

eda

October 9, 2024

```
C:\Users\sachi\AppData\Local\Temp\ipykernel_7172\3970806690.py:1: FutureWarning:
DataFrame.fillna with 'method' is deprecated and will raise in a future version.
Use obj.ffill() or obj.bfill() instead.
```

```
df.fillna(method='ffill', inplace=True)
```

```
[6]: Agreement Number          0
     Disbursement Date        0
     Loan Amount              0
     Number of Ornaments      0
     Gross Auction Weight of Ornaments(gm)  0
     Auction Date            0
     Auction Place           0
     Branch Address          0
     dtype: int64
```

```
[7]: Agreement Number Disbursement Date Loan Amount Number of Ornaments \
0    PV97SGL7830716      18-May-23      80099.0          1
1    PV97SGL7844024      19-May-23      57799.0          1
2    PV97SGL7918636      25-May-23      19599.0          1
3    PV97SGL8121108      13-Jun-23      48258.0          1
4    PV97SGL8143786      15-Jun-23     145174.0          1
```

```
Gross Auction Weight of Ornaments(gm) Auction Date \
0                21.1    12-Aug-24
1                14.0    12-Aug-24
2                 5.2    12-Aug-24
3                11.8    12-Aug-24
4                35.5    12-Aug-24
```

```
Auction Place \
0 Adilabad - Dwaraka nagar
1 Adilabad - Dwaraka nagar
2 Adilabad - Dwaraka nagar
3 Adilabad - Dwaraka nagar
4 Adilabad - Dwaraka nagar
```

```
Branch Address
0 Mahajan Complex, First floor, Busstand road. Dwaraka nagar, Adilabad- 504001
1 Mahajan Complex, First floor, Busstand road. Dwaraka nagar, Adilabad- 504001
```

```

2 Mahajan Complex, First floor, Busstand road. Dwaraka nagar, Adilabad- 504001
3 Mahajan Complex, First floor, Busstand road. Dwaraka nagar, Adilabad- 504001
4 Mahajan Complex, First floor, Busstand road. Dwaraka nagar, Adilabad- 504001

```

```

[9]:
      Date      Price      Open      High      Low  Vol.  Change %
0  08-10-2024  221,583  221,927  222,403  221,188   NaN   -0.14%
1  07-10-2024  221,887  222,775  223,425  221,568   NaN   -0.47%
2  04-10-2024  222,933  223,121  224,308  221,197   NaN   -0.04%
3  03-10-2024  223,030  223,169  223,686  221,724   NaN    0.00%
4  02-10-2024  223,032  223,496  223,642  221,771   NaN   -0.15%
..
712 14-01-2022  134,749  134,837  135,604  134,409   NaN   -0.01%
713 13-01-2022  134,759  134,776  135,199  133,978   NaN    0.04%
714 12-01-2022  134,708  134,464  134,934  134,037   NaN    0.24%
715 11-01-2022  134,387  133,359  134,574  133,138   NaN    0.80%
716 10-01-2022  133,322  133,358  133,493  132,635   NaN   -0.03%

