.0	1.0	1.0	0.0	0.0
3	corneli01	2016	1	HOU	AL	183	577	76	188	36	...	98.0	13.0	3.0	78	138.0	8.0	0.0	0.0	3.0	12.0
4	gattie01	2016	1	HOU	AL	128	447	88	112	19	...	72.0	2.0	1.0	43	127.0	6.0	4.0	0.0	5.0	12.0

	Shares	Low	High
Symbol			
AAPL	80	95	110
TSLA	50	80	130
WMT	40	55	70

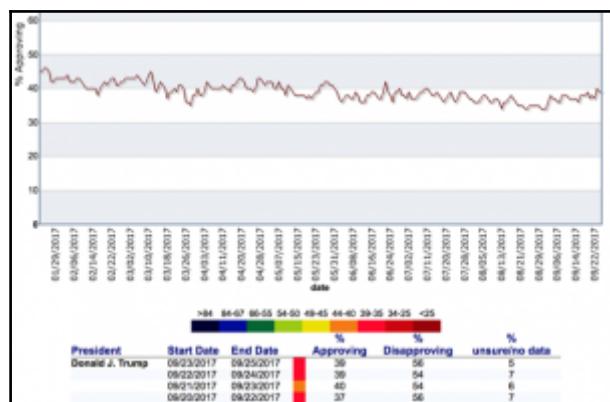
	Shares	Low	High
Symbol			
AAPL	50	120	140
GE	100	30	40
IBM	87	75	95
SLB	20	55	85
TXN	500	15	23
TSLA	100	100	300

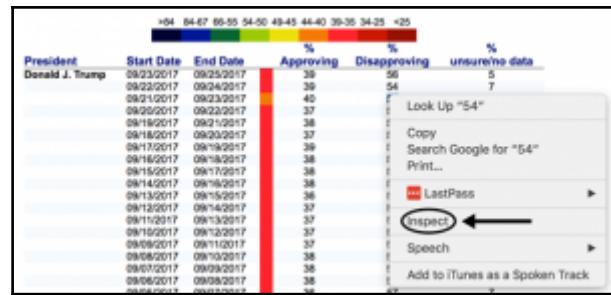
	Shares	Low	High
Symbol			
AAPL	80	95	110
TSLA	50	80	130
WMT	40	55	70
AAPL	50	120	140
GE	100	30	40
IBM	87	75	95
SLB	20	55	85
TXN	500	15	23
TSLA	100	100	300

		Shares	Low	High
Year	Symbol			
2016	AAPL	80	95	110
	TSLA	50	80	130
	WMT	40	55	70
2017	AAPL	50	120	140
	GE	100	30	40
	IBM	87	75	95
	SLB	20	55	85
	TXN	500	15	23
	TSLA	100	100	300

Year	2016			2017		
	Shares	Low	High	Shares	Low	High
AAPL	80.0	95.0	110.0	50.0	120.0	140.0
GE	NaN	NaN	NaN	100.0	30.0	40.0
IBM	NaN	NaN	NaN	87.0	75.0	95.0
SLB	NaN	NaN	NaN	20.0	55.0	85.0
TSLA	50.0	80.0	130.0	100.0	100.0	300.0
TXN	NaN	NaN	NaN	500.0	15.0	23.0
WMT	40.0	55.0	70.0	NaN	NaN	NaN

Year	2016			2017		
	Shares	Low	High	Shares	Low	High
Symbol						
AAPL	80	95	110	50	120	140
TSLA	50	80	130	100	100	300





A screenshot of a browser developer tools element inspector. The DOM tree shows a table with several rows and columns. A specific cell is selected, displaying its CSS style: `<td bgcolor="#ffff">`. The inspector also shows the table's structure with nodes like tbody, tr, td, table, tbody, tr, td, table, and table. Below the tree, there are tabs for Styles, Computed, Event Listeners, and DOM Breakpoint.

A screenshot of a browser developer tools table data viewer. The table has 8 columns and 6 rows. All cells contain the value `NaN`, except for the first row which contains `0, 1, 2, 3, 4, 5, 6, 7`. The last row is labeled with column names: Document, Document, Document, Document, Document, Document, Papers of the Union, and Addresses & Messages.

A screenshot of a browser developer tools element inspector. The DOM tree shows a table with a width of 600 pixels. A specific cell in the third row and second column is highlighted with a blue background and labeled with the text `<td class="colname">President</td> == $0`.

	0	1	2	3	4	5	6
0	>84 84-67 66-55 54-50 49-45 44-40 39-35 ...	>84	84-67	66-55	54-50	49-45	44-40
1	>84	84-67	66-55	54-50	49-45	44-40	39-35
2	NaN	NaN	NaN	NaN	NaN	NaN	NaN
3	NaN	NaN	NaN	NaN	%	%	%
4	President	Start Date	End Date	NaN	Approving	Disapproving	unsure/no data
5	NaN	NaN	NaN	NaN	NaN	NaN	NaN
6	Donald J. Trump	09/23/2017	09/25/2017	NaN	39	56	5
7	NaN	09/22/2017	09/24/2017	NaN	39	54	7

	President	Start Date	End Date	Unanswered	Approving	Disapproving	unsure/no data	Unansw T	Unansw E	Unansw S	Unansw R	Unansw 10	Unansw 11	Unansw 12
0	Donald J. Trump	09/23/2017	09/25/2017	NaN	39	56	5	NaN	NaN	NaN	NaN	NaN	NaN	NaN
1	NaN	09/23/2017	09/24/2017	NaN	54	7	7	NaN	NaN	NaN	NaN	NaN	NaN	NaN
2	NaN	09/23/2017	09/25/2017	NaN	40	54	6	NaN	NaN	NaN	NaN	NaN	NaN	NaN
3	NaN	09/23/2017	09/23/2017	NaN	37	56	7	NaN	NaN	NaN	NaN	NaN	NaN	NaN
4	NaN	09/23/2017	09/24/2017	NaN	36	56	5	NaN	NaN	NaN	NaN	NaN	NaN	NaN

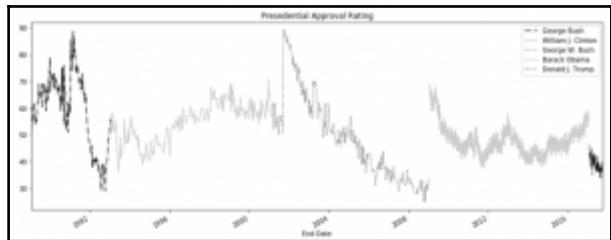
	President	Start Date	End Date	Approving	Disapproving	unsure/no data
0	Donald J. Trump	2017-09-23	2017-09-25	39	56	5
1	NaN	2017-09-22	2017-09-24	39	54	7
2	NaN	2017-09-21	2017-09-23	40	54	6
3	NaN	2017-09-20	2017-09-22	37	56	7
4	NaN	2017-09-19	2017-09-21	38	56	6

	President	Start Date	End Date	Approving	Disapproving	unsure/no data
0	Donald J. Trump	2017-09-23	2017-09-25	39	56	5
1	Donald J. Trump	2017-09-22	2017-09-24	39	54	7
2	Donald J. Trump	2017-09-21	2017-09-23	40	54	6
3	Donald J. Trump	2017-09-20	2017-09-22	37	56	7
4	Donald J. Trump	2017-09-19	2017-09-21	38	56	6

	President	Start Date	End Date	Approving	Disapproving	unsure/no data
0	Barack Obama	2009-01-21	2009-01-23	68	12	21
1	Barack Obama	2009-01-22	2009-01-24	69	13	18
2	Barack Obama	2009-01-23	2009-01-25	67	14	19
3	Barack Obama	2009-01-24	2009-01-26	65	15	20
4	Barack Obama	2009-01-25	2009-01-27	64	16	20

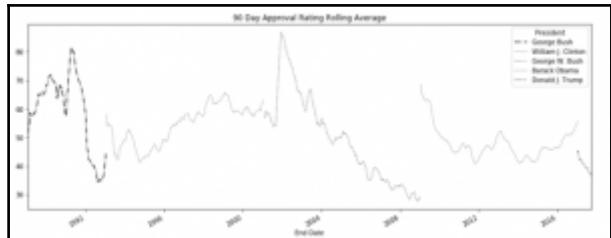
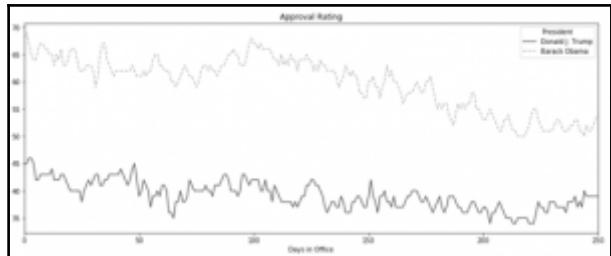
	President	Start Date	End Date	Approving	Disapproving	unsure/no data
0	George Bush	1989-01-24	1989-01-26	51	6	43
1	George Bush	1989-02-24	1989-02-27	60	11	27
2	George Bush	1989-02-28	1989-03-02	62	13	24
158	William J. Clinton	1993-01-24	1993-01-26	58	20	22
159	William J. Clinton	1993-01-29	1993-01-31	53	30	16
160	William J. Clinton	1993-02-12	1993-02-14	51	33	15
386	George W. Bush	2001-02-01	2001-02-04	57	25	18
387	George W. Bush	2001-02-09	2001-02-11	57	24	17
388	George W. Bush	2001-02-19	2001-02-21	61	21	16
656	Barack Obama	2009-01-21	2009-01-23	68	12	21
657	Barack Obama	2009-01-22	2009-01-24	69	13	18
658	Barack Obama	2009-01-23	2009-01-25	67	14	19
3443	Donald J. Trump	2017-01-20	2017-01-22	45	45	10
3444	Donald J. Trump	2017-01-21	2017-01-23	45	46	9
3445	Donald J. Trump	2017-01-22	2017-01-24	46	45	9

President	Approving	Disapproving	unsure/no data
George Bush	63.0	22.0	9.0
William J. Clinton	57.0	36.0	6.0
George W. Bush	50.5	45.5	4.0
Barack Obama	47.0	47.0	7.0
Donald J. Trump	39.0	56.0	6.0



	President	Start Date	End Date	Approving	Disapproving	unsure/no data	Days in Office
0	George Bush	1989-01-24	1989-01-26	51	6	43	0 days
1	George Bush	1989-02-24	1989-02-27	60	11	27	32 days
2	George Bush	1989-02-28	1989-03-02	62	13	24	35 days
156	William J. Clinton	1993-01-24	1993-01-26	58	20	22	0 days
156	William J. Clinton	1993-01-29	1993-01-31	53	30	16	5 days
160	William J. Clinton	1993-02-12	1993-02-14	51	33	15	19 days
366	George W. Bush	2001-02-01	2001-02-04	57	25	18	0 days
367	George W. Bush	2001-02-09	2001-02-11	57	24	17	7 days
368	George W. Bush	2001-02-19	2001-02-21	61	21	16	17 days
656	Barack Obama	2009-01-21	2009-01-23	68	12	21	0 days
657	Barack Obama	2009-01-22	2009-01-24	69	13	18	1 days
658	Barack Obama	2009-01-23	2009-01-25	67	14	19	2 days
3443	Donald J. Trump	2017-01-20	2017-01-22	45	45	10	0 days
3444	Donald J. Trump	2017-01-21	2017-01-23	45	46	9	1 days
3445	Donald J. Trump	2017-01-22	2017-01-24	46	45	9	2 days

President	Barack Obama	Donald J. Trump	George Bush	George W. Bush	William J. Clinton
Days in Office					
0	68.0	45.0	51.0	57.0	58.0
1	69.0	45.0	NaN	NaN	NaN
2	67.0	46.0	NaN	NaN	NaN
3	65.0	46.0	NaN	NaN	NaN
4	64.0	45.0	NaN	NaN	NaN



Symbol	Shares	Low	High	Symbol	Shares	Low	High	Symbol	Shares	Low	High
AAPL	80	95	110	AAPL	50	120	140	AAPL	40	135	170
TSLA	50	80	130	GE	100	30	40	AMZN	8	900	1125
WMT	40	55	70	IBM	87	75	95	TSLA	50	220	400
				SLB	20	55	85				
				TXN	500	15	23				
				TSLA	100	100	300				

		Shares	Low	High	
		Symbol			
2016	AAPL	80	95	110	
	TSLA	50	80	130	
	WMT	40	55	70	
2017	AAPL	50	120	140	
	GE	100	30	40	
	IBM	87	75	95	
	SLB	20	55	85	
	TXN	500	15	23	
2018	TSLA	100	100	300	
	AAPL	40	135	170	
	AMZN	8	900	1125	
	TSLA	50	220	400	

	2016			2017			2018		
	Shares	Low	High	Shares	Low	High	Shares	Low	High
AAPL	80.0	95.0	110.0	50.0	120.0	140.0	40.0	135.0	170.0
AMZN	NaN	NaN	NaN	NaN	NaN	NaN	8.0	900.0	1125.0
GE	NaN	NaN	NaN	100.0	30.0	40.0	NaN	NaN	NaN
IBM	NaN	NaN	NaN	87.0	75.0	95.0	NaN	NaN	NaN
SLB	NaN	NaN	NaN	20.0	55.0	85.0	NaN	NaN	NaN
TSLA	50.0	80.0	130.0	100.0	100.0	300.0	50.0	220.0	400.0
TXN	NaN	NaN	NaN	500.0	15.0	23.0	NaN	NaN	NaN
WMT	40.0	55.0	70.0	NaN	NaN	NaN	NaN	NaN	NaN

Symbol	Shares_2016	Low_2016	High_2016	Shares_2017	Low_2017	High_2017
AAPL	80.0	95.0	110.0	50.0	120.0	140.0
GE	NaN	NaN	NaN	100.0	30.0	40.0
IBM	NaN	NaN	NaN	87.0	75.0	95.0
SLB	NaN	NaN	NaN	20.0	55.0	85.0
TSLA	50.0	80.0	130.0	100.0	100.0	300.0
TXN	NaN	NaN	NaN	500.0	15.0	23.0
WMT	40.0	55.0	70.0	NaN	NaN	NaN

Symbol	Shares_2016	Low_2016	High_2016	Shares_2017	Low_2017	High_2017	Shares_2018	Low_2018	High_2018
AAPL	80.0	95.0	110.0	50.0	120.0	140.0	40.0	135.0	170.0
AMZN	NaN	NaN	NaN	NaN	NaN	NaN	8.0	900.0	1125.0
GE	NaN	NaN	NaN	100.0	30.0	40.0	NaN	NaN	NaN
IBM	NaN	NaN	NaN	87.0	75.0	95.0	NaN	NaN	NaN
SLB	NaN	NaN	NaN	20.0	55.0	85.0	NaN	NaN	NaN
TSLA	50.0	80.0	130.0	100.0	100.0	300.0	50.0	220.0	400.0
TXN	NaN	NaN	NaN	500.0	15.0	23.0	NaN	NaN	NaN
WMT	40.0	55.0	70.0	NaN	NaN	NaN	NaN	NaN	NaN

Symbol	Shares_x	Low_x	High_x	Shares_y	Low_y	High_y
AAPL	80	95	110	50	120	140
TSLA	50	80	130	100	100	300

