colab.research.google.com/drive/1ogeVRBd3_8Me2asrjy_9ictojGYDKdyb#scrollTo=c9po5HyT5jhm

Data Visualization

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```
#Data Visualization
```

```
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt
```

```
sns.set(style="whitegrid", palette="deep")
df = pd.read_csv("/content/loan_sanction_train.csv")
```

```
df.head()
```

	Loan_ID	Gender	Married	Dependents	Education	Self_Employed	ApplicantIncome	CoapplicantIncome	LoanAmount	Loan_Amount_Term	Credit_History	Propert
0	LP001002	Male	No	0	Graduate	No	5849	0.0	NaN	360.0	1.0	
1	LP001003	Male	Yes	1	Graduate	No	4583	1508.0	128.0	360.0	1.0	
2	LP001005	Male	Yes	0	Graduate	Yes	3000	0.0	66.0	360.0	1.0	
3	LP001006	Male	Yes	0	Not Graduate	No	2583	2358.0	120.0	360.0	1.0	
4	LP001008	Male	No	0	Graduate	No	6000	0.0	141.0	360.0	1.0	

Next steps: Generate code with df New interactive sheet

Variables Terminal 6:49 PM Python 3

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[9] ✓ 0s

```
df.head()
```

	Loan_ID	Gender	Married	Dependents	Education	Self_Employed	ApplicantIncome	CoapplicantIncome	LoanAmount	Loan_Amount_Term	Credit_History	Propert
0	LP001002	Male	No	0	Graduate	No	5849	0.0	NaN	360.0	1.0	
1	LP001003	Male	Yes	1	Graduate	No	4583	1508.0	128.0	360.0	1.0	
2	LP001005	Male	Yes	0	Graduate	Yes	3000	0.0	66.0	360.0	1.0	
3	LP001006	Male	Yes	0	Not Graduate	No	2583	2358.0	120.0	360.0	1.0	
4	LP001008	Male	No	0	Graduate	No	6000	0.0	141.0	360.0	1.0	

Next steps: Generate code with df New interactive sheet

[10] ✓ 0s

```
sns.set_style('darkgrid')
plt.figure(figsize=(10,5))
sns.countplot(x=df['Loan_Status'], palette='Reds')
plt.title('Loan Status Distribution', fontsize=16)
plt.xlabel('Loan Status', fontsize=13)
plt.ylabel('Count', fontsize=13)
plt.show()
```

```
/tmp/ipython-input-183336865.py:3: FutureWarning:

Passing `palette` without assigning `hue` is deprecated and will be removed in v0.14.0. Assign the `x` variable to `hue` and set `legend=False` for the same
```

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Data Visualization

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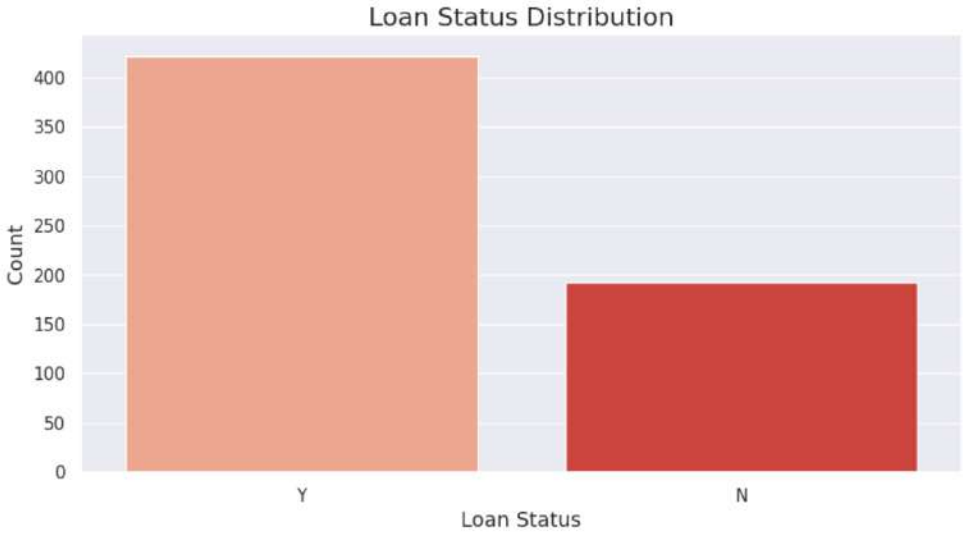
```
sns.countplot(x=df['Loan_Status'], palette='Reds')
```



[12]

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[12] ✓ 0s

