# Mercedes-Benz Greener Manufacturing

January 13, 2023

## 0.1 Import Libraries

```
[1]: import numpy as np
  import pandas as pd
  import matplotlib.pyplot as plt
  import seaborn as sns
  from sklearn.model_selection import train_test_split
  pd.set_option("display.max_columns",None)

import warnings;
warnings.simplefilter ('ignore')
from xgboost import XGBRegressor
```

#### 0.2 Load the Dataset

X35

X36

X37

X38

X39

X40

X41

```
[2]: df_test=pd.read_csv('test.csv')
     df_train=pd.read_csv('train.csv')
[3]: df_test.head()
                      X2 X3 X4 X5 X6 X8
[3]:
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X378 X379 X380 X382 X383 X384 X385

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[4]: df\_test.shape

[4]: (4209, 377)

[5]: df\_train.head()

[5]:		ID		у ХО	X1	Х2	ХЗ	Х4	Х5	Х6	Х8	X10	)	X11	X12	Х	13	X14	X15	X1	.6	\	
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	1	6	88.5	3 k	t	av	е	d	У	1	0	(	C	0	0		0	0	0		0		
	2	7	76.2	6 az	W	n	С	d	x	j	x	(	C	0	0		0	0	0		0		
	3	9	80.6	2 az	t	n	f	d	x	1	е	(	C	0	0		0	0	0		0		
	4	13	78.0	2 az	v	n	f	d	h	d	n	(	C	0	0		0	0	0		0		
		X17	X18	X19	X20	X2	21	X22	2 2	<b>K</b> 23	Х2	4 X	X26	X27	7 X	28	X29	X30	) ХЗ	1	Х32	\	
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	4	0	0	0	0		0	C	)	0		0	0		1	1	1	. (	)	1	0		
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	1	0	0	1	0		1	C	)	0		0	0	(	0	0	0	) (	)	0	0		
	2	0	0	1	0		1	C	)	0		0	0	(	0	1	0	) (	)	1	0		
	3	0	0	1	0		1	C	)	0		0	0	(	0	1	0	) (	)	1	0		
	4	0	0	1	0		1	C	)	0		0	0	(	0	1	0	) (	)	1	0		
		X48	X49	X50	X51	ΧĘ	52	X53	3 2	<b>K</b> 54	Х5	5 X	X56	X5	7 X	58	X59	X60	) X6	1	X62	\	
	0	0	0	0	0		0	C	)	0		0	0	(	0	1	0	) (	)	0	0		
	1	0	0	0	1		0	C	)	0		0	0	(	0	0	0	) (	)	1	0		
	2	0	0	0	1		0	C	)	1		0	0	(	0	1	0	) (	)	1	0		
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		X63	X64	X65	X66	Xθ	37	X68	3 2	K69	Х7	0 2	X71	X73	3 X	74	X75	X76	5 X7	7	X78	\	
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	1	0	0	0	0		0	C	)	0		1	0	(	0	1	O	) (	)	0	0		
	2	0	0	0	0		0	1	L	0		1	1	(	0	1	1		L	0	0		
	3	0	0	0	0		0	C	)	0		1	1	(	0	1	O	) :	L	0	0		
	4	0	0	0	0		0	C	)	0		1	0	(	0	1	0	) :	L	0	0		

	X79	X80	X81	X82	X83	X84	X85	X86	X87	Х8	8 X89	X90	X91	X92	X93	\
0	0	0	0	0	0	0	1	0	0		0 0	0	0	0	0	
	0	1	0	0	0	0	1	0	0		0 0	0	0	0	0	
1					-			-								
2	0	1	0	0	0	1	1	0	0		0 0	0	0	0	0	
3	0	1	0	0	0	1	0	0	0		0 0	0	0	0	0	
4	0	1	0	0	0	0	0	0	0		0 0	0	0	0	0	
	X94	X95	X96	X97	X98	Х99	X100	X101	L X1	102	X103	X104	X105	X106	5 \	
0	0	0	0	0	0	0	0	(	)	0	0	0	0	C	)	
1	0	0	1	0	1	0	1	1	L	0	0	0	0	C	)	
2	0	0	1	0	1	0	0	1	L	0	0	0	0	C	)	
3	0	0	1	0	1	0	0	1	L	0	0	0	0	C	)	
4	0	0	1	0	1	0	0		L	0	0	0	0	(		
	X107	X108	3 X1	09	X110	X111	X112	X113	3 X 1	14	X115	X116	X117	X118	3 \	
0	0	C		0	0	1	0	(		1	0	1	0	1		
1	0	C		0	0	1	0	(		0	0	0	0	1		
2	0	C				1		(						(		
				0	0		0			0	0	0	0			
3	0	1		0	0	1	0	(		1	0	0	0	C		
4	0	1	•	0	0	1	0	(	)	1	0	0	0	C	)	
	X119	X120			X123	X124	X125	X126		L27	X128	X129	X130	X131		
0	1	1		0	0	0	0	(		0	1	0	0	1	-	
1	1	1		0	0	0	0	(	)	1	1	0	0	C	)	
2	0	1		0	0	0	0	(	)	0	1	0	0	C	)	
3	0	1		0	0	0	0	(	)	0	1	0	0	C	)	
4	0	1		0	0	0	0	(	)	0	1	0	0	C	)	
	X132	X133	8 X1	34	X135	X136	X137	X138	3 X1	139	X140	X141	X142	X143	3 \	
0	0	C		0	0	1	1	(		0	0	0	1	C	)	
1	1	C		0	0	1	0	(		0	0	0	1	C		
2	1	C		0	0	0	1	(		0	0	0	0	(		
3	1	C		0	0	0	0	(		0	0	0	1			
4	1	C		0	0	0	0	(		0	0	0	0			
4	1	C	,	U	U	U	U	,	,	U	U	U	U	·	,	
	X144	X145	X14	16	X147	X148	X150	X151	V 4	152	X153	X154	X155	X156	3 \	
_																
0	1	C		0	0	0	1	(		0	0	0	0	1		
1	1	C		0	0	0	1	(		0	0	0	0	1		
2	1	C		0	0	1	1	(		0	0	0	0	C		
3	1	C	)	0	0	1	1	(	)	0	0	0	0	C		
4	1	C	)	0	0	1	1	(	)	0	0	0	0	C	)	
	X157	X158	3 X1	59	X160	X161	X162	X163	3 X1	164	X165	X166	X167	X168	3 \	
0	0	C	)	0	0	0	0	(	)	0	0	0	0	C	)	
1	0	C	)	0	0	0	0	(	)	0	1	0	0	C	)	
2	1	1		0	0	0	1	1	L	0	0	0	0	C	)	
3	1	C		0	0	0	1	(		0	0	1	0	(		
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X169	4	1	1	0	0	0	1	0	0	0	1	0	0	
1		X169	X170	X171	X172	X173	X174	X175	X176	X177	X178	X179	X180	\
2	0	0	1	0	0	0	0	0	0	0	0	1	0	
Name	1	0	0	0	0	0	0	0	0	0	1	0	0	
X181	2	1	0	0	0	0	0	0	0	0	0	1	0	
X181		0	0	0	0	0	1	0	0	0	0	1	0	
X181		_	_	-	-	_		-	_	-	_	_		
Name	-	Ŭ	Ü	Ü	Ü	Ü	Ü	Ü	Ü	Ü	Ü	-	Ü	
1		X181	X182	X183	X184	X185	X186	X187	X189	X190	X191	X192	X194	\
2	0	0	0	0	1	0	0	1	1	0	0	0	1	
3	1	0	0	0	0	0	0	1	1	0	0	0	1	
Name	2	0	0	0	0	0	0	0	0	0	0	0	1	
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Name		0	0	0	0	0	0	0	0	0	0	0		
Name	-	ŭ	Ū	ŭ	ŭ	Ū	Ū	Ū	Ū	Ū	Ů	ŭ	-	
1		X195	X196	X197	X198	X199	X200	X201	X202	X203	X204	X205	X206	\
Name	0	0	0	0	0	0	0	0	0	0	1	0	0	
Name	1	0	0	0	0	0	0	0	0	0	0	1	0	
Name	2	0	0	0	0	0	0	0	0	0	0	1	1	
No		0	0	0	0	0	0	0	0	0	0	1	0	
		-	_			_			_	_		_		
Name	-	O	O	O	O	O	O	O	O	O	O	_	O	
Name		X207	X208	X209	X210	¥211	X212	X213	¥214	X215	X216	¥217	¥218	\
1	Λ													`
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No			-			_	-	-	_	-	-	_		
X219		-			-	_	-	_	-					
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1       0       0       0       0       0       0       0       0       1       0       0       0       0       1       0       0       0       0       1       0       0       0       0       1       0		X219	X220	X221	X222	X223	X224	X225	X226	X227	X228	X229	X230	\
2       1       1       0       0       1       1       0       0       0       1       0       0       1       0       0       1       0       0       0       1       0       0       0       1       0       0       0       1       0       0       0       1       0       0       0       1       0       0       0       1       0       0       0       0       1       0       0       0       0       1       0	0	0	1	0	0	0	0	0	0	0	0	0	0	
3       0       1       0       0       0       0       0       0       1       0       0       0       0       1       0       0       1       0       0       1       0       0       1       0       0       1       0       0       1       0       0       1       0       0       0       1       0	1	0	0	0	0	0	0	0	0	0	0	1	0	
4       0       1       0       1       0       0       0       0       0       1       0         X231       X232       X233       X234       X235       X236       X237       X238       X239       X240       X241       X242       \\         0       0       0       0       0       1       0<	2	1	1	0	0	1	1	0	0	0	1	0	0	
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	X255	X256	X257	X258	X259	X260	X261	X262	X263	X264	X265	X266	\
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7	U	1	U	U	U	U	U	U	U	U	U	U	
	X267	X268	X269	X270	X271	X272	X273	X274	X275	X276	X277	X278	\
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	¥070	¥000	¥004	¥000	¥000	¥004	¥00E	VOOC	¥007	W000	¥000	¥000	,
	X279	X280	X281	X282	X283	X284	X285	X286	X287	X288	X289	X290	\
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	¥291	X292	X293	¥294	X295	¥296	X297	¥298	X299	X300	X301	X302	\
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[6]: df_train.shape
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[6]: (4209, 378)

### 0.3 Separation of Numerical and Categorical Columns for Train and Test Data

```
[7]: df_cat=df_train.select_dtypes(include=np.object) df_num=df_train.select_dtypes(exclude=np.object)
```

```
[8]: test_df_cat=df_test.select_dtypes(include=np.object) test_df_num=df_test.select_dtypes(exclude=np.object)
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df_cat.head()
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[10]: # numerical data for train dataset
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[9]: # categorical data for train dataset

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3	0	0	0	0	0	0	0	1	0	1	0	0	
4	0	0	0	0	0	0	0	1	0	1	0	0	
	X223	X224	X225	X226	X227	X228	X229	X230	X231	X232	X233	X234	\
0	0	0	0	0	0	0	0	0	0	0	0	1	
1	0	0	0	0	0	0			0	0	0	0	
2	1	1	0	0	0	1	0		0	1	0	0	
3	1	0	0	0	0	0	1	0	0	1	0	0	
4	1	0	0	0	0	0	1	0	0	1	0	0	
_			X237									X246	\
	0	0	1		0	0	0		0	0	0	0	
1	0	0	0			0	0		0	0	0	0	
2	0	0	0	0		0			0	1	0	1	
3	0	0	0	0	0	0	1	0	0	1	0	1	
4	0	0	0	0	0	0	0	0	0	0	0	1	
	V0/17	<b>V</b> 0//0	<b>V</b> 040	۷٥٤٥	VOE4	VOEO	AUEJ	VOE 4	VOEE	VOE	<b>V</b> 057	VOEO	\
0			X249 0										\
U	U	U	U	U	U	0	U	U	U	U	U	U	

1	0	0	0	1	0	0	0	0	0	0	0	0	
2	0	0	0	1	0	1	0	0	0	1	0	0	
3	0	0	0	1	0	1	0	0	0	1	0	0	
4	0	0	0	1	0	1	0	0	0	1	0	0	
	X259	X260	X261	X262	X263	X264	X265	X266	X267	X268	X269	X270	\
0	0	0	0	1	1	0	0	1	0	0	0	0	
1	0	0	0	0	1	0	1	0	0	0	0	0	
2	0	0	0	0	0	0	0	0	0	0	0	0	
3	0	0	0	0	0	0	0	0	0	0	0	0	
4	0	0	0	0	0	0	0	0	0	0	0	0	
	X271	X272	X273	X274	X275	X276	X277	X278	X279	X280	X281	X282	\
0	0	0	1	0	1	0	0	0	0	0	0	0	
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3	0	1	1	0	0	1	0	0	1	0	0	0	
4	0	1	1	0	0	1	0	0	1	0	0	0	
	X283	X284	X285	X286	X287	X288	X289	X290	X291	X292	X293	X294	\
0	0	0	1	0	0	0	0	0	0	0	0	0	
1	0	0	1	0	0	0	0	0	0	0	0	0	
2	0	0	0	1	0	0	0	0	0	0	0	0	
3	0	0	0	1	0	0	0	0	1	0	0	0	
4	0	0	0	1	0	0	0	0	0	0	0	0	
	X295	X296	X297	X298	X299	X300	X301	X302	X304	X305	X306	X307	\
0	0	0	0	0	0	0	0	0	0	0	1	0	
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3	0	0	0	0	0	0	0	0	1	0	0	0	
4	0	0	0	0	0	0	0	0	1	0	0	0	
	W000	W000	W040	7011	W040	W040	<b>7</b> 044	<b>704</b> F	W040	W047	W040	W040	,
^	X308	X309	X310	X311	X312	X313	X314	X315	X316	X317	X318	X319	\
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3	0	0	0	0	0	0	0	0	0	0	0	0	
4	0	0	0	0	0	0	0	0	0	0	0	0	
	X320	X321	X322	X323	X324	X325	X326	X327	X328	X329	X330	X331	\
0	A320	A321 0	A322	A323	1	A323	A320	1	A320	1 A329	A330	A331 0	`
1	0	0	0	0	0	0	0	0	0	1	0	0	
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3	0	0	0	0	0	0	0	0	1	0	0	0	
4	0	0	0	0	0	0	0	0	1	0	0	0	
	U	U	U	U	U	U	U	U		U	U	U	

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[11]: columns=df_num.columns
[12]: df_num.shape
[12]: (4209, 370)
[13]: # categorical data for test dataset
```

[13]: XO X1 X2 X3 X4 X5 X6 X8 n f d az t V t b ai a d b У

test\_df\_cat.head()

[14]: # numerical data for test dataset test\_df\_num.head()

[14]:		ID	X10	X11	X12	X13	X14	X15	X16	X17	X18	X19	X20	X21	X22	X23	\
	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	•
	1	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	
	2	3	0	0	0	0	1	0	0	0	0	0	0	0	0	0	
	3	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	4	5	0	0	0	0	1	0	0	0	0	0	0	0	0	0	
		X24	X26	X27	X28	X29	X30	X31	X32	X33	X34	X35	X36	X37	X38	X39	\
	0	0	0	1	1	1	0	1	0	0	0	1	0	1	0	0	
	1	0	0	1	0	0	0	1	0	0	0	1	0	1	0	0	
	2	0	0	1	0	1	0	1	0	0	0	1	0	1	0	0	
	3	0	0			1		1	0	0	0	1	0	1	0	0	
	4	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	
		X40	X41	X42		X44			X47	X48	X49	X50	X51	X52		X54	\
	0	0	0			0	0	1	0	0	0	0	0	0	0	1	
	1	0	0	0	0	0	1	1	0	0	1	1	1	0	0	0	
	2	0	0	_	-	0	0	0	0	0	0	0	1	0	0	1	
	3	0	0			0		1	0	0	0	0	0	0	0	1	
	4	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	
	_	X55	X56	X57	X58	X59			X62	X63	X64		X66	X67	X68	X69	\
	0	0	0			0		1	0	0	0		0	0	0	0	
	1	0	0			0		1	0	0	0		0	0	0	0	
	2	0	0	_	_	0	0	1	0	0	0	0	0	0	0	0	
	3	0	0	_		0		1	0	0	0	0	0	0	0	0	
	4	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	
		V70	V74	V70	V7/	V75	V7.0	voo	¥70	¥70	VO0	VO4	<b>V</b> 00	voo	<b>V</b> O 4	VOE	,
	^	X70	X71	X73		X75	X76	X77	X78	X79	X80	X81	X82	X83	X84	X85	\
	0	1	0		1	0	1	0	0	0	1	0	0	0	0	0	
	1	1	0			0	0	0	0	0	1	0	0	0	0	0	
	2	1	0			0		0	0	0	1	0	0	0	0	1	
	3	1	0			0	1	0	0	0	1	0		0	0	0	
	4	1	0	0	1	0	0	0	0	0	1	0	0	0	0	1	
		X86	X87	х88	X89	X90	X91	X92	X93	X94	X95	X96	X97	X98	X99	X100	) \
	0	000	0			A90	N91	лэ2 0	лээ 0	Λ94 0	лээ 0	1 A 9 O	Λ91 0	лэо 1	лээ 0	V10(	
	1	0	0			0		0	0	0	0	0	0	1	0	(	
	2	0	0	_	_	0	0	0	0	0	0	1	0	1	0		1
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4	0	0	0	0 0	0	0	0	0	0 1	0	1	0	1
	X101	X102	X103	X104	X105	X106	X107	X108	X109	X110	X111	X112	\
0	1	0	0	0	0	0	0	0	0	0	1	0	
1	1	0	1	0	0	0	0	0	0	0	1	0	
2	1	0	1	0	0	0	0	0	0	0	1	0	
3	1	0	0	0	0	0	0	0	0	0	1	0	
4	1	0	1	0	0	1	0	0	0	0	1	0	
	X113	X114	X115	X116	X117	X118	X119	X120	X122	X123	X124	X125	\
0	0	1	0	0	0	0	0	0	0	0	0	0	
1	0	0	0	1	0	1	1	1	0	0	0	0	
2	0	0	0	0	0	0	0	1	0	0	0	0	
3	0	1	0	0	0	0	0	1	0	0	0	0	
4	0	0	0	0	0	1	1	1	0	0	0	0	
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	X126	X127	X128	X129	X130	X131	X132	X133	X134	X135	X136	X137	\
0	0	0	1	0	0	0	1	0	0	0	0	0	`
1	0	1	1	1	0	0	0	1	0	0	1	1	
2	0	0	1	0	0	0	1	0	0	0	0	1	
3	0	0	_	_	0	0	1	0	0	0	_	0	
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4	0	0	1	0	0	0	1	0	0	0	1	1	
	V120	V120	V110	V1/1	X142	V1/10	V111	V1/F	V116	V117	V110	V1E0	\
^	X138	X139	X140	X141		X143	X144	X145	X146	X147	X148	X150	\
0	0	0	0	0	0	0	1	0	0	0	1	1	
1	1	0	1	0	1	0	0	0	1	0	0	0	
2	0	0	0	0	1	0	1	0	0	0	0	1	
3	0	0	0	0	0	0	1	0	0	0	1	1	
4	0	0	0	0	1	0	1	0	0	0	0	1	
	X151	X152	X153	X154	X155	X156	X157	X158	X159	X160	X161	X162	\
0	0	0	0	0	0	0	1	1	0	0	0	1	
1	0	0	0	0	0	1	0	0	0	0	1	0	
2	0	0	0	0	0	0	1	0	1	0	0	1	
3	0	0	0	0	0	0	1	1	0	0	0	1	
4	1	0	0	0	0	1	0	0	0	0	0	0	
	X163	X164	X165	X166	X167	X168	X169	X170	X171	X172	X173	X174	\
0	0	0	0	1	0	0	0	0	0	0	0	0	·
1	1	1	0	0	0	0	0	0	1	0	0	0	
2	0	0	0	1	0	0	0	0	0	0	0	0	
3	0	0	0	1	0	0	0	0	0	0	0	0	
4	1	0	0	0	0	0	0	0	1	0	0	0	
+	1	U	U	U	U	U	U	U	1	U	U	U	
	X175	X176	X177	X178	X179	X180	X181	X182	X183	X184	X185	X186	\
0	0	0	0	0	1	0	0	0	0	0	1	0	
1	0	0	0	0	0	0	0	0	0	0	0	1	

2	0	0	0	0	0	0	0	0	0	0	1	0	
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4	0	0	0	0	0	0	0	0	0	0	0	0	
	X187	X189	X190	X191	X192	X194	X195	X196	X197	X198	X199	X200	\
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	X201	X202	X203	X204	X205	X206	X207	X208	X209	X210	X211	X212	\
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	X213	X214	X215	X216	X217	X218	X219	X220	X221	X222	X223	X224	\
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4	0	0	0	0	0	0	0	1	0	0	1	1	
	X225	X226	X227	X228	X229	X230	X231	X232	X233	X234	X235	X236	\
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4	0	0	0	0	1	0	0	0	0	0	0	0	
	X237	X238	X239	X240	X241	X242	X243	X244	X245	X246	X247	X248	\
0	0	0	0	0	0	0	0	0	0	1	0	0	•
1	0	1	0	0	0	0	0	0	0	0	1	0	
2	0	0	0	0	0	0	0	0	0	0	0	0	
3	0	0	0	0	0	0	0	0	0	1	0	0	
4	0	1	0	0	0	0	0	0	0	1	0	0	
	X249	X250	X251	X252	X253	X254	X255	X256	X257	X258	X259	X260	\
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4	0	0	1	0	0	0	0	0	0	0	0	0	
	¥261	Yasa	X263	Y261	¥265	¥266	¥267	¥268	¥260	¥270	¥971	¥979	\
	VZOI	AZUZ	A203	770 <del>4</del>	A200	Λ200	A201	Λ200	A209	A210	V711	ΛΖΙΖ	\

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2			0	0							0		
3	0	0	0	0	0	0	0	0	0	0	0	1	
4	1	0	1	0	1	0	0	0	0	0	0	0	
	V072	<b>V</b> 07/	X275	X276	<b>V</b> 077	X278	X279	X280	X281	X282	X283	X284	\
	X273	X274			X277								\
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```
[15]: test_columns=test_df_num.columns
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[16]: test_df_num.shape
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[16]: (4209, 369)

## 0.4 If for any Columns, the Variance is equal to zero