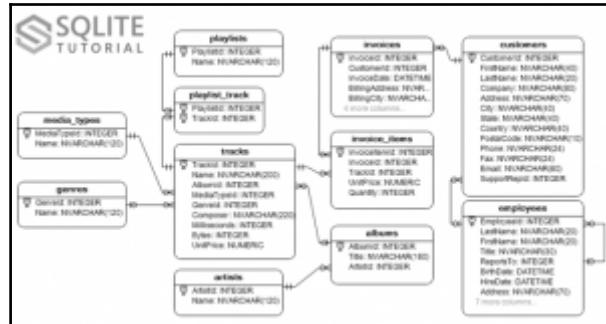
item	store	price	Date	custid	item	store	quantity
0	pear	A	0.99	2017	0	1	pear
1	pear	B	1.99	2017	1	1	banana
2	peach	A	2.99	2017	2	2	steak
3	peach	B	3.49	2017	3	2	pear
4	banana	A	0.39	2017	4	2	peach
5	banana	B	0.49	2017	5	2	steak
6	steak	A	5.99	2017	6	2	coconut
7	steak	B	6.99	2017			
8	steak	B	4.99	2015			

	custid	item	store	quantity	price	Date
0	1	pear	A	5	0.99	2017
1	1	banana	A	10	0.39	2017
2	2	steak	B	3	6.99	2017
3	2	steak	B	3	4.99	2015
4	2	steak	B	1	6.99	2017
5	2	steak	B	1	4.99	2015
6	2	pear	B	1	1.99	2017
7	2	peach	B	2	3.49	2017

	custid	item	store	quantity	price	Date
0	1	pear	A	5	0.99	2017.0
1	1	banana	A	10	0.39	2017.0
2	2	steak	B	3	6.99	2017.0
3	2	pear	B	1	1.99	2017.0
4	2	peach	B	2	3.49	2017.0
5	2	steak	B	1	6.99	2017.0
6	2	coconut	B	4	NaN	NaN

item	store	price	Date
pear	A	0.99	2017
	B	1.99	2017
peach	A	2.99	2017
	B	3.49	2017
banana	A	0.39	2017
	B	0.49	2017
steak	A	5.99	2017
	B	6.99	2017

Week	All Grades	Diesel	Midgrade	Premium	Regular
2017-09-25	2.701	2.788	2.859	3.105	2.583
2017-09-18	2.750	2.791	2.906	3.151	2.634
2017-09-11	2.800	2.802	2.953	3.197	2.685
2017-09-04	2.794	2.758	2.946	3.191	2.679
2017-08-28	2.513	2.605	2.668	2.901	2.399



TrackId	Name	AlbumId	MediaTypeId	GenreId	Composer	Milliseconds	Bytes	UnitPrice
0	For Those About To Rock We Salute You	1	1	1	Angus Young, Malcolm Young, Brian Johnson	545119	11170554	0.99
1	Billy On The Wall	2	2	1	None	542562	5540424	0.99
2	Fast As A Shark	3	2	1	E. Duran, S. Kaufman, U. Bhattacharya, M. M.	230819	3993984	0.99
3	Pathless and Wild	3	2	1	E. Duran, R.A. Smith-Cheek, S. Kaufman, U. Bhattacharya, M. M.	232051	4221779	0.99
4	Process of the Dawn	3	2	1	Duffy & P.A. Smith-Cheek	375418	6290521	0.99

Name Milliseconds		
0	Rock	343719
1	Rock	342562
2	Rock	230619
3	Rock	252051
4	Rock	375418

CustomerId	FirstName	LastName	InvoiceId	UnitPrice	Quantity
0	1	Luís Gonçalves	98	1.99	1
1	1	Luís Gonçalves	98	1.99	1
2	1	Luís Gonçalves	121	0.99	1
3	1	Luís Gonçalves	121	0.99	1
4	1	Luís Gonçalves	121	0.99	1

CustomerId	FirstName	LastName	Total
0	6	Helena	49.62
1	26	Richard Cunningham	47.62
2	57	Luis Rojas	46.62

Chapter 10: Time Series Analysis

REPORTED_DATE	OFFENSE_TYPE_ID	OFFENSE_CATEGORY_ID	GEO_LON	GEO_LAT	NEIGHBORHOOD_ID	IS_CRIME	IS_TRAFFIC
2014-06-29 02:01:00	traffic-accident-dui-duid	traffic-accident	-105.0000149	39.745753	cbd	0	1
2014-06-29 01:54:00	vehicular-eluding-no-chase	all-other-crimes	-104.884660	39.738702	east-colfax	1	0
2014-06-29 02:00:00	disturbing-the-peace	public-disorder	-105.020719	39.706674	athmar-park	1	0
2014-06-29 02:18:00	curfew	public-disorder	-105.001552	39.769505	sunnyside	1	0
2014-06-29 04:17:00	aggravated-assault	aggravated-assault	-105.018557	39.679229	college-view-south-platte	1	0

REPORTED_DATE	OFFENSE_TYPE_ID	OFFENSE_CATEGORY_ID	GEO_LON	GEO_LAT	NEIGHBORHOOD_ID	IS_CRIME	IS_TRAFFIC
2016-05-12 16:45:00	traffic-accident	traffic-accident	-104.847024	39.779596	montbello	0	1
2016-05-12 16:45:00	traffic-accident	traffic-accident	-105.049180	39.769296	west-highland	0	1
2016-05-12 16:45:00	fraud-identity-theft	white-collar-crime	-104.931971	39.717359	hilltop	1	0

REPORTED_DATE	OFFENSE_TYPE_ID	OFFENSE_CATEGORY_ID	GEO_LON	GEO_LAT	NEIGHBORHOOD_ID	IS_CRIME	IS_TRAFFIC
2016-05-12 23:51:00	criminal-mischief-other	public-disorder	-105.017241	39.705845	athmar-park	1	0
2016-05-12 18:40:00	liquor-possession	drug-alcohol	-104.995692	39.747875	cbd	1	0
...
2016-05-12 15:59:00	menacing-felony-w-weap	aggravated-assault	-104.935172	39.723703	hilltop	1	0
2016-05-12 16:39:00	assault-dv	other-crimes-against-persons	-104.974700	39.740555	north-capitol-hill	1	0

243 rows × 7 columns

REPORTED_DATE	OFFENSE_TYPE_ID	OFFENSE_CATEGORY_ID	GEO_LON	GEO_LAT	NEIGHBORHOOD_ID	IS_CRIME	IS_TRAFFIC
2015-12-01 00:48:00	drug-cocaine-possess	drug-alcohol	-104.891681	39.740155	east-colfax	1	0
2015-12-01 00:48:00	theft-of-motor-vehicle	auto-theft	-104.891681	39.740155	east-colfax	1	0
...
2015-12-31 23:45:00	violation-of-restraining-order	all-other-crimes	-105.034887	39.741827	west-colfax	1	0
2015-12-31 23:50:00	weapon-poss-illegal-dangerous	all-other-crimes	-105.032769	39.709188	westwood	1	0

6907 rows × 7 columns

	OFFENSE_TYPE_ID	OFFENSE_CATEGORY_ID	GEO_LON	GEO_LAT	NEIGHBORHOOD_ID	IS_CRIME	IS_TRAFFIC
REPORTED_DATE							
2015-03-04 00:11:00	assault-dv	other-crimes-against-persons	-105.021966	39.770883	sunnyside	1	0
2015-03-04 00:19:00	assault-dv	other-crimes-against-persons	-104.978988	39.748799	five-points	1	0
...
2016-01-01 23:45:00	drug-cocaine-possess	drug-alcohol	-104.987310	39.753598	five-points	1	0
2016-01-01 23:48:00	drug-poss-paraphernalia	drug-alcohol	-104.986020	39.752541	five-points	1	0

75403 rows × 7 columns

	OFFENSE_TYPE_ID	OFFENSE_CATEGORY_ID	GEO_LON	GEO_LAT	NEIGHBORHOOD_ID	IS_CRIME	IS_TRAFFIC
REPORTED_DATE							
2015-03-04 22:25:00	traffic-accident-hit-and-run	traffic-accident	-104.973896	39.769064	five-points	0	1
2015-03-04 22:30:00	traffic-accident	traffic-accident	-104.906412	39.632816	hampden-south	0	1
...
2016-01-01 23:40:00	robbery-business	robbery	-105.039236	39.726157	villa-park	1	0
2016-01-01 23:45:00	drug-cocaine-possess	drug-alcohol	-104.987310	39.753598	five-points	1	0

75175 rows × 7 columns

	OFFENSE_TYPE_ID	OFFENSE_CATEGORY_ID	GEO_LON	GEO_LAT	NEIGHBORHOOD_ID	IS_CRIME	IS_TRAFFIC
REPORTED_DATE							
2014-06-29 02:01:00	traffic-accident-dui-duid	traffic-accident	-105.000149	39.745753	cbd	0	1
2014-06-29 02:00:00	disturbing-the-peace	public-disorder	-105.020719	39.706674	athmar-park	1	0
2014-06-29 02:18:00	curfew	public-disorder	-105.001552	39.769505	sunnyside	1	0
2014-06-29 04:17:00	aggravated-assault	aggravated-assault	-105.018557	39.679229	college-view-south-platte	1	0
2014-06-29 04:22:00	violation-of-restraining-order	all-other-crimes	-104.972447	39.739449	cheesman-park	1	0

	OFFENSE_TYPE_ID	OFFENSE_CATEGORY_ID	GEO_LON	GEO_LAT	NEIGHBORHOOD_ID	IS_CRIME	IS_TRAFFIC
REPORTED_DATE							
2013-11-26 05:47:00	criminal-mischief-other	public-disorder	-104.991476	39.751536	cbd	1	0
2017-04-09 05:47:00	criminal-mischief-mtr-veh	public-disorder	-104.959394	39.678425	university	1	0
2017-02-19 05:47:00	criminal-mischief-other	public-disorder	-104.986767	39.741336	north-capitol-hill	1	0
2017-02-16 05:47:00	aggravated-assault	aggravated-assault	-104.934029	39.732320	hale	1	0
2017-02-12 05:47:00	police-interference	all-other-crimes	-104.976306	39.722644	speer	1	0

REPORTED_DATE	OFFENSE_TYPE_ID	OFFENSE_CATEGORY_ID	GEO_LON	GEO_LAT	NEIGHBORHOOD_ID	IS_CRIME	IS_TRAFFIC
2012-01-02 00:06:00	aggravated-assault	aggravated-assault	-104.816860	39.796717	montbello	1	0
2012-01-02 00:06:00	violation-of-restraining-order	all-other-crimes	-104.816860	39.796717	montbello	1	0
2012-01-02 00:16:00	traffic-accident-dui-duid	traffic-accident	-104.971851	39.736874	cheesman-park	0	1
...
2012-06-30 23:50:00	criminal-mischief-mtr-veh	public-disorder	-104.838271	39.788683	montbello	1	0
2012-06-30 23:54:00	traffic-accident-hit-and-run	traffic-accident	-105.014162	39.740439	lincoln-park	0	1
2012-07-01 00:01:00	robbery-street	robbery	-104.924292	39.767585	northeast-park-hill	1	0

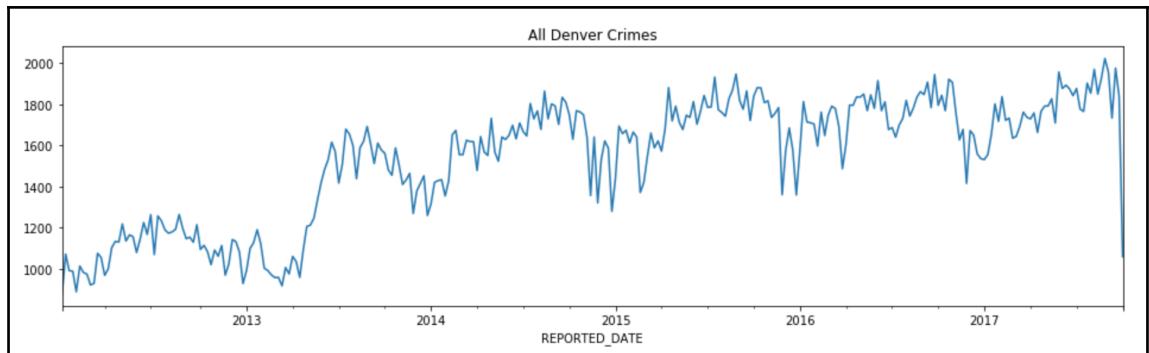
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REPORTED_DATE	OFFENSE_TYPE_ID	OFFENSE_CATEGORY_ID	GEO_LON	GEO_LAT	NEIGHBORHOOD_ID	IS_CRIME	IS_TRAFFIC
2012-01-02 00:06:00	aggravated-assault	aggravated-assault	-104.816860	39.796717	montbello	1	0
2012-01-02 00:06:00	violation-of-restraining-order	all-other-crimes	-104.816860	39.796717	montbello	1	0
2012-01-02 00:16:00	traffic-accident-dui-duid	traffic-accident	-104.971851	39.736874	cheesman-park	0	1
...
2012-06-29 23:41:00	robbery-street	robbery	-104.991912	39.756163	five-points	1	0
2012-06-29 23:57:00	assault-simple	other-crimes-against-persons	-104.987360	39.715162	speer	1	0
2012-06-30 00:04:00	traffic-accident	traffic-accident	-104.894697	39.628902	hampden-south	0	1

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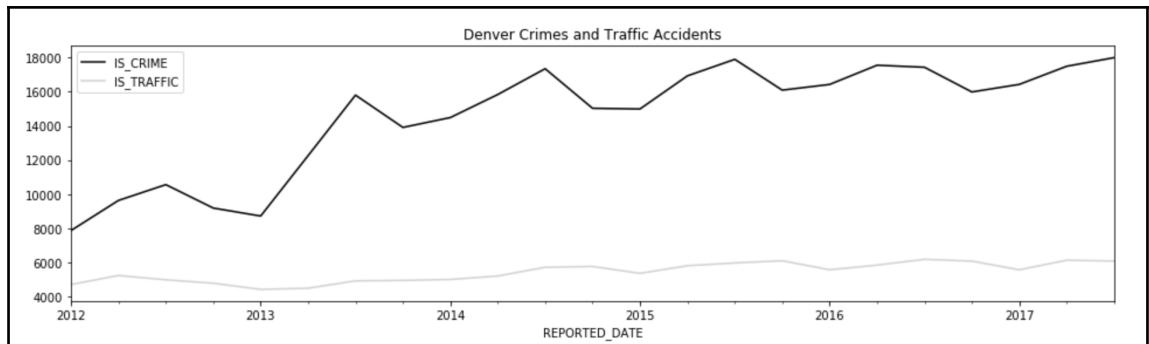
REPORTED_DATE	OFFENSE_TYPE_ID	OFFENSE_CATEGORY_ID	GEO_LON	GEO_LAT	NEIGHBORHOOD_ID	IS_CRIME	IS_TRAFFIC
2012-01-02 00:06:00	aggravated-assault	aggravated-assault	-104.816860	39.796717	montbello	1	0
2012-01-02 00:06:00	violation-of-restraining-order	all-other-crimes	-104.816860	39.796717	montbello	1	0
2012-01-02 00:16:00	traffic-accident-dui-duid	traffic-accident	-104.971851	39.736874	cheesman-park	0	1
...
2012-06-30 23:44:00	traffic-accident	traffic-accident	-104.987578	39.711158	baker	0	1
2012-06-30 23:50:00	criminal-mischief-mtr-veh	public-disorder	-104.838271	39.788683	montbello	1	0
2012-06-30 23:54:00	traffic-accident-hit-and-run	traffic-accident	-105.014162	39.740439	lincoln-park	0	1