```
plt.figure(figsize=(10,5))
sns.countplot(x=df['Gender'], hue=df['Loan_Status'], palette='crest')
plt.title('Loan Status By Gender', fontsize=16)
plt.xlabel('Gender', fontsize=13)
plt.ylabel('Count', fontsize=13)
plt.show()
```

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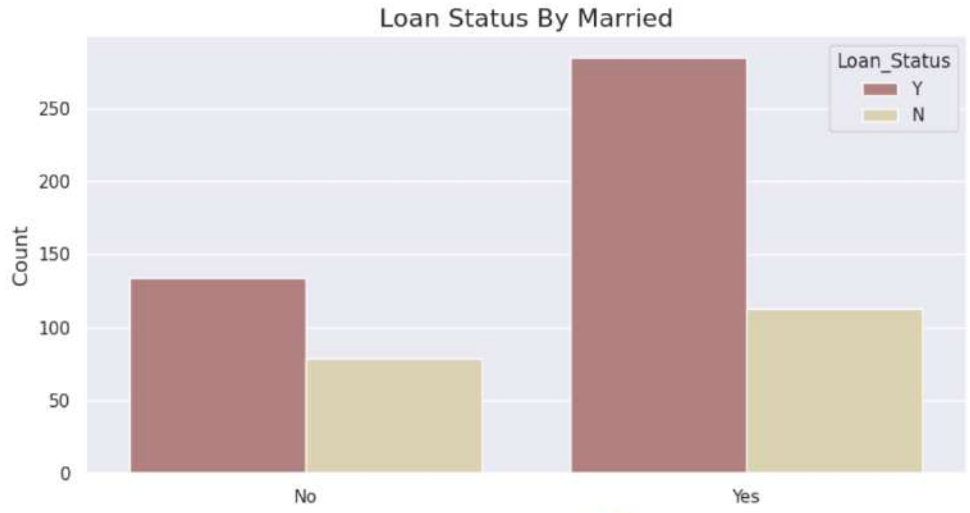
[13] ✓ 0s

```
plt.figure(figsize=(10,5))
sns.countplot(x=df['Married'], hue=df['Loan_Status'], palette='pink')
plt.title('Loan Status By Married', fontsize=16)
plt.xlabel('Married', fontsize=13)
plt.ylabel('Count', fontsize=13)
plt.show()
```



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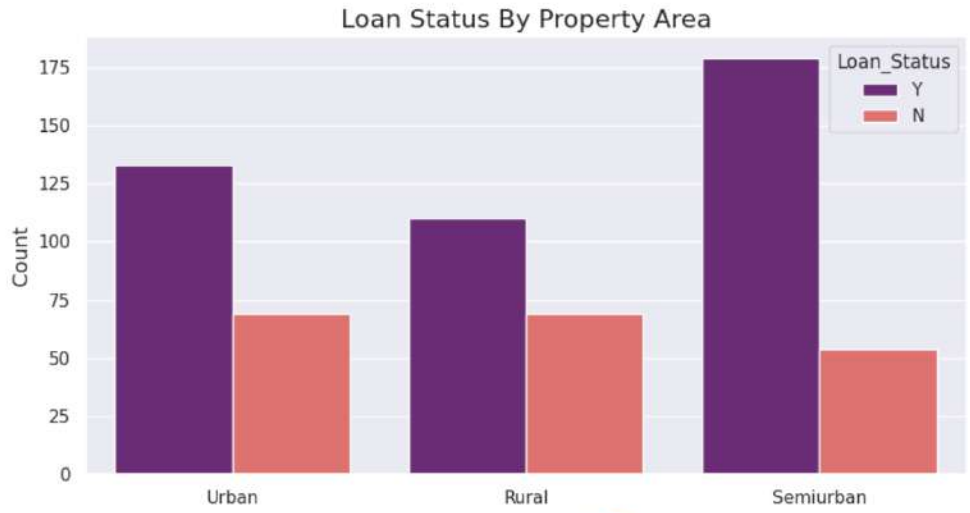
[14] ✓ 0s