```
variable_var_zero.append(columns[i])
[19]: np.ravel(variable_var_zero)
[19]: array(['X11', 'X93', 'X107', 'X233', 'X235', 'X268', 'X289', 'X290',
                'X293', 'X297', 'X330', 'X347'], dtype='<U4')
[20]: # features which are of zero variance in training data set will be dropped
       df_num_variance_with_zero_drop=df_num.
        drop(['X11','X93','X107','X233','X235','X268','X289','X290','X293','X297','X330','X347'], ر
        \rightarrowaxis=1)
       df_num_variance_with_zero_drop.head()
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3	0	0	1	0	0	0	0	0	0	0	1	0	
4	0	0	1	0	0	0	0	0	0	0	0	0	
		X177		X179		X181	X182	X183			X186		\
0	0	0	0	1	0	0	0	0	1	0	0	1	
1	0	0	1	0	0	0	0	0	0	0	0	1	
2	0	0	0	1	0	0	0	0	0	0	0	0	
3	0	0	0	1	0	0	0	0	0	0	0	0	
4	0	0	0	1	0	0	0	0	0	0	0	0	
	X189	X190	X191	X192	X194	X195	X196	X197	¥198	X199	X200	X201	\
0	1	0	0	0	1	0	0	0	0	0	0	0	`
1	1	0	0	0	1	0	0	0	0	0	0	0	
2	0	0	0	0	1	0	0	0	0	0	0	0	
3	0	0	0	0	1	0	0	0	0	0	0	0	
4	0	0	0	0	1	0	0	0	0	0	0	0	
-	Ū	v	V	V	_	V	V	V	V	V	V	Ū	
	X202	X203	X204	X205	X206	X207	X208	X209	X210	X211	X212	X213	\
0	0	0	1	0	0	0	0	1	0	0	0	0	
1	0	0	0	1	0	0	0	1	0	0	0	0	
2	0	0	0	1	1	0	0	1	0	0	0	0	
3	0	0	0	1	0	0	0	1	0	0	0	0	
4	0	0	0	1	0	0	0	1	0	0	0	0	
	X214	X215		X217		X219		X221				X225	\
0	0	0	0	0	0	0	1	0	0	0	0	0	
1	0	0	0	0	0	0	0	0	0	0	0	0	
2	0	0	0	0	1	1	1	0	0	1	1	0	
3	0	0	0	0	1	0	1	0	0	1	0	0	
4	0	0	0	0	1	0	1	0	0	1	0	0	
	X226	¥227	X228	¥229	X330	¥231	¥232	¥234	¥236	¥237	¥238	X230	\
0			0										
1	0	0	0	1		0	0		0	0	1	0	
2	0	0	1	0	0	0	1		0	0	0	0	
3	0	0	0	1	0	0	1	0	0	0	0	0	
4	0	0	0	1	0	0	1	0	0	0	0	0	
_	·		· ·	_		· ·	_	·	·	·	· ·	·	
	X240	X241	X242	X243	X244	X245	X246	X247	X248	X249	X250	X251	\
0	0	0	0		0	0	0		0	0	0	0	
1	0	0	0	0		0	0			0	1	0	
2	0	1	0	0	1	0			0	0	1	0	
3	0	1	0	0	1	0	1	0	0	0	1	0	
4	0	0	0	0	0	0	1	0	0	0	1	0	
	VOFO	VOE O	VO- 4	VOCC	VOEC	VOET	VOFO	VOEO	VO CO	V0.04	VO CO	VO CO	,
0			X254										\
U	0	U	0	U	U	U	U	U	U	U	1	1	

1	0	0	0	0	0	0	0	0	0	0	0	1	
2	1	0	0	0	1	0	0	0	0	0	0	0	
3	1	0	0	0	1	0	0	0	0	0	0	0	
4	1	0	0	0	1	0	0	0	0	0	0	0	
	X264	X265	X266	X267	X269	X270	X271	X272	X273	X274	X275	X276	\
0	0	0	1	0	0	0	0	0	1	0	1	0	
1	0	1	0	0	0	0	0	0	1	0	1	0	
2	0	0	0	0	0	0	0	1	1	1	0	1	
3	0	0	0	0	0	0	0	1	1	0	0	1	
4	0	0	0	0	0	0	0	1	1	0	0	1	
	X277	X278	X279	X280	X281	X282	X283	X284	X285	X286	X287	X288	\
0	0	0	0	0	0	0	0	0	1	0	0	0	
1	0	0	0	0	0	0	0	0	1	0	0	0	
2	0	0	1	0	0	0	0	0	0	1	0	0	
3	0	0	1	0	0	0	0	0	0	1	0	0	
4	0	0	1	0	0	0	0	0	0	1	0	0	
	X291	X292	X294	X295	X296	X298	X299	X300	X301	X302	X304	X305	\
0	0	0	0	0	0	0	0	0	0	0	0	0	
1	0	0	0	0	0	0	0	0	0	0	1	0	
2	0	0	0	0	0	0	0	0	0	0	1	0	
3	1	0	0	0	0	0	0	0	0	0	1	0	
4	0	0	0	0	0	0	0	0	0	0	1	0	
	X306	X307	X308	X309	X310	X311	X312	X313	X314	X315	X316	X317	\
0	1	0	0	0	0	0	0	0	0	0	1	0	
1	0	0	0	0	0	1	0	0	0	0	1	0	
2	0	0	0	0	0	0	0	0	0	0	0	0	
3	0	0	0	0	0	0	0	0	0	0	0	0	
4	0	0	0	0	0	0	0	0	0	0	0	0	
	V010	¥240	¥200	¥204	¥200	¥200	¥204	¥20E	¥20C	¥207	¥200	¥200	,
^	X318 0	X319 0	X320 0	X321 0	X322	X323	X324 1	X325	X326 0	X327			\
0 1	0	0	0	0	0	0	0	0	0	1 0	0	1 1	
								0			0		
2	0	0	0	0	0	0	1 0	0	0	0	1 1	0	
3 4	0	0	0	0	0	0	0	0	0	0	1	0	
4	U	U	U	U	U	U	U	U	U	U	1	U	
	X331	X332	X333	X334	X335	X336	X337	X338	X339	X340	X341	X342	\
0	0	0	0	1	0	0	0	0	0	0	0	0	`
1	0	0	0	0	0	1	1	0	0	0	0	0	
2	0	0	0	1	0	0	0	0	0	0	0	0	
3	0	0	0	0	0	0	0	0	0	0	0	0	
4	0	0	0	1	0	0	0	0	0	0	0	0	
_	•	•	•	_	•	•	•	•	•	•	•	•	

	X343	X344	X345	X346	X348	X349	X350	X351	X352	X353	X354	X355	\
0	0	0	0	0	0	0	0	0	0	0	1	0	
1	0	0	0	0	1	0	0	0	0	0	0	0	
2	0	0	0	0	1	0	1	0	0	0	1	0	
3	0	0	0	0	1	0	1	0	0	0	0	0	
4	0	0	0	0	1	0	1	0	0	0	0	0	
	X356	X357	X358	X359	X360	X361	X362	X363	X364	X365	X366	X367	\
0	0	0	0	0	0	1	0	0	0	0	0	0	
1	0	0	0	0	0	1	0	1	0	0	0	0	
2	0	0	1	0	0	1	0	1	0	0	0	0	
3	0	0	1	0	0	1	0	1	0	0	0	0	
4	0	0	1	0	0	1	0	1	0	0	0	0	
	X368	X369	X370	X371	X372	Х373	X374	X375	X376	X377	X378	X379	\
0	X368 0	X369 0	X370 0	X371 0	X372 0	X373 0	X374 0	X375 0	X376 0	X377 1	X378 0	X379 0	\
0													\
	0	0	0	0	0	0	0	0	0	1	0	0	\
1	0	0	0	0	0	0	0 0	0 1	0	1 0	0	0 0	\
1 2	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 1 0	0 0 0	1 0 0	0 0 0	0 0 0	\
1 2 3	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0 1	0 0 0	0 0 0	0 1 0 0	0 0 0	1 0 0 0	0 0 0	0 0 0	\
1 2 3	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0 1	0 0 0	0 0 0	0 1 0 0	0 0 0	1 0 0 0	0 0 0	0 0 0	\
1 2 3	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 1 0	0 0 0	0 0 0	0 1 0 0	0 0 0	1 0 0 0	0 0 0	0 0 0	\
1 2 3 4	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 1	0 0 0 1 0	0 0 0	0 0 0	0 1 0 0	0 0 0	1 0 0 0	0 0 0	0 0 0	\
1 2 3 4	0 0 0 0 0 0 X380	0 0 0 0 0 X382	0 0 0 0 0 0 X383	0 0 0 0 1 X384	0 0 0 1 0 X385	0 0 0	0 0 0	0 1 0 0	0 0 0	1 0 0 0	0 0 0	0 0 0	\
1 2 3 4	0 0 0 0 0 0 X380 0	0 0 0 0 0 X382 0	0 0 0 0 0 X383 0	0 0 0 0 1 X384 0	0 0 0 1 0 X385 0	0 0 0	0 0 0	0 1 0 0	0 0 0	1 0 0 0	0 0 0	0 0 0	\

# [21]: df\_num\_variance\_with\_zero\_drop.describe()

[21]:		ID	у	X10	X12	X13	\
	count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
	mean	4205.960798	100.669318	0.013305	0.075077	0.057971	
	std	2437.608688	12.679381	0.114590	0.263547	0.233716	
	min	0.000000	72.110000	0.000000	0.000000	0.000000	
	25%	2095.000000	90.820000	0.000000	0.000000	0.000000	
	50%	4220.000000	99.150000	0.000000	0.000000	0.000000	
	75%	6314.000000	109.010000	0.000000	0.000000	0.000000	
	max	8417.000000	265.320000	1.000000	1.000000	1.000000	
		X14	X15	X16	X17	X18	\
	count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
	mean	0.428130	0.000475	0.002613	0.007603	0.007840	
	std	0.494867	0.021796	0.051061	0.086872	0.088208	
	min	0.000000	0.000000	0.000000	0.000000	0.000000	
	25%	0.000000	0.000000	0.000000	0.000000	0.000000	
	50%	0.000000	0.000000	0.000000	0.000000	0.000000	

75%	1.000000	0.000000	0.000000	0.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X19	X20	X21	X22	X23	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.099549	0.142789	0.002613	0.086957	0.020670	
std	0.299433	0.349899	0.051061	0.281805	0.142294	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	0.000000	
50%	0.000000	0.000000	0.000000	0.000000	0.000000	
75%	0.000000	0.000000	0.000000	0.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
max	1.000000	1.000000	1.000000	1.000000	1.00000	
	***	***		***	****	,
	X24	X26	X27	X28	X29	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.001901	0.004989	0.682585	0.032549	0.043003	
std	0.043561	0.070467	0.465526	0.177475	0.202888	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	0.000000	
50%	0.000000	0.000000	1.000000	0.000000	0.000000	
75%	0.000000	0.000000	1.000000	0.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X30	X31	Х32	Х33	X34	\
						`
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.004514	0.232359	0.011167	0.000238	0.005464	
std	0.067043	0.422387	0.105093	0.015414	0.073729	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	0.000000	
50%	0.000000	0.000000	0.000000	0.000000	0.000000	
75%	0.000000	0.000000	0.000000	0.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X35	X36	Х37	X38	X39	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.232359	0.004514	0.232359	0.033262	0.000238	
std	0.422387	0.067043	0.422387	0.179341	0.015414	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	0.000000	
50%	0.000000	0.000000	0.000000	0.000000	0.000000	
75%	0.000000	0.000000	0.000000	0.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X40	X41	X42	X43	X44	\
						`
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.000713	0.011404	0.000238	0.072226	0.011404	
std	0.026691	0.106192	0.015414	0.258893	0.106192	

min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	0.000000	
50%	0.000000	0.000000	0.000000	0.000000	0.000000	
75%	0.000000	0.000000	0.000000	0.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X45	X46	X47	X48	X49	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.253267	0.597292	0.012830	0.022333	0.122119	
std	0.434934	0.490501	0.112552	0.147782	0.327462	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	0.000000	
50%	0.000000	1.000000	0.000000	0.000000	0.000000	
75%	1.000000	1.000000	0.000000	0.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X50	X51	X52	X53	X54	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.214065	0.721787	0.042290	0.006890	0.043478	
std	0.410221	0.448172	0.201275	0.082729	0.203955	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	0.000000	
50%	0.000000	1.000000	0.000000	0.000000	0.000000	
75%	0.000000	1.000000	0.000000	0.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
шах	1.000000	1.000000	1.000000	1.000000	1.000000	
	X55	X56	X57	X58	X59	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	`
			0.013305			
mean	0.005227	0.021145		0.574958	0.000713	
std	0.072117	0.143885	0.114590	0.494408	0.026691	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	0.000000	
50%	0.000000	0.000000	0.000000	1.000000	0.000000	
75%	0.000000	0.000000	0.000000	1.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X60	X61	X62	X63	X64	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.001426	0.953908	0.005940	0.011404	0.375148	
std	0.037734	0.209709	0.076849	0.106192	0.484219	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	1.000000	0.000000	0.000000	0.000000	
50%	0.000000	1.000000	0.000000	0.000000	0.000000	
				0.000000		
75%	0.000000	1.000000	0.000000		1.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	7.05	W.C.C.	7.07	W.C.O.	7.00	,
	X65	X66	X67	X68	X69	\

count mean std min 25% 50% 75% max	4209.000000 0.002138 0.046198 0.000000 0.000000 0.000000 0.000000 1.000000	4209.000000 0.027085 0.162350 0.000000 0.000000 0.000000 0.000000 1.000000	4209.000000 0.001901 0.043561 0.000000 0.000000 0.000000 0.000000 1.000000	4209.000000 0.073414 0.260846 0.000000 0.000000 0.000000 0.000000 1.000000	4209.000000 0.029936 0.170431 0.000000 0.000000 0.000000 0.000000 1.000000	
count mean std min 25% 50% 75% max	X70 4209.000000 0.919933 0.271428 0.000000 1.000000 1.000000 1.000000 1.000000	X71 4209.000000 0.103588 0.304761 0.000000 0.000000 0.000000 1.0000000	X73 4209.000000 0.019957 0.139870 0.000000 0.000000 0.000000 1.0000000	X74 4209.000000 0.999287 0.026691 0.000000 1.000000 1.000000 1.000000	X75 4209.000000 0.036113 0.186594 0.000000 0.000000 0.000000 1.0000000	\
count mean std min 25% 50% 75% max	X76 4209.000000 0.043478 0.203955 0.000000 0.000000 0.000000 1.000000	X77 4209.000000 0.012592 0.111519 0.000000 0.000000 0.000000 0.000000 1.000000	X78 4209.000000 0.005702 0.075305 0.000000 0.000000 0.000000 1.000000	X79 4209.000000 0.025184 0.156703 0.000000 0.000000 0.000000 1.0000000	X80 4209.000000 0.947018 0.224024 0.000000 1.000000 1.000000 1.000000 1.000000	\
count mean std min 25% 50% 75% max	X81 4209.000000 0.229033 0.420260 0.000000 0.000000 0.000000 1.000000	X82 4209.000000 0.017106 0.129683 0.000000 0.000000 0.000000 1.000000	X83 4209.000000 0.001188 0.034450 0.000000 0.000000 0.000000 1.000000	X84 4209.000000 0.103588 0.304761 0.000000 0.000000 0.000000 1.000000	X85 4209.000000 0.408173 0.491554 0.000000 0.000000 1.000000 1.000000	\
count mean std min 25% 50% 75%	X86 4209.000000 0.001426 0.037734 0.000000 0.000000 0.000000	X87 4209.000000 0.000950 0.030817 0.000000 0.000000 0.000000	X88 4209.000000 0.007128 0.084134 0.000000 0.000000 0.000000	X89 4209.000000 0.000713 0.026691 0.000000 0.000000 0.000000	X90 4209.000000 0.007365 0.085514 0.000000 0.000000 0.000000	\

max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X91	Х92	X94	Х95	X96	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.001663	0.000950	0.007365	0.000238	0.758137	
std	0.040752	0.030817	0.085514	0.015414	0.428262	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	1.000000	
50%	0.000000	0.000000	0.000000	0.000000	1.000000	
75%	0.000000	0.000000	0.000000	0.000000	1.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	Х97	Х98	Х99	X100	X101	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.004277	0.942504	0.008553	0.690188	0.935614	
std	0.065263	0.232815	0.092098	0.462471	0.245468	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	1.000000	0.000000	0.000000	1.000000	
50%	0.000000	1.000000	0.000000	1.000000	1.000000	
75%	0.000000	1.000000	0.000000	1.000000	1.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X102	X103	X104	X105	X106	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.006890	0.784509	0.001901	0.002376	0.013067	
std	0.082729	0.411211	0.043561	0.048691	0.113576	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	1.000000	0.000000	0.000000	0.000000	
50%	0.000000	1.000000	0.000000	0.000000	0.000000	
75%	0.000000	1.000000	0.000000	0.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X108	X109	X110	X111	X112	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.014730	0.040390	0.000950	0.974816	0.002851	
std	0.120486	0.196895	0.030817	0.156703	0.053325	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	1.000000	0.000000	
50%	0.000000	0.000000	0.000000	1.000000	0.000000	
75%	0.000000	0.000000	0.000000	1.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X113	X114	X115	X116	X117	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.00000	
mean	0.022333	0.146115	0.285579	0.196721	0.04918	
std	0.147782	0.353264	0.451743	0.397567	0.21627	
min	0.000000	0.000000	0.000000	0.000000	0.00000	

