Task 1 :-

In [1]:

```
import pandas as pd
import numpy as np
```

In [2]:

```
import warnings
warnings.filterwarnings('ignore')
```

In [3]:

```
pd.Series()
```

Out[3]:

```
Series([], dtype: float64)
```

In [11]:

```
ld= pd.read_csv(r'E:\Aishwarya official\Aishwarya Data Scince\Course 4\DS1_C4_S3_Loan_Data_Practice.csv.csv')
ld
```

Out[11]:

	Loan_ID	Gender	Married	Dependents	Education	Self_Employed	ApplicantIncome	CoapplicantIncome	LoanAmount	Loan_Amount_Term	Credit_H
0	LP001002	Male	No	0	Graduate	No	5849	0.0	146	360	
1	LP001003	Male	Yes	1	Graduate	No	4583	1508.0	128	360	
2	LP001005	Male	Yes	0	Graduate	Yes	3000	0.0	66	360	
3	LP001006	Male	Yes	0	Not Graduate	No	2583	2358.0	120	360	
4	LP001008	Male	No	0	Graduate	No	6000	0.0	141	360	
...	...	...	...	...	...	...	...	...	...	...	...
609	LP002978	Female	No	0	Graduate	No	2900	0.0	71	360	
610	LP002979	Male	Yes	3+	Graduate	No	4106	0.0	40	180	
611	LP002983	Male	Yes	1	Graduate	No	8072	240.0	253	360	
612	LP002984	Male	Yes	2	Graduate	No	7583	0.0	187	360	
613	LP002990	Female	No	0	Graduate	Yes	4583	0.0	133	360	

614 rows × 13 columns

In [13]:

```
# df[(df.Sales<36000) & (df.Month == 'Jan')]
ld[(ld.Gender =='Male') & (ld.Education=='Graduate') & (ld.Loan_Status == 'Y')]
```

Out[13]:

Dependents	Education	Self_Employed	ApplicantIncome	CoapplicantIncome	LoanAmount	Loan_Amount_Term	Credit_History	Property_Area	Loan_Status
0	Graduate	No	5849	0.0	146	360	1	Urban	Y
0	Graduate	Yes	3000	0.0	66	360	1	Urban	Y
0	Graduate	No	6000	0.0	141	360	1	Urban	Y
2	Graduate	Yes	5417	4196.0	267	360	1	Urban	Y
2	Graduate	No	4006	1526.0	168	360	1	Urban	Y
...	...	...	...	...	...	...	...	...	...
1	Graduate	No	3400	2500.0	173	360	1	Semiurban	Y
0	Graduate	No	3232	1950.0	108	360	1	Rural	Y
3+	Graduate	No	4106	0.0	40	180	1	Rural	Y
1	Graduate	No	8072	240.0	253	360	1	Urban	Y
2	Graduate	No	7583	0.0	187	360	1	Urban	Y

Task 2 :-

In [14]:

```
ld[(ld.Gender=='Female') & (ld.Self_Employed=='Yes') & (ld.ApplicantIncome >4000)]
```

Out[14]:

	Loan_ID	Gender	Married	Dependents	Education	Self_Employed	ApplicantIncome	CoapplicantIncome	LoanAmount	Loan_Amount_Term	Credit_H
54	LP001186	Female	Yes	1	Graduate	Yes	11500	0.0	286	360	
113	LP001392	Female	No	1	Graduate	Yes	7451	0.0	146	360	
353	LP002142	Female	Yes	0	Graduate	Yes	5500	0.0	105	360	
370	LP002194	Female	No	0	Graduate	Yes	15759	0.0	55	360	
404	LP002301	Female	No	0	Graduate	Yes	7441	0.0	194	360	
430	LP002377	Female	No	1	Graduate	Yes	8624	0.0	150	360	
439	LP002407	Female	Yes	0	Not Graduate	Yes	7142	0.0	138	360	
463	LP002489	Female	No	1	Not Graduate	Yes	5191	0.0	132	360	
493	LP002582	Female	No	0	Not Graduate	Yes	17263	0.0	225	360	
534	LP002731	Female	No	0	Not Graduate	Yes	18165	0.0	125	360	
561	LP002813	Female	Yes	1	Graduate	Yes	19484	0.0	600	360	
613	LP002990	Female	No	0	Graduate	Yes	4583	0.0	133	360	

Task 3:-

In [15]:

```
ld
```

Out[15]:

Loan_ID	Gender	Married	Dependents	Education	Self_Employed	ApplicantIncome	CoapplicantIncome	LoanAmount	Loan_Amount_Term	Credit_History
LP001002	Male	No	0	Graduate	No	5849	0.0	146	360	1
LP001003	Male	Yes	1	Graduate	No	4583	1508.0	128	360	1
LP001005	Male	Yes	0	Graduate	Yes	3000	0.0	66	360	1
LP001006	Male	Yes	0	Not Graduate	No	2583	2358.0	120	360	1
LP001008	Male	No	0	Graduate	No	6000	0.0	141	360	1
...	...	...	...	...	...	...	...	...	...	...
LP002978	Female	No	0	Graduate	No	2900	0.0	71	360	1
LP002979	Male	Yes	3+	Graduate	No	4106	0.0	40	180	1
LP002983	Male	Yes	1	Graduate	No	8072	240.0	253	360	1
LP002984	Male	Yes	2	Graduate	No	7583	0.0	187	360	1
LP002990	Female	No	0	Graduate	Yes	4583	0.0	133	360	0