```
plt.figure(figsize=(10,5))
sns.countplot(x=df['Property_Area'], hue=df['Loan_Status'], palette='magma')
plt.title('Loan Status By Property Area', fontsize=16)
plt.xlabel('Property Area', fontsize=13)
plt.ylabel('Count', fontsize=13)
plt.show()
```



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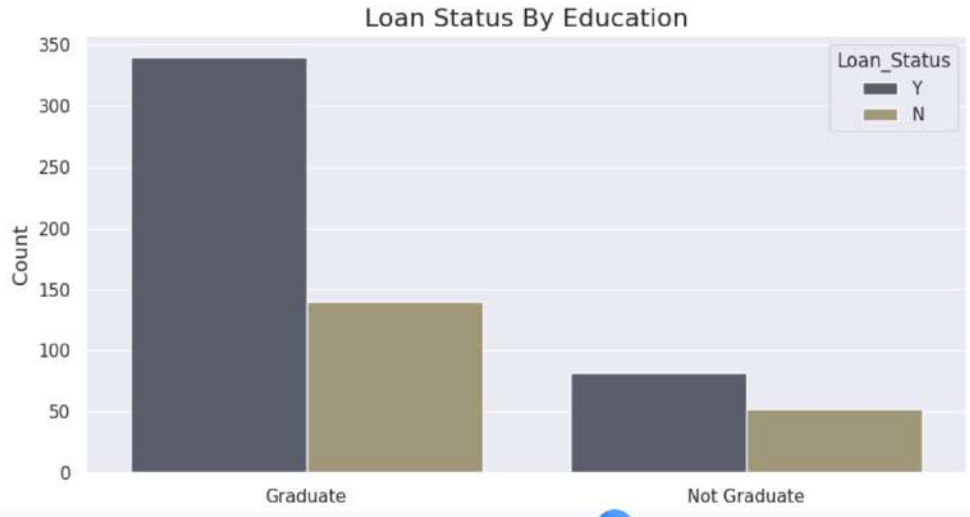
[15] 0s

```
plt.figure(figsize=(10,5))
sns.countplot(x=df['Education'], hue=df['Loan_Status'], palette='cividis')
plt.title('Loan Status By Education', fontsize=16)
plt.xlabel('Education', fontsize=13)
plt.ylabel('Count', fontsize=13)
plt.show()
```



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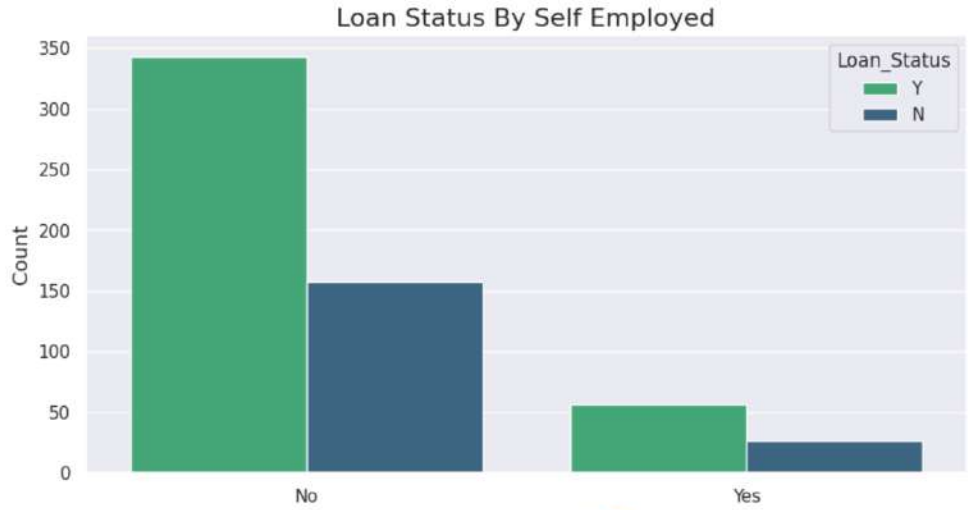
[16] ✓ 0s