25% 50% 75% max	0.000000 0.000000 0.000000 1.000000	0.000000 0.000000 0.000000 1.000000	0.00000 0.00000 1.00000 1.00000	0.000000 0.000000 0.000000 1.000000	0.00000 0.00000 0.00000 1.00000	
count mean std min 25% 50% 75% max	X118 4209.000000 0.622238 0.484885 0.000000 1.000000 1.000000 1.000000	X119 4209.000000 0.622238 0.484885 0.000000 1.000000 1.000000 1.000000	X120 4209.000000 0.957710 0.201275 0.000000 1.000000 1.000000 1.000000	X122 4209.000000 0.007128 0.084134 0.000000 0.000000 0.000000 1.000000	X123 4209.000000 0.002613 0.051061 0.000000 0.000000 0.000000 1.000000	\
count mean std min 25% 50% 75% max	X124 4209.000000 0.000475 0.021796 0.000000 0.000000 0.000000 1.000000	X125 4209.000000 0.003089 0.055496 0.000000 0.000000 0.000000 1.000000	X126 4209.000000 0.038964 0.193532 0.000000 0.000000 0.000000 1.000000	X127 4209.000000 0.495129 0.500036 0.000000 0.000000 1.000000 1.000000	X128 4209.000000 0.958422 0.199646 0.000000 1.000000 1.000000 1.0000000 1.0000000	\
count mean std min 25% 50% 75% max	X129 4209.000000 0.122594 0.328010 0.000000 0.000000 0.000000 1.000000	X130 4209.000000 0.041578 0.199646 0.000000 0.000000 0.000000 1.000000	X131 4209.000000 0.026610 0.160959 0.000000 0.000000 0.000000 1.000000	X132 4209.000000 0.688525 0.463152 0.000000 1.000000 1.000000 1.000000	X133 4209.000000 0.124258 0.329914 0.000000 0.000000 0.000000 1.000000	\
count mean std min 25% 50% 75% max	X134 4209.000000 0.022333 0.147782 0.000000 0.000000 0.000000 1.000000	4209.000000 0.027085 0.162350 0.000000 0.000000	X136 4209.000000 0.956522 0.203955 0.000000 1.000000 1.000000 1.000000	X137 4209.000000 0.581848 0.493314 0.000000 1.000000 1.000000 1.000000	X138 4209.000000 0.040865 0.198000 0.000000 0.000000 0.000000 1.000000	\
count	X139 4209.00000	X140 4209.000000	X141 4209.000000	X142 4209.000000	X143 4209.000000	\

mean std min 25% 50% 75% max	0.09052 0.28696 0.00000 0.00000 0.00000 0.00000 1.00000	0.040390 0.196895 0.000000 0.000000 0.000000 1.000000	0.014255 0.118555 0.000000 0.000000 0.000000 0.000000 1.000000	0.770254 0.420719 0.000000 1.000000 1.000000 1.000000	0.038251 0.191825 0.000000 0.000000 0.000000 0.000000 1.000000	
count mean std min 25% 50% 75% max	X144 4209.000000 0.808030 0.393896 0.000000 1.000000 1.000000 1.000000	X145 4209.000000 0.001426 0.037734 0.000000 0.000000 0.000000 1.000000	X146 4209.000000 0.040865 0.198000 0.000000 0.0000000 0.0000000 1.0000000	X147 4209.000000 0.022333 0.147782 0.000000 0.000000 0.000000 1.000000	X148 4209.000000 0.044904 0.207117 0.000000 0.000000 0.000000 1.000000	\
count mean std min 25% 50% 75% max	X150 4209.000000 0.792350 0.405673 0.000000 1.000000 1.000000 1.000000	X151 4209.000000 0.085531 0.279703 0.000000 0.000000 0.000000 1.000000	X152 4209.000000 0.032312 0.176848 0.000000 0.000000 0.000000 1.000000	X153 4209.000000 0.000713 0.026691 0.000000 0.000000 0.000000 1.000000	X154 4209.000000 0.208838 0.406527 0.000000 0.000000 0.000000 1.000000	\
count mean std min 25% 50% 75% max	X155 4209.000000 0.076503 0.265832 0.000000 0.000000 0.000000 1.0000000	X156 4209.000000 0.717273 0.450379 0.000000 1.000000 1.000000 1.000000	X157 4209.000000 0.282727 0.450379 0.000000 0.000000 1.000000 1.000000	X158 4209.000000 0.229746 0.420719 0.000000 0.000000 0.000000 1.0000000	X159 4209.000000 0.013542 0.115595 0.000000 0.000000 0.000000 1.000000	\
count mean std min 25% 50% 75% max	X160 4209.000000 0.001188 0.034450 0.000000 0.000000 0.000000 1.000000	X161 4209.000000 0.197672 0.398290 0.000000 0.000000 0.000000 1.000000	X162 4209.000000 0.040865 0.198000 0.000000 0.000000 0.000000 1.000000	X163 4209.000000 0.303397 0.459780 0.000000 0.000000 1.000000 1.000000	X164 4209.000000 0.062485 0.242063 0.000000 0.000000 0.000000 1.000000	\

	X165	X166	X167	X168	X169	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.004514	0.033262	0.000950	0.270848	0.006652	
std	0.067043	0.179341	0.030817	0.444451	0.081300	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	0.000000	
50%	0.000000	0.000000	0.000000	0.000000	0.000000	
75%	0.000000	0.000000	0.000000	1.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X170	X171	X172	X173	X174	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.024234	0.657401	0.005940	0.009741	0.017344	
std	0.153792	0.474635	0.076849	0.098226	0.130564	
min	0.000000	0.000000	0.000000	0.000000	0.00000	
25%	0.000000	0.000000	0.000000	0.000000	0.000000	
50%	0.000000	1.000000	0.000000	0.000000	0.000000	
75%	0.000000	1.000000	0.000000	0.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X175	X176	X177	X178	X179	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	`
mean	0.022333	0.017106	0.050131	0.557377	0.047992	
std	0.147782	0.129683	0.218240	0.496756	0.213776	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	0.000000	
50%	0.000000	0.000000	0.000000	1.000000	0.000000	
75%	0.000000	0.000000	0.000000	1.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
man	1.000000	1.00000	1.00000	1.00000	1.000000	
	X180	X181	X182	X183	X184	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.157995	0.093847	0.106201	0.004039	0.001426	
std	0.364779	0.291650	0.308131	0.063432	0.037734	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	0.000000	
50%	0.000000	0.000000	0.000000	0.000000	0.000000	
75%	0.000000	0.000000	0.000000	0.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X185	X186	X187	X189	X190	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.018769	0.535994	0.420527	0.915419	0.000238	
std	0.135725	0.498762	0.493702	0.278290	0.015414	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	1.000000	0.000000	

50%	0.000000	1.000000	0.000000	1.000000	0.000000	
75%	0.000000	1.000000	1.000000	1.000000	0.000000	
		1.000000		1.000000		
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X191	X192	X194	X195	X196	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.470896	0.002376	0.464006	0.011642	0.010216	
std	0.499212	0.048691	0.498762	0.107280	0.100570	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	0.000000	
50%	0.000000	0.000000	0.000000	0.000000	0.000000	
75%	1.000000	0.000000	1.000000	0.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X197	X198	X199	X200	X201	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	`
mean	0.032312	0.023046	0.002851	0.006652	0.177714	
std	0.176848	0.150067	0.053325	0.081300	0.382318	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	0.000000	
50%	0.000000	0.000000	0.000000	0.000000	0.000000	
75%	0.000000	0.000000	0.000000	0.000000	0.000000	
	1.000000	1.000000	1.000000	1.000000	1.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	¥000	¥000	¥004	¥00E	¥00 <i>6</i>	,
	X202	X203	X204	X205	X206	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	\
count mean						\
	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	\
mean std	4209.000000 0.241388	4209.000000 0.016869	4209.000000 0.000238	4209.000000 0.999762	4209.000000 0.019244	\
mean std min	4209.000000 0.241388 0.427976 0.000000	4209.000000 0.016869 0.128794 0.000000	4209.000000 0.000238 0.015414 0.000000	4209.000000 0.999762 0.015414 0.000000	4209.000000 0.019244 0.137399 0.000000	\
mean std min 25%	4209.000000 0.241388 0.427976 0.000000 0.000000	4209.000000 0.016869 0.128794 0.000000 0.000000	4209.000000 0.000238 0.015414 0.000000 0.000000	4209.000000 0.999762 0.015414 0.000000 1.000000	4209.000000 0.019244 0.137399 0.000000 0.000000	\
mean std min 25% 50%	4209.000000 0.241388 0.427976 0.000000 0.000000 0.000000	4209.000000 0.016869 0.128794 0.000000 0.000000	4209.000000 0.000238 0.015414 0.000000 0.000000	4209.000000 0.999762 0.015414 0.000000 1.000000	4209.000000 0.019244 0.137399 0.000000 0.000000	\
mean std min 25% 50% 75%	4209.000000 0.241388 0.427976 0.000000 0.000000 0.000000 0.000000	4209.000000 0.016869 0.128794 0.000000 0.000000 0.000000	4209.000000 0.000238 0.015414 0.000000 0.000000 0.000000	4209.000000 0.999762 0.015414 0.000000 1.000000 1.000000	4209.000000 0.019244 0.137399 0.000000 0.000000 0.000000	\
mean std min 25% 50%	4209.000000 0.241388 0.427976 0.000000 0.000000 0.000000	4209.000000 0.016869 0.128794 0.000000 0.000000	4209.000000 0.000238 0.015414 0.000000 0.000000	4209.000000 0.999762 0.015414 0.000000 1.000000	4209.000000 0.019244 0.137399 0.000000 0.000000	\
mean std min 25% 50% 75%	4209.000000 0.241388 0.427976 0.000000 0.000000 0.000000 0.000000	4209.000000 0.016869 0.128794 0.000000 0.000000 0.000000	4209.000000 0.000238 0.015414 0.000000 0.000000 0.000000 1.000000	4209.000000 0.999762 0.015414 0.000000 1.000000 1.000000	4209.000000 0.019244 0.137399 0.000000 0.000000 0.000000	\
mean std min 25% 50% 75%	4209.000000 0.241388 0.427976 0.000000 0.000000 0.000000 0.000000	4209.000000 0.016869 0.128794 0.000000 0.000000 0.000000	4209.000000 0.000238 0.015414 0.000000 0.000000 0.000000	4209.000000 0.999762 0.015414 0.000000 1.000000 1.000000	4209.000000 0.019244 0.137399 0.000000 0.000000 0.000000	\
mean std min 25% 50% 75%	4209.000000 0.241388 0.427976 0.000000 0.000000 0.000000 1.000000	4209.000000 0.016869 0.128794 0.000000 0.000000 0.000000 1.000000	4209.000000 0.000238 0.015414 0.000000 0.000000 0.000000 1.000000	4209.000000 0.999762 0.015414 0.000000 1.000000 1.000000 1.000000 1.000000	4209.000000 0.019244 0.137399 0.000000 0.000000 0.000000 1.000000	
mean std min 25% 50% 75% max	4209.000000 0.241388 0.427976 0.000000 0.000000 0.000000 1.000000 X207 4209.000000	4209.000000 0.016869 0.128794 0.000000 0.000000 0.000000 1.000000 X208	4209.000000 0.000238 0.015414 0.000000 0.000000 0.000000 1.000000 X209 4209.000000	4209.000000 0.999762 0.015414 0.000000 1.000000 1.000000 1.000000 X210	4209.000000 0.019244 0.137399 0.000000 0.000000 0.000000 1.000000 X211 4209.000000	
mean std min 25% 50% 75% max count mean	4209.000000 0.241388 0.427976 0.000000 0.000000 0.000000 1.000000 X207 4209.000000 0.000238	4209.000000 0.016869 0.128794 0.000000 0.000000 0.000000 1.000000 X208 4209.00000 0.06296	4209.000000 0.000238 0.015414 0.000000 0.000000 0.000000 1.000000 X209 4209.000000 0.898551	4209.000000 0.999762 0.015414 0.000000 1.000000 1.000000 1.000000 X210 4209.000000 0.000238	4209.000000 0.019244 0.137399 0.000000 0.000000 0.000000 1.000000 X211 4209.000000 0.014968	
mean std min 25% 50% 75% max  count mean std	4209.000000 0.241388 0.427976 0.000000 0.000000 0.000000 1.000000 X207 4209.000000 0.000238 0.015414	4209.000000 0.016869 0.128794 0.000000 0.000000 0.000000 1.000000 X208 4209.00000 0.06296 0.24292	4209.000000 0.000238 0.015414 0.000000 0.000000 0.000000 1.000000 X209 4209.000000 0.898551 0.301959	4209.000000 0.999762 0.015414 0.000000 1.000000 1.000000 1.000000 X210 4209.000000 0.000238 0.015414	4209.000000 0.019244 0.137399 0.000000 0.000000 0.000000 1.000000 X211 4209.000000 0.014968 0.121439	
mean std min 25% 50% 75% max  count mean std min	4209.000000 0.241388 0.427976 0.000000 0.000000 0.000000 1.000000 X207 4209.000000 0.000238 0.015414 0.000000	4209.000000 0.016869 0.128794 0.000000 0.000000 0.000000 1.000000 X208 4209.00000 0.06296 0.24292 0.00000	4209.000000 0.000238 0.015414 0.000000 0.000000 0.000000 1.000000 X209 4209.000000 0.898551 0.301959 0.000000	4209.000000 0.999762 0.015414 0.000000 1.000000 1.000000 1.000000 X210 4209.000000 0.000238 0.015414 0.000000	4209.000000 0.019244 0.137399 0.000000 0.000000 0.000000 1.000000 X211 4209.000000 0.014968 0.121439 0.000000	
mean std min 25% 50% 75% max  count mean std min 25%	4209.000000 0.241388 0.427976 0.000000 0.000000 0.000000 1.000000 X207 4209.000000 0.000238 0.015414 0.000000 0.000000	4209.000000 0.016869 0.128794 0.000000 0.000000 0.000000 1.000000 X208 4209.00000 0.06296 0.24292 0.00000 0.00000	4209.000000 0.000238 0.015414 0.000000 0.000000 0.000000 1.000000 X209 4209.000000 0.898551 0.301959 0.000000 1.000000	4209.000000 0.999762 0.015414 0.000000 1.000000 1.000000 1.000000 X210 4209.000000 0.000238 0.015414 0.000000 0.000000	4209.000000 0.019244 0.137399 0.000000 0.000000 0.000000 1.000000 X211 4209.000000 0.014968 0.121439 0.000000 0.000000	
mean std min 25% 50% 75% max  count mean std min 25% 50%	4209.000000 0.241388 0.427976 0.000000 0.000000 0.000000 1.000000 X207 4209.000000 0.00238 0.015414 0.000000 0.000000 0.000000	4209.000000 0.016869 0.128794 0.000000 0.000000 0.000000 1.000000  X208 4209.00000 0.06296 0.24292 0.00000 0.00000 0.00000	4209.000000 0.000238 0.015414 0.000000 0.000000 0.000000 1.000000 1.000000 0.898551 0.301959 0.000000 1.000000 1.000000	4209.000000 0.999762 0.015414 0.000000 1.000000 1.000000 1.000000 X210 4209.000000 0.000238 0.015414 0.000000 0.000000 0.000000	4209.000000 0.019244 0.137399 0.000000 0.000000 0.000000 1.000000 X211 4209.000000 0.014968 0.121439 0.000000 0.000000	
mean std min 25% 50% 75% max  count mean std min 25%	4209.000000 0.241388 0.427976 0.000000 0.000000 0.000000 1.000000 X207 4209.000000 0.000238 0.015414 0.000000 0.000000	4209.000000 0.016869 0.128794 0.000000 0.000000 0.000000 1.000000 X208 4209.00000 0.06296 0.24292 0.00000 0.00000	4209.000000 0.000238 0.015414 0.000000 0.000000 0.000000 1.000000 X209 4209.000000 0.898551 0.301959 0.000000 1.000000	4209.000000 0.999762 0.015414 0.000000 1.000000 1.000000 1.000000 X210 4209.000000 0.000238 0.015414 0.000000 0.000000	4209.000000 0.019244 0.137399 0.000000 0.000000 0.000000 1.000000 X211 4209.000000 0.014968 0.121439 0.000000 0.000000	
mean std min 25% 50% 75% max  count mean std min 25% 50%	4209.000000 0.241388 0.427976 0.000000 0.000000 0.000000 1.000000 X207 4209.000000 0.00238 0.015414 0.000000 0.000000 0.000000	4209.000000 0.016869 0.128794 0.000000 0.000000 0.000000 1.000000  X208 4209.00000 0.06296 0.24292 0.00000 0.00000 0.00000	4209.000000 0.000238 0.015414 0.000000 0.000000 0.000000 1.000000 1.000000 0.898551 0.301959 0.000000 1.000000 1.000000	4209.000000 0.999762 0.015414 0.000000 1.000000 1.000000 1.000000 X210 4209.000000 0.000238 0.015414 0.000000 0.000000 0.000000	4209.000000 0.019244 0.137399 0.000000 0.000000 0.000000 1.000000 X211 4209.000000 0.014968 0.121439 0.000000 0.000000	
mean std min 25% 50% 75% max  count mean std min 25% 50% 75%	4209.000000 0.241388 0.427976 0.000000 0.000000 0.000000 1.000000 X207 4209.000000 0.00238 0.015414 0.000000 0.000000 0.000000 0.000000 0.000000	4209.000000 0.016869 0.128794 0.000000 0.000000 0.000000 1.000000 X208 4209.00000 0.06296 0.24292 0.00000 0.00000 0.00000 0.00000	4209.000000 0.000238 0.015414 0.000000 0.000000 0.000000 1.000000 1.000000 0.898551 0.301959 0.000000 1.000000 1.000000	4209.000000 0.999762 0.015414 0.000000 1.000000 1.000000 1.000000 1.000000 0.000238 0.015414 0.000000 0.000000 0.000000 0.000000	4209.000000 0.019244 0.137399 0.000000 0.000000 0.000000 1.000000 1.000000 0.014968 0.121439 0.000000 0.000000 0.000000	
mean std min 25% 50% 75% max  count mean std min 25% 50% 75%	4209.000000 0.241388 0.427976 0.000000 0.000000 0.000000 1.000000 X207 4209.000000 0.00238 0.015414 0.000000 0.000000 0.000000 0.000000 0.000000	4209.000000 0.016869 0.128794 0.000000 0.000000 0.000000 1.000000 X208 4209.00000 0.06296 0.24292 0.00000 0.00000 0.00000 0.00000	4209.000000 0.000238 0.015414 0.000000 0.000000 0.000000 1.000000 1.000000 0.898551 0.301959 0.000000 1.000000 1.000000	4209.000000 0.999762 0.015414 0.000000 1.000000 1.000000 1.000000 1.000000 0.000238 0.015414 0.000000 0.000000 0.000000 0.000000	4209.000000 0.019244 0.137399 0.000000 0.000000 0.000000 1.000000 1.000000 0.014968 0.121439 0.000000 0.000000 0.000000	
mean std min 25% 50% 75% max  count mean std min 25% 50% 75% max	4209.000000 0.241388 0.427976 0.000000 0.000000 0.000000 1.000000 1.000000 0.00238 0.015414 0.000000 0.000000 0.000000 0.000000 1.000000 X212	4209.000000 0.016869 0.128794 0.000000 0.000000 0.000000 1.000000 X208 4209.00000 0.06296 0.24292 0.00000 0.00000 0.00000 1.00000 X213	4209.000000 0.000238 0.015414 0.000000 0.000000 0.000000 1.000000 1.000000 0.898551 0.301959 0.000000 1.000000 1.000000 1.000000 1.000000	4209.000000 0.999762 0.015414 0.000000 1.000000 1.000000 1.000000 1.000000 0.000238 0.015414 0.000000 0.000000 0.000000 0.000000 1.000000 X215	4209.000000 0.019244 0.137399 0.000000 0.000000 0.000000 1.000000 X211 4209.000000 0.014968 0.121439 0.000000 0.000000 0.000000 0.000000 1.0000000 X216	\
mean std min 25% 50% 75% max  count mean std min 25% 50% 75%	4209.000000 0.241388 0.427976 0.000000 0.000000 0.000000 1.000000 1.000000 0.00238 0.015414 0.000000 0.000000 0.000000 0.000000 1.0000000 1.0000000	4209.000000 0.016869 0.128794 0.000000 0.000000 0.000000 1.000000  X208 4209.00000 0.06296 0.24292 0.00000 0.00000 0.00000 0.00000 1.000000 1.000000	4209.000000 0.000238 0.015414 0.000000 0.000000 0.000000 1.000000 1.000000 0.898551 0.301959 0.000000 1.000000 1.000000 1.000000 1.000000	4209.000000 0.999762 0.015414 0.000000 1.000000 1.000000 1.000000 0.000238 0.015414 0.000000 0.000000 0.000000 0.000000 0.000000	4209.000000 0.019244 0.137399 0.000000 0.000000 0.000000 1.000000 1.000000 0.014968 0.121439 0.000000 0.000000 0.000000 0.000000 1.000000	\

std	0.073729	0.043561	0.082729	0.298157	0.076849	
min	0.00000	0.00000	0.000000	0.00000	0.00000	
25%	0.000000	0.00000	0.000000	0.000000	0.000000	
50%	0.000000	0.000000	0.000000	0.000000	0.000000	
75%	0.000000	0.000000	0.000000	0.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
man	1.00000	1.00000	1.00000	1.00000	1.00000	
	X217	X218	X219	X220	X221	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	`
mean	0.007365	0.312426	0.067474	0.561178	0.008078	
std	0.085514	0.463537	0.250872	0.496302	0.089524	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	0.000000	
50%	0.000000	0.000000	0.000000	1.000000	0.000000	
75%	0.000000	1.000000	0.000000	1.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	¥000	voos	¥004	¥00E	¥00e	,
	X222	X223	X224	X225	X226	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.022333	0.555239	0.317415	0.096935	0.032312	
std	0.147782	0.496998	0.465526	0.295905	0.176848	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	0.000000	
50%	0.000000	1.000000	0.000000	0.000000	0.000000	
75%	0.000000	1.000000	1.000000	0.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X227	X228	X229	X230	X231	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.003089	0.038964	0.960086	0.005227	0.016156	
std	0.055496	0.193532	0.195782	0.072117	0.126090	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	1.000000	0.000000	0.000000	
50%	0.000000	0.000000	1.000000	0.000000	0.000000	
75%	0.000000	0.000000	1.000000	0.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X232	X234	X236	X237	X238	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.043003	0.201711	0.000475	0.006652	0.916132	
std	0.202888	0.401325	0.021796	0.081300	0.277223	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	1.000000	
50%	0.000000	0.000000	0.000000	0.000000	1.000000	
75%	0.000000	0.000000	0.000000	0.000000	1.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
			, , , , ,			