```

```
[717 rows x 7 columns]
```

```

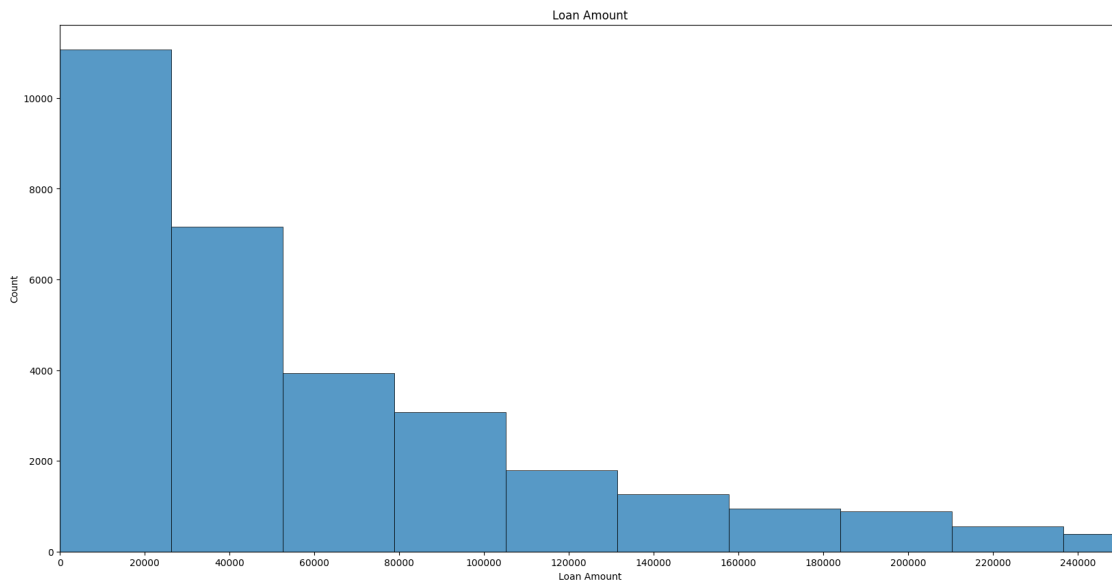
[10]: Index(['Date', 'Price', 'Open', 'High', 'Low', 'Vol.', 'Change %'],
          dtype='object')

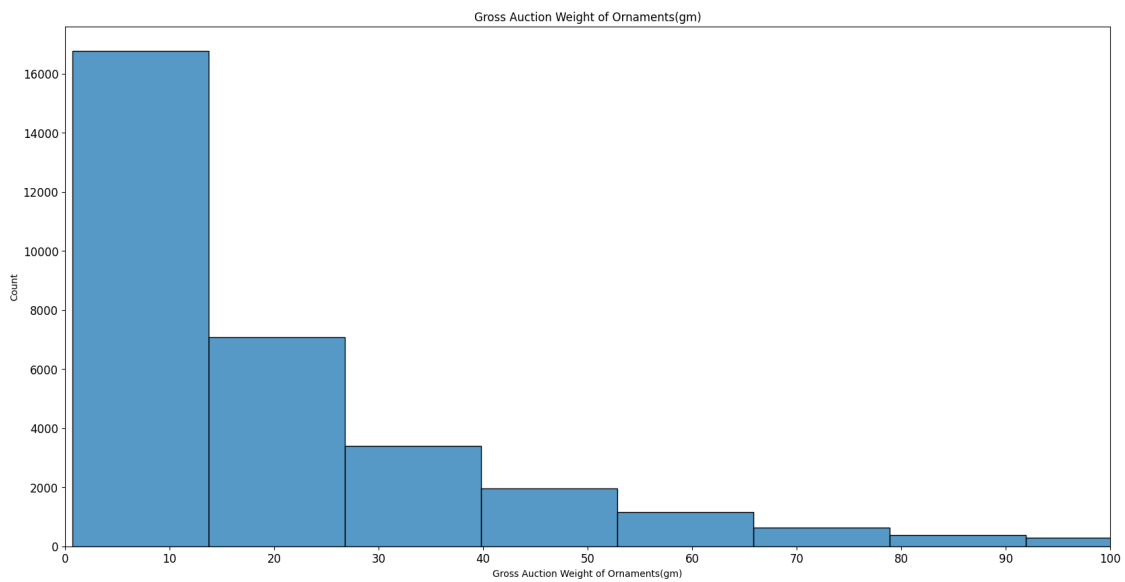
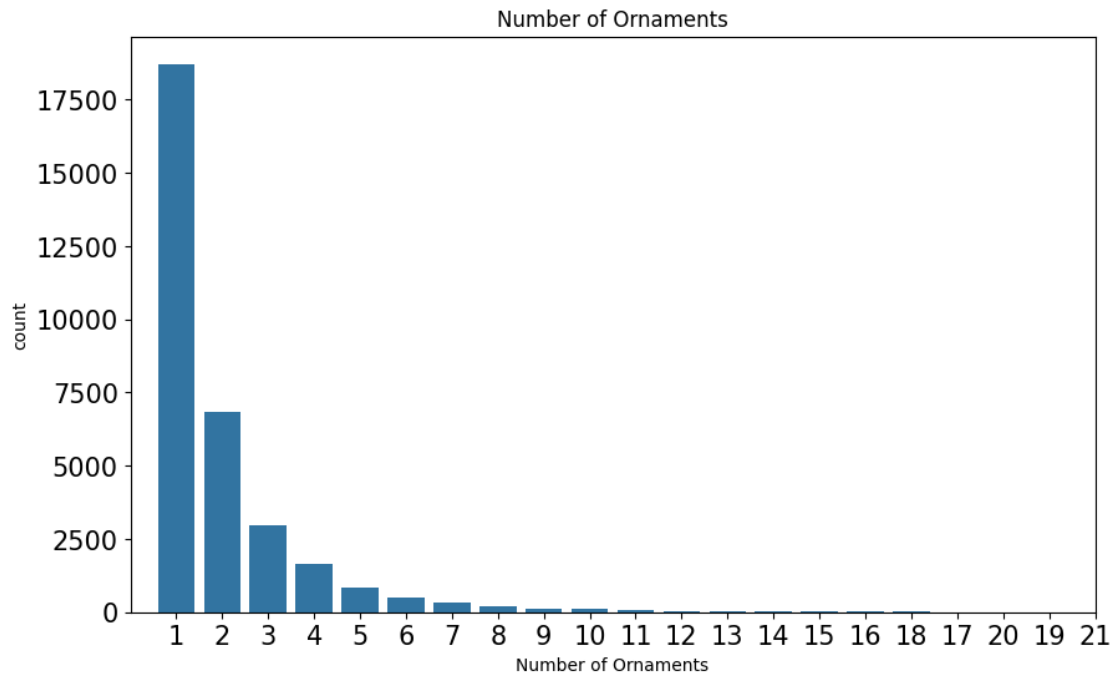
```

```

[11]: Index(['Agreement Number', 'Disbursement Date', 'Loan Amount',
          'Number of Ornaments', 'Gross Auction Weight of Ornaments(gm)',
          'Auction Date', 'Auction Place', 'Branch Address'],
          dtype='object')