```
plt.figure(figsize=(10,5))
sns.countplot(x=df['Self_Employed'], hue=df['Loan_Status'], palette='viridis_r')
plt.title('Loan Status By Self Employed', fontsize=16)
plt.xlabel('Self Employed', fontsize=13)
plt.ylabel('Count', fontsize=13)
plt.show()
```



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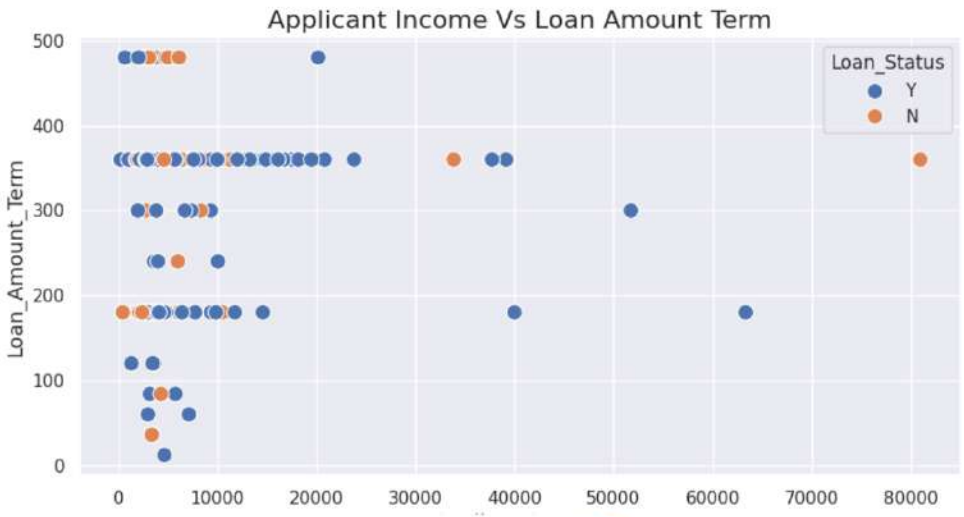
```
plt.figure(figsize=(10,5))
sns.scatterplot(x=df['ApplicantIncome'], y=df['Loan_Amount_Term'], hue=df['Loan_Status'], s=100)
plt.title('Applicant Income Vs Loan Amount Term', fontsize=16)
plt.xlabel('ApplicantIncome', fontsize=13)
plt.ylabel('Loan_Amount_Term', fontsize=13)
plt.show()
```



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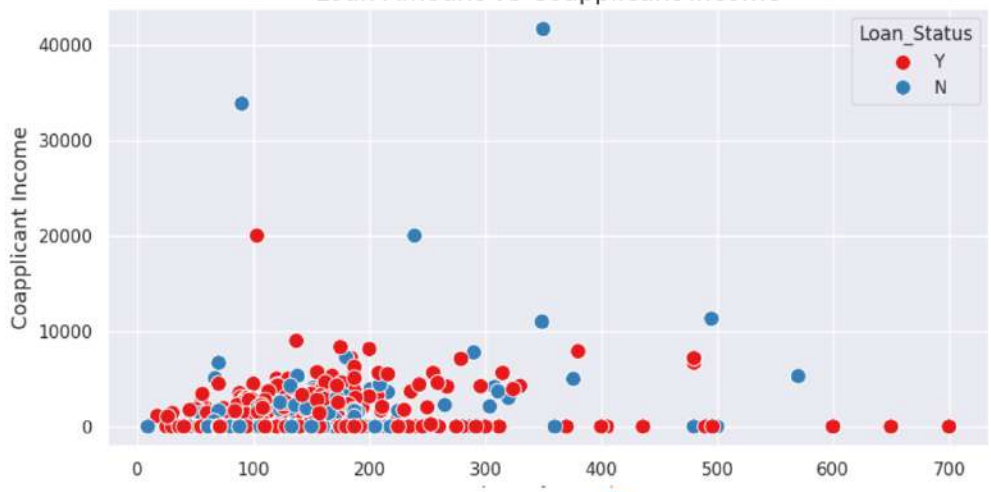
[18] 0s

```
plt.figure(figsize=(10,5))
sns.scatterplot(x=df['LoanAmount'], y=df['CoapplicantIncome'], hue=df['Loan_Status'], s=100, palette='Set1')
plt.title('Loan Amount Vs Coapplicant Income', fontsize=16)
plt.xlabel('Loan Amount', fontsize=13)
plt.ylabel('Coapplicant Income', fontsize=13)
plt.show()
```



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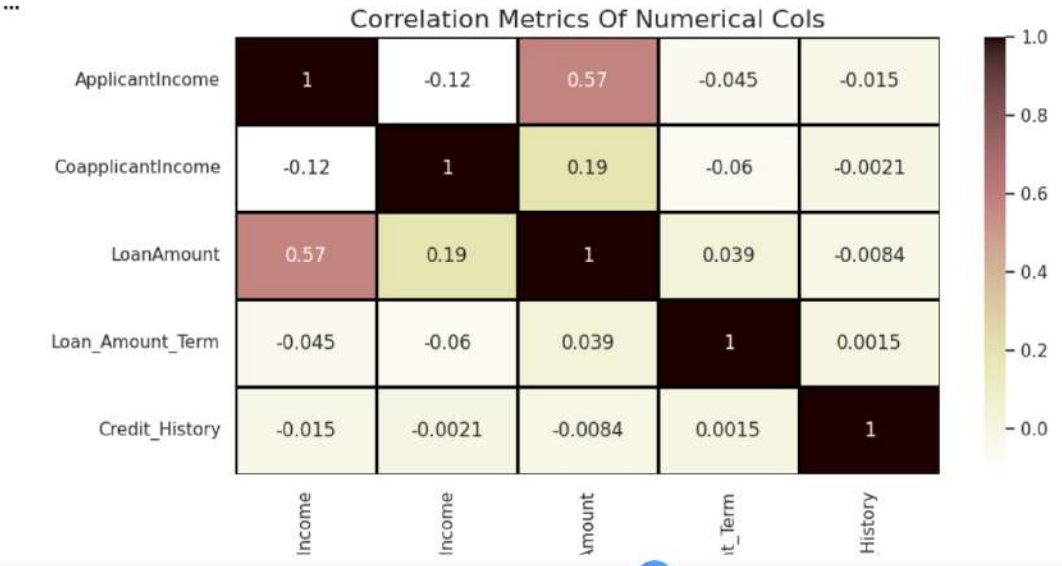
[19] ✓ 0s

