

对于数据集一：

标称属性

对于数据集一：

标称属性：

J.Laurinaitis	155
P.Chung	153
A.Hawk	153
B.Wagner	153
S.Tulloch	151
N.Bowman	144
E.Weddle	143
K.Wright	141
R.Clark	141
L.David	138
M.Burnett	134
S.Lee	133

M.Watson	1
J.Ross	1
I.Redman	1
N.Gerry	1
D.Binn	1
M.Darr	1
T.Bowser	1
F.Jackson	1
W.Saunders	1
B.Coleman	1
C.Mace	1
J.Doyle	1
R.Jennings	1
A.DePaola	1
I.Pead	1
N.Vannett	1
E.Harris	1
T.Tabor	1
E.Decker	1
E.Ebron	1
V.Anderson	1
T.Rawls	1
B.Pierce	1
C.Latimer	1
A.Moten	1
A.Barbre	1
L.Little	1

J.Whitehead 1  
B.Witherspoon 1  
L.Washington 1  
Length: 2456, dtype: int64

FieldGoalResult 频数 :  
Good 7582  
No Good 1272  
Blocked 205  
dtype: int64

Fumble 频数 :  
0 401916  
1 5772  
dtype: int64

RecFumbTeam 频数 :  
CHI 165  
TB 161  
NYG 159  
ARI 154  
JAC 147  
PHI 146  
DAL 146  
NYJ 145  
SEA 143  
OAK 143  
CAR 142  
BAL 140  
WAS 139  
ATL 138  
SF 136  
MIN 135  
KC 134  
HOU 134  
BUF 133  
NE 132  
NO 131  
GB 130  
IND 128  
DEN 127  
PIT 127  
CLE 125  
DET 123

MIA	123
TEN	114
CIN	111
STL	107
SD	106
LA	35
LAC	14

dtype: int64

RecFumbPlayer 频数 :

M.Adams	15
J.Peppers	15
D.Jackson	14
J.Watt	14
M.Jenkins	14
R.Ninkovich	14
A.Smith	13
J.Smith	13
J.Allen	13
K.Williams	12
M.Mitchell	12
J.Jones	11
R.Wilson	11
L.David	11
J.Thomas	11
K.Wright	10
J.Laurinaitis	10
D.Revis	10
C.Mosley	10
D.Johnson	10
T.Smith	10
C.Tillman	10
B.Scott	10
T.Williams	9
D.Williams	9
M.Burnett	9
C.Dunlap	9
C.Campbell	9
J.Wilson	9
J.Charles	9
..	..
C.Warmack	1
B.LaFell	1
Erin.Henderson	1

D.Scott	1
M.Cooper	1
J.Harper	1
L.Betts	1
S.Vollmer	1
J.Gaither	1
S.Paea	1
R.Gunter	1
K.Huggins	1
G.Barnidge	1
K.Bentley	1
J.Avant	1
C.Benson	1
T.Clutts	1
D.Rosario	1
T.Gooden	1
M.Hall	1
Q.Dunbar	1
S.Hutchinson	1
T.Armstead	1
S.Cody	1
J.Randle	1
I.Irving	1
G.Hardy	1
B.Dombrowski	1
J.Phillips	1
D.Gomes	1

Length: 1827, dtype: int64

Sack 频数 :

0	396601
1	11087

dtype: int64

Challenge.Replay 频数 :

0	404275
1	3413

dtype: int64

ChalReplayResult 频数 :

Upheld	1986
Reversed	1416

dtype: int64

Accepted.Penalty 频数 :

0 378189

1 29499

dtype: int64

PenalizedTeam 频数 :

OAK 1159

SEA 1080

TB 1010

DET 1007

PHI 990

SF 983

DAL 978

DEN 977

BAL 975

BUF 966

TEN 932

CHI 920

ARI 917

HOU 916

CIN 915

CLE 906

WAS 904

NYJ 897

NO 895

KC 892

PIT 863

MIA 863

MIN 858

CAR 852

GB 851

JAC 846

NYG 823

NE 822

STL 807

IND 797

SD 783

ATL 777

LA 231

LAC 107

dtype: int64

PenaltyType 频数 :