```





- value and grammage correlation
- original value of gold on disbursement date
- value of gold on auction date
- original value vs loan amount

[17]: np.float64(0.8613470226275941)

[18]: np.float64(0.8613470226275941)

[21]: Agreement Number Disbursement Date Loan Amount Number of Ornaments \

0	PV97SGL7830716	2023-05-18	80099.0	1
1	PV97SGL7844024	2023-05-19	57799.0	1
2	PV97SGL7918636	2023-05-25	19599.0	1
3	PV97SGL8121108	2023-06-13	48258.0	1
4	PV97SGL8143786	2023-06-15	145174.0	1

	Gross Auction Weight of Ornaments(gm)	Auction Date	\
0	21.1	2024-08-12	
1	14.0	2024-08-12	
2	5.2	2024-08-12	
3	11.8	2024-08-12	
4	35.5	2024-08-12	

	Auction Place	\
0	Adilabad - Dwaraka nagar	
1	Adilabad - Dwaraka nagar	
2	Adilabad - Dwaraka nagar	
3	Adilabad - Dwaraka nagar	
4	Adilabad - Dwaraka nagar	

	Branch Address
0	Mahajan Complex, First floor, Busstand road. Dwaraka nagar, Adilabad- 504001
1	Mahajan Complex, First floor, Busstand road. Dwaraka nagar, Adilabad- 504001
2	Mahajan Complex, First floor, Busstand road. Dwaraka nagar, Adilabad- 504001
3	Mahajan Complex, First floor, Busstand road. Dwaraka nagar, Adilabad- 504001
4	Mahajan Complex, First floor, Busstand road. Dwaraka nagar, Adilabad- 504001

[23]: Agreement Number Disbursement Date Loan Amount Number of Ornaments \

0	PV97SGL7830716	2023-05-18	80099.0	1
1	PV97SGL7844024	2023-05-19	57799.0	1
2	PV97SGL7918636	2023-05-25	19599.0	1
3	PV97SGL8121108	2023-06-13	48258.0	1
4	PV97SGL8143786	2023-06-15	145174.0	1

	Gross Auction Weight of Ornaments(gm)	Auction Date	\
0	21.1	2024-08-12	
1	14.0	2024-08-12	
2	5.2	2024-08-12	
3	11.8	2024-08-12	
4	35.5	2024-08-12	

	Auction Place	\
0	Adilabad - Dwaraka nagar	
1	Adilabad - Dwaraka nagar	

2 Adilabad - Dwaraka nagar
 3 Adilabad - Dwaraka nagar
 4 Adilabad - Dwaraka nagar

	Branch Address
0	Mahajan Complex, First floor, Busstand road. Dwaraka nagar, Adilabad- 504001
1	Mahajan Complex, First floor, Busstand road. Dwaraka nagar, Adilabad- 504001
2	Mahajan Complex, First floor, Busstand road. Dwaraka nagar, Adilabad- 504001
3	Mahajan Complex, First floor, Busstand road. Dwaraka nagar, Adilabad- 504001
4	Mahajan Complex, First floor, Busstand road. Dwaraka nagar, Adilabad- 504001

[29] :

	Agreement Number	Disbursement Date	Loan Amount	Number of Ornaments	\
0	PV97SGL7830716	2023-05-18	80099.0	1	
1	PV97SGL7844024	2023-05-19	57799.0	1	
2	PV97SGL7918636	2023-05-25	19599.0	1	
3	PV97SGL8121108	2023-06-13	48258.0	1	
4	PV97SGL8143786	2023-06-15	145174.0	1	
...	
32565	PGC4SGL8396436	2023-07-08	15299.0	1	
32566	PER4SGL8382233	2023-07-07	15299.0	1	
32567	PER4SGL8454082	2023-07-13	27299.0	1	
32568	PER4SGL8479949	2023-07-15	23099.0	1	
32569	PER4SGL8493744	2023-07-17	163396.0	3	

	Gross Auction Weight of Ornaments(gm)	Auction Date	\
0	21.1	2024-08-12	
1	14.0	2024-08-12	
2	5.2	2024-08-12	
3	11.8	2024-08-12	
4	35.5	2024-08-12	
...	
32565	4.1	2024-09-13	
32566	3.9	2024-09-13	
32567	9.0	2024-09-13	
32568	5.9	2024-09-13	
32569	45.4	2024-09-13	