```
plt.figure(figsize=(10,5))
sns.heatmap(df.corr(numeric_only=True), annot=True, cmap='pink_r', linewidths='2', linecolor='black')
plt.title('Correlation Metrics Of Numerical Cols', fontsize=16)
plt.show()
```



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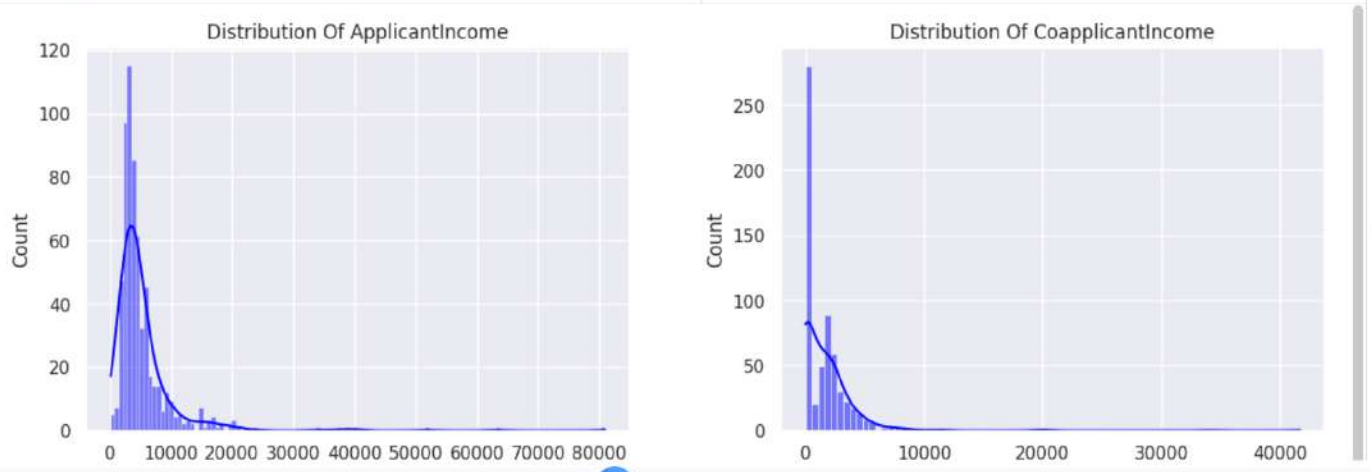
```
[20]
✓ 2s
plt.figure(figsize=(13,15))
for c, cols in enumerate(['ApplicantIncome', 'CoapplicantIncome', 'LoanAmount', 'Loan_Amount_Term',
                          'Credit_History']):
    plt.subplot(3, 2, c+1)
    sns.histplot(x=cols, data=df, color='blue', kde=True)
    plt.title(f"Distribution Of {cols}")
    plt.tight_layout(pad=4.0)