	X239	X240	X241	X242	X243	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.006890	0.002851	0.097173	0.007365	0.007128	
std	0.082729	0.053325	0.296228	0.085514	0.084134	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	0.000000	
50%	0.000000	0.000000	0.000000	0.000000	0.000000	
75%	0.000000	0.000000	0.000000	0.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	<b>V</b> 044	¥04E	<b>V</b> 046	<b>V</b> 047	X248	\
count	X244 4209.000000	X245 4209.000000	X246 4209.000000	X247 4209.000000	4209.000000	\
mean	0.103588	0.000713	0.409361	0.241388	0.001426	
std	0.304761	0.026691	0.491774	0.427976	0.037734	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	0.000000	
50%	0.000000	0.000000	0.000000	0.000000	0.000000	
75%	0.000000	0.000000	1.000000	0.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
man	1.00000	1.00000	1.00000	1.00000	1.00000	
	X249	X250	X251	X252	X253	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.007603	0.552863	0.394155	0.000713	0.001426	
std	0.086872	0.497257	0.488727	0.026691	0.037734	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	0.000000	
50%	0.000000	1.000000	0.000000	0.000000	0.000000	
75%	0.000000	1.000000	1.000000	0.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	<b>V</b> 0E4	VOLE	VOEC	VOET	VOEO	,
count	X254 4209.000000	X255 4209.000000	X256 4209.000000	X257 4209.000000	X258 4209.000000	\
count	0.005227	0.019482	0.073177	0.000238	0.002376	
mean std	0.072117	0.138228	0.260457	0.015414	0.048691	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	0.000000	
50%	0.000000	0.000000	0.000000	0.000000	0.000000	
75%	0.000000	0.000000	0.000000	0.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X259	X260	X261	X262	X263	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.000238	0.000238	0.419577	0.001426	0.956997	
std	0.015414	0.015414	0.493548	0.037734	0.202888	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	1.000000	
50%	0.000000	0.000000	0.000000	0.000000	1.000000	

75%	0.000000	0.00000	1.000000	0.00000	1.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X264	X265	X266	X267	X269	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.039439	0.905441	0.001426	0.009028	0.000475	
std	0.194661	0.292640	0.037734	0.094599	0.021796	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	1.000000	0.000000	0.000000	0.000000	
50%	0.000000	1.000000	0.000000	0.000000	0.000000	
75%	0.000000	1.000000	0.000000	0.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
шах	1.000000	1.000000	1.000000	1.000000	1.000000	
	X270	X271	X272	X273	X274	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	`
	0.000238	0.002138	0.037539	0.720124	0.009979	
mean	0.000238	0.046198	0.190100	0.448992	0.009979	
std			0.190100			
min	0.000000	0.000000		0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	0.000000	
50%	0.000000	0.000000	0.000000	1.000000	0.000000	
75%	0.000000	0.000000	0.000000	1.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X275	X276	X277	Х278	X279	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.726776	0.038489	0.001426	0.000475	0.043003	
std	0.445668	0.192396	0.037734	0.021796	0.202888	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	0.000000	
50%	1.000000	0.000000	0.000000	0.000000	0.000000	
75%	1.000000	0.000000	0.000000	0.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X280	X281	X282	X283	X284	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.000238	0.002613	0.004039	0.140651	0.041102	
std	0.015414	0.051061	0.063432	0.347702	0.198551	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	0.000000	
50%	0.000000	0.000000	0.000000	0.000000	0.000000	
75%	0.000000	0.000000	0.000000	0.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X285	X286	X287	X288	X291	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.205750	0.054645	0.015918	0.000238	0.010454	
std	0.404296	0.227313	0.125174	0.015414	0.101720	

min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	0.000000	
50%	0.000000	0.000000	0.000000	0.000000	0.000000	
75%	0.000000	0.000000	0.000000	0.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X292	X294	X295	X296	X298	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	`
mean	0.009028	0.124970	0.000238	0.000238	0.004514	
std	0.094599	0.330725	0.015414	0.015414	0.067043	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	0.000000	
50%	0.000000	0.000000	0.000000	0.000000	0.000000	
75%	0.000000	0.000000	0.000000	0.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X299	X300	X301	X302	X304	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.004514	0.206938	0.046804	0.011404	0.924210	
	0.067043	0.405158	0.211245	0.106192	0.264693	
std						
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	1.000000	
50%	0.000000	0.000000	0.000000	0.000000	1.000000	
75%	0.000000	0.000000	0.000000	0.000000	1.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X305	X306	X307	X308	¥200	\
					X309	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.013305	0.043716	0.002138	0.009503	0.007128	
std	0.114590	0.204486	0.046198	0.097033	0.084134	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	0.000000	
50%	0.000000	0.000000	0.000000	0.000000	0.000000	
75%	0.000000	0.000000	0.000000	0.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X310	X311	X312	X313	X314	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.002613	0.598479	0.004277	0.301022	0.431694	
std	0.051061	0.490264	0.065263	0.458757	0.495371	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	0.000000	
50%	0.000000	1.000000	0.000000	0.000000	0.000000	
75%	0.00000	1.000000	0.000000	1.000000	1.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
man	1.00000	1.00000	1.00000	1.00000	1.00000	
	¥045	¥04.0	V047	¥040	¥040	`
	X315	X316	X317	X318	X319	\

count mean std min 25% 50% 75% max	4209.000000 0.028748 0.167117 0.000000 0.000000 0.000000 0.000000 1.000000	4209.000000 0.195533 0.396658 0.000000 0.000000 0.000000 1.000000	4209.000000 0.007603 0.086872 0.000000 0.000000 0.000000 1.000000	4209.000000 0.000713 0.026691 0.000000 0.000000 0.000000 0.000000 1.000000	4209.000000 0.000475 0.021796 0.000000 0.000000 0.000000 0.000000 1.000000	
count mean std min 25% 50% 75% max	X320 4209.000000 0.007128 0.084134 0.000000 0.000000 0.000000 1.000000	X321 4209.000000 0.238774 0.426385 0.000000 0.000000 0.000000 1.0000000	X322 4209.000000 0.021858 0.146237 0.000000 0.000000 0.000000 1.0000000	X323 4209.000000 0.009266 0.095824 0.000000 0.000000 0.000000 1.0000000	X324 4209.000000 0.574958 0.494408 0.000000 1.000000 1.000000 1.000000	\
count mean std min 25% 50% 75% max	X325 4209.000000 0.005702 0.075305 0.000000 0.000000 0.000000 1.000000	X326 4209.000000 0.032312 0.176848 0.000000 0.000000 0.000000 1.0000000	X327 4209.000000 0.128297 0.334459 0.000000 0.000000 0.000000 1.0000000	X328 4209.000000 0.040152 0.196339 0.000000 0.000000 0.000000 1.0000000	X329 4209.000000 0.435258 0.495850 0.000000 0.000000 1.000000 1.000000	\
count mean std min 25% 50% 75% max	X331 4209.000000 0.056070 0.230085 0.000000 0.000000 0.000000 1.000000	X332 4209.000000 0.000713 0.026691 0.000000 0.000000 0.000000 1.000000	X333 4209.000000 0.023996 0.153055 0.000000 0.000000 0.000000 1.000000	X334 4209.000000 0.462580 0.498657 0.000000 0.000000 1.000000 1.000000	X335 4209.000000 0.003564 0.059598 0.000000 0.000000 0.000000 1.000000	\
count mean std min 25% 50% 75%	X336 4209.000000 0.127346 0.333400 0.000000 0.000000 0.000000	X337 4209.000000 0.516512 0.499787 0.000000 0.000000 1.0000000 1.000000	X338 4209.000000 0.006890 0.082729 0.000000 0.000000 0.000000	X339 4209.000000 0.000238 0.015414 0.000000 0.000000 0.000000	X340 4209.000000 0.022333 0.147782 0.000000 0.000000 0.000000	\

max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X341	X342	X343	X344	X345	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.008078	0.022333	0.078403	0.008553	0.022333	
std	0.089524	0.147782	0.268837	0.092098	0.147782	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	0.000000	
50%	0.000000	0.000000	0.000000	0.000000	0.000000	
75%	0.000000	0.000000	0.000000	0.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X346	X348	X349	X350	X351	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.047517	0.947256	0.044904	0.338798	0.297220	
std	0.212768	0.223549	0.207117	0.473357	0.457089	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	1.000000	0.000000	0.000000	0.000000	
50%	0.000000	1.000000	0.000000	0.000000	0.000000	
75%	0.000000	1.000000	0.000000	1.000000	1.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X352	X353	X354	X355	X356	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.054170	0.002138	0.202899	0.380375	0.179853	
std	0.226379	0.046198	0.402205	0.485537	0.384110	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	0.000000	
50%	0.000000	0.000000	0.000000	0.000000	0.000000	
75%	0.000000	0.000000	0.000000	1.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	Х357	Х358	Х359	X360	X361	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.001188	0.426942	0.031837	0.076503	0.966025	
std	0.034450	0.494693	0.175586	0.265832	0.181186	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	1.000000	
50%	0.000000	0.000000	0.000000	0.000000	1.000000	
75%	0.000000	1.000000	0.000000	0.000000	1.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	Х362	Х363	X364	X365	X366	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.520314	0.753861	0.002851	0.002851	0.001188	
std	0.499647	0.430812	0.053325	0.053325	0.034450	
min	0.000000	0.000000	0.000000	0.000000	0.000000	

0.000000 1.000000 1.000000 1.000000	1.000000 1.000000 1.000000 1.000000	0.000000 0.000000 0.000000 1.000000	0.000000 0.000000 0.000000 1.000000	0.000000 0.000000 0.000000 1.000000	
X367 4209.000000 0.051794 0.221637 0.000000 0.000000 0.000000 1.0000000	X368 4209.000000 0.062723 0.242492 0.000000 0.000000 0.000000 1.0000000	X369 4209.000000 0.000475 0.021796 0.000000 0.000000 0.000000 1.0000000	X370 4209.000000 0.006652 0.081300 0.000000 0.000000 0.000000 1.000000	X371 4209.000000 0.014255 0.118555 0.000000 0.000000 0.000000 1.000000	\
X372 4209.000000 0.000475 0.021796 0.000000 0.000000 0.000000 1.0000000	X373 4209.000000 0.019244 0.137399 0.000000 0.000000 0.000000 1.0000000	X374 4209.000000 0.227370 0.419183 0.000000 0.000000 0.000000 1.0000000	X375 4209.000000 0.318841 0.466082 0.000000 0.000000 1.000000 1.000000	X376 4209.000000 0.057258 0.232363 0.000000 0.000000 0.000000 1.0000000	\
X377 4209.000000 0.314802 0.464492 0.000000 0.000000 1.000000 1.000000 X383 4209.000000 0.001663 0.040752 0.000000 0.000000 0.000000	X378 4209.000000 0.020670 0.142294 0.000000 0.000000 0.000000 1.000000 X384 4209.000000 0.00175 0.021796 0.000000 0.000000 0.000000	X379 4209.00000 0.009503 0.097033 0.000000 0.000000 0.000000 1.000000 X385 4209.000000 0.001426 0.037734 0.000000 0.000000 0.000000	X380 4209.000000 0.008078 0.089524 0.000000 0.000000 0.000000 1.000000	X382 4209.000000 0.007603 0.086872 0.000000 0.000000 0.000000 1.000000	
	1.000000 1.000000 1.000000 1.000000 X367 4209.000000 0.051794 0.221637 0.000000 0.000000 0.000000 1.000000 0.000000 0.000475 0.021796 0.000000 0.000000 0.000000 0.000000 1.000000 1.000000 0.314802 0.464492 0.000000 0.314802 0.464492 0.000000 0.000000 1.000000 X383 4209.000000 1.000000 X383 4209.000000 0.001663 0.040752 0.000000 0.000000 0.000000	1.000000       1.000000         1.000000       1.000000         1.000000       1.000000         X367       X368         4209.000000       4209.000000         0.051794       0.062723         0.221637       0.242492         0.000000       0.000000         0.000000       0.000000         0.000000       0.000000         1.000000       1.000000         X372       X373         4209.000000       4209.000000         0.00475       0.137399         0.00000       0.00000         0.00000       0.00000         0.00000       0.00000         0.00000       0.00000         1.000000       1.000000         X377       X378         4209.000000       4209.000000         0.314802       0.020670         0.464492       0.142294         0.000000       0.000000         1.000000       0.000000         1.000000       1.000000         1.000000       1.000000         1.000000       0.000000         0.0040752       0.021796         0.000000       0.000000         0.000000	1.000000       1.000000       0.000000         1.000000       1.000000       0.000000         1.000000       1.000000       1.000000         1.000000       1.000000       1.000000         X367       X368       X369         4209.000000       4209.000000       4209.000000         0.051794       0.062723       0.00475         0.000000       0.00000       0.00000         0.000000       0.00000       0.00000         0.000000       0.00000       0.00000         0.000000       0.00000       0.00000         0.000000       0.00000       0.00000         1.000000       1.000000       1.000000         1.000000       1.000000       1.000000         1.000000       4209.000000       4209.00000         0.00000       0.00000       0.00000         0.00000       0.00000       0.00000         0.00000       0.00000       0.00000         0.00000       0.00000       0.00000         0.00000       0.00000       0.00000         0.00000       0.00000       0.00000         0.314802       0.020670       0.09503         0.464492       0.142294	1.000000         1.000000         0.000000         0.000000           1.000000         1.000000         0.000000         0.000000           1.000000         1.000000         1.000000         1.000000           X367         X368         X369         X370           4209.000000         4209.000000         4209.000000         4209.000000           0.051794         0.062723         0.00475         0.06652           0.221637         0.242492         0.021796         0.081300           0.000000         0.000000         0.000000         0.000000           0.000000         0.000000         0.000000         0.000000           0.000000         0.000000         0.000000         0.000000           0.000000         0.000000         0.000000         0.000000           1.000000         1.000000         1.000000         4209.00000           2019244         0.227370         0.318841         0.021796         0.137399         0.419183         0.466082           0.00000         0.00000         0.00000         0.00000         0.00000         0.00000           0.00000         0.00000         0.000000         0.00000         0.00000           0.000000         0.000000 <td>1.000000         1.000000         0.000000         0.000000         0.000000         0.000000         0.000000         0.000000         0.000000         0.000000         0.000000         0.000000         0.000000         0.000000         0.000000         0.000000         1.000000         1.000000         1.000000         1.000000         1.000000         1.000000         1.000000         1.000000         1.000000         1.000000         1.000000         4209.000000         4209.000000         4209.000000         4209.000000         4209.000000         4209.000000         4209.000000         0.014255         0.014255         0.001796         0.081300         0.118555         0.000000</td>	1.000000         1.000000         0.000000         0.000000         0.000000         0.000000         0.000000         0.000000         0.000000         0.000000         0.000000         0.000000         0.000000         0.000000         0.000000         0.000000         1.000000         1.000000         1.000000         1.000000         1.000000         1.000000         1.000000         1.000000         1.000000         1.000000         1.000000         4209.000000         4209.000000         4209.000000         4209.000000         4209.000000         4209.000000         4209.000000         0.014255         0.014255         0.001796         0.081300         0.118555         0.000000