ɔws × 13 columns

In [26]:

```
x = ld[(ld.Dependents == '3+') & (ld.Property_Area=='Rural') & (ld.Loan_Status == 'Y')]
x
print("The no of applicant", x['Gender'].value_counts())
```

```
The no of applicant Male      12
Female     1
Name: Gender, dtype: int64
```

Task 4 :-

In [28]:

```
k = ld[(ld.LoanAmount >290) & (ld.Loan_Status=='Y')]
k
avg = np.mean(ld['ApplicantIncome'])
avg
```

Out[28]:

```
5403.459283387622
```

Task 5 :-

In [30]:

```
m = ld[(ld.Married=='No')& (ld.Self_Employed =='Yes')]
m
```

Out[30]:

Dependents	Education	Self_Employed	ApplicantIncome	CoapplicantIncome	LoanAmount	Loan_Amount_Term	Credit_History	Property_Area	Loan_Status
2	Graduate	Yes	3750	2083.0	120	360	1	Semiurban	Y
1	Graduate	Yes	4692	0.0	106	360	1	Rural	N
0	Graduate	Yes	6782	0.0	146	360	1	Urban	N
0	Not Graduate	Yes	7333	0.0	120	360	1	Rural	N
1	Graduate	Yes	7451	0.0	146	360	1	Semiurban	Y
0	Graduate	Yes	5050	0.0	118	360	1	Semiurban	Y
0	Graduate	Yes	20166	0.0	650	480	1	Urban	Y
0	Graduate	Yes	6950	0.0	175	180	1	Semiurban	Y
0	Graduate	Yes	2980	2083.0	120	360	1	Rural	Y
0	Graduate	Yes	11000	0.0	83	360	1	Urban	N
0	Graduate	Yes	6400	0.0	200	360	1	Rural	Y
0	Graduate	Yes	3463	0.0	122	360	1	Urban	Y
0	Graduate	Yes	6050	4333.0	120	180	1	Urban	N
0	Not Graduate	Yes	2583	2167.0	104	360	1	Rural	Y
0	Graduate	Yes	16250	0.0	192	360	0	Urban	N
0	Graduate	Yes	5166	0.0	128	360	1	Semiurban	Y
1	Not Graduate	Yes	4053	2426.0	158	360	0	Urban	N
0	Graduate	Yes	2600	1717.0	99	300	1	Semiurban	N
0	Graduate	Yes	6822	0.0	141	360	1	Rural	Y
0	Graduate	Yes	15759	0.0	55	360	1	Semiurban	Y
0	Graduate	Yes	7167	0.0	128	360	1	Urban	Y
1	Graduate	Yes	3667	0.0	113	180	1	Urban	Y
0	Graduate	Yes	7441	0.0	194	360	1	Rural	N
1	Not Graduate	Yes	3867	0.0	62	360	1	Semiurban	N
1	Graduate	Yes	8624	0.0	150	360	1	Semiurban	Y
0	Graduate	Yes	12876	0.0	405	360	1	Semiurban	Y
0	Graduate	Yes	10416	0.0	187	360	0	Urban	N
1	Not Graduate	Yes	2769	1542.0	190	360	1	Semiurban	N
0	Graduate	Yes	7085	0.0	84	360	1	Semiurban	Y
1	Not Graduate	Yes	5191	0.0	132	360	1	Semiurban	Y
0	Graduate	Yes	2500	0.0	93	360	1	Urban	Y
0	Not Graduate	Yes	17263	0.0	225	360	1	Semiurban	Y
0	Not Graduate	Yes	18165	0.0	125	360	1	Urban	Y
0	Not Graduate	Yes	2550	2042.0	126	360	1	Rural	Y
1	Graduate	Yes	3652	0.0	95	360	1	Semiurban	Y
0	Not Graduate	Yes	5800	0.0	132	360	1	Semiurban	Y
0	Graduate	Yes	3182	2917.0	161	360	1	Urban	Y
3+	Graduate	Yes	9357	0.0	292	360	1	Semiurban	Y
3+	Graduate	Yes	416	41667.0	350	180	0	Urban	N
0	Graduate	Yes	4583	0.0	133	360	0	Semiurban	N

In [31]:

```
print("The no of applicant", m['Gender'].value_counts())
```

```
The no of applicant Male      25
Female    15
Name: Gender, dtype: int64
```

Task 6 :-

In [36]:

```
ld
Urban = ld[(ld.Property_Area=='Urban')]
Urban
```

```
The ApplicantIncome of Urban  2500     4
3750     3
2400     3
5417     3
2333     3
        ..
51763    1
6400     1
6033     1
1907     1
7583     1
Name: ApplicantIncome, Length: 178, dtype: int64
```