plt.show()
```



Variables Terminal

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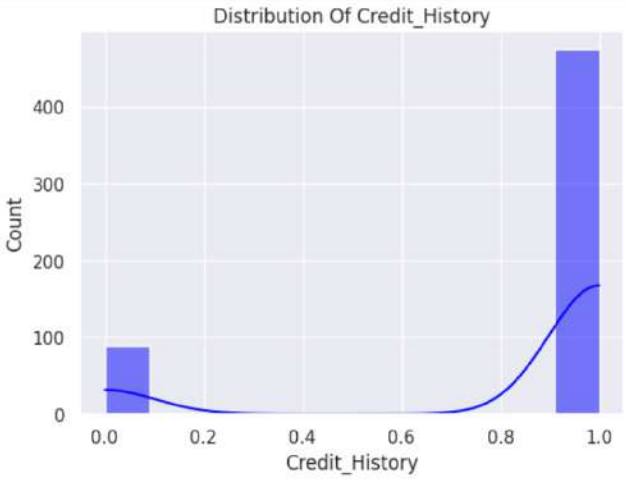
ApplicantIncome
CoapplicantIncome
Distribution Of LoanAmount
Count
LoanAmount
0
20
40
60
80
100
0
100
200
300
400
500
600
700
Distribution Of Loan_Amount_Term
Count
Loan_Amount_Term
0
100
200
300
400
500
0
100
200
300
400
500




```
plt.figure(figsize=(13,15))
for c, cols in enumerate(['ApplicantIncome', 'CoapplicantIncome', 'LoanAmount', 'Loan_Amount_Term',
                          'Credit_History']):
    plt.subplot(3, 2, c+1)
    sns.kdeplot(x=cols, data=df, color='blue', shade=True)
    plt.title(f"Distribution Of {cols}")
    plt.tight_layout(pad=4.0)
```

Data Visualization

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```
[21]
plt.show()
```

```
/tmp/ipython-input-232175503.py:5: FutureWarning:

`shade` is now deprecated in favor of `fill`; setting `fill=True`.
This will become an error in seaborn v0.14.0; please update your code.

  sns.kdeplot(x=cols, data=df, color='blue', shade=True)
/tmp/ipython-input-232175503.py:5: FutureWarning:

`shade` is now deprecated in favor of `fill`; setting `fill=True`.
This will become an error in seaborn v0.14.0; please update your code.

  sns.kdeplot(x=cols, data=df, color='blue', shade=True)
/tmp/ipython-input-232175503.py:5: FutureWarning:

`shade` is now deprecated in favor of `fill`; setting `fill=True`.
This will become an error in seaborn v0.14.0; please update your code.

  sns.kdeplot(x=cols, data=df, color='blue', shade=True)
/tmp/ipython-input-232175503.py:5: FutureWarning:

`shade` is now deprecated in favor of `fill`; setting `fill=True`.
This will become an error in seaborn v0.14.0; please update your code.

  sns.kdeplot(x=cols, data=df, color='blue', shade=True)
/tmp/ipython-input-232175503.py:5: FutureWarning:

`shade` is now deprecated in favor of `fill`; setting `fill=True`.
This will become an error in seaborn v0.14.0; please update your code.

  sns.kdeplot(x=cols, data=df, color='blue', shade=True)
```

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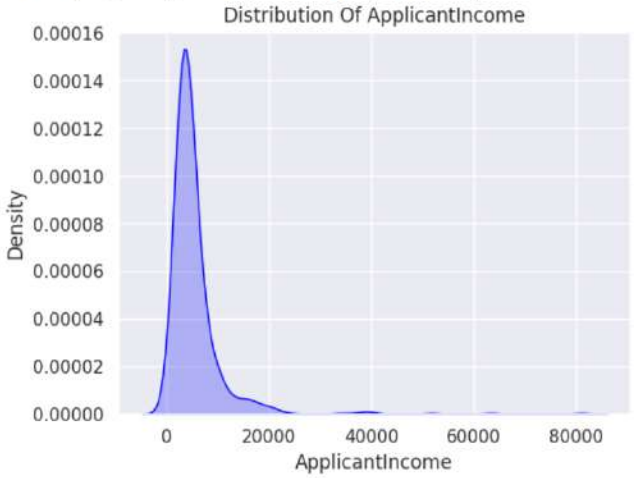
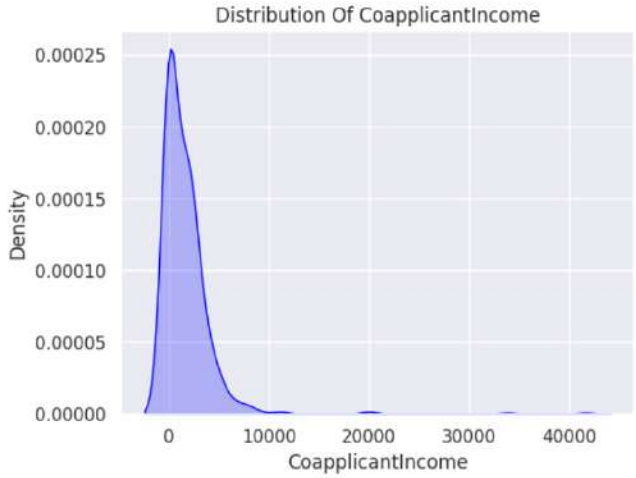
[21] 0s

```
plt.show()
```

```
shade` is now deprecated in favor of `fill`; setting `fill=True`.
This will become an error in seaborn v0.14.0; please update your code.

  sns.kdeplot(x=cols, data=df, color='blue', shade=True)
```