27488 rows × 7 columns



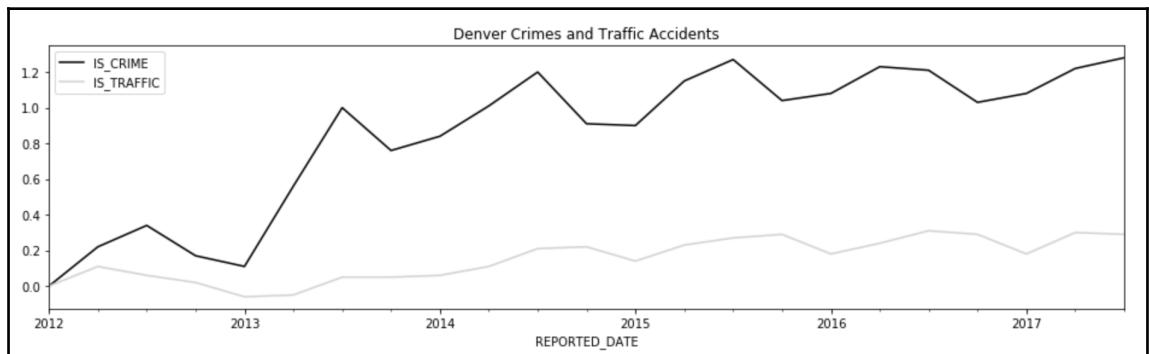
	IS_CRIME	IS_TRAFFIC
REPORTED_DATE		
2012-03-31	7882	4726
2012-06-30	9641	5255
2012-09-30	10566	5003
2012-12-31	9197	4802
2013-03-31	8730	4442

	IS_CRIME	IS_TRAFFIC
REPORTED_DATE		
2012-01-01	7882	4726
2012-04-01	9641	5255
2012-07-01	10566	5003
2012-10-01	9197	4802
2013-01-01	8730	4442

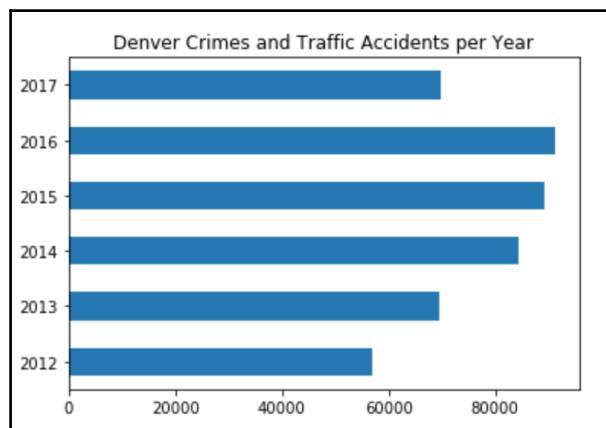
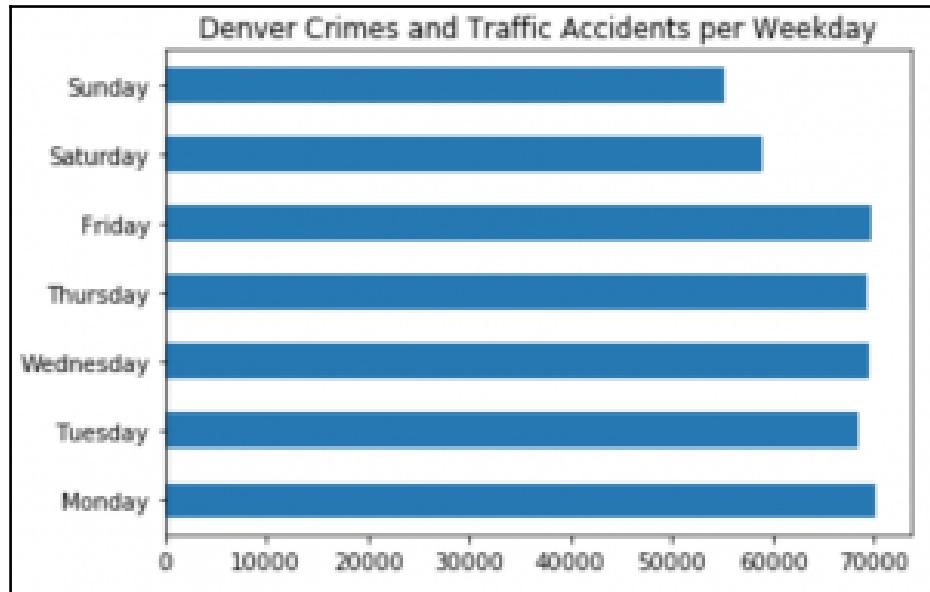


	GEO_LON	GEO_LAT	IS_CRIME	IS_TRAFFIC
REPORTED_DATE				
2012-03-31	-1.313006e+06	496960.237747	7882	4726
2012-06-30	-1.547274e+06	585656.789182	9641	5255
2012-09-30	-1.615835e+06	611604.800384	10566	5003
2012-12-31	-1.458177e+06	551923.040048	9197	4802
2013-03-31	-1.368931e+06	518159.721947	8730	4442

	IS_CRIME	IS_TRAFFIC
REPORTED_DATE		
2011-12-01	5013	3198
2012-03-01	9260	4954
2012-06-01	10524	5190
2012-09-01	9450	4777
2012-12-01	9003	4652

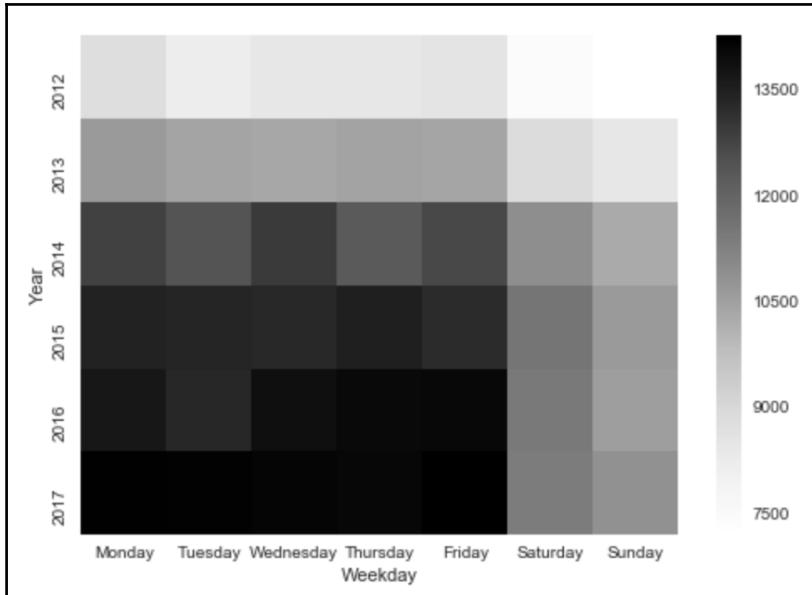


	OFFENSE_TYPE_ID	OFFENSE_CATEGORY_ID	REPORTED_DATE	GEO_LON	GEO_LAT	NEIGHBORHOOD_ID	IS_CRIME	IS_TRAFFIC
0	traffic-accident-dui-duid	traffic-accident	2014-06-29 02:01:00	-105.000149	39.745753	cbd	0	1
1	vehicular-eluding-no-chase	all-other-crimes	2014-06-29 01:54:00	-104.884660	39.738702	east-colfax	1	0
2	disturbing-the-peace	public-disorder	2014-06-29 02:00:00	-105.020719	39.706674	athmar-park	1	0
3	curfew	public-disorder	2014-06-29 02:18:00	-105.001552	39.769505	sunnyside	1	0
4	aggravated-assault	aggravated-assault	2014-06-29 04:17:00	-105.018557	39.679229	college-view-south-platte	1	0



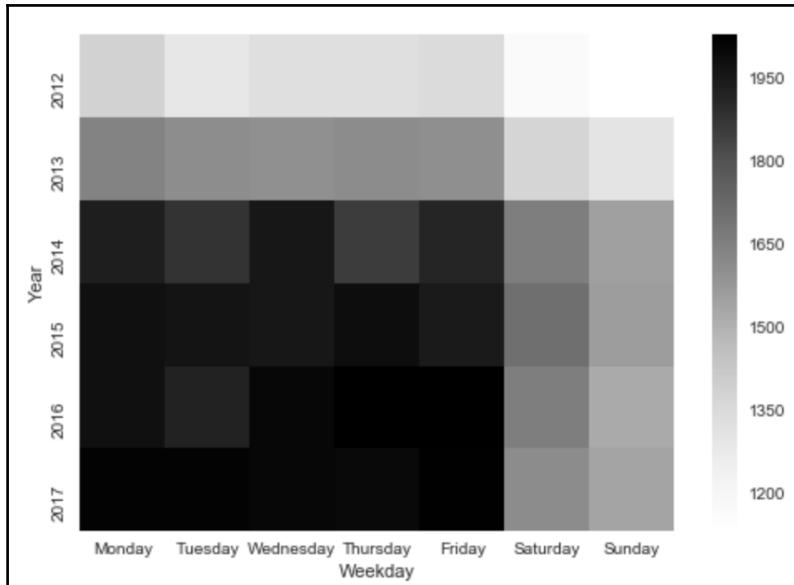
Year	Weekday	Friday	Monday	Saturday	Sunday	Thursday	Tuesday	Wednesday
2012	8549	8786	7442	7189	8440	8191	8440	
2013	10380	10627	8875	8444	10431	10416	10354	
2014	12683	12813	10950	10278	12309	12440	12948	
2015	13273	13452	11586	10624	13512	13381	13320	
2016	14059	13708	11467	10554	14050	13338	13900	
2017	10677	10638	8514	8124	10545	10628	10576	

Year	Weekday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
2012	8786	8191	8440	8440	8549	7442	7189	
2013	10627	10416	10354	10431	10380	8875	8444	
2014	12813	12440	12948	12309	12683	10950	10278	
2015	13452	13381	13320	13512	13273	11586	10624	
2016	13708	13338	13900	14050	14059	11467	10554	
2017	14221	14208	14139	14097	14274	11382	10860	

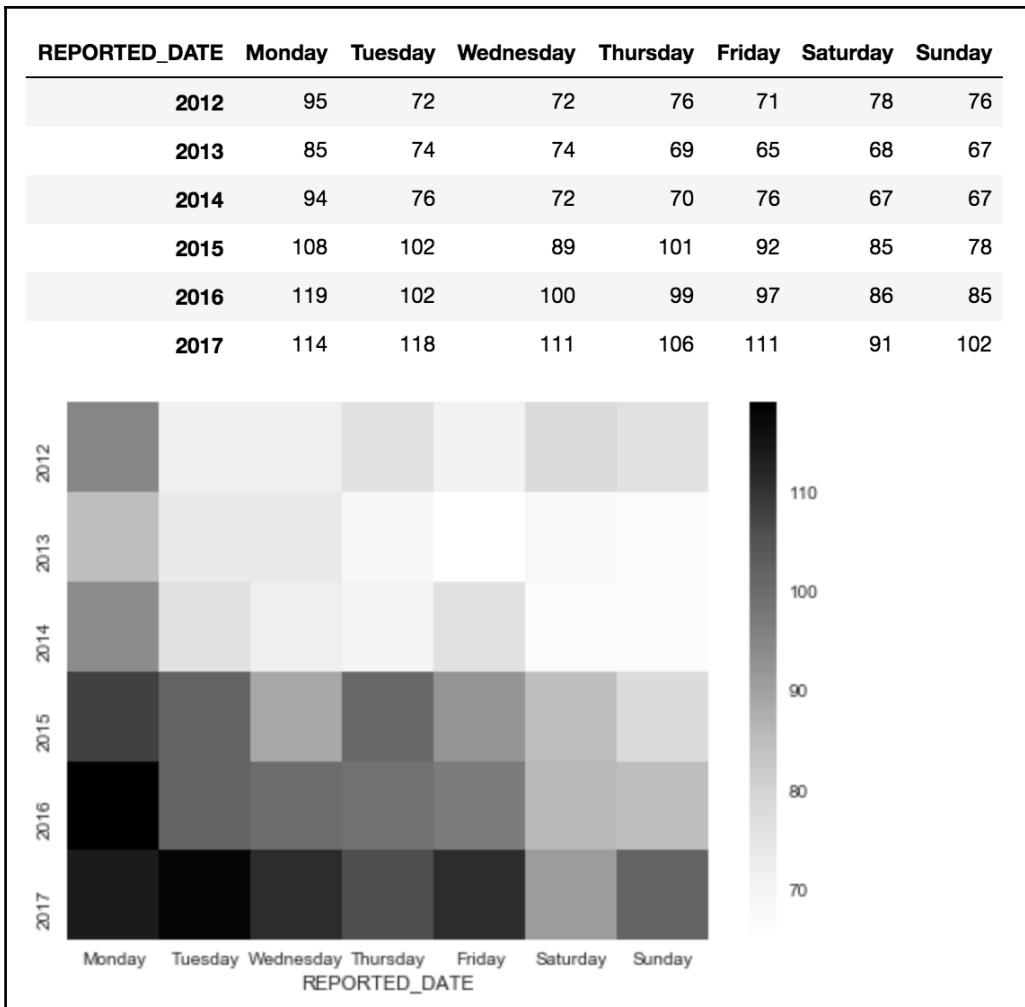


Population	
Year	Population
2017	705000
2016	693000
2015	680000
2014	662000
2013	647000
2012	634000

Weekday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Year							
2012	1385	1291	1331	1331	1348	1173	1133
2013	1642	1609	1600	1612	1604	1371	1305
2014	1935	1879	1955	1859	1915	1654	1552
2015	1978	1967	1958	1987	1951	1703	1562
2016	1978	1924	2005	2027	2028	1654	1522
2017	2017	2015	2005	1999	2024	1614	1540



Year	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	2017	2016	2015	2014	2013	2012
2012	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
2013	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
2014	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
2015	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
2016	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
2017	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN



	IS_CRIME	IS_TRAFFIC
Friday	48833	20814
Monday	52158	17895
Saturday	43363	15516
Sunday	42315	12968
Thursday	49470	19845
Tuesday	49658	18755
Wednesday	50054	19508

	IS_CRIME							IS_TRAFFIC						
	2012	2013	2014	2015	2016	2017	2012	2013	2014	2015	2016	2017		
0	2422	4040	5649	5649	5377	3811	919	792	978	1136	980	782		
2	1888	3214	4245	4050	4091	3041	718	652	779	773	718	537		
4	1472	2181	2956	2959	3044	2255	399	378	424	471	464	313		
6	1067	1365	1750	2167	2108	1567	411	399	479	494	593	462		
8	2998	3445	3727	4161	4488	3251	1957	1955	2210	2331	2372	1828		
10	4305	5035	5658	6205	6218	4993	1979	1901	2139	2320	2303	1873		
12	4496	5524	6434	6841	7226	5463	2200	2138	2379	2631	2760	1986		
14	4266	5698	6708	7218	6896	5396	2241	2245	2630	2840	2763	1990		
16	4113	5889	7351	7643	7926	6338	2714	2562	3002	3160	3527	2784		
18	3660	5094	6586	7015	7407	6157	3118	2704	3217	3412	3608	2718		
20	3521	4895	6130	6360	6963	5272	1787	1806	1994	2071	2184	1491		
22	3078	4318	5496	5626	5637	4358	1343	1330	1532	1671	1472	1072		

	2012	2013	2014	2015	2016	2017
0	919	792	978	1136	980	782
2	718	652	779	773	718	537
4	399	378	424	471	464	313
6	411	399	479	494	593	462
8	1957	1955	2210	2331	2372	1828