	Auction Place	\
0	Adilabad - Dwaraka nagar	
1	Adilabad - Dwaraka nagar	
2	Adilabad - Dwaraka nagar	
3	Adilabad - Dwaraka nagar	
4	Adilabad - Dwaraka nagar	
...	...	
32565	YELLANDU - BUGGAVAGU	
32566	Zahirabad - RTC Bus Stand	
32567	Zahirabad - RTC Bus Stand	

32568 Zahirabad - RTC Bus Stand
 32569 Zahirabad - RTC Bus Stand

```

                                Branch Address \
0                                Mahajan Complex, First floor,
Busstand road. Dwaraka nagar, Adilabad- 504001
1                                Mahajan Complex, First floor,
Busstand road. Dwaraka nagar, Adilabad- 504001
2                                Mahajan Complex, First floor,
Busstand road. Dwaraka nagar, Adilabad- 504001
3                                Mahajan Complex, First floor,
Busstand road. Dwaraka nagar, Adilabad- 504001
4                                Mahajan Complex, First floor,
Busstand road. Dwaraka nagar, Adilabad- 504001
...
...
32565                                H NO 1-1-58, FGROUND FLOOR,
ON MAIN ROAD, YELLANDU TELANGANA 507123
32566 D No. 2--13/1, 1st Floor, Pallod Complex, Subhash Gunj, Opp RTC Bus
Depo, Bidar RoadZahirabad, Telangana, 502220
32567 D No. 2--13/1, 1st Floor, Pallod Complex, Subhash Gunj, Opp RTC Bus
Depo, Bidar RoadZahirabad, Telangana, 502220
32568 D No. 2--13/1, 1st Floor, Pallod Complex, Subhash Gunj, Opp RTC Bus
Depo, Bidar RoadZahirabad, Telangana, 502220
32569 D No. 2--13/1, 1st Floor, Pallod Complex, Subhash Gunj, Opp RTC Bus
Depo, Bidar RoadZahirabad, Telangana, 502220

```

```

OnAuctionDate(Troy ounces) OnDisbursementDate(Troy ounces)
0                                207,289                                161,872
1                                207,289                                163,882
2                                207,289                                160,585
3                                207,289                                159,786
4                                207,289                                160,310
...                                ...                                ...
32565                                216,215                                NaN
32566                                216,215                                159,051
32567                                216,215                                160,810
32568                                216,215                                NaN
32569                                216,215                                160,453

```

[32570 rows x 10 columns]

```

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 32570 entries, 0 to 32569
Data columns (total 10 columns):

```

#	Column	Non-Null Count	Dtype
0	Agreement Number	32570 non-null	object

```

1 Disbursement Date          32570 non-null  datetime64[ns]
2 Loan Amount                32570 non-null  float64
3 Number of Ornaments        32570 non-null  int64
4 Gross Auction Weight of Ornaments(gm) 32570 non-null  float64
5 Auction Date                28130 non-null  datetime64[ns]
6 Auction Place               32570 non-null  object
7 Branch Address              32570 non-null  object
8 OnAuctionDate(Troy ounces)  19922 non-null  float64
9 OnDisbursementDate(Troy ounces) 27730 non-null  float64
dtypes: datetime64[ns](2), float64(4), int64(1), object(3)
memory usage: 2.5+ MB

```

```

[32]: Agreement Number Disbursement Date Loan Amount Number of Ornaments \
0 PV97SGL7830716 2023-05-18 80099.0 1
1 PV97SGL7844024 2023-05-19 57799.0 1
2 PV97SGL7918636 2023-05-25 19599.0 1
3 PV97SGL8121108 2023-06-13 48258.0 1
4 PV97SGL8143786 2023-06-15 145174.0 1
...
32565 PGC4SGL8396436 2023-07-08 15299.0 1
32566 PER4SGL8382233 2023-07-07 15299.0 1
32567 PER4SGL8454082 2023-07-13 27299.0 1
32568 PER4SGL8479949 2023-07-15 23099.0 1
32569 PER4SGL8493744 2023-07-17 163396.0 3

```

```

Gross Auction Weight of Ornaments(gm) Auction Date \
0 21.1 2024-08-12
1 14.0 2024-08-12
2 5.2 2024-08-12
3 11.8 2024-08-12
4 35.5 2024-08-12
...
32565 4.1 2024-09-13
32566 3.9 2024-09-13
32567 9.0 2024-09-13
32568 5.9 2024-09-13
32569 45.4 2024-09-13