False Start

5284  
Defensive Offside  
1524  
Defensive Holding  
1490  
Delay of Game  
1196  
Neutral Zone Infraction  
980  
Offensive Holding  
722  
Defensive Pass Interference  
590  
Illegal Contact  
556  
Encroachment  
526  
Illegal Use of Hands  
525  
Illegal Formation  
473  
Defensive 12 On-field  
298  
Illegal Block Above the Waist  
245  
Illegal Shift  
210  
Unnecessary Roughness  
180  
Offside on Free Kick  
177  
Ineligible Downfield Pass  
131  
Illegal Motion  
114  
Illegal Substitution  
106  
Roughing the Passer  
99  
Face Mask (15 Yards)  
93  
Player Out of Bounds on Punt  
90  
Ineligible Downfield Kick

86  
Running Into the Kicker  
72  
Offensive 12 On-field  
71  
Illegal Forward Pass  
69  
Illegal Touch Kick  
65  
Personal Foul  
57  
Illegal Touch Pass  
56  
Offensive Pass Interference  
54

Horse Collar  
2  
Short Free Kick  
2  
Illegal Bat  
2  
Kickoff Out of Bounds  
2  
Roughing the Kicker  
2  
Fair Catch Interference  
2  
Illegal Kick  
1  
Procedure  
1  
Length: 77, dtype: int64

PenalizedPlayer 频数 :

A.Smith	154
T.Williams	96
M.Bennett	89
T.Smith	88
C.Johnson	85
V.Davis	79
J.Smith	72
J.Thomas	72
J.Jones	69

P.Rivers	68
C.Williams	67
S.Smith	63
D.Free	62
J.Jenkins	62
B.Browner	61
T.Brown	59
N.Suh	59
M.Jenkins	58
A.Whitworth	57
J.Peters	56
L.Johnson	55
J.Gresham	55
R.Okung	54
B.Skrine	54
J.Brown	54
D.Williams	54
J.Veldheer	54
J.Hughes	53
P.Peterson	53
A.Brown	53

L.Booker	1
G.Davis	1
T.Wheatley	1
D.Driver	1
B.Jenkins	1
M.Hall	1
B.Leonhardt	1
D.Campbell	1
R.Odhiambo	1
J.Amaro	1
B.Finneran	1
R.Phillips	1
M.Spears	1
Z.Vigil	1
T.Castille	1
C.Draft	1
K.Murphy	1
G.Atkinson	1
K.Wooten	1
J.Galloway	1
D.Watt	1
B.Parker	1



D.McClover	1
S.Skov	1
C.Reid	1
D.Donahue	1
T.Jacobs	1
J.Higgins	1
W.Holden	1
Jo.Anderson	1

Length: 3357, dtype: int64

HomeTeam 频数 :

NE	13165
PHI	13123
DEN	13041
BUF	12996
NO	12984
BAL	12902
NYG	12901
ARI	12897
IND	12897
OAK	12895
CLE	12858
DET	12813
MIA	12758
GB	12743
HOU	12731
NYJ	12706
TEN	12689
CIN	12675
PIT	12624
KC	12620
MIN	12619
DAL	12597
SF	12567
SEA	12559
WAS	12555
CAR	12551
CHI	12516
TB	12507
ATL	12431
SD	11007
JAC	10035
STL	9842
LA	2798

JAX 2723  
LAC 1363  
dtype: int64

AwayTeam 频数 :

PHI 13129  
DEN 13127  
NO 13003  
DET 12975  
NE 12959  
HOU 12939  
BAL 12927  
ARI 12857  
KC 12824  
OAK 12815  
WAS 12809  
IND 12780  
CIN 12763  
ATL 12743  
SF 12735  
BUF 12705  
NYG 12704  
CLE 12700  
MIA 12685  
NYJ 12668  
GB 12666  
TB 12646  
TEN 12603  
CHI 12562  
MIN 12553  
DAL 12553  
SEA 12530  
CAR 12496  
PIT 12278  
SD 11302  
JAC 9808  
STL 9663  
JAX 2930  
LA 2836  
LAC 1415  
dtype: int64

Timeout\_Indicator 频数 :

0 390885

1      16803

dtype: int64

Timeout\_Team 频数 :