[22]: df\_num\_variance\_with\_zero\_drop.shape

```
[22]: (4209, 358)
[23]: df_train.shape
[23]: (4209, 378)
[24]: df_cat.shape
[24]: (4209, 8)
[25]: # variance of numerical data for test set
      test_variance_df_num=df_num.var()
[26]: # finding out the variance which are of zero in test set
      test_variable_var_zero=[]
      for i in range(0,len(test_variance_df_num)):
               if test_variance_df_num[i] == 0:
                   test_variable_var_zero.append(columns[i])
[27]: np.ravel(test_variable_var_zero)
[27]: array(['X11', 'X93', 'X107', 'X233', 'X235', 'X268', 'X289', 'X290',
              'X293', 'X297', 'X330', 'X347'], dtype='<U4')
[28]: # features which are of zero variance in test data set will be dropped
      test_df_num_variance_with_zero_drop=test_df_num.

¬drop(['X11','X93','X107','X233','X235','X268','X289','X290','X293','X297','X330','X347'],

       \rightarrowaxis=1)
      test_df_num_variance_with_zero_drop.head()
[28]:
             X10
                  X12 X13 X14
                                   X15 X16 X17
                                                   X18
                                                         X19
                                                              X20
                                                                    X21
                                                                         X22
                                                                               X23
                                                                                    X24
                           0
                                0
                                     0
                                           0
                                                0
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[29]: test\_df\_num\_variance\_with\_zero\_drop.describe()

[29]:		ID	X10	X12	X13	X14	\
	count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
	mean	4211.039202	0.019007	0.074364	0.061060	0.427893	
	std	2423.078926	0.136565	0.262394	0.239468	0.494832	
	min	1.000000	0.000000	0.000000	0.000000	0.000000	
	25%	2115.000000	0.000000	0.000000	0.000000	0.000000	
	50%	4202.000000	0.000000	0.000000	0.000000	0.000000	
	75%	6310.000000	0.000000	0.000000	0.000000	1.000000	
	max	8416.000000	1.000000	1.000000	1.000000	1.000000	
		X15	X16	X17	X18	X19	\
	count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
	mean	0.000713	0.002613	0.008791	0.010216	0.111665	
	std	0.026691	0.051061	0.093357	0.100570	0.314992	
	min	0.000000	0.00000	0.000000	0.000000	0.00000	
	25%	0.000000	0.000000	0.000000	0.000000	0.000000	
	50%	0.000000	0.00000	0.000000	0.000000	0.000000	
	75%	0.000000	0.000000	0.000000	0.000000	0.000000	
	max	1.000000	1.000000	1.000000	1.000000	1.000000	
		X20	X21	X22	X23	X24	\
	count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
	mean	0.139463	0.001663	0.082442	0.020195	0.002376	
	std	0.346470	0.040752	0.275070	0.140683	0.048691	
	min	0.000000	0.000000	0.000000	0.000000	0.000000	
	25%	0.000000	0.000000	0.000000	0.000000	0.000000	
	50%	0.000000	0.000000	0.000000	0.000000	0.000000	
	75%	0.000000	0.000000	0.000000	0.000000	0.000000	
	max	1.000000	1.000000	1.000000	1.000000	1.000000	
		X26	X27	X28	X29	X30	\
	count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
	mean	0.009028	0.681159	0.026847	0.038964	0.005464	
	std	0.094599	0.466082	0.161656	0.193532	0.073729	
	min	0.000000	0.000000	0.000000	0.000000	0.000000	
	25%	0.000000	0.000000	0.000000	0.000000	0.000000	
	50%	0.000000	1.000000	0.000000	0.000000	0.000000	
	75%	0.000000	1.000000	0.000000	0.000000	0.000000	
	max	1.000000	1.000000	1.000000	1.000000	1.000000	
		<b></b>	***	***		<b></b> -	,
	count	X31 4209.000000	X32 4209.000000	X33 4209.000000	X34 4209.000000	X35 4209.000000	\
	mean	0.237349	0.010454	0.000713	0.003564	0.237349	
	std	0.425508	0.101720	0.026691	0.059598	0.425508	
	min	0.000000	0.000000	0.000000	0.000000	0.000000	
	min 25%	0.000000	0.000000	0.000000	0.000000	0.000000	
	50%	0.000000	0.000000	0.000000	0.000000	0.000000	

75%	0.000000	0.000000	0.000000	0.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X36	Х37	Х38	X39	X40	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.002851	0.237349	0.031124	0.000713	0.001901	
std	0.053325	0.425508	0.173673	0.026691	0.043561	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	0.000000	
50%	0.000000	0.000000	0.000000	0.000000	0.000000	
75%	0.000000	0.000000	0.000000	0.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X41	X42	Х43	X44	X45	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.011404	0.001426	0.076978	0.006890	0.252079	
std	0.106192	0.037734	0.266588	0.082729	0.434258	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	0.000000	
50%	0.000000	0.000000	0.000000	0.000000	0.000000	
75%	0.000000	0.000000	0.000000	0.000000	1.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	Х46	X47	Х48	Х49	Х50	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.593728	0.011167	0.023759	0.133523	0.224044	
std	0.491195	0.105093	0.152314	0.340180	0.417001	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	0.000000	
50%	1.000000	0.000000	0.000000	0.000000	0.000000	
75%	1.000000	0.000000	0.000000	0.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X51	Х52	X53	X54	Х55	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.714659	0.042528	0.005940	0.039914	0.006415	
std	0.451630	0.201814	0.076849	0.195782	0.079845	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	0.000000	
50%	1.000000	0.000000	0.000000	0.000000	0.000000	
75%	1.000000	0.000000	0.000000	0.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	Х56	Х57	X58	Х59	Х60	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.024947	0.015681	0.584462	0.001188	0.001663	
std	0.155981	0.124252	0.492873	0.034450	0.040752	

mean         0.953433         0.005940         0.013067         0.360181           std         0.210734         0.076849         0.113576         0.480110           min         0.000000         0.000000         0.000000         0.000000           25%         1.000000         0.000000         0.000000         0.000000           50%         1.000000         0.000000         0.000000         1.000000           75%         1.000000         0.000000         1.000000         1.000000           max         1.000000         1.000000         1.000000         1.000000           X66         X67         X68         X69           count         4209.000000         4209.000000         4209.000000         4209.00000           mean         0.027085         0.002138         0.079829         0.030649         std           std         0.162350         0.046198         0.271060         0.172384         min         0.000000         0.000000         0.000000           25%         0.000000         0.000000         0.000000         0.000000         0.000000         0.000000         0.000000           50%         0.000000         4209.000000         4209.000000         4209.000000	min 25% 50% 75% max	0.000000 0.000000 0.000000 0.000000 1.000000	0.000000 0.000000 0.000000 0.000000 1.000000	0.000000 0.000000 1.000000 1.000000	0.000000 0.000000 0.000000 0.000000 1.000000	0.000000 0.000000 0.000000 0.000000 1.000000	
count         4209.000000         4209.000000         4209.000000         4209.000000         4209.000000           mean         0.027085         0.002138         0.079829         0.030649           std         0.162350         0.046198         0.271060         0.172384           min         0.000000         0.000000         0.000000         0.000000           25%         0.000000         0.000000         0.000000         0.000000           50%         0.000000         0.000000         0.000000         0.000000           75%         0.000000         0.000000         0.000000         0.000000           max         1.000000         1.000000         1.000000         1.000000           Mean         0.107864         0.019007         0.997862         0.038727           std         0.310246         0.136565         0.046198         0.192965           min         0.000000         0.00000         1.000000         0.000000           25%         0.000000         0.000000         1.000000         0.000000           75%         0.000000         1.000000         1.000000         0.000000           75%         0.000000         1.000000         1.000000         1.000000	mean std min 25% 50% 75%	4209.000000 0.953433 0.210734 0.000000 1.000000 1.000000	4209.000000 0.005940 0.076849 0.000000 0.000000 0.000000	4209.000000 0.013067 0.113576 0.000000 0.000000 0.000000	4209.000000 0.360181 0.480110 0.000000 0.000000 0.000000 1.000000	X65 4209.000000 0.001901 0.043561 0.000000 0.000000 0.000000 1.000000	\
count         4209.000000         4209.000000         4209.000000         4209.000000         4209.000000           mean         0.107864         0.019007         0.997862         0.038727           std         0.310246         0.136565         0.046198         0.192965           min         0.000000         0.000000         0.000000         0.000000           25%         0.000000         0.000000         1.000000         0.000000           50%         0.000000         0.000000         1.000000         0.000000           75%         0.000000         0.000000         1.000000         1.000000           max         1.000000         1.000000         1.000000         4209.00000           Mean         0.011167         0.007365         0.033262         0.949632           std         0.105093         0.085514         0.179341         0.218730           min         0.000000         0.000000         0.000000         0.000000           25%         0.000000         0.000000         0.000000         1.000000	mean std min 25% 50% 75%	4209.000000 0.027085 0.162350 0.000000 0.000000 0.000000	4209.000000 0.002138 0.046198 0.000000 0.000000 0.000000	4209.000000 0.079829 0.271060 0.000000 0.000000 0.000000	4209.000000 0.030649 0.172384 0.000000 0.000000 0.000000	X70 4209.000000 0.920409 0.270692 0.000000 1.000000 1.000000 1.000000	\
count         4209.000000         4209.000000         4209.000000         4209.000000         4209.000000           mean         0.011167         0.007365         0.033262         0.949632           std         0.105093         0.085514         0.179341         0.218730           min         0.000000         0.000000         0.000000         0.000000           25%         0.000000         0.000000         0.000000         1.000000	mean std min 25% 50% 75%	4209.000000 0.107864 0.310246 0.000000 0.000000 0.000000 0.000000	4209.000000 0.019007 0.136565 0.000000 0.000000 0.000000	4209.000000 0.997862 0.046198 0.000000 1.000000 1.000000	4209.000000 0.038727 0.192965 0.000000 0.000000 0.000000	X76 4209.000000 0.039914 0.195782 0.000000 0.000000 0.0000000 1.0000000	\
75% 0.000000 0.000000 1.000000 1.000000 max 1.000000 1.000000 1.000000 1.000000 1.000000 1.000000	mean std min 25% 50% 75%	4209.000000 0.011167 0.105093 0.000000 0.000000 0.000000 0.000000 1.000000	4209.000000 0.007365 0.085514 0.000000 0.000000 0.000000 1.000000	4209.000000 0.033262 0.179341 0.000000 0.000000 0.000000 1.000000	4209.000000 0.949632 0.218730 0.000000 1.000000 1.000000 1.000000 1.000000	X81 4209.000000 0.219530 0.413977 0.000000 0.000000 0.000000 1.000000	\

count mean std min 25% 50% 75% max	4209.000000 0.020670 0.142294 0.000000 0.000000 0.000000 1.000000	4209.000000 0.001188 0.034450 0.000000 0.000000 0.000000 1.000000	4209.000000 0.107864 0.310246 0.000000 0.000000 0.000000 0.000000 1.000000	4209.000000 0.420527 0.493702 0.000000 0.000000 1.000000 1.000000	4209.000000 0.001426 0.037734 0.000000 0.000000 0.000000 0.000000 1.000000	
count mean std min 25% 50% 75% max	X87 4209.000000 0.000950 0.030817 0.000000 0.000000 0.000000 1.000000	X88 4209.000000 0.008316 0.090820 0.000000 0.000000 0.000000 1.000000	X89 4209.000000 0.001901 0.043561 0.000000 0.000000 0.000000 1.0000000	X90 4209.000000 0.008316 0.090820 0.000000 0.000000 0.000000 1.000000	X91 4209.000000 0.002613 0.051061 0.000000 0.000000 0.000000 1.0000000	\
count mean std min 25% 50% 75% max	X92 4209.000000 0.002376 0.048691 0.000000 0.000000 0.000000 1.0000000	X94 4209.000000 0.007840 0.088208 0.000000 0.000000 0.000000 1.0000000	X95 4209.000000 0.000713 0.026691 0.000000 0.000000 0.000000 1.0000000	X96 4209.000000 0.747684 0.434393 0.000000 1.000000 1.000000 1.000000	X97 4209.000000 0.001426 0.037734 0.000000 0.000000 0.000000 1.0000000	\
count mean std min 25% 50% 75% max	X98 4209.000000 0.942742 0.232363 0.000000 1.000000 1.000000 1.000000 1.000000	X99 4209.000000 0.009979 0.099405 0.000000 0.000000 0.000000 1.0000000	X100 4209.000000 0.683298 0.465246 0.000000 1.000000 1.000000 1.000000	X101 4209.000000 0.936802 0.243347 0.000000 1.000000 1.000000 1.000000	X102 4209.000000 0.005940 0.076849 0.000000 0.000000 0.000000 1.000000	\
count mean std min 25% 50% 75%	X103 4209.000000 0.788311 0.408554 0.000000 1.000000 1.000000	X104 4209.000000 0.002613 0.051061 0.000000 0.000000 0.000000	X105 4209.000000 0.000238 0.015414 0.000000 0.000000 0.000000	X106 4209.000000 0.012354 0.110475 0.000000 0.000000 0.000000	X108 4209.000000 0.011642 0.107280 0.000000 0.000000 0.000000	\

max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X109	X110	X111	X112	X113	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.039439	0.001426	0.975053	0.001188	0.023759	
std	0.194661	0.037734	0.155981	0.034450	0.152314	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	1.000000	0.000000	0.000000	
50%	0.000000	0.000000	1.000000	0.000000	0.000000	
75%	0.000000	0.000000	1.000000	0.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X114	X115	X116	X117	X118	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.144928	0.293894	0.196246	0.044429	0.622238	
std	0.352070	0.455598	0.397204	0.206070	0.484885	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	0.000000	
50%	0.000000	0.000000	0.000000	0.000000	1.000000	
75%	0.000000	1.000000	0.000000	0.000000	1.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X119	X120	X122	X123	X124	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.622238	0.957234	0.008316	0.003326	0.000238	
std	0.484885	0.202352	0.090820	0.057584	0.015414	
min	0.00000	0.00000	0.00000	0.00000	0.000000	
25%	0.000000	1.000000	0.000000	0.000000	0.000000	
50%	1.000000	1.000000	0.000000	0.00000	0.00000	
75%	1.000000	1.000000	0.000000	0.00000	0.00000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X125	X126	X127	X128	X129	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.004752	0.039914	0.486101	0.961511	0.133761	
std	0.068777	0.195782	0.499866	0.192396	0.340436	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	1.000000	0.000000	
50%	0.000000	0.000000	0.000000	1.000000	0.000000	
75%	0.000000	0.000000	1.000000	1.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X130	X131	X132	X133	X134	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.038489	0.027322	0.687812	0.123307	0.023759	
std	0.192396	0.163041	0.463441	0.328829	0.152314	
min	0.000000	0.000000	0.000000	0.000000	0.000000	

25% 50% 75% max	0.000000 0.000000 0.000000 1.000000	0.000000 0.000000 0.000000 1.000000	0.000000 1.000000 1.000000 1.000000	0.000000 0.000000 0.000000 1.000000	0.000000 0.000000 0.000000 1.000000	
count mean std min 25% 50% 75% max	X135 4209.000000 0.026372 0.160258 0.000000 0.000000 0.000000 1.000000	X136 4209.000000 0.960323 0.195222 0.000000 1.000000 1.000000 1.000000	X137 4209.000000 0.590402 0.491818 0.000000 1.000000 1.000000 1.000000	X138 4209.000000 0.039439 0.194661 0.000000 0.000000 0.000000 1.000000	X139 4209.000000 0.095747 0.294279 0.000000 0.000000 0.000000 1.000000	\
count mean std min 25% 50% 75% max	X140 4209.000000 0.039439 0.194661 0.000000 0.000000 0.000000 1.000000	X141 4209.000000 0.016393 0.126998 0.000000 0.000000 0.000000 1.000000	X142 4209.000000 0.765740 0.423586 0.000000 1.000000 1.000000 1.000000	X143 4209.000000 0.039677 0.195222 0.000000 0.000000 0.000000 1.000000	X144 4209.000000 0.801378 0.399010 0.000000 1.000000 1.000000 1.000000	\
count mean std min 25% 50% 75% max	X145 4209.000000 0.000713 0.026691 0.000000 0.000000 0.000000 1.000000	X146 4209.000000 0.039439 0.194661 0.000000 0.000000 0.000000 1.0000000	X147 4209.000000 0.023759 0.152314 0.000000 0.000000 0.000000 1.0000000	X148 4209.000000 0.040390 0.196895 0.000000 0.000000 0.000000 1.000000	X150 4209.000000 0.788073 0.408722 0.000000 1.000000 1.000000 1.000000	\
count mean std min 25% 50% 75% max	X151 4209.000000 0.087432 0.282500 0.000000 0.000000 0.000000 1.0000000	X152 4209.000000 0.031361 0.174313 0.000000 0.000000 0.000000 1.000000	X153 4209.000000 0.001188 0.034450 0.000000 0.000000 0.000000 1.000000	X154 4209.000000 0.213352 0.409723 0.000000 0.000000 0.000000 1.0000000	X155 4209.000000 0.079591 0.270692 0.000000 0.000000 0.000000 1.0000000	\
count	X156 4209.000000	X157 4209.000000	X158 4209.000000	X159 4209.000000	X160 4209.000000	\

mean	0.709907	0.290093	0.234498	0.014730	0.000950	
std	0.453859	0.453859	0.423735	0.120486	0.030817	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	0.000000	
			0.000000			
50%	1.000000	0.000000		0.000000	0.000000	
75%	1.000000	1.000000	0.000000	0.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X161	X162	X163	X164	X165	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.195058	0.035638	0.314326	0.067712	0.003564	
std	0.396293	0.185408	0.464302	0.251281	0.059598	
min	0.000000	0.000000	0.000000	0.000000	0.00000	
25%	0.000000	0.000000	0.000000	0.000000	0.000000	
50%	0.000000	0.000000	0.000000	0.000000	0.000000	
75%	0.000000	0.000000	1.000000	0.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
IIIax	1.000000	1.000000	1.000000	1.000000	1.000000	
	X166	V167	V160	¥160	¥170	\
		X167	X168	X169	X170	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.027085	0.001188	0.263721	0.007365	0.026847	
std	0.162350	0.034450	0.440702	0.085514	0.161656	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	0.000000	
50%	0.000000	0.000000	0.000000	0.000000	0.000000	
75%	0.000000	0.000000	1.000000	0.000000	0.00000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X171	X172	X173	X174	X175	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.666429	0.005940	0.010216	0.019482	0.022808	
std	0.471544	0.076849	0.100570	0.138228	0.149310	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	0.000000	
	1.000000	0.000000	0.000000	0.000000		
50%					0.000000	
75%	1.000000	0.000000	0.000000	0.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X176	X177	X178	X179	X180	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.014493	0.051794	0.560466	0.045141	0.158470	
std	0.119525	0.221637	0.496389	0.207639	0.365224	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.00000	0.000000	0.000000	0.00000	0.00000	
50%	0.000000	0.000000	1.000000	0.000000	0.000000	
75%	0.000000	0.000000	1.000000	0.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
шал	1.000000	1.00000	1.000000	1.000000	1.000000	

	X181	X182	X183	X184	X185	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.092659	0.097648	0.002138	0.000713	0.018057	
std	0.289988	0.296873	0.046198	0.026691	0.133172	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	0.000000	
50%	0.000000	0.000000	0.000000	0.000000	0.000000	
75%	0.000000	0.000000	0.000000	0.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X186	X187	X189	X190	X191	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.531955	0.428368	0.921834	0.000238	0.476123	
std	0.499037	0.494901	0.268464	0.015414	0.499489	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	1.000000	0.000000	0.000000	
50%	1.000000	0.000000	1.000000	0.000000	0.000000	
75%	1.000000	1.000000	1.000000	0.000000	1.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X192	X194	X195	X196	X197	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.001663	0.468282	0.012117	0.012354	0.029461	
std	0.040752	0.499052	0.109421	0.110475	0.169114	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	0.000000	
50%	0.000000	0.000000	0.000000	0.000000	0.000000	
75%	0.000000	1.000000	0.000000	0.000000	0.00000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X198	X199	X200	X201	X202	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	`
mean	0.024947	0.001188	0.006652	0.176289	0.239724	
std	0.155981	0.034450	0.081300	0.381111	0.426966	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	0.000000	
50%	0.000000	0.000000	0.000000	0.000000	0.000000	
75%	0.000000	0.000000	0.000000	0.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
шах	1.000000	1.000000	1.000000	1.000000	1.000000	
_	X203	X204	X205	X206	X207	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.011879	0.000713	0.999287	0.018769	0.001426	
std	0.108356	0.026691	0.026691	0.135725	0.037734	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	1.000000	0.000000	0.000000	