```

```

Auction Place \
0 Adilabad - Dwaraka nagar
1 Adilabad - Dwaraka nagar
2 Adilabad - Dwaraka nagar
3 Adilabad - Dwaraka nagar
4 Adilabad - Dwaraka nagar
...
32565 YELLANDU - BUGGAVAGU
32566 Zahirabad - RTC Bus Stand

```

32567 Zahirabad - RTC Bus Stand
 32568 Zahirabad - RTC Bus Stand
 32569 Zahirabad - RTC Bus Stand

	Branch Address \
0	Mahajan Complex, First floor, Busstand road. Dwaraka nagar, Adilabad- 504001
1	Mahajan Complex, First floor, Busstand road. Dwaraka nagar, Adilabad- 504001
2	Mahajan Complex, First floor, Busstand road. Dwaraka nagar, Adilabad- 504001
3	Mahajan Complex, First floor, Busstand road. Dwaraka nagar, Adilabad- 504001
4	Mahajan Complex, First floor, Busstand road. Dwaraka nagar, Adilabad- 504001
...	
...	
32565	H NO 1-1-58, FGROUND FLOOR, ON MAIN ROAD, YELLANDU TELANGANA 507123
32566	D No. 2--13/1, 1st Floor, Pallod Complex, Subhash Gunj, Opp RTC Bus Depo, Bidar RoadZahirabad, Telangana, 502220
32567	D No. 2--13/1, 1st Floor, Pallod Complex, Subhash Gunj, Opp RTC Bus Depo, Bidar RoadZahirabad, Telangana, 502220
32568	D No. 2--13/1, 1st Floor, Pallod Complex, Subhash Gunj, Opp RTC Bus Depo, Bidar RoadZahirabad, Telangana, 502220
32569	D No. 2--13/1, 1st Floor, Pallod Complex, Subhash Gunj, Opp RTC Bus Depo, Bidar RoadZahirabad, Telangana, 502220

	OnAuctionDate(Troy ounces)	OnDisbursementDate(Troy ounces) \
0	189876.724	148274.752
1	189876.724	150115.912
2	189876.724	147095.860
3	189876.724	146363.976
4	189876.724	146843.960
...
32565	198052.940	NaN
32566	198052.940	145690.716
32567	198052.940	147301.960
32568	198052.940	NaN
32569	198052.940	146974.948

	PricePerGramOnAuctionDate	ValueOnAuctionDate
0	6104.673879	128808.618850
1	6104.673879	85465.434308
2	6104.673879	31744.304172
3	6104.673879	72035.151774
4	6104.673879	216715.922710

...
32565	6367.545132	26106.935039
32566	6367.545132	24833.426013
32567	6367.545132	57307.906184
32568	6367.545132	37568.516276
32569	6367.545132	289086.548974

[32570 rows x 12 columns]

[34]:

	Agreement Number	Disbursement Date	Loan Amount	Number of Ornaments	\
0	PV97SGL7830716	2023-05-18	80099.0	1	
1	PV97SGL7844024	2023-05-19	57799.0	1	
2	PV97SGL7918636	2023-05-25	19599.0	1	
3	PV97SGL8121108	2023-06-13	48258.0	1	
4	PV97SGL8143786	2023-06-15	145174.0	1	

	Gross Auction Weight of Ornaments(gm)	Auction Date	\
0	21.1	2024-08-12	
1	14.0	2024-08-12	
2	5.2	2024-08-12	
3	11.8	2024-08-12	
4	35.5	2024-08-12	

	Auction Place	\
0	Adilabad - Dwaraka nagar	
1	Adilabad - Dwaraka nagar	
2	Adilabad - Dwaraka nagar	
3	Adilabad - Dwaraka nagar	
4	Adilabad - Dwaraka nagar	

	Branch Address
0	Mahajan Complex, First floor, Busstand road. Dwaraka nagar, Adilabad- 504001
1	Mahajan Complex, First floor, Busstand road. Dwaraka nagar, Adilabad- 504001
2	Mahajan Complex, First floor, Busstand road. Dwaraka nagar, Adilabad- 504001
3	Mahajan Complex, First floor, Busstand road. Dwaraka nagar, Adilabad- 504001
4	Mahajan Complex, First floor, Busstand road. Dwaraka nagar, Adilabad- 504001