None	390885
NO	628
KC	580
CLE	573
SF	572
OAK	558
BAL	557
WAS	555
HOU	546
MIA	545
DEN	544
TB	541
DAL	541
CIN	537
CAR	534
GB	530
DET	527
PHI	525
PIT	523
CHI	519
ARI	507
NYJ	505
BUF	501
NYG	498
SD	489
TEN	486
ATL	484
SEA	478
NE	475
IND	462
MIN	446
JAC	416
STL	360
JAX	103
LA	99
LAC	59

dtype: int64

Season 频数 :

2015	46129
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2016 45736  
 2014 45502  
 2012 45415  
 2013 45248  
 2017 45241  
 2011 45070  
 2010 44751  
 2009 44596  
 dtype: int64

数值属性：

	max	min	mean	50%	25%	75%	NaN
TimeUnder	15.0000 00	0.0000 00	7.37420 0	7.00000 0	3.0000 00	11.0000 00	0
TimeSecs	3600.00 0000	- 900.00 0000	1695.26 8944	1800.00 0000	778.00 0000	2585.00 0000	224
PlayTimeDiff	943.000 000	0.0000 00	20.5767 62	17.0000 00	5.0000 00	37.0000 00	444
yrdIn	50.0000 00	1.0000 00	28.4883 27	30.0000 00	20.000 000	39.0000 00	840
yrdline100	99.0000 00	1.0000 00	48.6440 81	49.0000 00	30.000 000	70.0000 00	840
ydsnet	99.0000 00	- 87.000 000	25.9455 17	19.0000 00	5.0000 00	43.0000 00	0
Yards.Gained	99.0000 00	- 74.000 000	4.99422 1	1.00000 0	0.0000 00	7.00000 0	0
AirYards	84.0000 00	- 70.000 000	3.26400 6	0.00000 0	0.0000 00	4.00000 0	0
YardsAfterCatch	90.0000 00	- 81.000 000	1.25259 8	0.00000 0	0.0000 00	0.00000 0	0
FieldGoalDistance	71.0000 00	18.000 000	37.4651 32	38.0000 00	29.000 000	46.0000 00	398 740
Penalty.Yards	66.0000 00	0.0000 00	0.61367 3	0.00000 0	0.0000 00	0.00000 0	0
PosTeamScore	61.0000 00	0.0000 00	10.2014 24	7.00000 0	2.0000 00	16.0000 00	269 04
DefTeamScore	61.0000 00	0.0000 00	11.4144 84	10.0000 00	3.0000 00	17.0000 00	269 04

ScoreDiff	59.0000 00	- 59.000 000	- 1.18659 0	0.00000 0	- 7.0000 00	4.00000 0	249 88
AbsScoreDiff	59.0000 00	0.0000 00	7.78354 1	7.00000 0	3.0000 00	11.0000 00	269 04
posteam_timeouts_ pre	3.00000 0	0.0000 00	2.52123 9	3.00000 0	2.0000 00	3.00000 0	0
HomeTimeouts_Re maining_Pre	3.00000 0	- 3.0000 00	2.54047 9	3.00000 0	2.0000 00	3.00000 0	0
AwayTimeouts_Rem aining_Pre	3.00000 0	- 1.0000 00	2.51722 2	3.00000 0	2.0000 00	3.00000 0	0
HomeTimeouts_Re maining_Post	3.00000 0	- 3.0000 00	2.52011 8	3.00000 0	2.0000 00	3.00000 0	0
AwayTimeouts_Rem aining_Post	3.00000 0	- 1.0000 00	2.49636 7	3.00000 0	2.0000 00	3.00000 0	0
No_Score_Prob	1.00000 0	0.0000 00	0.12781 6	0.02477 1	0.0027 91	0.17250 9	176
Opp_Field_Goal_Pro b	0.36017 7	0.0000 00	0.09461 4	0.08308 8	0.0345 99	0.14994 3	176
Opp_Safety_Prob	0.03146 1	0.0000 00	0.00249 5	0.00098 8	0.0001 04	0.00384 5	176
Opp_Touchdown_Pr ob	0.49687 4	0.0000 00	0.13997 3	0.12403 2	0.0398 34	0.22640 8	176
Field_Goal_Prob	0.99460 5	0.0000 00	0.24390 6	0.23131 1	0.1524 43	0.32613 0	176
Safety_Prob	0.01517 7	0.0000 00	0.00263 4	0.00299 0	0.0018 83	0.00358 2	176
Touchdown_Prob	0.91296 3	0.0000 00	0.29594 0	0.31367 6	0.1912 06	0.40768 4	176
ExPoint_Prob	0.99312 8	0.0000 00	0.02407 2	0.00000 0	0.0000 00	0.00000 0	0
TwoPoint_Prob	0.47350 0	0.0000 00	0.00070 3	0.00000 0	0.0000 00	0.00000 0	0
ExpPts	6.50090 0	- 3.8364 88	1.56541 5	1.25796 7	0.3235 26	2.88204 8	176
EPA	9.50801 5	- 13.494 136	0.01911 6	0.00000 0	- 0.5990 34	0.56304 7	369
airEPA	7.34696	-	0.52481	0.29597	-	1.38648	248