	IS_CRIME	IS_TRAFFIC
0	5377	980
2	4091	718
4	3044	464
6	2108	593
8	4488	2372

	UNIQUE_ID	POSITION_TITLE	DEPARTMENT	BASE_SALARY	RACE	EMPLOYMENT_TYPE	GENDER	EMPLOYMENT_STATUS	JOB_DATE
HIRE_DATE									
2006-06-12	0	ASSISTANT DIRECTOR (EX LVL)	Municipal Courts Department	121862.0	Hispanic/Latino	Full Time	Female	Active	2012-10-13
2000-07-19	1	LIBRARY ASSISTANT	Library	26125.0	Hispanic/Latino	Full Time	Female	Active	2010-09-18
2015-02-03	2	POLICE OFFICER	Houston Police Department-HPD	45279.0	White	Full Time	Male	Active	2015-02-03
1982-02-08	3	ENGINEER/OPERATOR	Houston Fire Department (HFD)	63166.0	White	Full Time	Male	Active	1991-05-25
1989-06-19	4	ELECTRICIAN	General Services Department	56347.0	White	Full Time	Male	Active	1994-10-22

GENDER	Female	Male
HIRE_DATE		
1958-01-01	NaN	81200.0
1968-01-01	NaN	106500.0
1975-01-01	51600.0	NaN
1978-01-01	NaN	72300.0
1985-01-01	57600.0	NaN
1988-01-01	NaN	64600.0
1995-01-01	55500.0	NaN
1998-01-01	NaN	59700.0
2005-01-01	51700.0	NaN
2008-01-01	NaN	47200.0
2015-01-01	38600.0	NaN

GENDER	Female	Male
HIRE_DATE		
1958-01-01	NaN	81200.0
1968-01-01	NaN	106500.0
1978-01-01	57100.0	72300.0
1988-01-01	57100.0	64600.0
1998-01-01	54700.0	59700.0
2008-01-01	47300.0	47200.0

GENDER	Female	Male
1958-1967	NaN	81200.0
1968-1977	NaN	106500.0
1978-1987	57100.0	72300.0
1988-1997	57100.0	64600.0
1998-2007	54700.0	59700.0
2008-2017	47300.0	47200.0

GENDER	Female	Male
(1958.0, 1970.0]	NaN	85400.0
(1970.0, 1981.0]	54400.0	72700.0
(1981.0, 1993.0]	55700.0	69300.0
(1993.0, 2004.0]	56500.0	62300.0
(2004.0, 2016.0]	49100.0	49800.0

	REPORTED_DATE	OFFENSE_CATEGORY_ID	Total
0	2014-12-31	murder	1
1	2013-01-31	arson	1
2	2016-05-31	murder	1
3	2012-12-31	murder	1
4	2016-12-31	murder	1

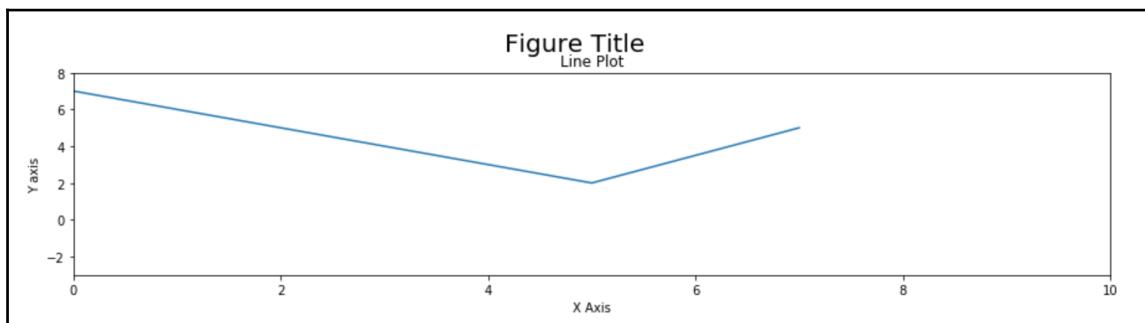
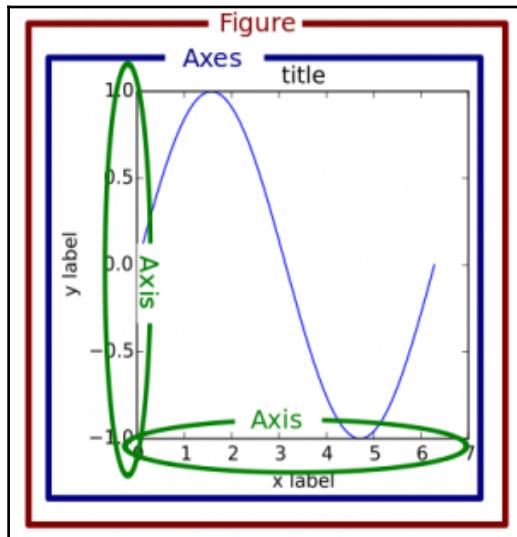
	REPORTED_DATE	OFFENSE_CATEGORY_ID	Total	Total_Goal
0	2017-08-31	murder	7	5
1	2017-08-31	arson	7	5
2	2017-08-31	sexual-assault	57	45
3	2017-08-31	robbery	108	86
4	2017-08-31	white-collar-crime	138	110

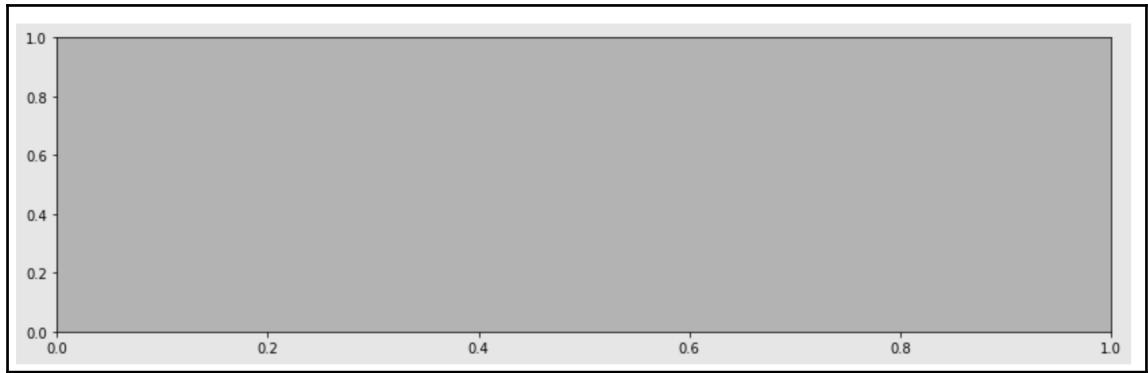
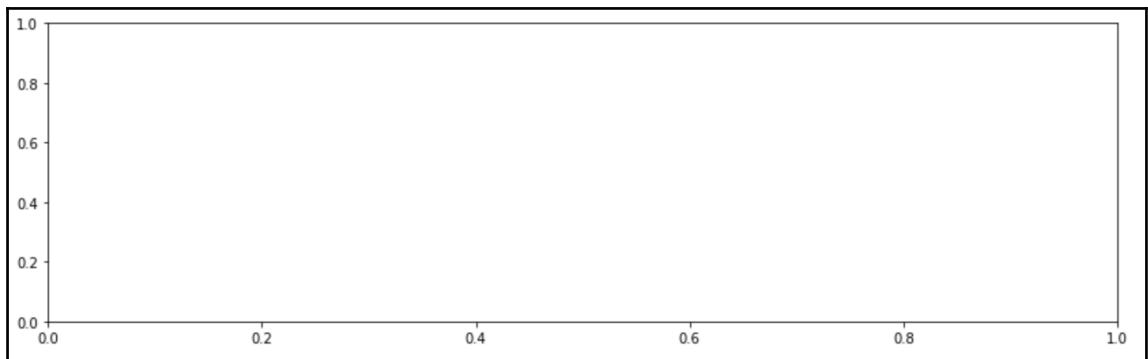
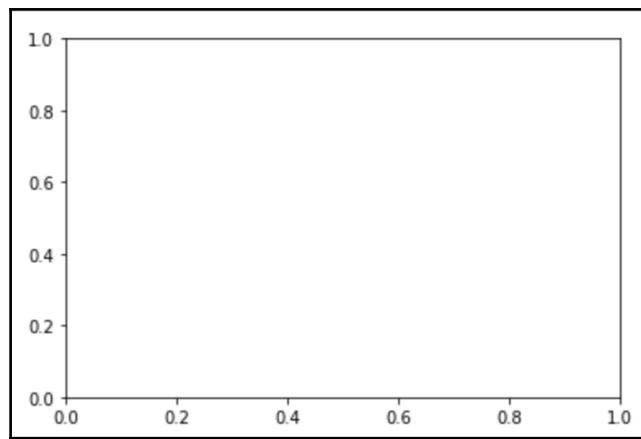
	REPORTED_DATE_Current	OFFENSE_CATEGORY_ID	Total_Current	Total_Goal	REPORTED_DATE_Last	Total_Last
0	2017-08-31	murder	7	5	2017-01-31	5
1	2017-08-31	arson	7	5	2012-01-31	5
2	2017-08-31	sexual-assault	57	45	2013-01-31	45
3	2017-08-31	robbery	108	86	2015-03-31	86
4	2017-08-31	white-collar-crime	138	110	2016-10-31	110
5	2017-08-31	aggravated-assault	195	156	2016-05-31	154
6	2017-08-31	other-crimes-against-persons	376	300	2014-04-30	285
7	2017-08-31	burglary	432	345	2012-01-31	343
8	2017-08-31	auto-theft	599	479	2017-07-31	477
9	2017-08-31	drug-alcohol	636	508	2015-05-31	505
10	2017-08-31	theft-from-motor-vehicle	675	540	2015-03-31	535
11	2017-08-31	larceny	877	701	2015-01-31	697
12	2017-08-31	public-disorder	878	702	2015-12-31	699
13	2017-08-31	all-other-crimes	1583	1266	2016-11-30	1264
14	2017-08-31	traffic-accident	2126	1700	2013-12-31	1697

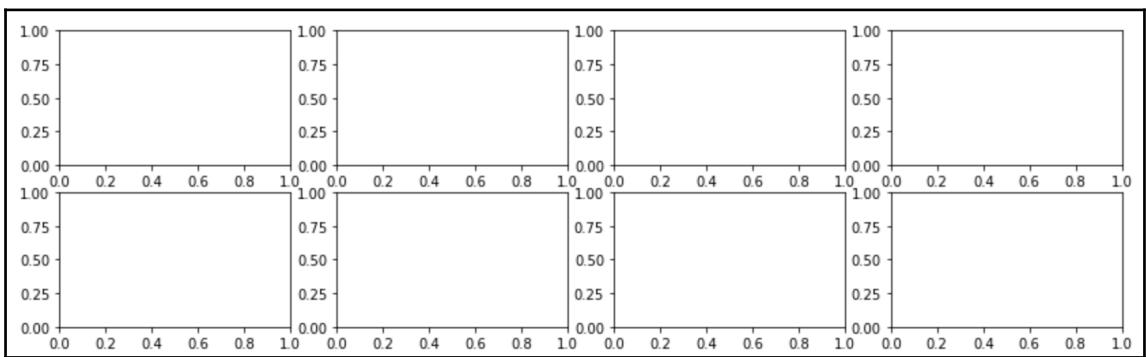
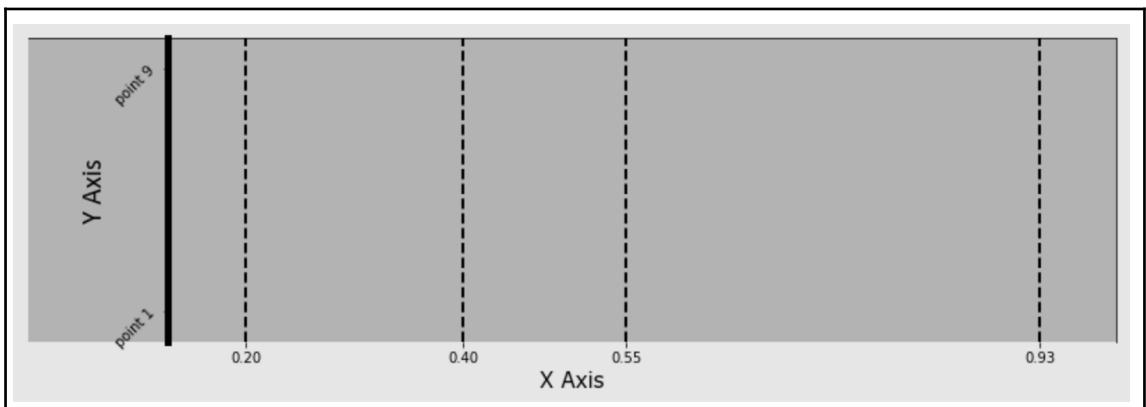
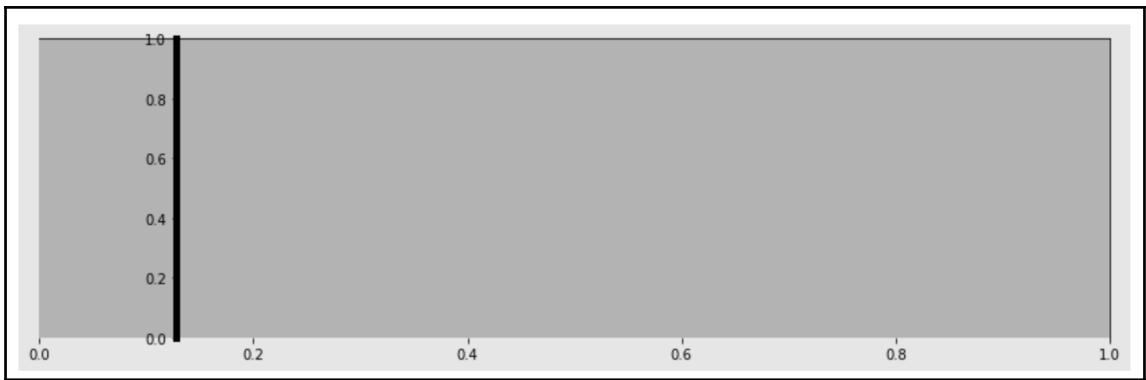
	REPORTED_DATE	OFFENSE_CATEGORY_ID	Total
0	2014-12	murder	1
1	2013-01	arson	1
2	2016-05	murder	1
3	2012-12	murder	1
4	2016-12	murder	1