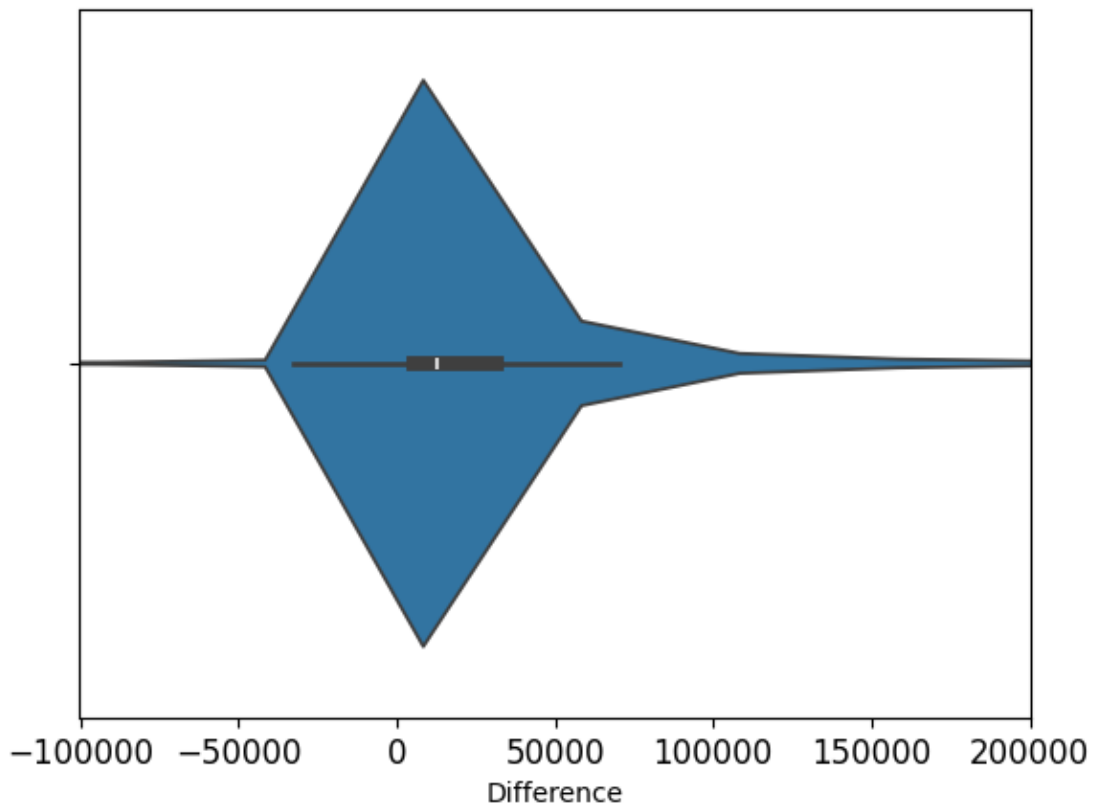
	OnAuctionDate(Troy ounces)	OnDisbursementDate(Troy ounces)	\
0	189876.724	148274.752	
1	189876.724	150115.912	
2	189876.724	147095.860	
3	189876.724	146363.976	
4	189876.724	146843.960	

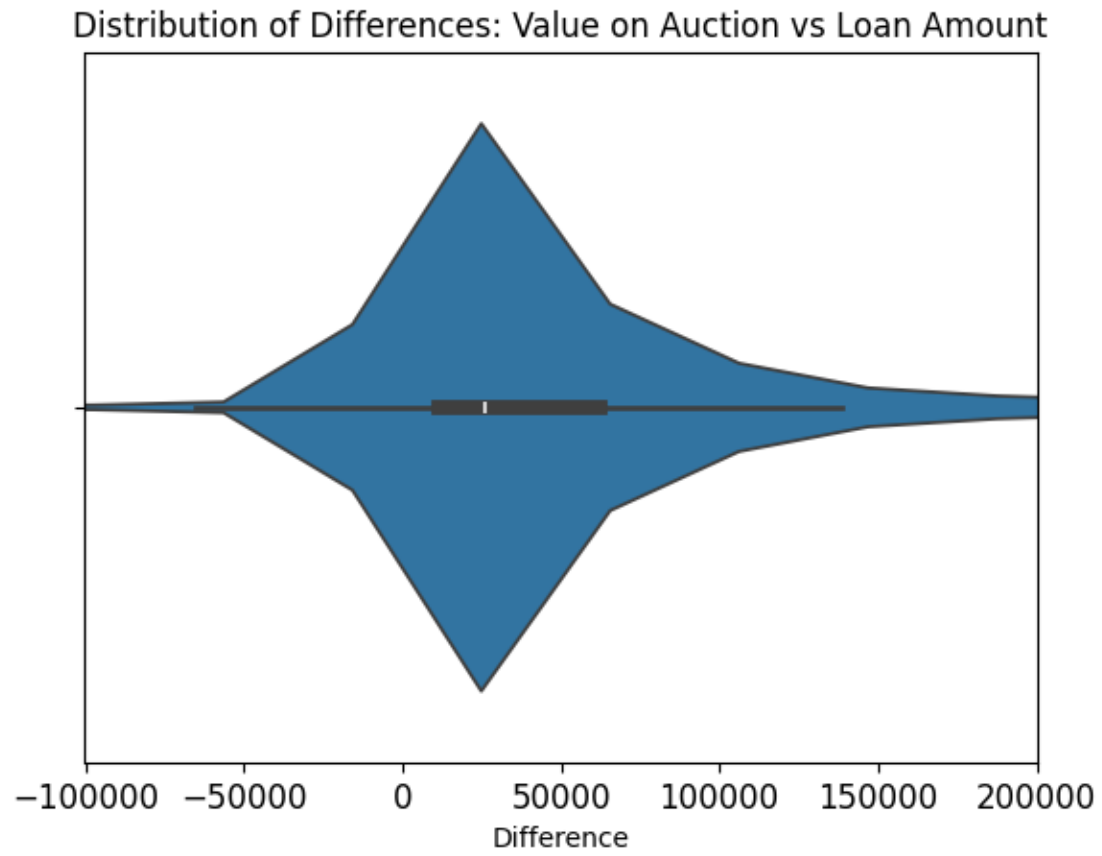
	PricePerGramOnAuctionDate	ValueOnAuctionDate	\
0	6104.673879	128808.618850	