	9	12.849 594	8	7	0.5028 95	6	394
yacEPA	9.55983 4	- 14.000 000	- 0.38608 6	0.00000 0	- 0.9611 15	0.48550 8	248 498
Home_WP_pre	1.00000 0	0.0000 00	0.53448 8	0.53127 4	0.3251 23	0.76923 2	249 54
Away_WP_pre	1.00000 0	0.0000 00	0.46596 5	0.46905 2	0.2314 11	0.67553 0	249 54
Home_WP_post	1.00000 0	0.0000 00	0.53479 1	0.53360 9	0.3217 01	0.77288 2	265 87
Away_WP_post	1.00000 0	0.0000 00	0.46561 3	0.46667 0	0.2276 94	0.67883 3	265 87
Win_Prob	1.00000 0	0.0000 00	0.50132 0	0.50447 0	0.2764 72	0.72547 7	250 09
WPA	0.99484 8	- 0.9972 14	0.00209 9	0.00000 0	- 0.0147 28	0.01468 4	554 1
airWPA	0.99484 8	- 0.9998 81	0.01513 5	0.00344 1	- 0.0115 18	0.03579 2	248 501
yacWPA	1.00000 0	- 0.9866 73	- 0.01048 0	0.00000 0	- 0.0186 83	0.01143 1	248 762

对于数据集二：

标称属性

Brush	2
Garlington	2
Hillcrest	2
Mission St	2
Elmhurst	2
Lindsay	2
Sharp	2
Shephard	2
Oneida	2
Edinburgh	2
Fanning	2
Vulcan	2
El Plazuela	2
Laskie	2
Auburn	2

Rizal	2
Harry	2
Hunters Point	2
Espanola	2
Imperial	2
08th Ti	2
Avenue G	2
Gabilan	2
Emery	2
Hidalgo	2
Roach	2
Cleveland	2
Nottingham	2
South	2
Chula	2
Mayflower	2
Burr	2
North View	2
Rodgers	2
Worth	2
Redondo	2
Garces	2
Melra	2
Dolphin	2
Marcela	2
Horace	2
Bannock	2
Mountain Springs	2
Service	2
Commer	2
Striped Bass	2
Avenue I	2
Turner	2
Keyes	2
Tuscany	1
Quickstep	1
Saint Joseph's	1
Torney	1
Dicha	1
Graham	1
Saddleback	1
Doric	1
Mabrey	1
Shaw	1

Willie B Kennedy	1
09th Ti	1
Ignacio	1
Crisp	1
Meacham	1
East Crystal Cove	1
Richards	1
Juan Bautista	1
Stark	1
Diana	1
Yacht	1
Northgate	1
Danton	1
Fella	1
Reno	1
Tillman	1
Albatross	1
Kimball	1
Nob Hill	1
Homewood	1
Banbury	1
Saint Marys	1
Unknown	1
Adele	1
Salinas	1
Lessing	1
Hare	1
Avenue H	1
Sherman	1
Havens	1
Bergen	1
Toyon	1
Lakewood	1
Pizarro	1
Keppler	1
Clarion	1
Mersey	1
Reed	1
Colin P Kelly Jr	1
Cooper	1
Dixie	1
Spencer	1
Roemer	1
Gordon	1