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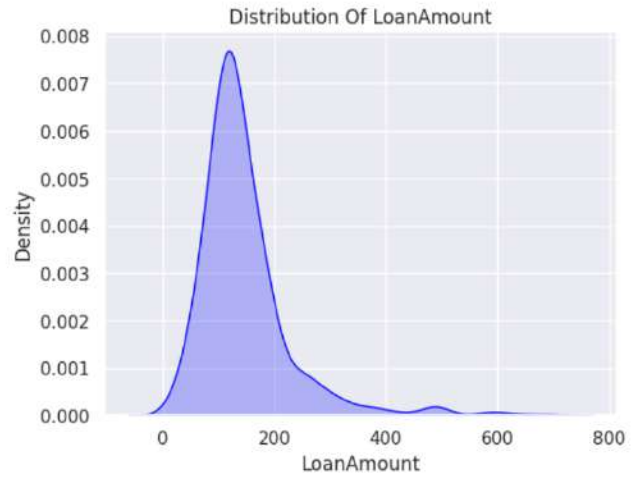
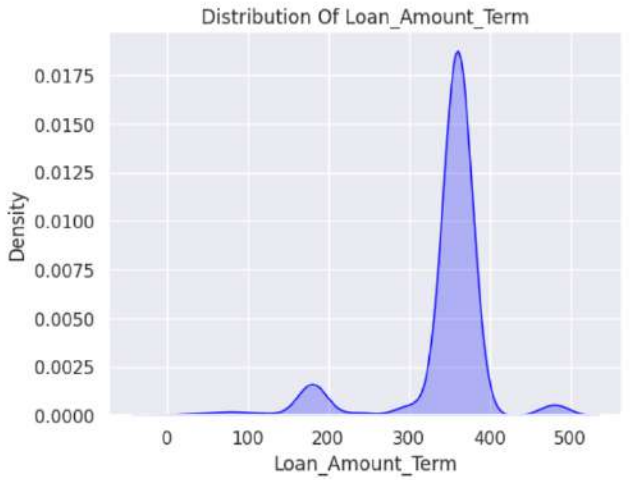
[21] ✓ 0s

```
plt.show()
```