1	6104.673879	85465.434308
2	6104.673879	31744.304172
3	6104.673879	72035.151774
4	6104.673879	216715.922710

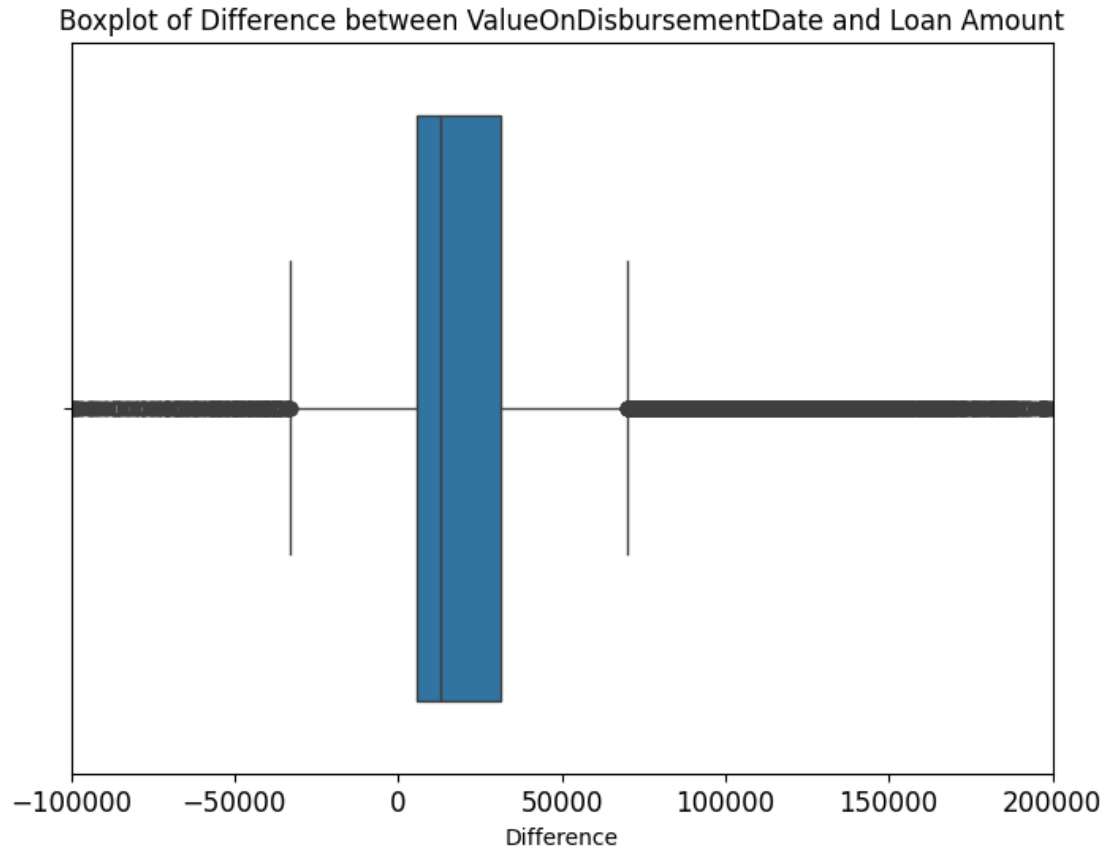
	PricePerGramOnDisbursementDate	ValueOnDisbursementDate
0	4767.140418	100586.662826
1	4826.335043	67568.690598
2	4729.238189	24592.038581
3	4705.707589	55527.349552
4	4721.139422	167600.449467

Distribution of Differences: Value on Disbursement vs Loan Amount





Mean Difference: 31389.72
Median Difference: 12897.30
Loss making Disbursement: 871
Accounts with high stress (Threshold 20%): 16067
5-Point Summary:
min -1017386.05
25% 5797.29
50% 12897.30
75% 31541.80
max 3882590.47
dtype: float64