Colonial	1
Hillview	1
Beckett	1
Waterloo	1
Rio	1
Ridge	1
Penny	1
Erie	1
Custer	1
Boylston	1
Cedar	1
Chain Of Lakes	1
Mirando	1
Arco	1
Red Leaf	1
Legion	1
Annie	1
Windsor	1
Fern	1
Alder	1
Bartol	1
Hollywood	1
Augusta	1
11th Ti	1
Martin Luther King Jr	1
Dorcas	1
Jose Sarria	1
John F. Shelley	1
Gillette	1
Merchant	1
Turk Murphy	1
Letterman	1
Conkling	1
Al Scoma	1
Oriole	1
Higuera	1
Forest	1
Nautilus	1
Winthrop	1
Ames	1
Acton	1
Cunningham	1
Lynch	1
Vine	1

Balmy	1
Hardie	1
Knockash	1
Dedman	1
Jennifer	1
Mojave	1
Via Bufano	1
Harris	1
Willard St North	1

dtype: int64

Street Suffix 频数 :

St	138358
Av	43219
Bl	3555
Wy	3540
Dr	3267
Tr	1466
Ct	667
Pl	538
Rd	389
Ln	354
Hy	240
Pz	210
Pk	128
Cr	97
Al	83
Wk	9
Rw	5
Sw	2
So	2
No	2
HI	1

dtype: int64

Current Status 频数 :

complete	97077
issued	83559
filed	12043
withdrawn	1754
cancelled	1536
expired	1370
approved	733
reinstated	563

suspend	193
revoked	50
plancheck	16
appeal	2
disapproved	2
incomplete	2

dtype: int64

Structural Notification 频数 :

Y	6922
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dtype: int64

Voluntary Soft-Story Retrofit 频数 :

Y	35
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dtype: int64

Fire Only Permit 频数 :

Y	18827
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dtype: int64

Existing Use 频数 :

1 family dwelling	46766
apartments	40798
office	24616
2 family dwelling	20987
retail sales	6910
food/beverage hndlng	4886
vacant lot	1813
tourist hotel/motel	1665
residential hotel	1020
warehouse,no frnitur	870
school	674
clinics-medic/dental	581
manufacturing	510
church	467
artist live/work	448
lending institution	351
auto repairs	336
health studios & gym	239
theater	219
filling/service stn	218
barber/beauty salon	212
prkng garage/public	207
public assmbly other	196

prkng garage/private	194
workshop commercial	189
recreation bldg	179
museum	146
club	124
storage shed	113
misc group residns.	113
antenna	110
warehouse, furniture	99
laundry/laundromat	99
sfpd or sffd station	97
automobile sales	95
nite club	79
massage parlor	78
parking lot	76
printing plant	69
power plant	68
dry cleaners	63
animal sale or care	59
day care home gt 12	53
social care facility	43
day care, non-res	41
garment shops	40
hospital	38
muni carbarn	37
phone xchnge/equip	36
radio & tv stations	35
library	33
moving & storage	30
day care center	27
wholesale sales	27
greenhouse	27
dance hall	24
sound studio	18
christmas tree lot	18
convalescent home	17
mortuary	15
nursing home gt 6	13
car wash	11
tower	10
nursing home non amb	10
building materials	10
adult entertainment	9
fence/retaining wall	9

chemical processing	9
day care home lt 7	9
nursery(floral)	9
amusement center	7
storage tanks	6
jail	6
prson'l svc tutor	5
nursing home lte 6	5
paint store	5
sign	5
workshop residential	5
accessory cottage	5
swimming pool	5
meat/produce marts	5
r-3(dwg) nursing	4
stadium	4
day care home 7 - 12	4
sewage plant	4
muni driver restroom	3
ambulance service	3
bath house	2
temple	2
child care	1
dairies/dairy equip.	1
orphanage	1
roofing materials	1
dtype: int64	

Proposed Use 频数 :