50% 75%	0.000000	0.000000	1.000000 1.000000	0.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
count mean	X208 4209.000000 0.061772	X209 4209.000000 0.897125	X210 4209.000000 0.000238	X211 4209.000000 0.017106	X212 4209.000000 0.007128	\
std min	0.240770 0.000000	0.303831	0.015414 0.000000	0.129683 0.000000	0.007120 0.084134 0.000000	
25% 50%	0.000000	1.000000 1.000000	0.000000 0.000000	0.000000 0.000000	0.000000 0.000000	
75% max	0.000000 1.000000	1.000000	0.000000 1.000000	0.000000 1.000000	0.000000 1.000000	
count	X213 4209.000000	X214 4209.000000	X215 4209.000000	X216 4209.000000	X217 4209.000000	\
mean std min	0.002138 0.046198 0.000000	0.005940 0.076849 0.000000	0.109765 0.312633 0.000000	0.005940 0.076849 0.000000	0.009028 0.094599 0.000000	
25% 50%	0.000000 0.000000	0.000000	0.000000 0.000000	0.000000 0.000000	0.000000 0.000000	
75% max	0.000000	0.000000	0.000000	0.000000 1.000000	0.000000	
count	X218	X219	X220	X221	X222	\
count mean	4209.000000 0.321216	4209.000000 0.067237	4209.000000 0.557377	4209.000000 0.008316	4209.000000 0.023759	\
	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	\
mean std min 25%	4209.000000 0.321216 0.466999 0.000000 0.000000	4209.000000 0.067237 0.250462 0.000000 0.000000	4209.000000 0.557377 0.496756 0.000000 0.000000	4209.000000 0.008316 0.090820 0.000000 0.000000	4209.000000 0.023759 0.152314 0.000000 0.000000	\
mean std min	4209.000000 0.321216 0.466999 0.000000	4209.000000 0.067237 0.250462 0.000000	4209.000000 0.557377 0.496756 0.000000	4209.000000 0.008316 0.090820 0.000000	4209.000000 0.023759 0.152314 0.000000	\
mean std min 25% 50%	4209.000000 0.321216 0.466999 0.000000 0.000000 0.000000	4209.000000 0.067237 0.250462 0.000000 0.000000 0.000000	4209.000000 0.557377 0.496756 0.000000 0.000000 1.000000	4209.000000 0.008316 0.090820 0.000000 0.000000	4209.000000 0.023759 0.152314 0.000000 0.000000	\
mean std min 25% 50% 75% max	4209.000000 0.321216 0.466999 0.000000 0.000000 1.000000 1.000000	4209.000000 0.067237 0.250462 0.000000 0.000000 0.000000 1.0000000	4209.000000 0.557377 0.496756 0.000000 1.000000 1.000000 1.000000 X225	4209.000000 0.008316 0.090820 0.000000 0.000000 0.000000 1.000000	4209.000000 0.023759 0.152314 0.000000 0.000000 0.000000 1.000000	\
mean std min 25% 50% 75% max	4209.000000 0.321216 0.466999 0.000000 0.000000 1.000000 1.000000 X223 4209.000000	4209.000000 0.067237 0.250462 0.000000 0.000000 0.000000 1.000000 X224 4209.000000	4209.000000 0.557377 0.496756 0.000000 1.000000 1.000000 1.000000 X225 4209.000000	4209.000000 0.008316 0.090820 0.000000 0.000000 0.000000 1.000000 X226 4209.000000	4209.000000 0.023759 0.152314 0.000000 0.000000 0.000000 1.000000 X227 4209.000000	
mean std min 25% 50% 75% max	4209.000000 0.321216 0.466999 0.000000 0.000000 1.000000 1.000000	4209.000000 0.067237 0.250462 0.000000 0.000000 0.000000 1.0000000	4209.000000 0.557377 0.496756 0.000000 1.000000 1.000000 1.000000 X225	4209.000000 0.008316 0.090820 0.000000 0.000000 0.000000 1.000000	4209.000000 0.023759 0.152314 0.000000 0.000000 0.000000 1.000000	
mean std min 25% 50% 75% max  count mean std min	4209.000000 0.321216 0.466999 0.000000 0.000000 1.000000 1.000000 X223 4209.000000 0.556189	4209.000000 0.067237 0.250462 0.000000 0.000000 0.000000 1.000000 X224 4209.000000 0.313376	4209.000000 0.557377 0.496756 0.000000 1.000000 1.000000 1.000000 X225 4209.000000 0.086244	4209.000000 0.008316 0.090820 0.000000 0.000000 0.000000 1.000000 X226 4209.000000 0.031361	4209.000000 0.023759 0.152314 0.000000 0.000000 0.000000 1.000000 X227 4209.000000 0.004752	
mean std min 25% 50% 75% max  count mean std min 25%	4209.000000 0.321216 0.466999 0.000000 0.000000 1.000000 1.000000 X223 4209.000000 0.556189 0.496892 0.000000 0.000000	4209.000000 0.067237 0.250462 0.000000 0.000000 0.000000 1.000000 X224 4209.000000 0.313376 0.463921 0.000000 0.000000	4209.000000 0.557377 0.496756 0.000000 1.000000 1.000000 1.000000 X225 4209.000000 0.086244 0.280757 0.000000 0.000000	4209.000000 0.008316 0.090820 0.000000 0.000000 0.000000 1.000000 X226 4209.000000 0.031361 0.174313 0.000000 0.000000	4209.000000 0.023759 0.152314 0.000000 0.000000 0.000000 1.000000 X227 4209.000000 0.004752 0.068777 0.000000 0.000000	
mean std min 25% 50% 75% max  count mean std min 25% 50%	4209.000000 0.321216 0.466999 0.000000 0.000000 1.000000 1.000000 X223 4209.000000 0.556189 0.496892 0.000000 0.000000 1.000000	4209.000000 0.067237 0.250462 0.000000 0.000000 0.000000 1.000000 X224 4209.000000 0.313376 0.463921 0.000000 0.000000 0.000000	4209.000000 0.557377 0.496756 0.000000 1.000000 1.000000 1.000000 X225 4209.000000 0.086244 0.280757 0.000000 0.000000 0.000000	4209.000000 0.008316 0.090820 0.000000 0.000000 0.000000 1.000000 X226 4209.000000 0.031361 0.174313 0.000000 0.000000	4209.000000 0.023759 0.152314 0.000000 0.000000 0.000000 1.000000 X227 4209.000000 0.004752 0.068777 0.000000 0.000000 0.000000	
mean std min 25% 50% 75% max  count mean std min 25% 50% 75%	4209.000000 0.321216 0.466999 0.000000 0.000000 1.000000 1.000000 X223 4209.000000 0.556189 0.496892 0.000000 0.000000 1.000000 1.000000	4209.000000 0.067237 0.250462 0.000000 0.000000 0.000000 1.000000 X224 4209.000000 0.313376 0.463921 0.000000 0.000000 0.000000 1.0000000 1.0000000	4209.000000 0.557377 0.496756 0.000000 1.000000 1.000000 1.000000 1.000000 0.086244 0.280757 0.000000 0.000000 0.000000	4209.000000 0.008316 0.090820 0.000000 0.000000 0.000000 1.000000 0.031361 0.174313 0.000000 0.000000 0.000000 0.000000	4209.000000 0.023759 0.152314 0.000000 0.000000 0.000000 1.000000 X227 4209.000000 0.004752 0.068777 0.000000 0.000000 0.000000 0.000000	
mean std min 25% 50% 75% max  count mean std min 25% 50%	4209.000000 0.321216 0.466999 0.000000 0.000000 1.000000 1.000000 X223 4209.000000 0.556189 0.496892 0.000000 0.000000 1.000000	4209.000000 0.067237 0.250462 0.000000 0.000000 0.000000 1.000000 X224 4209.000000 0.313376 0.463921 0.000000 0.000000 0.000000	4209.000000 0.557377 0.496756 0.000000 1.000000 1.000000 1.000000 X225 4209.000000 0.086244 0.280757 0.000000 0.000000 0.000000	4209.000000 0.008316 0.090820 0.000000 0.000000 0.000000 1.000000 X226 4209.000000 0.031361 0.174313 0.000000 0.000000	4209.000000 0.023759 0.152314 0.000000 0.000000 0.000000 1.000000 X227 4209.000000 0.004752 0.068777 0.000000 0.000000 0.000000	
mean std min 25% 50% 75% max  count mean std min 25% 50% 75%	4209.000000 0.321216 0.466999 0.000000 0.000000 1.000000 1.000000 X223 4209.000000 0.556189 0.496892 0.000000 1.000000 1.000000 1.000000 1.000000 X228	4209.000000 0.067237 0.250462 0.000000 0.000000 0.000000 1.000000 1.000000 0.313376 0.463921 0.000000 0.000000 1.000000 1.000000 1.000000 1.000000	4209.000000 0.557377 0.496756 0.000000 1.000000 1.000000 1.000000 0.086244 0.280757 0.000000 0.000000 0.000000 0.000000 1.000000	4209.000000 0.008316 0.090820 0.000000 0.000000 0.000000 1.000000 X226 4209.000000 0.031361 0.174313 0.000000 0.000000 0.000000 0.000000 1.0000000 X231	4209.000000 0.023759 0.152314 0.000000 0.000000 0.000000 1.000000 1.000000 0.004752 0.068777 0.000000 0.000000 0.000000 0.000000 1.000000 X232	
mean std min 25% 50% 75% max  count mean std min 25% 50% 75%	4209.000000 0.321216 0.466999 0.000000 0.000000 1.000000 1.000000 X223 4209.000000 0.556189 0.496892 0.000000 1.000000 1.000000 1.000000 1.000000	4209.000000 0.067237 0.250462 0.000000 0.000000 0.000000 1.000000  X224 4209.000000 0.313376 0.463921 0.000000 0.000000 0.000000 1.000000 1.000000 1.000000	4209.000000 0.557377 0.496756 0.000000 1.000000 1.000000 1.000000 0.086244 0.280757 0.000000 0.000000 0.000000 0.000000 1.000000	4209.000000 0.008316 0.090820 0.000000 0.000000 0.000000 1.000000 0.031361 0.174313 0.000000 0.000000 0.000000 0.000000 1.000000 1.000000	4209.000000 0.023759 0.152314 0.000000 0.000000 0.000000 1.000000 0.04752 0.068777 0.000000 0.000000 0.000000 0.000000 1.000000 1.000000	\

std	0.211245	0.21627	0.061545	0.129683	0.195222	
min	0.000000	0.00000	0.000000	0.000000	0.000000	
25%	0.000000	1.00000	0.000000	0.000000	0.000000	
50%	0.000000	1.00000	0.000000	0.000000	0.000000	
75%	0.000000	1.00000	0.000000	0.000000	0.000000	
max	1.000000	1.00000	1.000000	1.000000	1.000000	
	X234	X236	X237	X238	X239	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.206225	0.000238	0.005464	0.920884	0.005940	
std	0.404642	0.015414	0.073729	0.269952	0.076849	
min	0.000000	0.000000	0.000000	0.00000	0.000000	
25%	0.000000	0.000000	0.000000	1.000000	0.000000	
50%	0.000000	0.000000	0.000000	1.000000	0.000000	
75%	0.000000	0.000000	0.000000	1.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X240	X241	X242	X243	X244	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.003564	0.104300	0.008316	0.008316	0.107864	
std	0.059598	0.305686	0.090820	0.090820	0.310246	
min	0.000000	0.00000	0.000000	0.00000	0.00000	
25%	0.000000	0.00000	0.000000	0.00000	0.00000	
50%	0.000000	0.000000	0.000000	0.000000	0.000000	
75%	0.000000	0.000000	0.000000	0.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X245	X246	X247	X248	X249	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.000950	0.416964	0.239487	0.002138	0.009503	
std	0.030817	0.493115	0.426821	0.046198	0.097033	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	0.000000	
50%	0.000000	0.000000	0.000000	0.000000	0.000000	
75%	0.000000	1.000000	0.000000	0.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X250	X251	X252	X253	X254	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.555952	0.393918	0.000238	0.001663	0.003801	
std	0.496919	0.488675	0.015414	0.040752	0.061545	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	0.000000	
50%	1.000000	0.000000	0.000000	0.000000	0.000000	
75%	1.000000	1.000000	0.000000	0.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	

	X255	X256	X257 X	258 X2	259 X2	260 '
count	4209.000000	4209.000000	4209.0 420	9.0 4209.000	000 4209.0000	000
mean	0.014255	0.076503		0.0 0.0002	238 0.0007	13
std	0.118555	0.265832		0.0 0.0154		
min	0.000000	0.000000		0.0000		
25%	0.000000	0.000000		0.0000		
50%	0.000000	0.000000		0.0000		
75%	0.000000	0.000000		0.0000		
max	1.000000	1.000000	0.0	0.0 1.0000	1.0000	000
	X261	X262	X263	X264	X265	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.437871	0.000713	0.960323	0.040865	0.912093	
std	0.496184	0.026691	0.195222	0.198000	0.283193	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	1.000000	0.000000	1.000000	
50%	0.000000	0.000000	1.000000	0.000000	1.000000	
	1.000000					
75%		0.000000	1.000000	0.000000	1.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X266	X267	X269	X270	X271	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.000950	0.008078	0.000713	0.000713	0.001426	
std	0.030817	0.089524	0.026691	0.026691	0.037734	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.00000	0.00000	0.000000	0.000000	0.000000	
50%	0.000000	0.000000	0.000000	0.000000	0.000000	
75%	0.000000	0.000000	0.000000	0.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
lliax	1.000000	1.000000	1.000000	1.000000	1.000000	
	X272	X273	X274	X275	X276	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	•
mean	0.035163	0.712283	0.011167	0.725113	0.035876	
std	0.184213	0.452752	0.105093	0.446510	0.186002	
		0.000000				
min	0.000000		0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	0.000000	
50%	0.000000	1.000000	0.000000	1.000000	0.000000	
75%	0.000000	1.000000	0.000000	1.000000	0.000000	
max	1.000000	1.000000	1.000000	1.000000	1.000000	
	X277	X278	X279	X280	X281	\
count	4209.000000	4209.000000	4209.000000	4209.000000	4209.000000	
mean	0.001426	0.000238	0.039677	0.000238	0.003564	
std	0.037734	0.015414	0.195222	0.015414	0.059598	
min	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.000000	0.000000	0.000000	
50%	0.000000	0.000000	0.000000	0.000000	0.000000	
JU/ <sub>0</sub>	0.00000	0.00000	0.00000	0.000000	0.00000	

75%	0.00000		.000000		.000000		.000000	0.000000	
max	1.00000	0 1	.000000	1	.000000	1	.000000	1.000000	
	X28	2	X283		X284		X285	X286	\
count	4209.00000	0 4209	.000000	4209	.000000	4209	.000000	4209.000000	
mean	0.00213	8 0	.144452	0	.042053	0	.210501	0.046804	
std	0.04619	8 0	.351590	0	.200733	0	.407713	0.211245	
min	0.00000	0 0	.000000	0	.000000	0	.000000	0.00000	
25%	0.00000	0 0	.000000	0	.000000	0	.000000	0.00000	
50%	0.00000	0 0	.000000	0	.000000	0	.000000	0.000000	
75%	0.00000		.000000	0	.000000	0	.000000	0.000000	
max	1.00000	0 1	.000000	1	.000000	1	.000000	1.000000	
	X28		X288		X291		X292	X294	\
count	4209.00000		.000000		.000000		.000000	4209.000000	
mean	0.01544		.000238		.010691		.009266	0.122119	
std	0.12332		.015414		. 102857		.095824	0.327462	
min	0.00000		.000000		.000000		.000000	0.000000	
25%	0.00000	0 0	.000000	0	.000000	0	.000000	0.000000	
50%	0.00000	0 0	.000000	0	.000000	0	.000000	0.000000	
75%	0.00000	0 0	.000000	0	.000000	0	.000000	0.00000	
max	1.00000	0 1	.000000	1	.000000	1	.000000	1.000000	
		X296		298		299			301 \
count			209.0000		209.0000		209.0000		
mean	0.0	0.0	0.0030		0.0030		0.2126		
std	0.0	0.0	0.0554		0.0554		0.4092		
min	0.0	0.0	0.0000		0.0000		0.0000		
25%	0.0	0.0	0.0000		0.0000		0.0000		
50%	0.0	0.0	0.0000		0.0000		0.0000		
75%	0.0	0.0	0.0000		0.0000		0.0000		
max	0.0	0.0	1.0000	000	1.0000	000	1.0000	1.0000	000
	X30	2	X304		X305		X306	X307	\
count	4209.00000		.000000	4209	.000000	4209	.000000	4209.000000	
mean	0.00689		.929437		.008316		.045141	0.003326	
std	0.08272		.256124		.090820		. 207639	0.057584	
min	0.00000		.000000		.000000		.000000	0.000000	
25%	0.00000		.000000		.000000		.000000	0.000000	
50%	0.00000		.000000		.000000		.000000	0.000000	
75%	0.00000		.000000		.000000		.000000	0.000000	
. 070	0.0000								
max	1.00000	0 1	.000000	.1	.000000	.l	. 000000	1.000000	
max	1.00000	0 1	.000000	1	.000000	1	.000000	1.000000	
max	1.00000 X30		.000000 X309	1	.000000 X310	1	X311	X312	\
max		8							\
	X30	8 0 4209	X309	4209	X310	4209	X311	X312	\

min 25% 50% 75% max	0.000000 0.000000 0.000000 0.000000 1.000000	0.000000 0.000000 0.000000 0.000000 1.000000	0.000000 0.000000 0.000000 0.000000 1.000000	0.000000 0.000000 1.000000 1.000000	0.000000 0.000000 0.000000 0.000000 1.000000	
count mean std min 25% 50% 75% max	X313 4209.000000 0.292231 0.454842 0.000000 0.000000 1.000000 1.000000	X314 4209.000000 0.448325 0.497382 0.000000 0.000000 1.000000	X315 4209.000000 0.025422 0.157421 0.000000 0.000000 0.000000 1.000000	X316 4209.000000 0.194583 0.395926 0.000000 0.000000 0.000000 1.000000	X317 4209.000000 0.005702 0.075305 0.000000 0.000000 0.000000 1.000000	\
count mean std min 25% 50% 75% max	X318 4209.000000 0.000950 0.030817 0.000000 0.000000 0.000000 1.000000	X319 4209.000000 0.000475 0.021796 0.000000 0.000000 0.000000 1.000000	X320 4209.000000 0.007840 0.088208 0.000000 0.000000 0.000000 1.000000	X321 4209.000000 0.242813 0.428834 0.000000 0.000000 0.000000 1.000000	X322 4209.000000 0.018294 0.134029 0.000000 0.000000 0.000000 1.000000	\
count mean std min 25% 50% 75% max	X323 4209.000000 0.008078 0.089524 0.000000 0.000000 0.000000 1.0000000	X324 4209.000000 0.584462 0.492873 0.000000 1.000000 1.000000 1.000000	X325 4209.000000 0.005464 0.073729 0.000000 0.000000 0.0000000 1.0000000	X326 4209.000000 0.031361 0.174313 0.000000 0.000000 0.000000 1.0000000	X327 4209.000000 0.130435 0.336821 0.000000 0.000000 0.000000 1.0000000	\
count mean std min 25% 50% 75% max	X328 4209.000000 0.036351 0.187183 0.000000 0.000000 0.000000 1.0000000	X329 4209.000000 0.438109 0.496214 0.000000 0.000000 1.000000 1.000000	X331 4209.000000 0.051794 0.221637 0.000000 0.000000 0.000000 1.000000	X332 4209.000000 0.000713 0.026691 0.000000 0.000000 0.000000 1.000000	X333 4209.000000 0.019482 0.138228 0.000000 0.000000 0.000000 1.000000	\

count mean std min 25% 50% 75% max	4209.000000 0.451651 0.497716 0.000000 0.000000 1.000000 1.000000	4209.000000 0.002138 0.046198 0.000000 0.000000 0.000000 1.000000	4209.000000 0.127584 0.333665 0.000000 0.000000 0.000000 0.000000 1.000000	4209.000000 0.526966 0.499332 0.000000 0.000000 1.000000 1.000000 1.000000	4209.000000 0.007840 0.088208 0.000000 0.000000 0.000000 1.000000	
count mean std min 25% 50% 75% max	X339 4209.000000 0.000238 0.015414 0.000000 0.000000 0.000000 1.000000	X340 4209.000000 0.020432 0.141491 0.000000 0.000000 0.000000 1.000000	X341 4209.000000 0.009979 0.099405 0.000000 0.000000 0.000000 1.000000	X342 4209.000000 0.020195 0.140683 0.000000 0.000000 0.000000 1.000000	X343 4209.000000 0.069613 0.254523 0.000000 0.000000 0.000000 1.000000	\
count mean std min 25% 50% 75% max	X344 4209.000000 0.009503 0.097033 0.000000 0.000000 0.000000 1.0000000	X345 4209.000000 0.024709 0.155255 0.000000 0.000000 0.000000 1.000000	X346 4209.000000 0.044904 0.207117 0.000000 0.000000 0.000000 1.000000	X348 4209.000000 0.950107 0.217750 0.000000 1.000000 1.000000 1.000000 1.000000	X349 4209.000000 0.041815 0.200190 0.000000 0.000000 0.000000 1.000000	\
count mean std min 25% 50% 75% max	X350 4209.000000 0.341174 0.474160 0.000000 0.000000 1.000000 1.000000	X351 4209.000000 0.287242 0.452529 0.000000 0.000000 1.000000 1.000000	X352 4209.000000 0.050131 0.218240 0.000000 0.000000 0.000000 1.000000	X353 4209.000000 0.002613 0.051061 0.000000 0.000000 0.000000 1.000000	X354 4209.000000 0.203849 0.402906 0.000000 0.000000 0.000000 1.000000	\
count mean std min 25% 50% 75%	X355 4209.000000 0.377762 0.484885 0.000000 0.000000 1.000000	X356 4209.000000 0.184129 0.387636 0.000000 0.000000 0.000000	X357 4209.000000 0.002376 0.048691 0.000000 0.000000 0.000000	X358 4209.000000 0.433595 0.495630 0.000000 0.000000 1.000000	X359 4209.000000 0.036826 0.188356 0.000000 0.000000 0.000000	\

X360         X361         X362         X363         X364         \           count         4209.000000         4209.000000         4209.000000         4209.000000         4209.000000         4209.000000         A209.000000         A209.00000         A209.0
mean         0.079591         0.962461         0.517938         0.745308         0.003564           std         0.270692         0.190100         0.499738         0.435740         0.059598           min         0.000000         0.000000         0.000000         0.000000         0.000000         0.000000           25%         0.000000         1.000000         0.000000         0.000000         0.000000           50%         0.000000         1.000000         1.000000         1.000000         0.000000           75%         0.000000         1.000000         1.000000         0.000000
std     0.270692     0.190100     0.499738     0.435740     0.059598       min     0.000000     0.000000     0.000000     0.000000       25%     0.000000     1.000000     0.000000     0.000000       50%     0.000000     1.000000     1.000000     1.000000       75%     0.000000     1.000000     1.000000     0.000000
min         0.000000         0.000000         0.000000         0.000000         0.000000           25%         0.000000         1.000000         0.000000         0.000000         0.000000           50%         0.000000         1.000000         1.000000         1.000000         0.000000           75%         0.000000         1.000000         1.000000         0.000000
25%       0.000000       1.000000       0.000000       0.000000       0.000000         50%       0.000000       1.000000       1.000000       1.000000       0.000000         75%       0.000000       1.000000       1.000000       0.000000
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max 1.000000 1.000000 1.000000 1.000000
X365 X366 X367 X368 X369 \
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std 0.057584 0.040752 0.214277 0.243347 0.0
min 0.000000 0.000000 0.000000 0.000000 0.0
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X370 X371 X372 X373 X374 \
count 4209.000000 4209.000000 4209.000000 4209.000000 4209.000000
mean 0.005702 0.011404 0.000238 0.014493 0.235923
std 0.075305 0.106192 0.015414 0.119525 0.424625
min 0.000000 0.000000 0.000000 0.000000
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max 1.000000 1.000000 1.000000 1.000000
X375 X376 X377 X378 X379 \
count 4209.000000 4209.000000 4209.000000 4209.000000 4209.000000
mean 0.325968 0.049656 0.311951 0.019244 0.011879
std 0.468791 0.217258 0.463345 0.137399 0.108356
min 0.000000 0.000000 0.000000 0.000000
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max 1.000000 1.000000 1.000000 1.000000
X380 X382 X383 X384 X385
count 4209.000000 4209.000000 4209.000000 4209.000000 4209.000000
mean 0.008078 0.008791 0.000475 0.000713 0.001663
std 0.089524 0.093357 0.021796 0.026691 0.040752
min 0.000000 0.000000 0.000000 0.000000 0.000000

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      max
[30]: test_df_num_variance_with_zero_drop.shape
[30]: (4209, 357)
[31]: test_df_num.shape
[31]: (4209, 369)
[32]: test_df_cat.shape
[32]: (4209, 8)
```