ApplicantIncome



CoapplicantIncome



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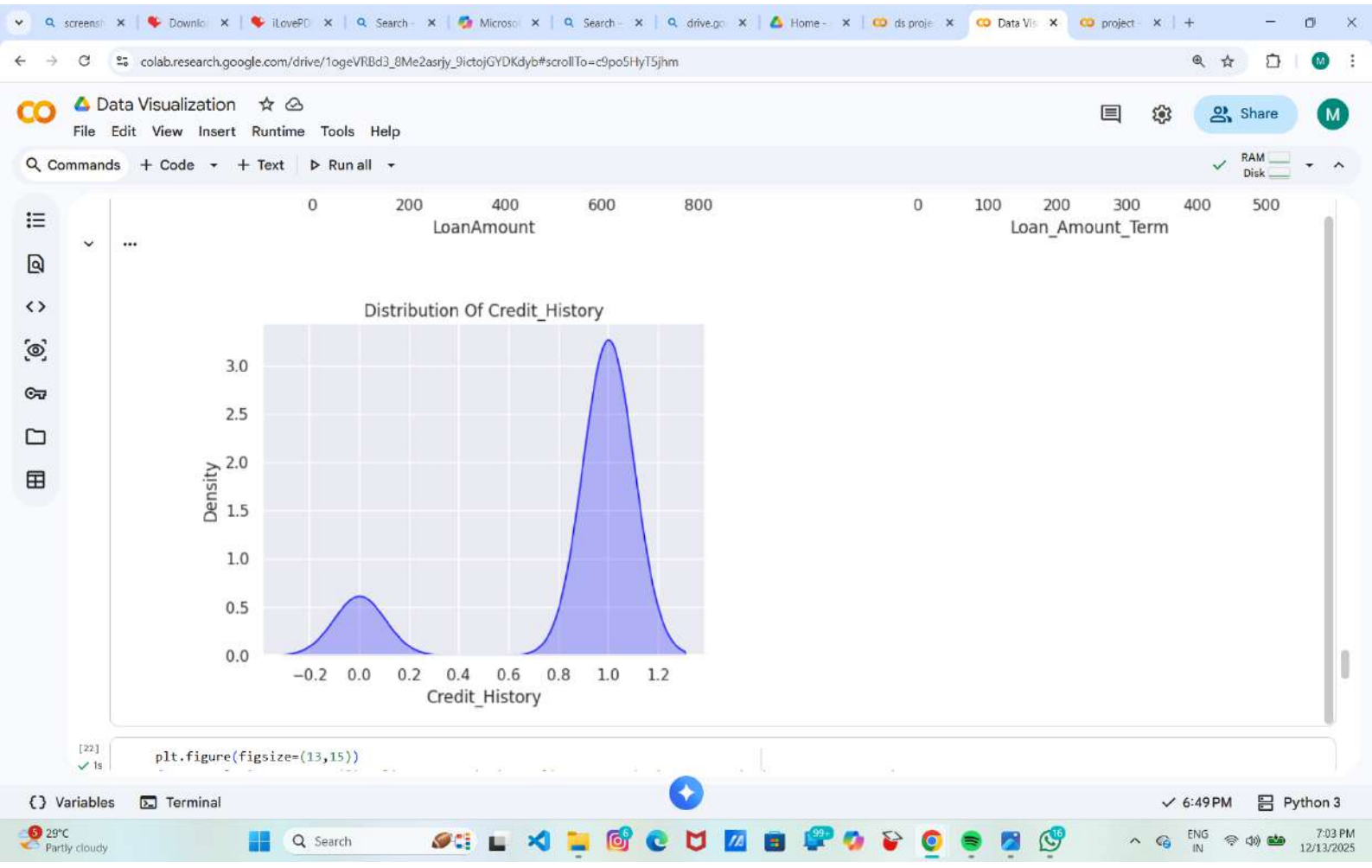


```
[22]
✓ 1s
plt.figure(figsize=(13,15))
```

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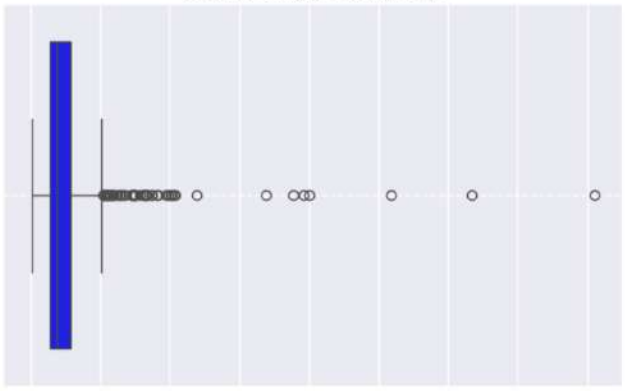
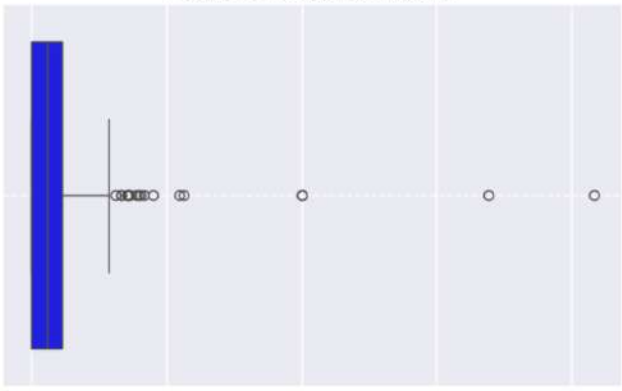
[22] 1s

```
plt.figure(figsize=(13,15))
for c, cols in enumerate(['ApplicantIncome', 'CoapplicantIncome', 'LoanAmount', 'Loan_Amount_Term',
                          'Credit_History']):
    plt.subplot(3, 2, c+1)
    sns.boxplot(x=cols, data=df, color='blue')
    plt.title(f"BoxPlot Of {cols}")
    plt.grid(axis='y', linestyle='--')
    plt.tight_layout(pad=4.0)

plt.show()
```





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RAM
Disk
BoxPlot Of LoanAmount
0 100 200 300 400 500 600 700
LoanAmount
BoxPlot Of Loan_Amount_Term
0 100 200 300 400 500
Loan_Amount_Term
BoxPlot Of Credit_History
Variables Terminal
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