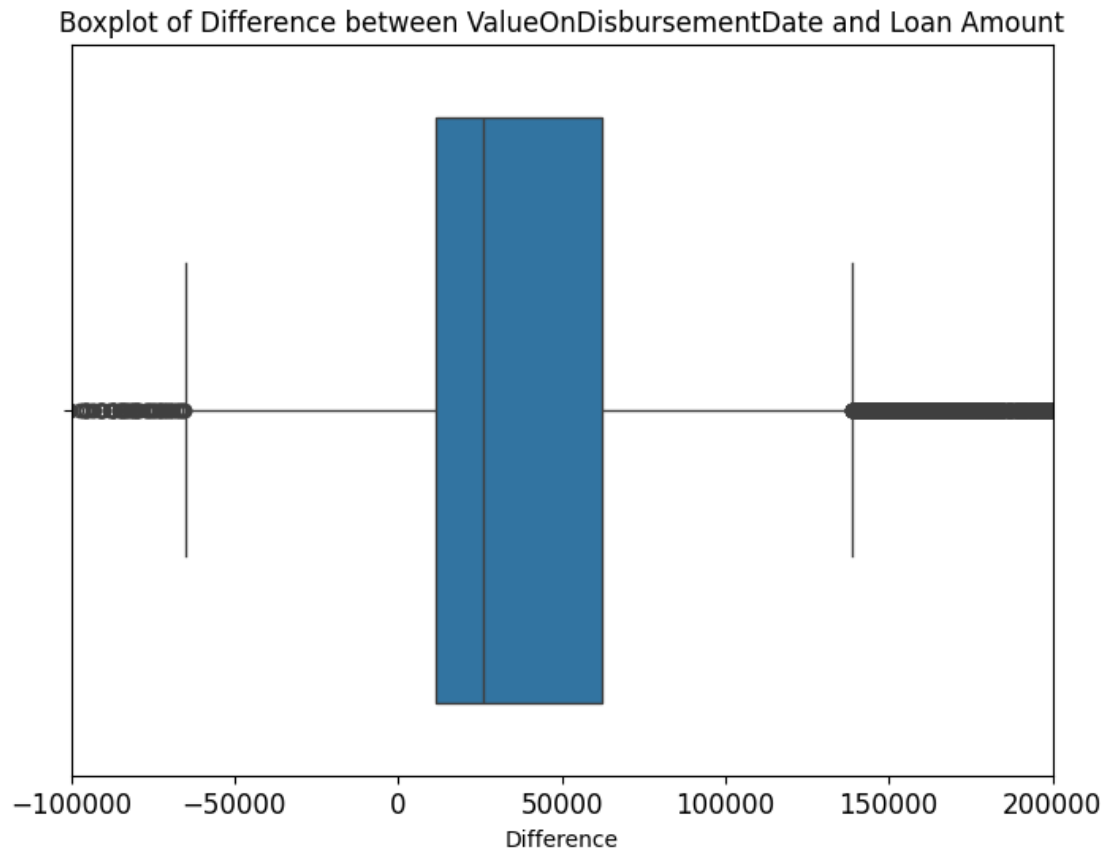


[47]: Agreement Number
PV97G0L5242795
Disbursement Date
2022-08-17 00:00:00
Loan Amount
180325.00
Number of Ornaments
1
Gross Auction Weight of Ornaments(gm)
9.78
Auction Date
2023-10-13 00:00:00
Auction Place
Adilabad Dwaraka nagar I
Branch Address Bajaj Finance LTD.,Mahajan Complex,
First floor, Busstand road. Dwaraka nagar, Adilabad- 504001
OnAuctionDate(Troy ounces)
147367.00
OnDisbursementDate(Troy ounces)
128072.37

```
PricePerGramOnAuctionDate
4737.96
ValueOnAuctionDate
46337.20
PricePerGramOnDisbursementDate
4117.62
ValueOnDisbursementDate
40270.32
Name: 21527, dtype: object
```

```
[39]: 21521      -2406.72
      21527     -140054.68
      21531     -369910.10
      21532      -25289.99
      21533     -45523.58
      ...
      24635     -77831.20
      24639     -128096.29
      24641     -401457.01
      24644      -6858.35
      24649     -129867.75
      Length: 871, dtype: float64
```

```
Mean Difference: 55862.06
Median Difference: 25863.68
Loss making Auctions: 763
5-Point Summary:
min      -997467.16
25%       11299.34
50%       25863.68
75%       62247.84
max      2957772.82
dtype: float64
```



- ValueOnAuctionDate vs ValueOnDisbursementDate
- weight vs amount line plot
- geography wise

Mean Difference: 26817.19
Median Difference: 12635.81
5-Point Summary:
min 540.70
25% 5457.17
50% 12635.81
75% 29888.30
max 961469.31
dtype: float64

Boxplot of Difference between ValueOnDisbursementDate and Loan Amount