## 1 Check for Null and Unique Values for train and test data

```
[33]: df_test.isnull().sum()
[33]: ID
               0
      XΟ
               0
      Х1
               0
      Х2
               0
      ХЗ
               0
      X380
               0
      X382
               0
      X383
               0
      X384
               0
      X385
      Length: 377, dtype: int64
[34]: df_train.isnull().sum()
[34]: ID
               0
               0
      у
      XΟ
               0
      Х1
               0
      Х2
               0
      X380
               0
      X382
               0
      X383
               0
```

```
X384 0
X385 0
```

[38]: # for train data

df\_cat\_dum=ohe.fit\_transform(df\_cat).toarray()

Length: 378, dtype: int64

## 1.1 Check Unique Values for Train and Test sets

```
[35]: df_test.nunique()
[35]: ID
              4209
      ΧO
                49
      X1
                27
      X2
                45
      ХЗ
                 7
      X380
                 2
                 2
      X382
                 2
      X383
      X384
                 2
      X385
      Length: 377, dtype: int64
[36]: df_train.nunique()
[36]: ID
              4209
              2545
      у
      XΟ
                47
      Х1
                27
      Х2
                44
                 2
      X380
      X382
                 2
      X383
                 2
      X384
                 2
      X385
                 2
      Length: 378, dtype: int64
     1.2 Apply Label Encoder
[37]: from sklearn.preprocessing import OneHotEncoder
      # applyOHE- One Hot Encoding
      ohe=OneHotEncoder(handle_unknown="ignore")
```

```
df_cat_oh=pd.DataFrame(df_cat_dum,columns=col_names)
[39]: df_cat_oh.head()
                       x0_ab
[39]:
                              x0_ac x0_ad x0_af x0_ai x0_aj
                                                                      x0_ak
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col\_names=ohe.get\_feature\_names()
col\_names=np.array(col\_names).ravel()

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[40]: # concatenate the both categorical and numerical features of train data
      df_train_final=pd.concat([df_num_variance_with_zero_drop, df_cat_oh],axis=1)
[41]: df_train_final.head()
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	X139	X140	X141	X142	X143	X144	X145	X146	X147	X148	X150	X151	\
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1	0	0	0	1	0	1	0	0	0	0	1	0	
2	0	0	0	0	0	1	0	0	0	1	1	0	
3	0	0	0	1	0	1	0	0	0	1	1	0	
4	0	0	0	0	0	1	0	0	0	1	1	0	
	X152	X153	X154	X155	X156	X157	X158	X159	X160	X161	X162	X163	\
0	0	0	0	0	1	0	0	0	0	0	0	0	
1	0	0	0	0	1	0	0	0	0	0	0	0	
2	0	0	0	0	0	1	1	0	0	0	1	1	
3	0	0	0	0	0	1	0	0	0	0	1	0	
4	0	0	0	0	0	1	1	0	0	0	1	0	
	X164	X165	X166	X167	X168	X169	X170	X171	X172	X173	X174	X175	\
0	0	0	0	0	0	0	1	0	0	0	0	0	
1	0	1	0	0	0	0	0	0	0	0	0	0	
2	0	0	0	0	0	1	0	0	0	0	0	0	
3	0	0	1	0	0	0	0	0	0	0	1	0	
4	0	0	1	0	0	0	0	0	0	0	0	0	
	X176	X177	X178	X179	X180	X181	X182	X183	X184	X185	X186	X187	\
0	0	0	0	1	0	0	0	0	1	0	0	1	
1	0	0	1	0	0	0	0	0	0	0	0	1	
2	0	0	0	1	0	0	0	0	0	0	0	0	
3	0	0	0	1	0	0	0	0	0	0	0	0	
4	0	0	0	1	0	0	0	0	0	0	0	0	
	W400	77.4.0.0	7101	W400	W404	W40E	7100	7107	W400	W400	W000	W004	,
^			X191			X195	X196	X197					\
0	1	0	0	0	1	0	0	0	0	0	0	0	
1	1	0	0	0	1	0	0	0	0	0	0	0	
2	0	0	0	0	1	0	0	0	0	0	0	0	
3	0	0	0	0	1	0	0	0	0	0	0	0	
4	0	0	0	0	1	0	0	0	0	0	0	0	
	X202	X203	X204	X205	X206	X207	X208	X209	X210	X211	X212	X213	\
0	N202 0	A203	1	A203	A200	0	A200	1 AZOS	A210 0	0	A212 0	A213	`
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2	0	0	0	1	1	0	0	1	0	0	0	0	
3	0	0	0	1	0	0	0	1	0	0	0	0	
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	VO14	V015	V016	V017	V010	VO10	¥000	V001	¥000	vooo	¥004	VOOL	`
^	X214	X215	X216	X217	X218	X219	X220	X221	X222	X223	X224	X225	\
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4	0	0	0	0	1	0	1	0	0	1	0	0	
	X226	X227	X228	X229	X230	X231	X232	X234	X236	X237	X238	X239	\
0	0	0	Λ220 0	0	N230	0	N232 0	1	N230	1	N230	N253	`
1	0	0	0	1	0	0	0	0	0	0	1	0	
2	0	0	1	0	0	0	1	0	0	0	0	0	
3	0	0	0	1	0	0	1	0	0	0	0	0	
4	0	0	0	1	0	0	1	0	0	0	0	0	
7	O	O	O	1	O	O	1	O	O	O	O	O	
	X240	X241	X242	X243	X244	X245	X246	X247	X248	X249	X250	X251	\
0	0	0	0	0	0	0	0	0	0	0	0	0	•
1	0	0	0	0	0	0	0	0	0	0	1	0	
2	0	1	0	0	1	0	1	0	0	0	1	0	
3	0	1	0	0	1	0	1	0	0	0	1	0	
4	0	0	0	0	0	0	1	0	0	0	1	0	
	X252	X253	X254	X255	X256	X257	X258	X259	X260	X261	X262	X263	\
0	0	0	0	0	0	0	0	0	0	0	1	1	
1	0	0	0	0	0	0	0	0	0	0	0	1	
2	1	0	0	0	1	0	0	0	0	0	0	0	
3	1	0	0	0	1	0	0	0	0	0	0	0	
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	1	0	0	0	1	0	0	0	0	0	0	0	\
4	1 X264	0 X265	0 X266	0 X267	1 X269	0 X270	0 X271	0 X272	0 X273	0 X274	0 X275	0 X276	\
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4 0 1	1 X264 0 0 0	0 X265 0 1 0	0 X266 1 0 0	0 X267 0 0 0	1 X269 0 0 0	0 X270 0 0 0	0 X271 0 0 0	0 X272 0 0 1 1	X273 1 1 1	0 X274 0 0	0 X275 1 1	X276 0 0	\
0 1 2	1 X264 0 0	0 X265 0 1 0	0 X266 1 0	0 X267 0 0 0	1 X269 0 0	0 X270 0 0	0 X271 0 0	0 X272 0 0 1	0 X273 1 1	0 X274 0 0	0 X275 1 1 0	X276 0 0	\
0 1 2 3	1 X264 0 0 0 0	0 X265 0 1 0 0	0 X266 1 0 0 0	0 X267 0 0 0 0	X269 0 0 0 0	0 X270 0 0 0 0	0 X271 0 0 0 0	0 X272 0 0 1 1	X273 1 1 1 1	0 X274 0 0 1 0	0 X275 1 1 0 0	0 X276 0 0 1 1	·
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0 1 2 3 4 0 1 2 3 4	X264 0 0 0 0 0 0 X277 0 0 0 0 X291 0 0	X265 0 1 0 0 0 X278 0 0 0 0 X292 0	X266 1 0 0 0 0 X279 0 0 1 1 1 1 X294 0	X267 0 0 0 0 0 X280 0 0 0 0 X295 0	X269 0 0 0 0 0 0 X281 0 0 0 0 X296 0	X270 0 0 0 0 0 0 0 X282 0 0 0 0 0 X298 0	X271 0 0 0 0 0 0 X283 0 0 0 0 0 X299 0	X272 0 0 1 1 1 1 X284 0 0 0 0 0 0 X300 0	X273 1 1 1 1 1 1 X285 1 1 0 0 0 0 X301 0	X274 0 0 1 0 0 X286 0 0 1 1 1 1 X302 0	X275 1 1 0 0 0 0 X287 0 0 0 0 0 X304 0	X276 0 0 1 1 1 1 X288 0 0 0 0 0 0 X305 0	\
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	X306	X307	X308	X309	X310	X311	X312	X313	X314	X315	X316	X317	\
0	1	0	0	0	0	0	0	0	0	0	1	0	
1	0	0	0	0	0	1	0	0	0	0	1	0	
2	0	0	0	0	0	0	0	0	0	0	0	0	
3	0	0	0	0	0	0	0	0	0	0	0	0	
4	0	0	0	0	0	0	0	0	0	0	0	0	
	X318	X319	X320	X321	X322	X323	X324	X325	X326	X327	X328	X329	\
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4	0	0	0	0	0	0	0	0	0	0	1	0	
	X331	X332	X333	X334	X335	X336	X337	X338	X339	X340	X341	X342	\
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1	0	0	0	0	0	1	1	0	0	0	0	0	
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	X343	X344	X345	X346	X348	X349	X350	X351	X352	X353	X354	X355	\
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4	0	0	0	0	1	0	1	0	0	0	0	0	
	X356	X357	X358	X359	X360	X361	X362	X363	X364	X365	X366	X367	\
0	0	0	0	0	0	1	0	0	0	0	0	0	
1	0	0	0	0	0	1	0	1	0	0	0	0	
2	0	0	1	0	0	1	0	1	0	0	0	0	
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4	0	0	1	0	0	1	0	1	0	0	0	0	
	X368	X369	X370	X371	X372	X373	X374	X375	X376	X377	X378	X379	\
0	0	0	0	0	0	0	0	0	0	1	0	0	•
1	0	0	0	0	0	0	0	1	0	0	0	0	
2	0	0	0	0	0	0	0	0	0	0	0	0	
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4	0	0	0	1	0	0	0	0	0	0	0	0	
	X380	X382	X383	X384	X385	x0_a	x0_aa	z ∩x	x0_ab x0_a		_ad 2	x0_af	\
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      df_train_final.shape
[42]: (4209, 553)
[43]: # for test data
      test_df_cat_dum=ohe.fit_transform(test_df_cat).toarray()
      test_col_names=ohe.get_feature_names()
      test col names=np.array(test col names).ravel()
      test_df_cat_oh=pd.DataFrame(test_df_cat_dum,columns=test_col_names)
[44]: test_df_cat_oh.head()
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[44]:
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х5\_у

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 $x5_w$ 

x6\_a

 $x6_b$   $x6_c$   $x6_d$   $x6_e$   $x6_f$ 

x6\_g

x6\_h \

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[45]: # concatenate both categorical and numerical features of test data
      df_test_final=pd.concat([test_df_num_variance_with_zero_drop,u
        →test_df_cat_oh],axis=1)
[46]: df_test_final.head()
[46]:
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	WE 0	W-7	77.50	WE 0	W 0 0	W.O.4	W 0 0	W.00	W 0 4	W 0 5	- 77.00	77.07	W 0 0	W 0 0	W70	,
0	X56 0	X57 0	X58	X59	X60 0	X61	X62	X63 0	X64	X65		X67 0	X68	X69	X70	\
0	0	0	0	0	0	1 1	0	0	0	(			0	0	1 1	
1 2	0	0	1	0	0	1	0	0	0	(			0	0	1	
3	0	0	0	0	0	1	0	0	0	(			0	0	1	
4	0	0	1	0	0	1	0	0	1	(		0	0	0	1	
7	O	O	1	U	O	1	U	U	1		, 0	U	U	O	1	
	X71	X73	X74	X75	X76	X77	X78	X79	X80	X81	L X82	X83	X84	X85	X86	\
0	0	0	1	0	1	0	0	0	1	(	0 0	0	0	0	0	
1	0	0	1	0	0	0	0	0	1	(	0 0	0	0	0	0	
2	0	0	1	0	1	0	0	0	1	(	0 0	0	0	1	0	
3	0	0	1	0	1	0	0	0	1	(	0 0	0	0	0	0	
4	0	0	1	0	0	0	0	0	1	(	0 0	0	0	1	0	
	X87	X88	X89	X90	X91	X92	X94	X95	X96	X97	7 X98	X99	X100	X101	1 \	
0	0	0	0	0	0	0	0	0	1	(	) 1	0	0		1	
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2	0	0	0	0	0	0	0	0	1	(		0	1	:	1	
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4	0	0	0	0	0	0	0	0	1	(	) 1	0	1	-	1	
	X102	X10:	2 <b>V</b> 1	.04	X105	X106	X108	X10	Ω ¥1	.10	X111	X112	X113	X114	4 \	
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4	0			0	0	1	0		0	0	1		0		)	
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	X115	X116	6 X1	.17	X118	X119	X120	X12	2 X1	.23	X124	X125	X126	X127	7 \	
0	0	(	0	0	0	0	0		0	0	0	0	0	(	)	
1	0	:	1	0	1	1	1		0	0	0	0	0		1	
2	0	(	0	0	0	0	1		0	0	0	0	0	(	)	
3	0	(	0	0	0	0	1		0	0	0	0	0	(	)	
4	0	(	0	0	1	1	1		0	0	0	0	0	(	)	
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	X128				X131	X132			4 X1		X136	X137	X138		9 \	
0	1		0	0	0	1	0		0	0	0	0	0		)	
1	1		1	0	0	0	1		0	0	1	1	1		)	
2	1		0	0	0	1	0		0	0	0	1	0		)	
3	1		0	0	0	1	0		0	0	0	0	0		)	
4	1	(	0	0	0	1	0		0	0	1	1	0	(	)	

	W4.40	37.4.4.4	W4.40	W4.40	37.4.0.0	37.4.4.5	37.4.4.0	W 4 4 7	W440	W450	77.4.5.4	77.4.5.0	,
_	X140	X141	X142	X143	X144	X145	X146	X147	X148	X150	X151	X152	\
0	0	0	0	0	1	0	0	0	1	1	0	0	
1	1	0	1	0	0	0	1	0	0	0	0	0	
2	0	0	1	0	1	0	0	0	0	1	0	0	
3	0	0	0	0	1	0	0	0	1	1	0	0	
4	0	0	1	0	1	0	0	0	0	1	1	0	
	X153	X154	X155	X156	X157	X158	X159	X160	X161	X162	X163	X164	\
0	0	0	0	0	1	1	0	0	0	1	0	0	
1	0	0	0	1	0	0	0	0	1	0	1	1	
2	0	0	0	0	1	0	1	0	0	1	0	0	
3	0	0	0	0	1	1	0	0	0	1	0	0	
4	0	0	0	1	0	0	0	0	0	0	1	0	
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	X165	X166	X167	X168	X169	X170	X171	X172	X173	X174	X175	X176	\
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1	0	0	0	0	0	0	1	0	0	0	0	0	
2	0	1	0	0	0	0	0	0	0	0	0	0	
3	0	1	0	0	0	0	0	0	0	0	0	0	
4	0	0	0	0	0	0	1	0	0	0	0	0	
4	U	U	U	U	U	U	1	U	U	U	U	U	
	X177	X178	X179	X180	X181	X182	X183	X184	X185	X186	X187	X189	\
0	0	0	1	0	0	0	0	0	1	0	0	0	`
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2	0	0	0	0	0	0	0	0	1	0	0	0	
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3	0	0	1	0	0	0	0	0	_	0	0	0	
4	0	0	0	0	0	0	0	0	0	0	1	1	
	X190	X191	X192	X194	X195	X196	X197	X198	X199	X200	X201	X202	\
0	0	0	N132	1	0	0	0	0	0	0	0	N202	`
1	0	0	0	0	0	0	0	0	0	0	0	1	
2	0	1	0	1	0	0	0	0	0	0	0	0	
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4	0	1	0	1	0	0	0	0	0	0	0	0	
	<b>X</b>	¥204	X205	¥206	¥207	¥208	¥20a	¥210	¥211	¥919	¥212	¥21/I	\
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4	0	0	1	0	0	0	1	0	0	0	0	0	
	<b>V</b> 04E	V016	V017	<b>V</b> 040	<b>V</b> 010	<b>V</b> 000	<b>V</b> 004	<b>V</b> 000	<b>V</b> 000	<b>V</b> 004	<b>V</b> OOE	voo <i>e</i>	\
^			X217										\
	0					1	0				0		
1	1	0	0	1		0	0		0	0	0	0	
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3	0	0	0	1	0	1	0	0	1	0	0	0	
4	0	0	0	0	0	1	0	0	1	1	0	0	
	X227	X228	X229	X230	X231	X232	X234	X236	X237	X238	X239	X240	\
0	0	0	0	0	0	1	0	0	0	0	0	0	
1	0	0	1	0	0	0	1	0	0	1	0	0	
2	0	0	0	0	0	1	0	0	0	0	0	0	
3	0	0	1	0	0	1	0	0	0	0	0	0	
4	0	0	1	0	0	0	0	0	0	1	0	0	
_	X241	X242			X245	X246			X249				\
0	0	0	0	0	0	1	0	0	0	1	0	0	
1	0	0	0	0	0	0	1	0	0	1	0	0	
2	0	0	0	0	0	0	0	0	0	0	1	0	
3	0	0	0	0	0	1	0	0	0	1	0	1	
4	0	0	0	0	0	1	0	0	0	0	1	0	
	VOEO	YOE 4	VOEE	VOE	VOET	VOEO	X259	VOCO	V061	VOCO	voca	YOG 4	\
Λ	X253 0	X254 0		X256 1	X257	X258		X260	X261 0	X262 0	λ263 0	X264	\
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4	0	0	0	0	0	0	0	U	1	0	1	0	
	X265	X266	X267	X269	X270	X271	X272	X273	X274	X275	X276	X277	\
0	0	0	0	0	0	0	1	1	0	0	1	0	`
1	1	0	0	0	0	0	0	1	0	1	0	0	
2	0	0	0	0	0	0	0	0	1	0	1	0	
3	0	0	0	0	0	0	1	1	0	0	1	0	
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	X278	X279	X280	X281	X282	X283	X284	X285	X286	X287	X288	X291	\
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1	0	0	0	0	0	0	0	0	0	0	0	0	
2	0	1	0	0	0	0	0	1	0	0	0	0	
3	0	1	0	0	0	0	0	0	1	0	0	0	
4	0	0	0	0	0	0	0	1	0	0	0	0	
	X292	X294	X295	X296	X298	X299	X300	X301	X302	X304	X305	X306	\
0	0	0	0	0	0	0	0	0	0	1	0	0	
1	0	1	0	0	0	0	0	0	0	1	0	0	
2	0	0	0	0	0	0	0	0	0	1	0	0	
3	1	0	0	0	0	0	0	0	0	1	0	0	
4	0	0	0	0	0	0	1	0	0	1	0	0	
	X307	X308	X309	X310	X311	X312	X313	X314	X315	X316	X317	X318	\
0	0	0	0	0	0	0	0	0	0	0	0	0	

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2	0	0	0	0	0	0	0	0	0	0	0	0	
3	0	0	0	0	0	0	0	0	0	0	0	0	
4	0	0	0	0	1	0	0	1	0	0	0	0	
	X319	X320	X321	X322	X323	X324	X325	X326	X327	X328	X329	X331	\
0	0	0	0	0	0	0	0	0	0	1	0	0	
1	0	0	0	0	0	1	0	0	1	0	0	0	
2	0	0	0	0	0	1	0	0	0	1	1	0	
3	0	0	0	0	0	0	0	0	0	1	0	0	
4	0	0	0	0	0	1	0	0	0	0	1	0	
	X332	X333	X334	X335	X336	X337	X338	X339	X340	X341	X342	X343	\
0	0	0	1	0	0	0	0	0	0	0	0	0	
1	0	0	1	0	0	0	0	0	0	0	0	0	
2	0	0	1	0	0	0	0	0	0	0	0	1	
3	0	0	1	0	0	0	0	0	0	0	0	0	
4	0	0	0	0	1	1	0	0	0	0	0	0	
	X344	X345	X346	X348	X349	X350	X351	X352	X353	X354	X355	X356	\
0	0	0	0	1	0	1	0	0	0	0	0	0	
1	0	0	0	1	0	0	0	0	0	0	0	1	
2	0	0	0	1	0	1	0	0	0	0	0	0	
3	0	0	0	1	0	1	0	0	0	0	0	0	
4	0	0	0	1	0	1	1	0	0	0	0	0	
	X357	X358	X359	X360	X361	X362	X363	X364	X365	X366	X367	X368	\
0	0	1	0	0	1	0	1	0	0	0	0	0	
1	0	0	0	0	1	1	0	0	0	0	0	1	
2	0	0	0	0	1	0	1	0	0	0	0	0	
3	0	1	0	0	1	0	1	0	0	0	0	0	
4	0	1	0	0	1	0	1	0	0	0	0	0	
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^	X369	X370	X371	X372	X373	X374	X375	X376	X377	X378			\
0	0	0	0	0	0	0	0	0	0	1		0	
1	0	0	0	0	0	0	0	0	1	0		0	
2	0	0	0	0	0	0	0	0	0	1		0	
3	0	0	0	0	0	0	0	0	0	1		0	
4	0	0	0	0	0	0	1	0	0	0	0	0	
	X382	X383	X384	X385	x0_a	x0_ad	x0_a	e x0_	af v(	ag	x0_ai	x0_aj	١
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3 4	0	0	0	0	0.0	0.0			.0	0.0	0.0	0.0	
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[47]: df test final.shape
[47]: (4209, 558)
[48]: # Reset the test data features to align with train features
      test_df_newdata=df_test_final.reindex(labels=df_train_final.columns,axis=1)
      test_df_newdata.head()
[48]:
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4	0	1	0	0	0	1	0	0	0	1	1	0	
	X139	X140	X141	X142	X143	X144	X145	X146	X147	X148	X150	X151	\
0	0	0	0	0	0	1	0	0	0	1	1	0	
1	0	1	0	1	0	0	0	1	0	0	0	0	
2	0	0	0	1	0	1	0	0	0	0	1	0	
3	0	0	0	0	0	1	0	0	0	1	1	0	
4	0	0	0	1	0	1	0	0	0	0	1	1	
	X152	X153	X154	X155	X156	X157	X158	X159	X160	X161	X162	X163	\
0	0	0	0	0	0	1	1	0	0	0	1	0	•
1	0	0	0	0	1	0	0	0	0	1	0	1	
2	0	0	0	0	0	1	0	1	0	0	1	0	
3	0	0	0	0	0	1	1	0	0	0	1	0	
4	0	0	0	0	1	0	0	0	0	0	0	1	
-	U	U	U	U	1	U	U	U	U	U	U	1	
	X164	X165	X166	X167	X168	X169	X170	X171	X172	X173	X174	X175	\
0		0	1		0	A109	0	0	0	0			`
0	0			0							0	0	
1	1	0	0	0	0	0	0	1	0	0	0	0	
2	0	0	1	0	0	0	0	0	0	0	0	0	
3	0	0	1	0	0	0	0	0	0	0	0	0	
4	0	0	0	0	0	0	0	1	0	0	0	0	
	X176	X177	X178	X179	X180	X181	X182	X183	X184	X185	X186	X187	\
0	0	0	0	1	0	0	0	0	0	1	0	0	
1	0	0	0	0	0	0	0	0	0	0	1	0	
2	0	0	0	0	0	0	0	0	0	1	0	0	
3	0	0	0	1	0	0	0	0	0	1	0	0	
4	0	0	0	0	0	0	0	0	0	0	0	1	
	X189	X190	X191	X192	X194	X195	X196	X197	X198	X199	X200	X201	\
0	0	0	0	0	1	0	0	0	0	0	0	0	
1	1	0	0	0	0	0	0	0	0	0	0	0	
2	0	0	1	0	1	0	0	0	0	0	0	0	
3	0	0	0	0	1	0	0	0	0	0	0	0	
4	1	0	1	0	1	0	0	0	0	0	0	0	
	X202	X203	X204	X205	X206	X207	X208	X209	X210		X212	X213	\
0	0	0	1	0	0	0	0	1	0	0	0	0	
1	1	0	1	0	0	0	1	0	0	0	0	0	
2	0	0	1	0	0	0	0	1	0	0	0	0	
3	0	0	0	1	0	0	0	1	0	0	0	0	
4	0	0	0	1	0	0	0	1	0	0	0	0	
	X214	X215	X216	X217	X218	X219	X220	X221	X222	X223	X224	X225	\
0	0	0	0	0		0	1	0	0	1	0	0	
1	0	1	0	0	1	0	0	0	0	0	0	0	

2	0	0	0	0	1	0	0	0	0	1	1	0	
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	0	0	0	0	1	-	1	0	0	1	0	0	
4	0	0	0	0	0	0	1	0	0	1	1	0	
	X226	X227	X228	X229	X230	X231	X232	X234	X236	X237	X238	X239	\
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0	0	0	0	0	0	0	1	0	0	0	0	0	
1	0	0	0	1	0	0	0	1	0	0	1	0	
2	0	0	0	0	0	0	1	0	0	0	0	0	
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3	0	0	0	1	0	0	1	0	0	0	0	0	
4	0	0	0	1	0	0	0	0	0	0	1	0	
	X240	X241	X242	X243	X244	X245	X246	X247	X248	X249	X250	X251	\
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0	0	0	0	0	0	0	1	0	0	0	1	0	
1	0	0	0	0	0	0	0	1	0	0	1	0	
2	0	0	0	0	0	0	0	0	0	0	0	1	
3	_	_	_	_			1		_	_		_	
	0	0	0	0	0	0		0	0	0	1	0	
4	0	0	0	0	0	0	1	0	0	0	0	1	
	X252	X253	X254	X255	X256	X257	X258	X259	X260	X261	X262	X263	\
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0	0	0	0	0	1	0	0	0	0	0	0	0	
1	0	0	0	0	0	0	0	0	0	0	0	1	
2	0	0	0	0	0	0	0	0	0	0	0	0	
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	1	0	0	0	1	0		0	0	0	0	0	
4	0	0	0	0	0	0	0	0	0	1	0	1	
	X264	X265	X266	X267	X269	X270	X271	X272	X273	X274	X275	X276	\
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0	0	0	0	0	0	0	0	1	1	0	0	1	
1	0	1	0	0	0	0	0	0	1	0	1	0	
2	0	0	0	0	0	0	0	0	0	1	0	1	
3	0	0	0	0	0	0	0	1	1	0	0	1	
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4	0	1	0	0	0	0	0	0	1	0	1	0	
	X277	X278	X279	X280	X281	X282	X283	X284	X285	X286	X287	X288	\
0	0	0	1	0	0	0	0	0	0	1	0	0	•
1	0	0	0	0	0	0	0	0	0	0	0	0	
2	0	0	1	0	0	0	0	0	1	0	0	0	
3	0	0	1	0	0	0	0	0	0	1	0	0	
4	0	0	0	0	0	0	0	0	1	0	0		
4	U	U	U	U	U	U	U	U	1	U	U	0	
	X291	X292	X294	X295	X296	X298	X299	X300	X301	X302	X304	X305	\
0	0	0	0	0	0	0	0	0	0	0	1	0	
1	0	0	1	0	0	0	0	0	0	0	1	0	
2	0	0	0	0	0	0	0	0	0	0	1	0	
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7	O	U	U	U	U	1	U	O	1	U	U	U	
	<b>V210</b>	V210	V200	V201	<b>V200</b>	vana	V2O4	VOOE	vane	¥207	vano	v200	`
	X318	X319	X320	X321	X322	X323	X324	X325	X326	X327	X328	X329	\
0	0	0	0	0	0	0	0	0	0	0	1	0	
1	0	0	0	0	0	0	1	0	0	1	0	0	
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3	0	0	0	0	0	0	0	0	0	0	1	0	
4	0	0	0	0	0	0	1	0	0	0	0	1	
	X331	X332	X333	X334	X335	X336	X337	X338	X339	X340	X341	X342	\
0	0	0	0	1	0	0	0	0	0	0	0	0	
1	0	0	0	1	0	0	0	0	0	0	0	0	
2	_				0		0	0	0	_	_	_	
	0	0	0	1	_	0			_	0	0	0	
3	0	0	0	1	0	0	0	0	0	0	0	0	
4	0	0	0	0	0	1	1	0	0	0	0	0	
	X343	X344	X345	X346	X348	X349	X350	X351	X352	X353	X354	X355	\
0	0	0	0	0	1	0	1	0	0	0	0	0	
1	0	0	0	0	1	0	0	0	0	0	0	0	
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3	0	0	0	0	1	0	1	0	0	0	0	0	
4	0	0	0	0	1	0	1	1	0	0	0	0	
	X356	X357	X358	X359	X360	X361	X362	X363	X364	X365	X366	X367	\
0	0	0	1	0	0	1	0	1	0	0	0	0	
1	1	0	0	0	0	1	1	0	0	0	0	0	
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4	0	0	1	0	0	1	0	1	0	0	0	0	
	X368	X369	X370	X371	X372	X373	X374	X375	X376	X377	X378	X379	\
0	0	0	0	0	0	0	0	0	0	0 NOT	1	N313	
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3	0	0	0	0	0	0	0	0	0	0	1	0	
4	0	0	0	0	0	0	0	1	0	0	0	0	
	X380	X382	X383	X384	X385	x0_a	x0_aa	x0_a	b x0_	ac x0	_ad :	x0_af	\
0	0	0	0	0	0	0.0	NaN	Na	_		0.0	0.0	
1	0	0	0	0	0	0.0	NaN	Na			0.0	0.0	
2	0	0	0	0	0	0.0	NaN	Na	N N	aN	0.0	0.0	
3	0	0	0	0	0	0.0	NaN	Na	N N	aN	0.0	0.0	
4	0	0	0	0	0	0.0	NaN	Na			0.0	0.0	
-±	U	U	U	U	U	0.0	man	IV d.	τ <b>ν</b> 1Λ	αIA	0.0	0.0	

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[81]: # Fill NAN values with O to fit to PCA
      test df newdata["y"]=test df newdata["y"].fillna(0)
      test_df_newdata["x0_aa"]=test_df_newdata["x0_aa"].fillna(0)
      test_df_newdata["x0_ab"]=test_df_newdata["x0_ab"].fillna(0)
      test_df_newdata["x0_ac"]=test_df_newdata["x0_ac"].fillna(0)
      test_df_newdata["x0_q"]=test_df_newdata["x0_q"].fillna(0)
      test df newdata["x2 aa"]=test df newdata["x2 aa"].fillna(0)
      test_df_newdata["x2_ar"]=test_df_newdata["x2_ar"].fillna(0)
      test_df_newdata["x2_c"]=test_df_newdata["x2_c"].fillna(0)
      test_df_newdata["x2_1"]=test_df_newdata["x2_1"].fillna(0)
      test_df_newdata["x2_o"]=test_df_newdata["x2_o"].fillna(0)
      test_df_newdata["x5_u"]=test_df_newdata["x5_u"].fillna(0)
      test_df_newdata.head()
[81]:
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	X277	X278	X279	X280	X281	X282	X283	X284	X285	X286	X287	X288	\
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	X331	X332	X333	X334	X335	X336	X337	X338	X339	X340	X341	X342	\
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	X343	X344	X345	X346	X348	X349	X350	X351	X352	X353	X354	X355	\
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	X368	X369	X370	X371	X372	X373	X374	X375	X376	X377	X378		\
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## 1.3 Perform Dimensionality Reduction