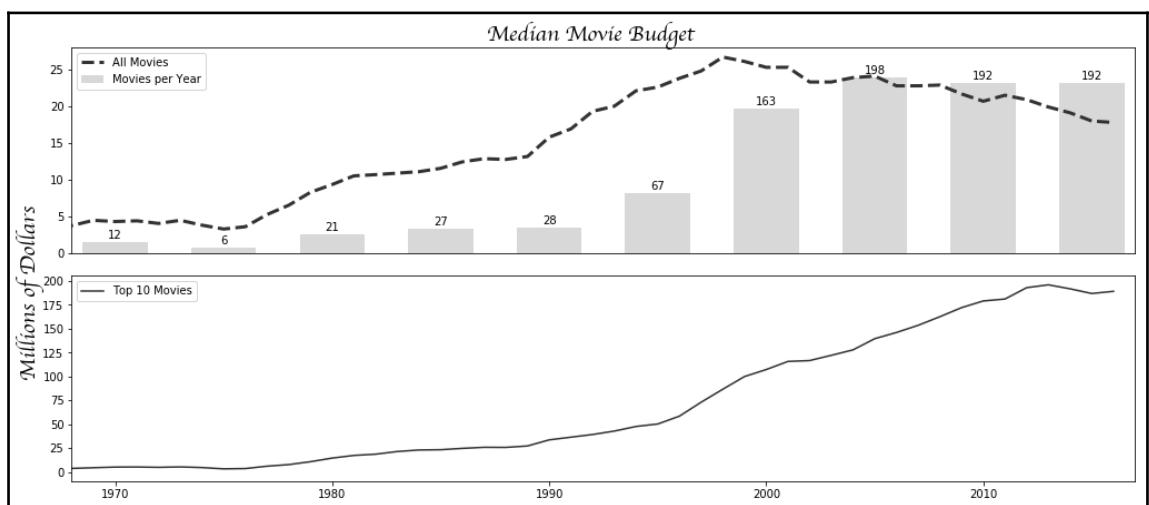
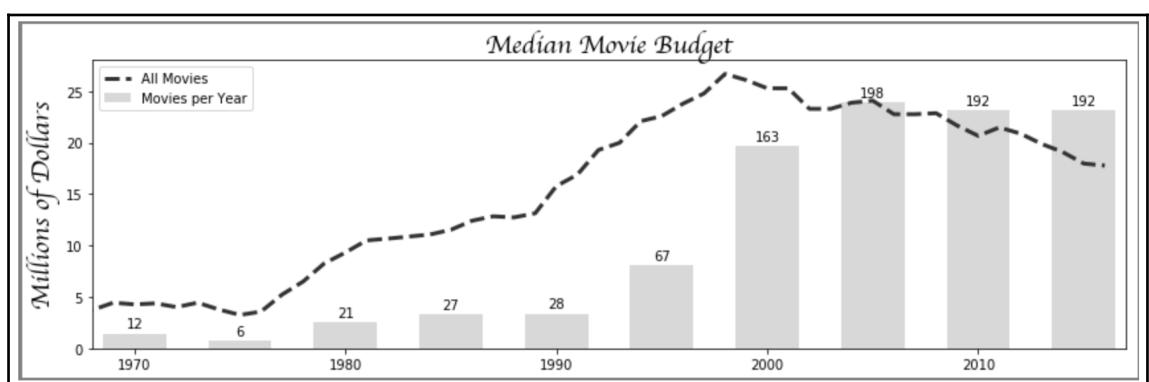
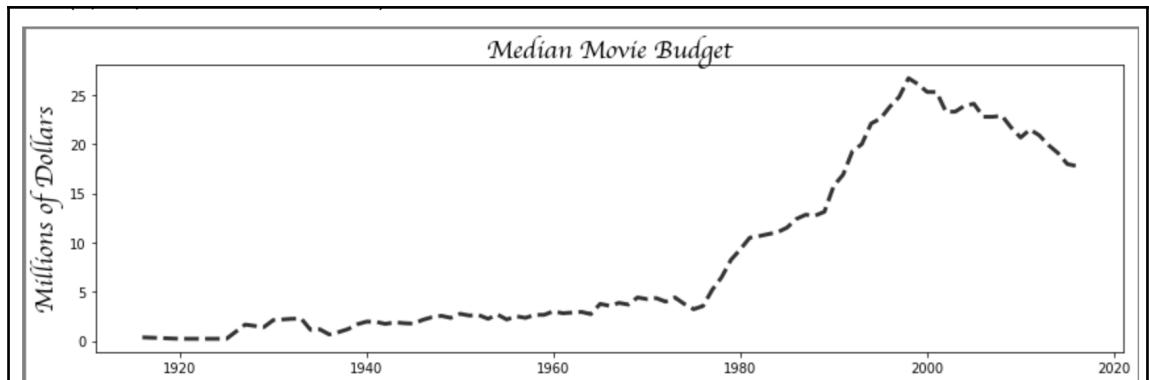
	REPORTED_DATE_Current	OFFENSE_CATEGORY_ID	Total_Current	Total_Goal	REPORTED_DATE_Last	Total_Last
0	2017-08	murder	7	5	2017-01	5
1	2017-08	arson	7	5	2012-01	5
2	2017-08	sexual-assault	57	45	2013-01	45
3	2017-08	robbery	108	86	2015-03	86
4	2017-08	white-collar-crime	138	110	2016-10	110

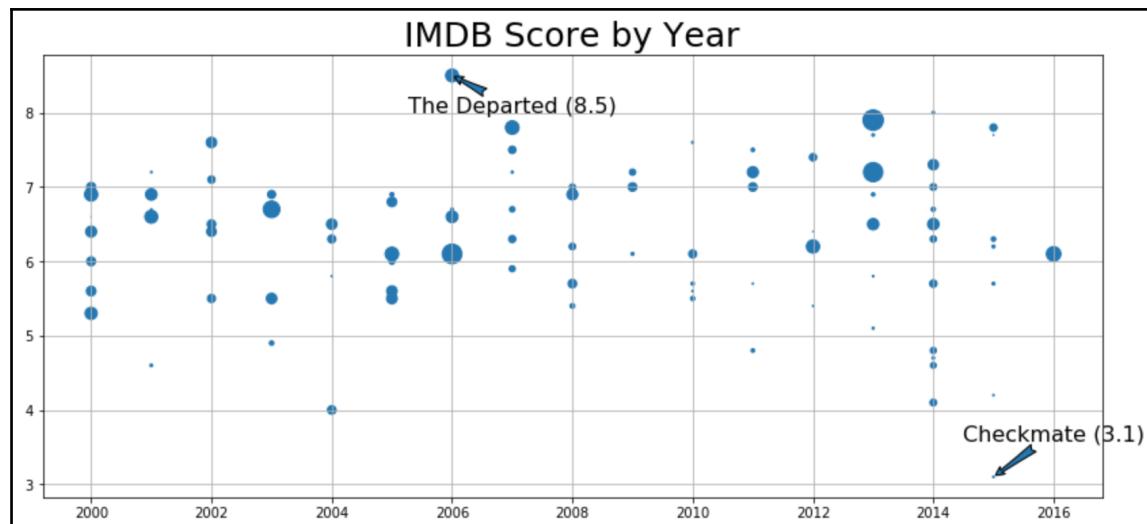
Chapter 11: Visualization with Matplotlib, Pandas, and Seaborn



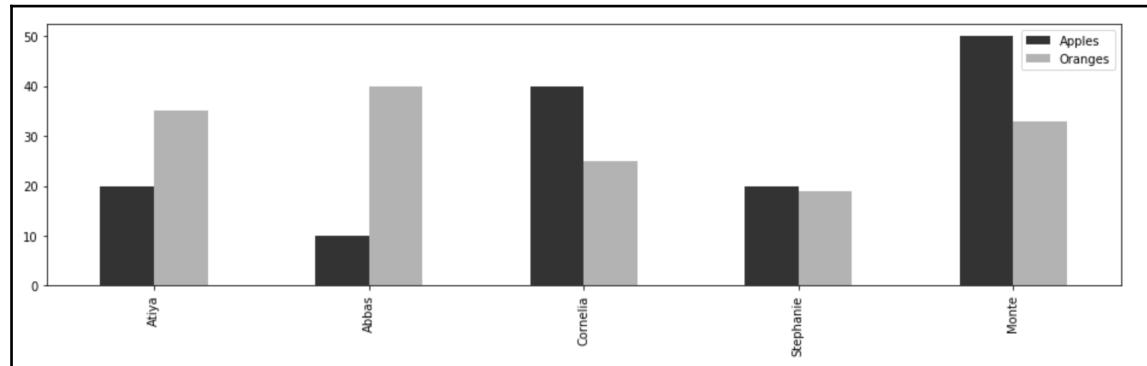


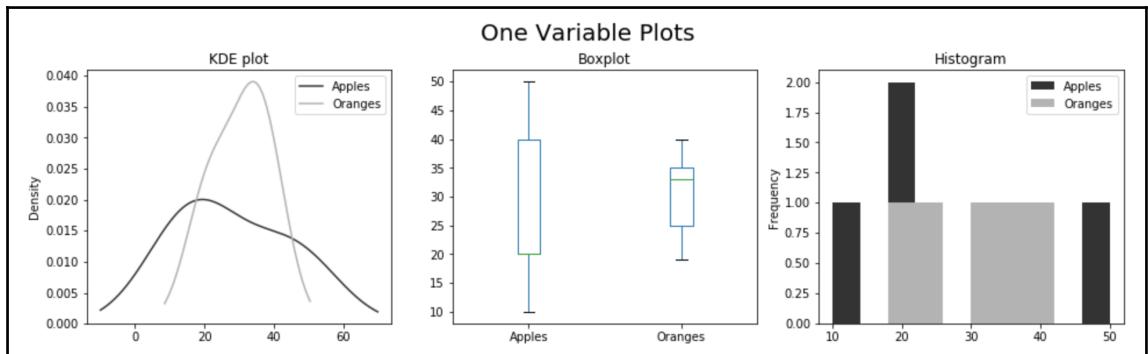
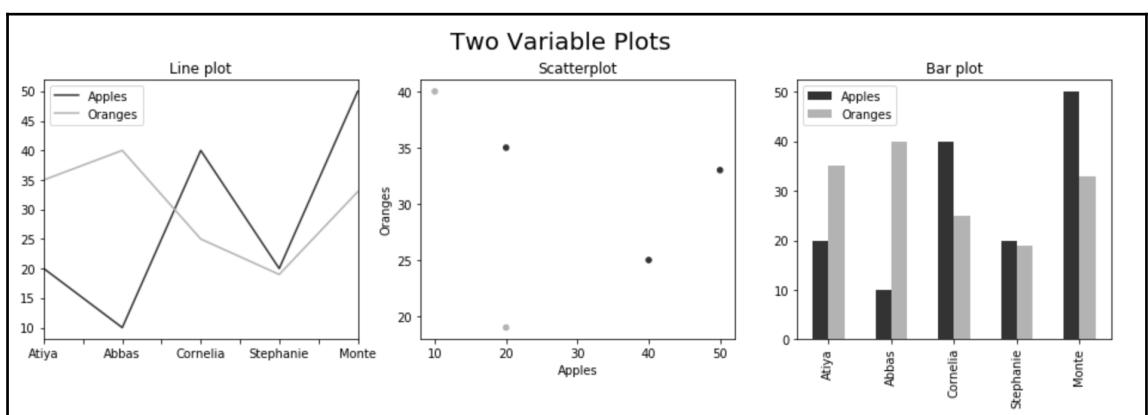
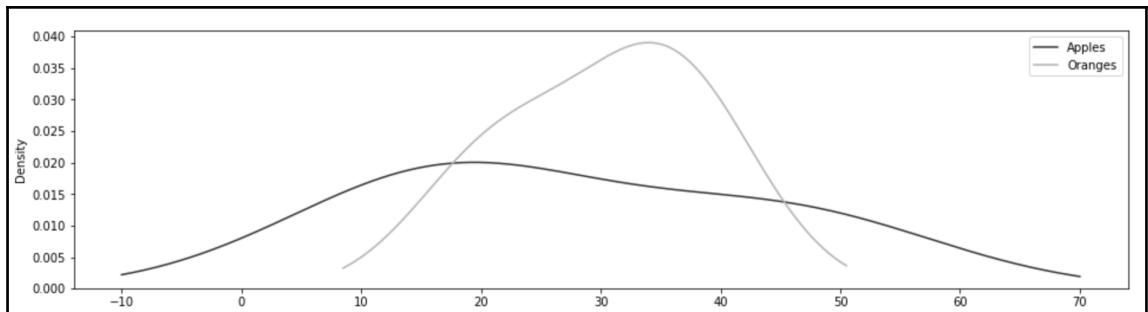


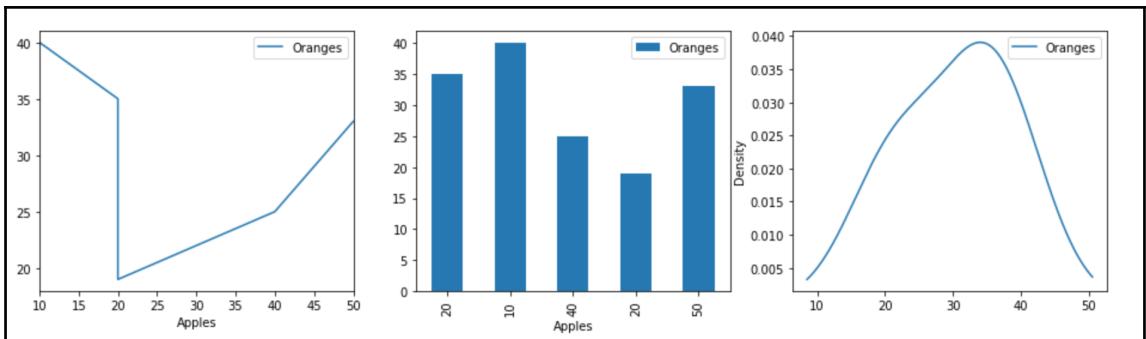




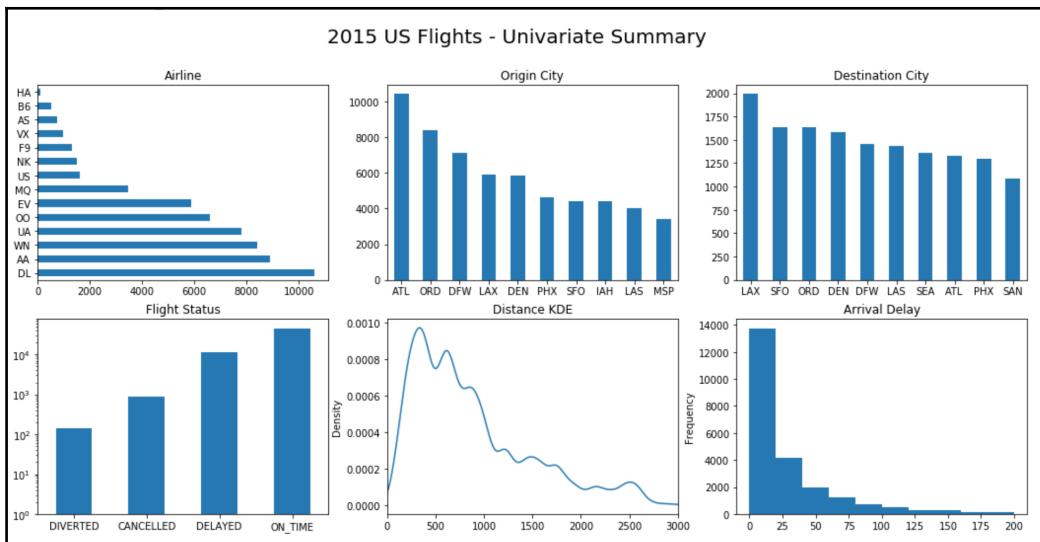
	Apples	Oranges
Atiya	20	35
Abbas	10	40
Cornelia	40	25
Stephanie	20	19
Monte	50	33