1 family dwelling	46346
apartments	43032
office	23962
2 family dwelling	22061
retail sales	5079
food/beverage hndlng	5053
tourist hotel/motel	1601
residential hotel	1002
school	748
clinics-medic/dental	678
warehouse,no frnitur	674
artist live/work	443
manufacturing	436
church	434
vacant lot	385

health studios & gym	332
barber/beauty salon	258
auto repairs	239
lending institution	239
public assmbly other	228
workshop commercial	219
recreation bldg	207
theater	189
prkng garage/public	175
museum	139
club	125
misc group residns.	119
antenna	115
massage parlor	104
prkng garage/private	102
filling/service stn	99
sfpd or sffd station	98
day care home gt 12	83
power plant	82
storage shed	79
automobile sales	74
greenhouse	72
parking lot	67
warehouse, furniture	65
nite club	65
animal sale or care	60
day care, non-res	59
laundry/laundromat	56
social care facility	47
wholesale sales	40
day care center	40
phone xchnge/equip	38
dry cleaners	36
radio & tv stations	36
muni carbarn	35
printing plant	34
library	33
hospital	32
sound studio	28
moving & storage	26
nursery(floral)	25
child care	25
garment shops	24
fence/retaining wall	22

dance hall	22
christmas tree lot	18
convalescent home	16
prson'l svc tutor	15
nursing home gt 6	14
mortuary	12
nursing home non amb	11
tower	11
day care home lt 7	11
day care home 7 - 12	11
workshop residential	10
chemical processing	9
amusement center	8
swimming pool	6
building materials	6
sewage plant	6
jail	6
sign	6
paint store	6
bath house	5
car wash	5
muni driver restroom	5
storage tanks	5
adult entertainment	5
accessory cottage	5
nursing home lte 6	4
r-3(dwg) nursing	4
ambulance service	4
stadium	3
temple	2
meat/produce marts	2
orphanage	1
not applicable	1
dairies/dairy equip.	1
roofing materials	1
dtype: int64	

Plansets 频数 :

2.0	98088
0.0	63244
3.0	250
4.0	3
1.0	2
6.0	2

20.0	1
9000.0	1

dtype: int64

TIDF Compliance 频数 :

Y	1
P	1

dtype: int64

Existing Construction Type 频数 :

5.0	113350
1.0	28072
3.0	9663
2.0	4068
4.0	381

dtype: int64

Proposed Construction Type 频数 :

5.0	114382
1.0	27841
3.0	9360
2.0	3778
4.0	377

dtype: int64

Site Permit 频数 :

Y	5359
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dtype: int64

Supervisor District 频数 :

3.0	28649
8.0	26760
2.0	25483
6.0	24797
5.0	19045
9.0	16362
7.0	14365
1.0	13038
10.0	12152
4.0	9592
11.0	6940

dtype: int64

Neighborhoods - Analysis Boundaries 频数 :



Financial District/South Beach	21816
Mission	14681
Sunset/Parkside	10207
West of Twin Peaks	8739
Castro/Upper Market	8527
Pacific Heights	8508
Marina	8244
Outer Richmond	7854
Noe Valley	7844
South of Market	7572
Bernal Heights	6067
Nob Hill	6009
Haight Ashbury	5798
Inner Sunset	5776
Bayview Hunters Point	5669
Russian Hill	5495
Hayes Valley	5489
Tenderloin	4783
Inner Richmond	4458
Potrero Hill	4293
Presidio Heights	4084
North Beach	4054
Western Addition	3867
Chinatown	3765
Lone Mountain/USF	3358
Excelsior	3072
Oceanview/Merced/Ingleside	2654
Glen Park	2637
Mission Bay	2287
Outer Mission	2242
Twin Peaks	1702
Portola	1433
Lakeshore	1308
Seacliff	992
Visitacion Valley	900
Japantown	700
Treasure Island	81
Golden Gate Park	64
Presidio	51
Lincoln Park	49
McLaren Park	46

dtype: int64

数值属性

	max	min	mean	median	quartile	missing
Number of Existing Stories	78.0	0.0	5.705773	3.0	2.0	-155748.0
Number of Proposed Stories	78.0	0.0	5.745043	3.0	2.0	-155664.0
Estimated Cost	537958646.0	1.0	168955.443297	11000.0	3300.0	-160466.0
Revised Cost	780500000.0	0.0	132856.186492	7000.0	1.0	-192466.0
Existing Units	1907.0	0.0	15.666164	1.0	1.0	-146994.0
Proposed Units	1911.0	0.0	16.510950	2.0	1.0	-147621.0