```
[50]: from sklearn.decomposition import PCA
    pca=PCA(n_components=24)

[51]: df_train.dtypes

[51]: ID     int64
    y     float64
    X0     object
    X1     object
    X2     object
    ...
```

```
X380
                int64
      X382
                int64
      X383
                int64
      X384
                int64
      X385
                int64
      Length: 378, dtype: object
[52]: x_pca=pca.fit_transform(df_train_final)
[53]: df_train_final.shape
[53]: (4209, 553)
[54]: df_pca=pd.DataFrame(x_pca)
      df pca.head()
[54]:
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                                                 3
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      0 -4205.969286 28.883380 1.339923 2.737665
                                                    1.017817 0.417351
                                                                          0.920523
      1 - 4199.957075 - 13.357607 - 0.484331 0.681643 0.568851 - 0.814644
                                                                          0.193768
      2 -4198.953607 -25.686252 -1.389840 2.532925 -0.519487
                                                               2.698533
                                                                          2.277503
      3 -4196.954789 -21.383230 -1.229972 1.834632 0.619776 3.170724
                                                                          1.298491
      4 -4192.954066 -23.986931 -1.328156 1.651864 0.618544 3.442714
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      0 0.413109 -0.071586 -0.932132 0.394477 -1.451094 -0.002802
                                                                      1.332717
      1 0.377600 -1.131315 -0.912925 0.516894
                                                 0.397195
                                                           0.670877 -1.108863
      2 2.034704 0.984853 0.803844 -1.125539
                                                 0.365064 -0.299786
                                                                     0.233311
      3 2.752481 0.490026 0.017254 -1.211440 0.582314 0.394377
                                                                     0.207296
      4 2.774104 0.527274 0.164238 -1.904349 0.157995
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      2 -0.153104 0.157802 0.430234 0.829089
                                                 0.277166 -0.933557
                                                                     0.512602
      3 0.581331
                   0.702090 0.057590 0.364571 -0.252882 -0.833477
                                                                     0.771206
      4 0.152235
                   0.001229 -0.248642 -0.188589 0.117397 -0.256122 0.403540
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      0 0.401214 -0.573865
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      1 -0.469262 -0.656422
                             0.603741
      2 0.941524 0.532176 -0.422120
      3 0.643066 -0.736146 -0.267657
      4 0.233337 -0.193519 0.443606
[55]: df_pca.head()
```

```
[55]:
                                                 3
                                                                     5
                             1
                                       2
      0 \; -4205.969286 \quad 28.883380 \quad 1.339923 \quad 2.737665 \quad 1.017817 \quad 0.417351
                                                                         0.920523
      1 -4199.957075 -13.357607 -0.484331 0.681643
                                                     0.568851 -0.814644
                                                                         0.193768
      2 -4198.953607 -25.686252 -1.389840 2.532925 -0.519487 2.698533
                                                                         2.277503
      3 -4196.954789 -21.383230 -1.229972 1.834632 0.619776 3.170724
                                                                         1.298491
      4 -4192.954066 -23.986931 -1.328156 1.651864 0.618544 3.442714
                                                                         1.182613
               7
                         8
                                   9
                                             10
                                                       11
                                                                 12
                                                                            13
      0 0.413109 -0.071586 -0.932132 0.394477 -1.451094 -0.002802
                                                                     1.332717
      1 0.377600 -1.131315 -0.912925 0.516894
                                                 0.397195
                                                           0.670877 -1.108863
      2 2.034704 0.984853 0.803844 -1.125539 0.365064 -0.299786 0.233311
      3 2.752481 0.490026 0.017254 -1.211440 0.582314
                                                          0.394377
                                                                     0.207296
      4 2.774104 0.527274 0.164238 -1.904349 0.157995
                                                           0.461227
                                                                     0.086684
               14
                         15
                                   16
                                             17
                                                       18
                                                                 19
      0 0.553152 0.064254 -0.492476
                                       0.348060
                                                 0.738412 -0.455578 -0.410114
      1 -0.573550  0.558790 -0.556385 -0.625973 -0.119900  0.050657
                                                                     0.752998
      2 -0.153104 0.157802 0.430234 0.829089 0.277166 -0.933557
                                                                     0.512602
      3 0.581331 0.702090 0.057590 0.364571 -0.252882 -0.833477
                                                                     0.771206
      4 0.152235 0.001229 -0.248642 -0.188589 0.117397 -0.256122 0.403540
               21
                                   23
                         22
      0 0.401214 -0.573865
                             1.070297
      1 -0.469262 -0.656422
                             0.603741
      2 0.941524 0.532176 -0.422120
      3 0.643066 -0.736146 -0.267657
      4 0.233337 -0.193519 0.443606
[56]: df_test.dtypes
[56]: ID
               int64
      XΟ
              object
     Х1
              object
      Х2
              object
      ХЗ
              object
      X380
               int64
      X382
               int64
      X383
               int64
      X384
               int64
      X385
               int64
      Length: 377, dtype: object
[57]: x_pca=pca.fit_transform(df_test_final)
[58]: df test final.shape
```

```
[58]: (4209, 558)
[59]: test_df_pca=pd.DataFrame(x_pca)
      test_df_pca.head()
[59]:
                                      2
                                                3
      0 4210.039141 -0.262667 -0.739124
                                         2.735467
                                                    2.644044 -0.767886
      1 4209.039248 3.813431 1.612829 0.207991 -0.511771 0.878393 -0.853158
      2 4208.039232 -1.228614 0.063389 0.963365 1.204790 0.299365
      3 4207.039148 -0.291285 -0.864704 2.632125 2.670373 -0.869856
                                                                       3.968418
      4 4206.039250 -2.970630 0.983718 -0.643007 -1.738312 0.348982 -0.024300
              7
                        8
                                   9
                                             10
                                                       11
                                                                 12
                                                                           13
      0 -0.728133  0.013573 -1.967329 -0.503312  0.257673
                                                          0.475181 -0.352288
      1 -1.735912 -1.246709 -1.234093 0.332571 -0.371561
                                                           0.439511
     2 -1.125154 0.744460 -1.648318 0.214443 0.641890 -0.481825 -0.630949
      3 -0.835606 -0.013218 -2.072528 -0.545217 0.337304 0.601217 -0.569475
      4 -0.145474 0.090054 0.133451 -0.809815 0.614748
                                                          0.551410 0.248193
              14
                         15
                                   16
                                             17
                                                       18
                                                                 19
      0 -0.298801
                  0.179571 -0.045869 -0.087618 -0.249148 -0.177562 -0.345319
      1\quad 0.314538 \ -0.949595 \quad 1.002054 \quad 0.884905 \quad 0.066149 \quad 1.024066 \ -0.072588
      2 0.868951 -1.035579 0.409036 -1.051330 0.309785 -0.402385 -0.183911
      3 -0.351388 0.132514 -0.111777 -0.003623 -0.270651 -0.234254 -0.283818
      4 -0.239922 0.510512 0.326337 0.006108 -0.240158 -0.499001 -0.081331
              21
                         22
                                   23
      0 0.030964 0.317815
                            0.044933
      1 -0.402020 0.917073 -0.054035
      2 -0.174423 -0.816515 0.430844
      3 -0.096225 0.319375
                            0.001494
      4 0.386986 -0.059112 0.131797
```

## 2 Prediction of test\_df values using XGBoost

## Apply PCA for test dataset [60]: test\_x\_pca=pca.transform [61]: # X\_train and y values of train dataset X\_train=df\_train\_final y\_train=df\_train['y'] [62]: # X\_test values of test data set X\_test=test\_df\_newdata

```
[68]: xgb=XGBRegressor()
[69]: xgb.fit(X_train, y_train)
[69]: XGBRegressor(base_score=0.5, booster=None, colsample_bylevel=1,
                   colsample_bynode=1, colsample_bytree=1, gamma=0, gpu_id=-1,
                   importance_type='gain', interaction_constraints=None,
                   learning_rate=0.300000012, max_delta_step=0, max_depth=6,
                   min_child_weight=1, missing=nan, monotone_constraints=None,
                   n_estimators=100, n_jobs=0, num_parallel_tree=1, random_state=0,
                   reg alpha=0, reg lambda=1, scale pos weight=1, subsample=1,
                   tree_method=None, validate_parameters=False, verbosity=None)
[74]: pred=xgb.predict(X_test)
      pred
[74]: array([72.50209, 72.60693, 72.38659, ..., 72.47415, 72.42778, 72.45163],
            dtype=float32)
[73]: pred
[73]: array([72.50209, 72.60693, 72.38659, ..., 72.47415, 72.42778, 72.45163],
            dtype=float32)
[72]: df_res=pd.DataFrame(pred, columns=["yHat"])
      df_res
[72]:
                 yHat
      0
            72.502090
      1
            72.606934
      2
            72.386589
      3
            72.258522
      4
            72.342407
      4204 72.408386
      4205 72.357834
      4206 72.474152
      4207 72.427780
      4208 72.451630
      [4209 rows x 1 columns]
 []:
```