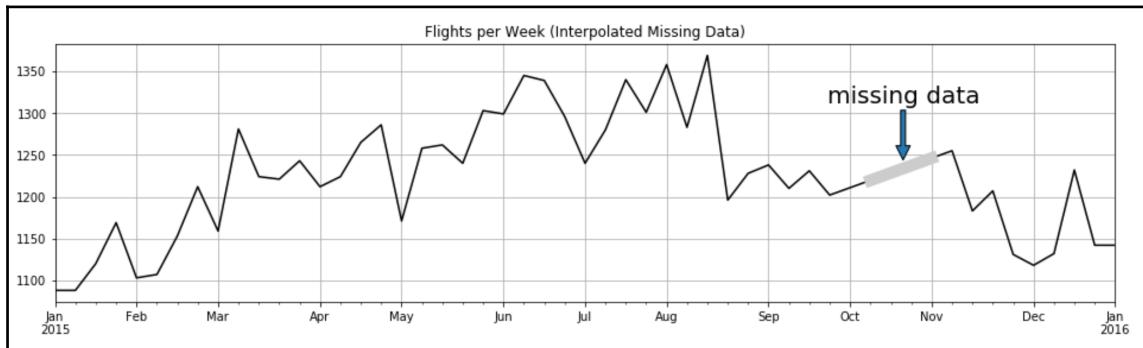
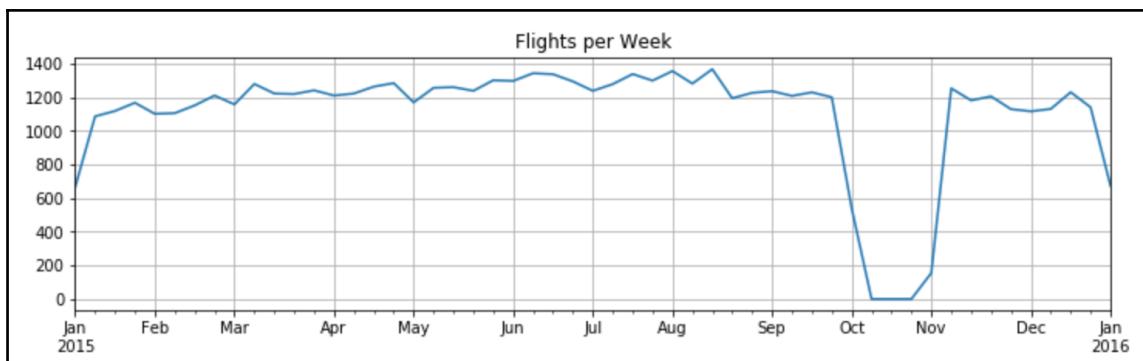


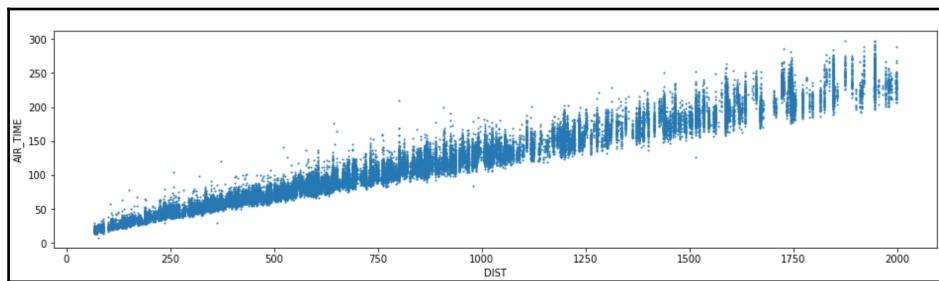
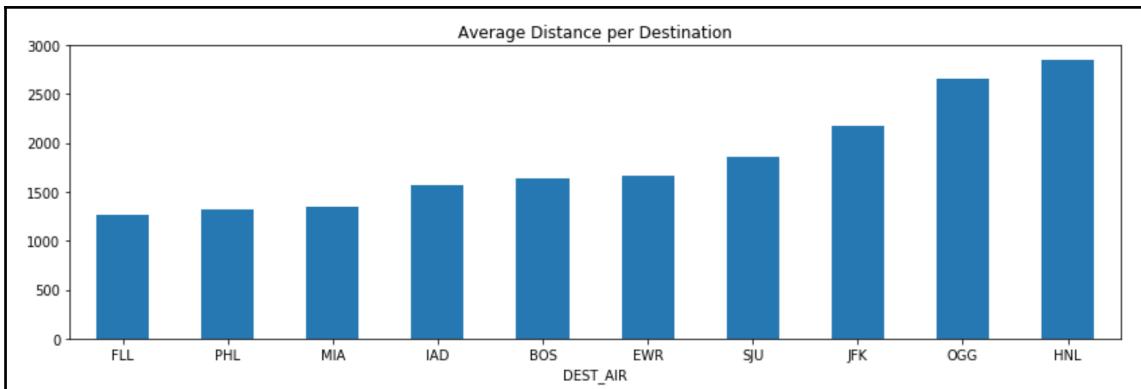


	MONTH	DAY	WEEKDAY	AIRLINE	ORG_AIR	DEST_AIR	SCHED_DEP	DEP_DELAY	AIR_TIME	DIST	SCHED_ARR	ARR_DELAY	DIVERTED	CANCELLED
0	1	1	4	WN	LAX	SLC	1625	58.0	94.0	590	1905	65.0	0	0
1	1	1	4	UA	DEN	IAD	823	7.0	154.0	1452	1333	-13.0	0	0
2	1	1	4	MQ	DFW	VPS	1305	36.0	85.0	641	1453	35.0	0	0
3	1	1	4	AA	DFW	DCA	1555	7.0	126.0	1192	1935	-7.0	0	0
4	1	1	4	WN	LAX	MCI	1720	48.0	166.0	1363	2225	39.0	0	0

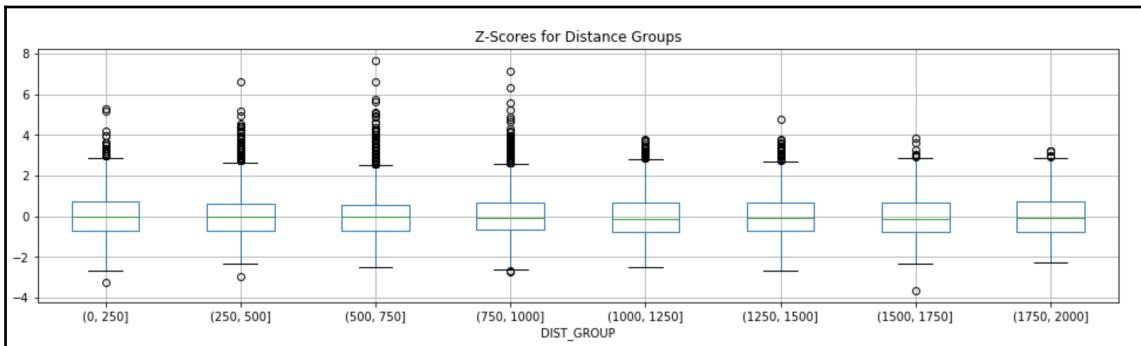


MONTH	DAY	HOUR	MINUTE	YEAR
0	1	16	25	2015
1	1	8	23	2015
2	1	13	5	2015
3	1	15	55	2015
4	1	17	20	2015

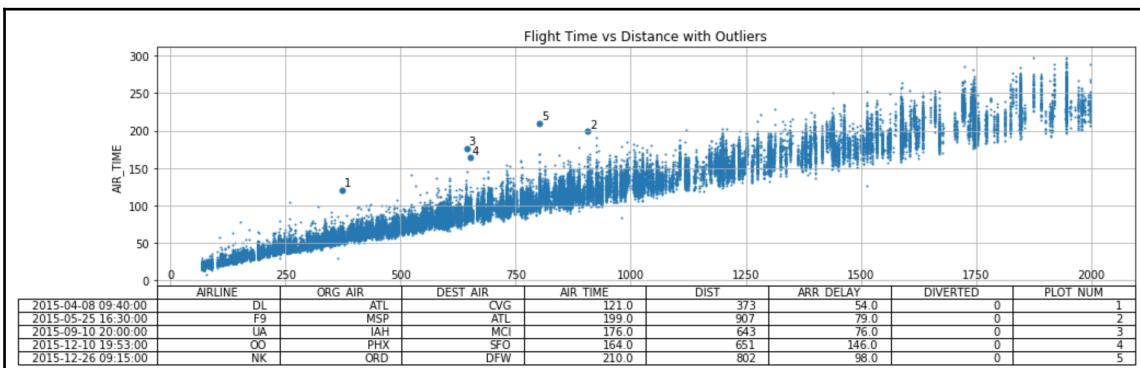




DIST	AIR_TIME	DIST_GROUP	TIME_SCORE
0	590	(500, 750]	0.490966
1	1452	(1250, 1500]	-1.267551
2	641	(500, 750]	-0.296749
3	1192	(1000, 1250]	-1.211020
4	1363	(1250, 1500]	-0.521999



	AIRLINE	ORG_AIR	DEST_AIR	AIR_TIME	DIST	ARR_DELAY	DIVERTED	PLOT_NUM
2015-04-08 09:40:00	DL	ATL	CVG	121.0	373	54.0	0	1
2015-05-25 16:30:00	F9	MSP	ATL	199.0	907	79.0	0	2
2015-09-10 20:00:00	UA	IAH	MCI	176.0	643	76.0	0	3
2015-12-10 19:53:00	OO	PHX	SFO	164.0	651	146.0	0	4
2015-12-26 09:15:00	NK	ORD	DFW	210.0	802	98.0	0	5

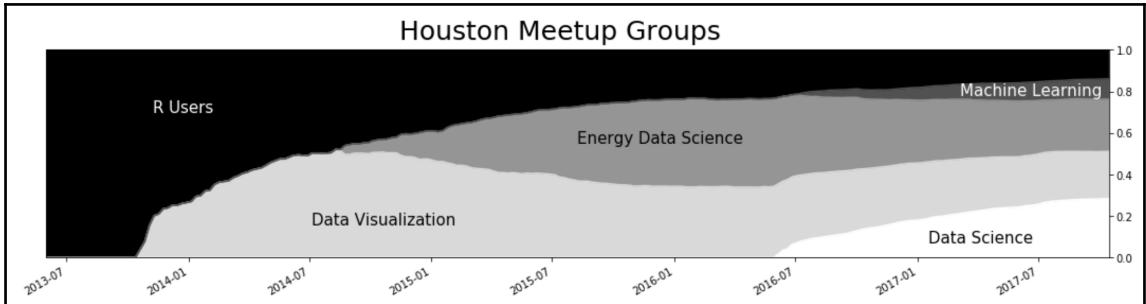


group	city	state	country
join_date			
2016-11-18 02:41:29	houston machine learning	Houston	TX
2017-05-09 14:16:37	houston machine learning	Houston	TX
2016-12-30 02:34:16	houston machine learning	Houston	TX
2016-07-18 00:48:17	houston machine learning	Houston	TX
2017-05-25 12:58:16	houston machine learning	Houston	TX

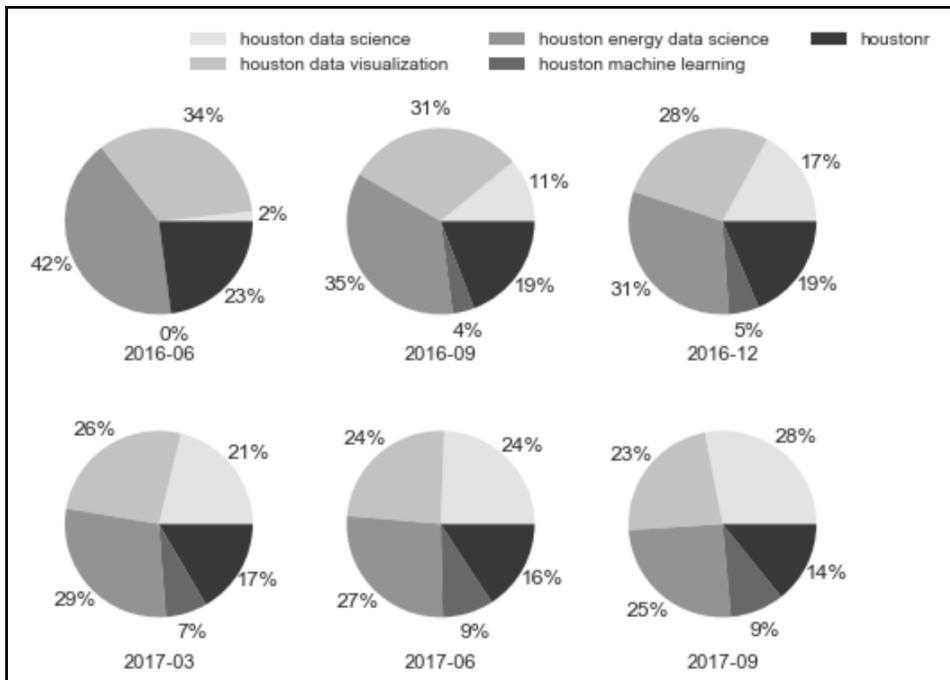
group	houston data science	houston data visualization	houston energy data science	houston machine learning	houstonr
join_date					
2017-09-17	16	2	6	5	0
2017-09-24	19	4	16	12	7
2017-10-01	20	6	6	20	1
2017-10-08	22	10	10	4	2
2017-10-15	14	13	9	11	2

group	houston data science	houston data visualization	houston energy data science	houston machine learning	houstonr
join_date					
2017-09-17	2105	1708	1886	708	1056
2017-09-24	2124	1712	1902	720	1063
2017-10-01	2144	1718	1908	740	1064
2017-10-08	2166	1728	1918	744	1066
2017-10-15	2180	1741	1927	755	1068

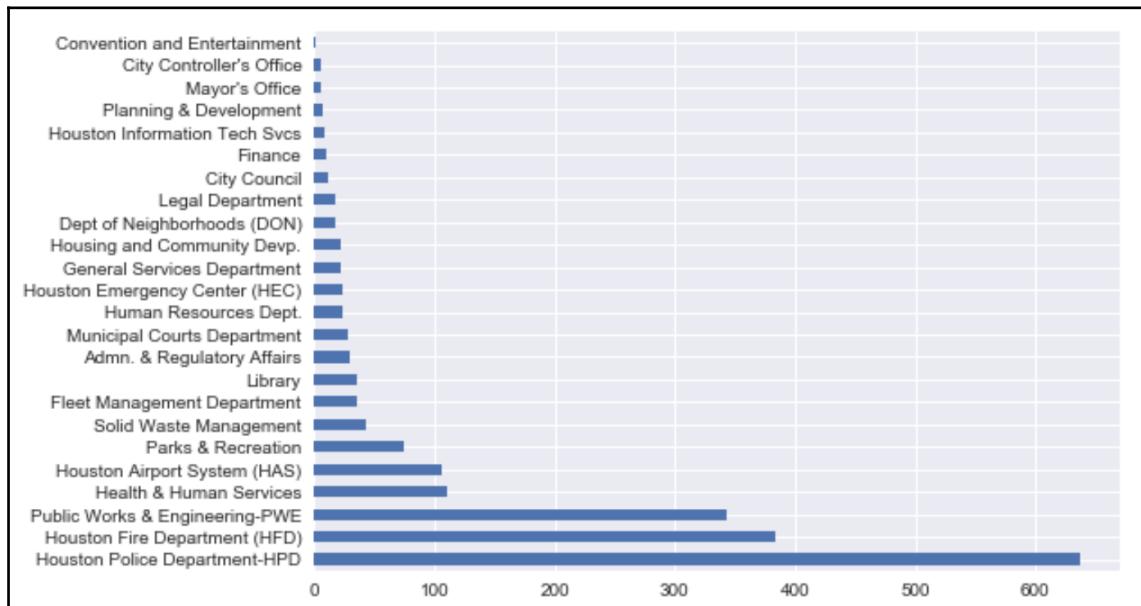
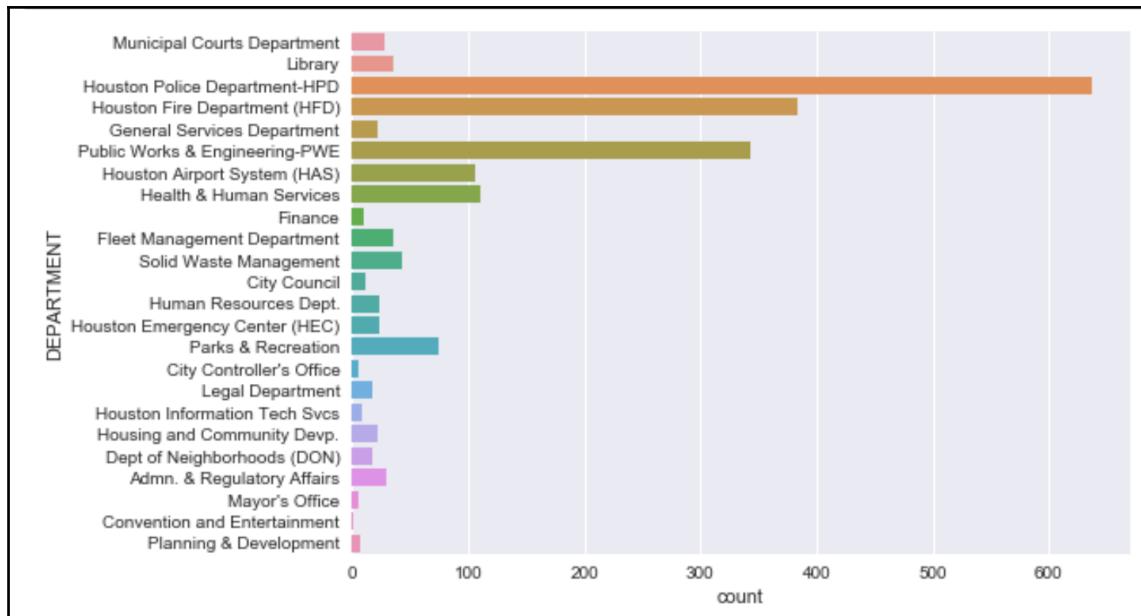
group	houston data science	houston data visualization	houston energy data science	houston machine learning	houstonr
join_date					
2017-09-17	0.282058	0.228862	0.252713	0.094868	0.141498
2017-09-24	0.282409	0.227629	0.252892	0.095732	0.141338
2017-10-01	0.283074	0.226829	0.251914	0.097703	0.140481
2017-10-08	0.284177	0.226712	0.251640	0.097612	0.139858
2017-10-15	0.284187	0.226959	0.251206	0.098423	0.139226

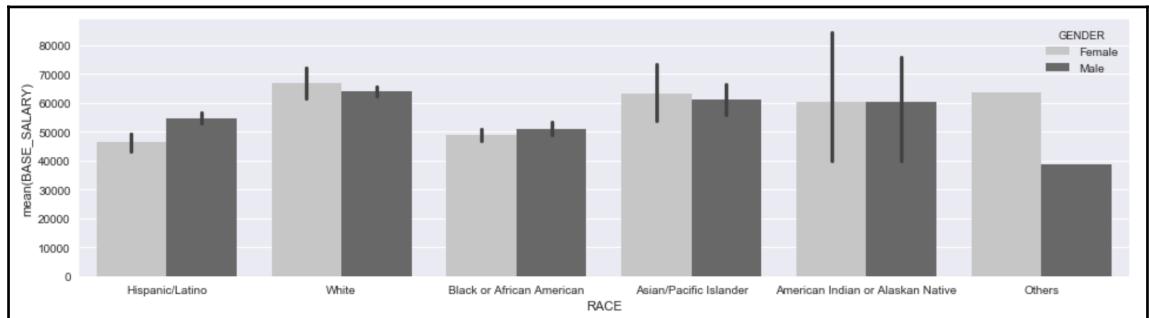
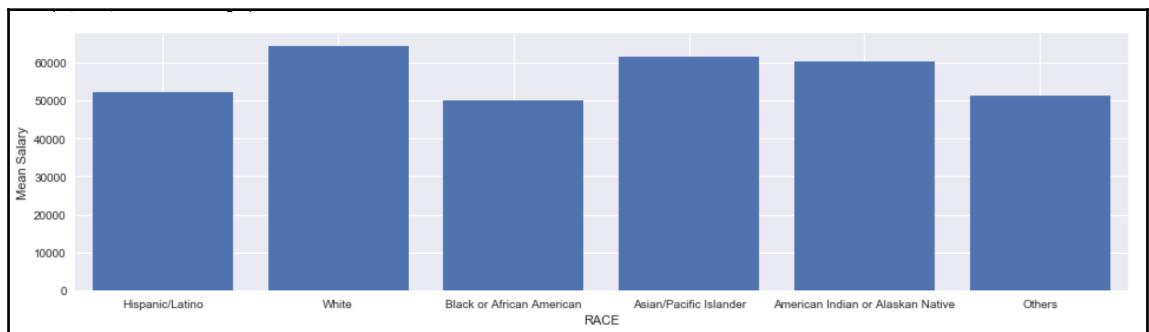
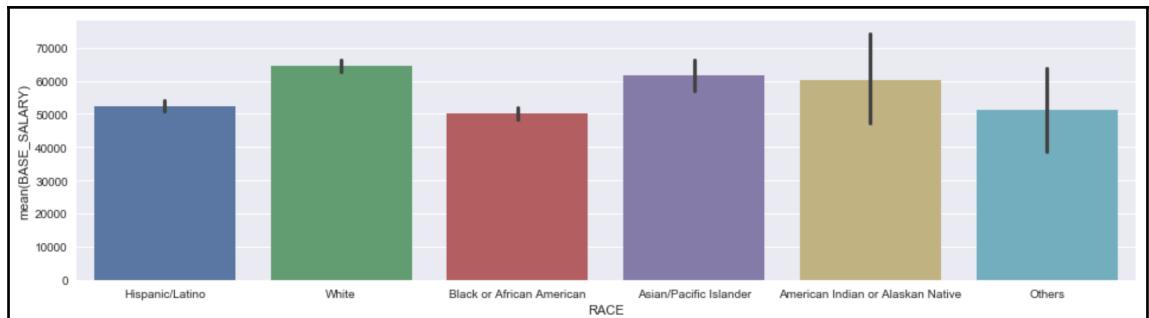


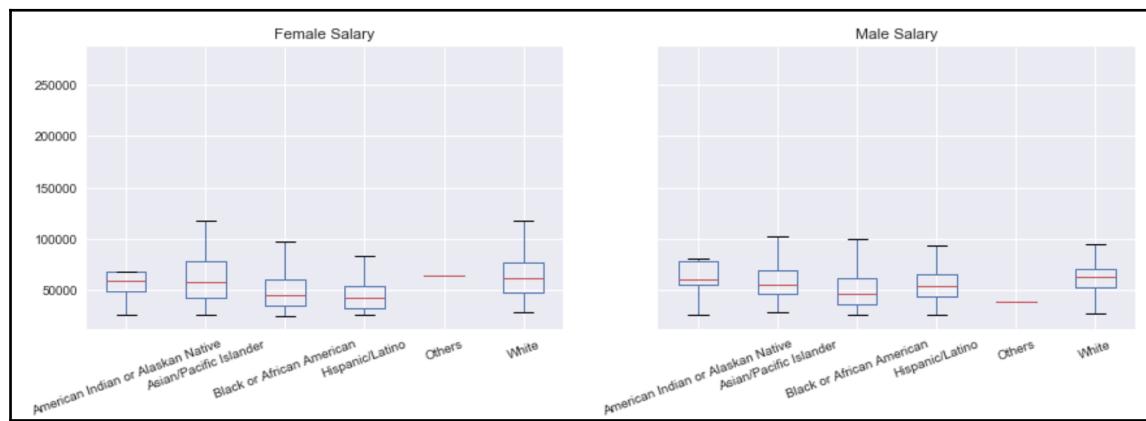
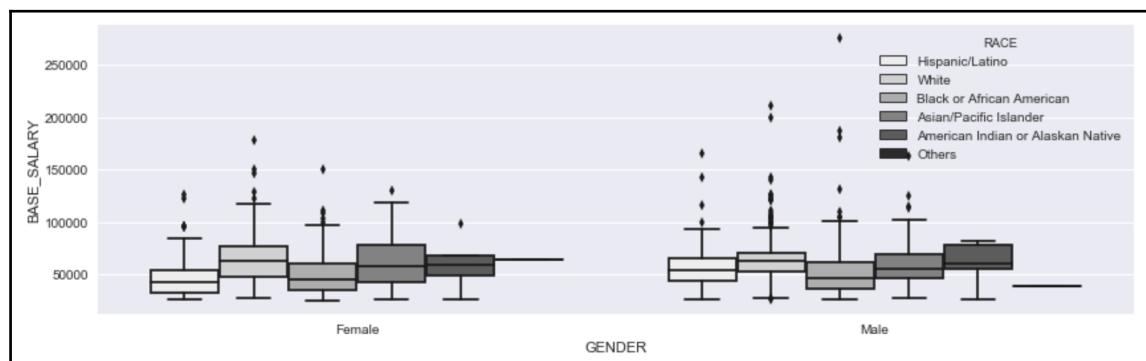
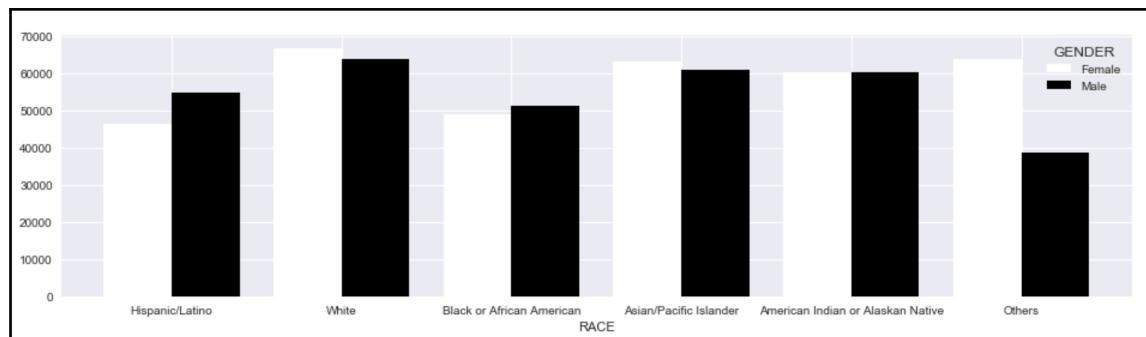
join_date	2016-06	2016-09	2016-12	2017-03	2017-06	2017-09
group						
houston data science	0.016949	0.110375	0.171245	0.212289	0.244033	0.280162
houston data visualization	0.337827	0.306052	0.277244	0.261103	0.242085	0.230332
houston energy data science	0.416025	0.354467	0.312271	0.288859	0.267576	0.253758
houston machine learning	0.000000	0.037176	0.051969	0.071593	0.087839	0.093026
houstonr	0.229199	0.191931	0.187271	0.166156	0.158467	0.142722

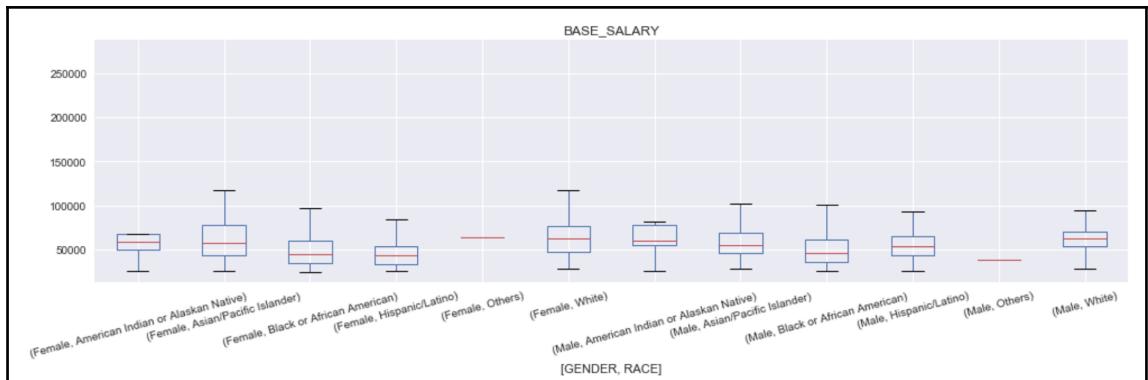


UNIQUE_ID	POSITION_TITLE	DEPARTMENT	BASE_SALARY	RACE	EMPLOYMENT_TYPE	GENDER	EMPLOYMENT_STATUS	HIRE_DATE	JOB_DATE
0	ASSISTANT DIRECTOR (EX LVL)	Municipal Courts Department	121862.0	Hispanic/Latino	Full Time	Female	Active	2006-06-12	2012-10-13
1	LIBRARY ASSISTANT	Library	26125.0	Hispanic/Latino	Full Time	Female	Active	2000-07-19	2010-09-18
2	POLICE OFFICER	Houston Police Department-HPD	45279.0	White	Full Time	Male	Active	2015-02-03	2015-02-03
3	ENGINEER/OPERATOR	Houston Fire Department (HFD)	63166.0	White	Full Time	Male	Active	1982-02-08	1991-05-25
4	ELECTRICIAN	General Services Department	56347.0	White	Full Time	Male	Active	1989-06-19	1994-10-22

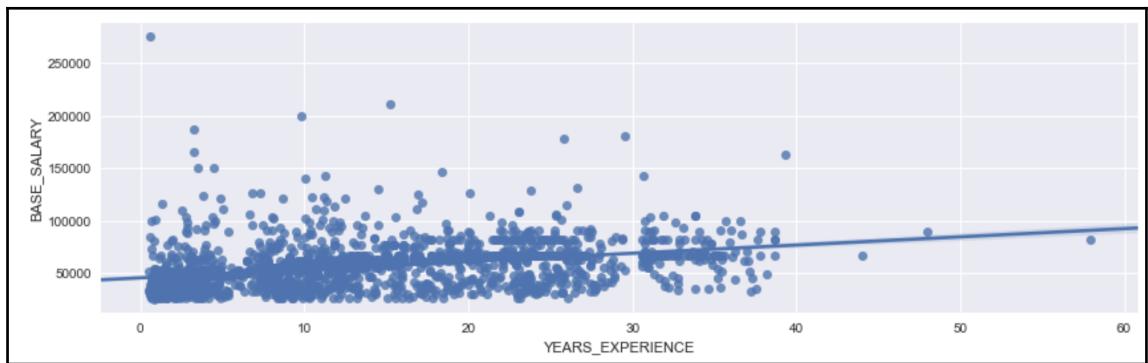


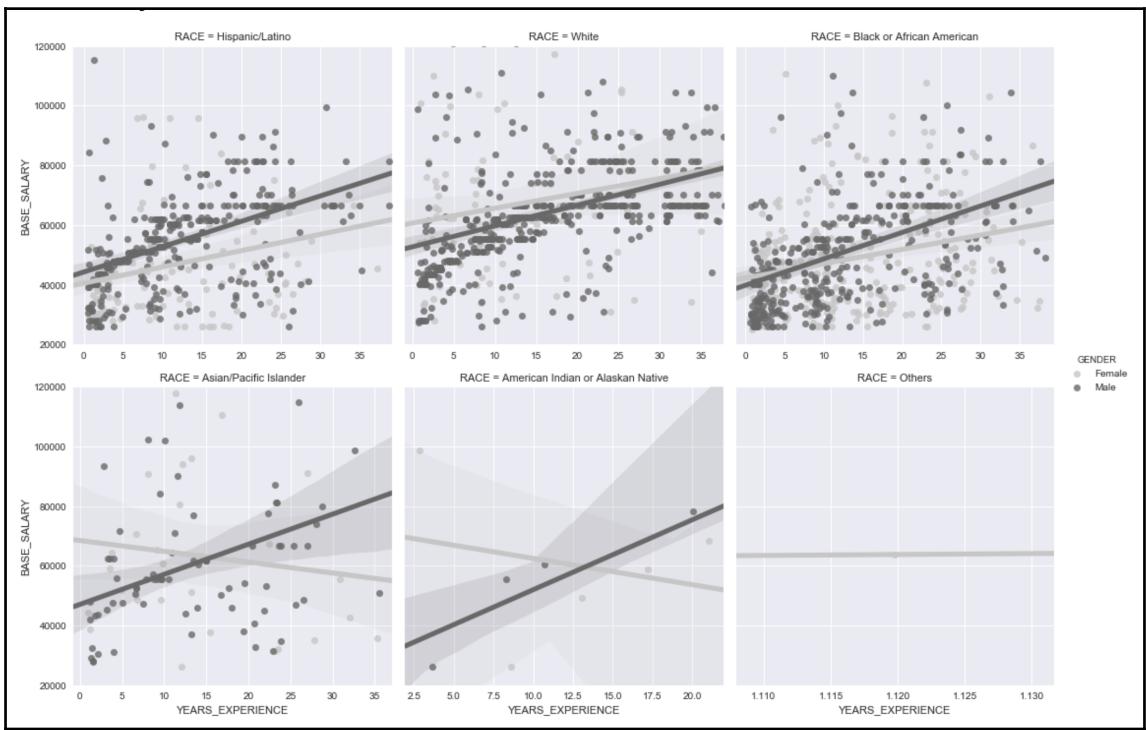
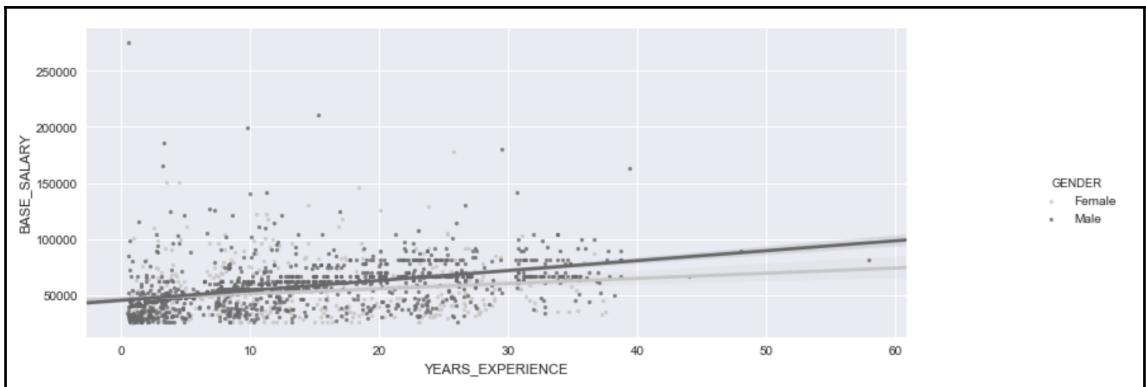


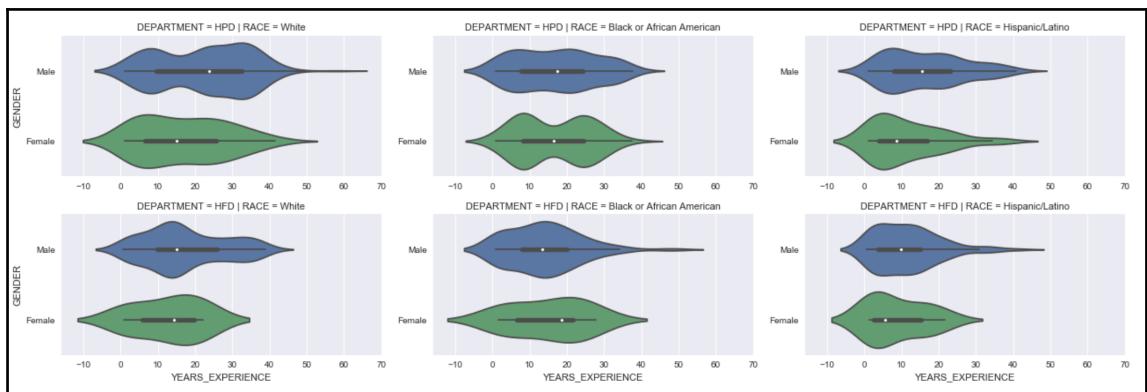
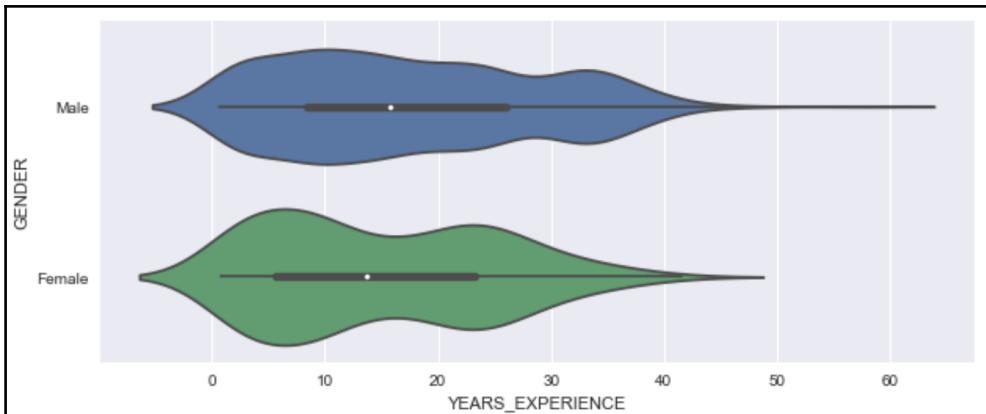




	HIRE_DATE	YEARS_EXPERIENCE
0	2006-06-12	10.472494
1	2000-07-19	16.369946
2	2015-02-03	1.826184
3	1982-02-08	34.812488
4	1989-06-19	27.452994



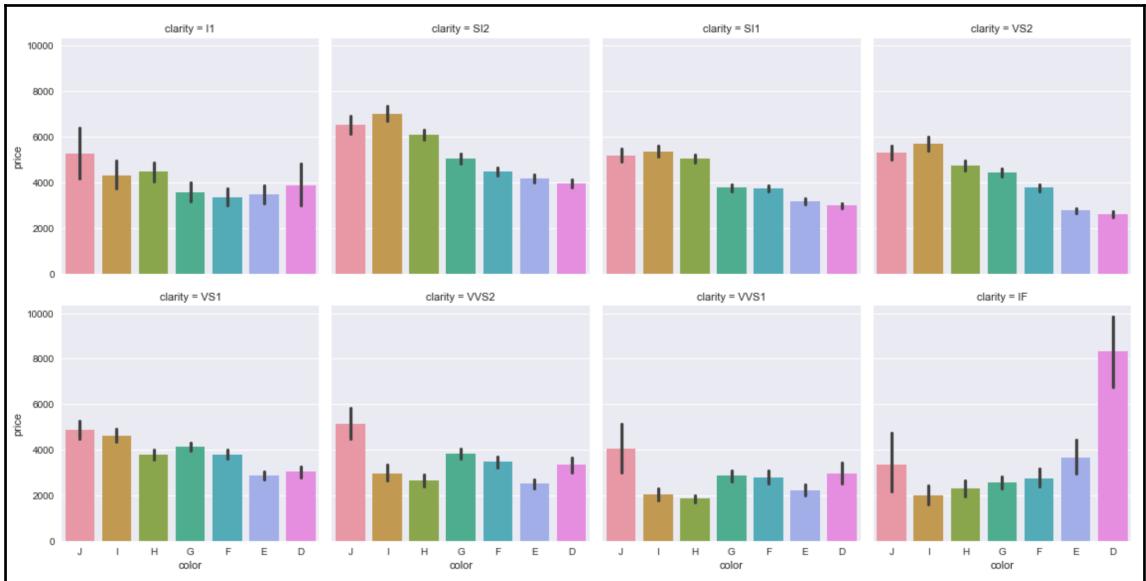
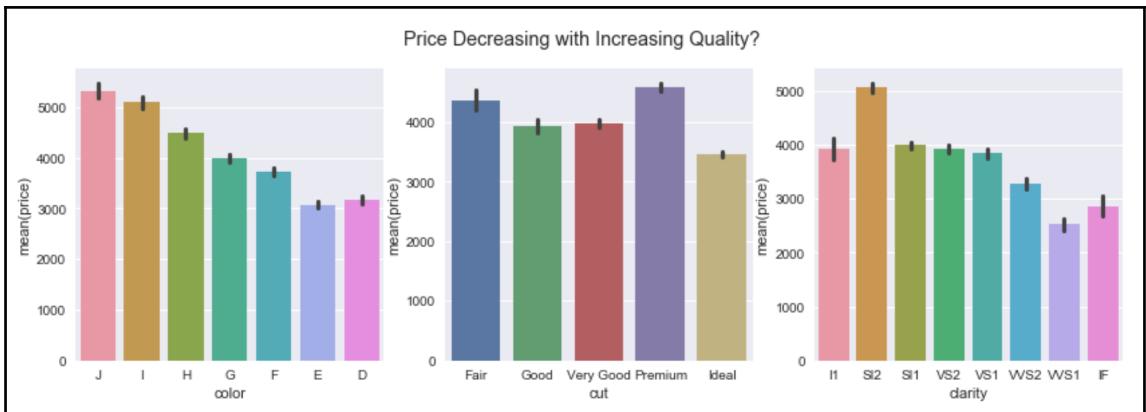


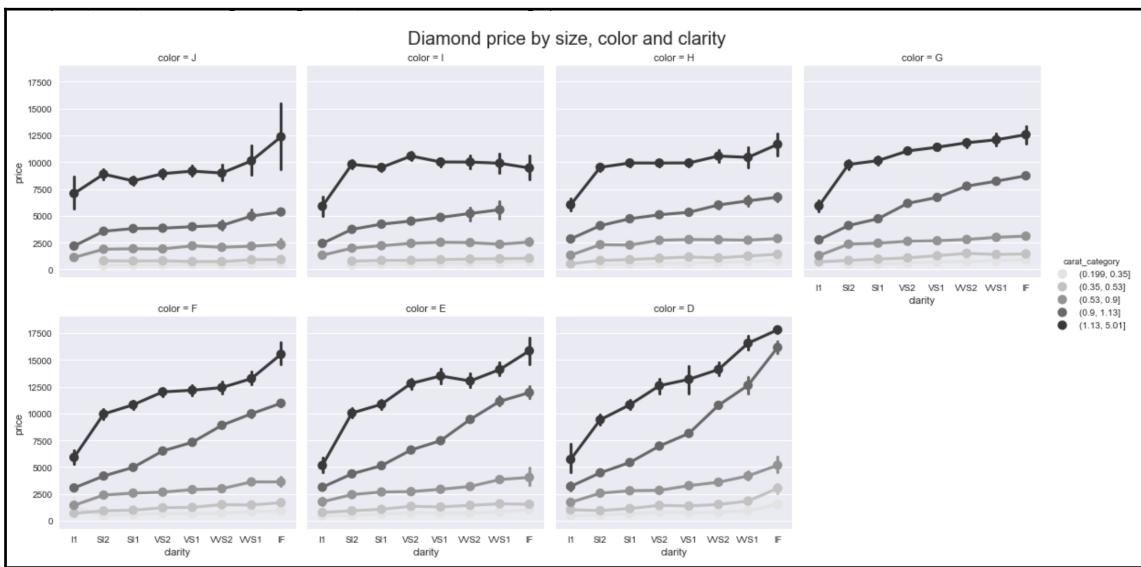
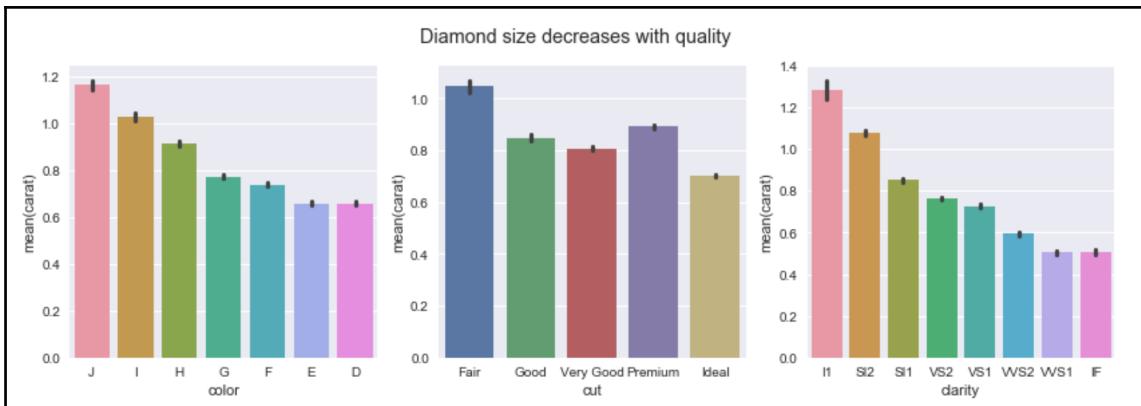


	Raw Score	Percent Correct
Student A	50/100	50
Student B	80/100	80

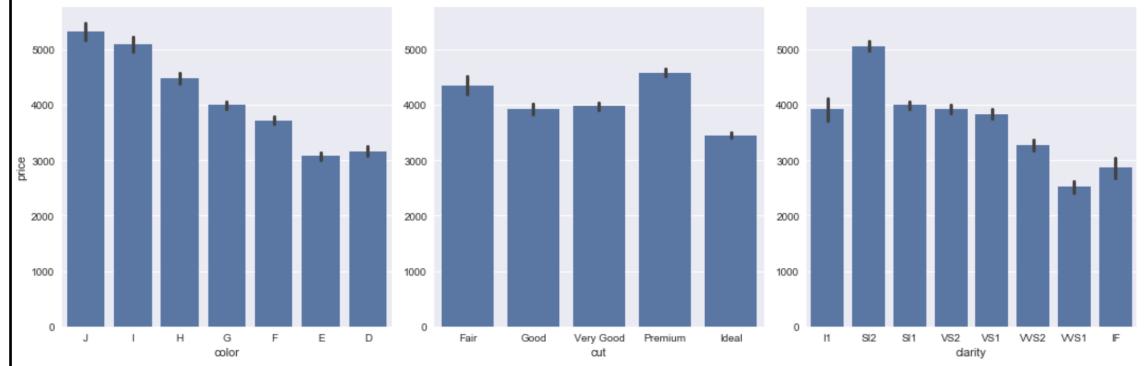
	Difficult	Easy	Difficult Percent	Easy Percent	Total Percent
Student A	45/95	5/5	47	100	50
Student B	2/5	78/95	40	82	80

	carat	cut	color	clarity	depth	table	price	x	y	z
0	0.23	Ideal	E	SI2	61.5	55.0	326	3.95	3.98	2.43
1	0.21	Premium	E	SI1	59.8	61.0	326	3.89	3.84	2.31
2	0.23	Good	E	VS1	56.9	65.0	327	4.05	4.07	2.31
3	0.29	Premium	I	VS2	62.4	58.0	334	4.20	4.23	2.63
4	0.31	Good	J	SI2	63.3	58.0	335	4.34	4.35	2.75





Replication of Step 3 with PairGrid



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