In [34]:

```
ld
Semiurban = ld[(ld.Property_Area=='Semiurban')]
Semiurban
```

Out[34]:

	Loan_ID	Gender	Married	Dependents	Education	Self_Employed	ApplicantIncome	CoapplicantIncome	LoanAmount	Loan_Amount_Term	Credit_H
7	LP001014	Male	Yes	3+	Graduate	No	3036	2504.0	158	360	
9	LP001020	Male	Yes	1	Graduate	No	12841	10968.0	349	360	
22	LP001047	Male	Yes	0	Not Graduate	No	2600	1911.0	116	360	
24	LP001052	Male	Yes	1	Graduate	Yes	3717	2925.0	151	360	
25	LP001066	Male	Yes	0	Graduate	Yes	9560	0.0	191	360	
...	...	...	...	...	...	...	...	...	...	...	...
592	LP002933	Male	No	3+	Graduate	Yes	9357	0.0	292	360	
597	LP002943	Male	No	1	Graduate	No	2987	0.0	88	360	
604	LP002959	Female	Yes	1	Graduate	No	12000	0.0	496	360	
606	LP002961	Male	Yes	1	Graduate	No	3400	2500.0	173	360	
613	LP002990	Female	No	0	Graduate	Yes	4583	0.0	133	360	

233 rows × 13 columns

In [35]:

```
ld
Rural = ld[(ld.Property_Area=='Rural')]
Rural
```

Out[35]:

	Loan_ID	Gender	Married	Dependents	Education	Self_Employed	ApplicantIncome	CoapplicantIncome	LoanAmount	Loan_Amount_Term	Credit_H
1	LP001003	Male	Yes	1	Graduate	No	4583	1508.0	128	360	
13	LP001029	Male	No	0	Graduate	No	1853	2840.0	114	360	
18	LP001038	Male	Yes	0	Not Graduate	No	4887	0.0	133	360	
23	LP001050	Male	Yes	2	Not Graduate	No	3365	1917.0	112	360	
32	LP001097	Male	No	1	Graduate	Yes	4692	0.0	106	360	
...	...	...	...	...	...	...	...	...	...	...	...
603	LP002958	Male	No	0	Graduate	No	3676	4301.0	172	360	
607	LP002964	Male	Yes	2	Not Graduate	No	3987	1411.0	157	360	
608	LP002974	Male	Yes	0	Graduate	No	3232	1950.0	108	360	
609	LP002978	Female	No	0	Graduate	No	2900	0.0	71	360	
610	LP002979	Male	Yes	3+	Graduate	No	4106	0.0	40	180	

179 rows × 13 columns

In [41]:

```
print("The ApplicantIncome of Urban : ", Urban.ApplicantIncome.sum())
print("The ApplicantIncome of Semiurban: ", Semiurban.ApplicantIncome.sum())
print("The ApplicantIncome of Rural : ", Rural.ApplicantIncome.sum())
```

```
The ApplicantIncome of Urban :  1090446
The ApplicantIncome of Semiurban:  1233097
The ApplicantIncome of Rural :  994181
```

Task 7 :-

In [42]:

```
ld
```

Out[42]:

	Loan_ID	Gender	Married	Dependents	Education	Self_Employed	ApplicantIncome	CoapplicantIncome	LoanAmount	Loan_Amount_Term	Credit_H
0	LP001002	Male	No	0	Graduate	No	5849	0.0	146	360	
1	LP001003	Male	Yes	1	Graduate	No	4583	1508.0	128	360	
2	LP001005	Male	Yes	0	Graduate	Yes	3000	0.0	66	360	
3	LP001006	Male	Yes	0	Not Graduate	No	2583	2358.0	120	360	
4	LP001008	Male	No	0	Graduate	No	6000	0.0	141	360	
...	...	...	...	...	...	...	...	...	...	...	...
609	LP002978	Female	No	0	Graduate	No	2900	0.0	71	360	
610	LP002979	Male	Yes	3+	Graduate	No	4106	0.0	40	180	
611	LP002983	Male	Yes	1	Graduate	No	8072	240.0	253	360	
612	LP002984	Male	Yes	2	Graduate	No	7583	0.0	187	360	
613	LP002990	Female	No	0	Graduate	Yes	4583	0.0	133	360	

614 rows × 13 columns

In [44]:

```
z = ld[(ld.Married=='Yes')& (ld.Loan_Status=='Y')& (ld.CoapplicantIncome > ld.CoapplicantIncome.mean())]
z
```

Out[44]:

	Loan_ID	Gender	Married	Dependents	Education	Self_Employed	ApplicantIncome	CoapplicantIncome	LoanAmount	Loan_Amount_Term	Credit_H
3	LP001006	Male	Yes	0	Not Graduate	No	2583	2358.0	120	360	
5	LP001011	Male	Yes	2	Graduate	Yes	5417	4196.0	267	360	
11	LP001027	Male	Yes	2	Graduate	Yes	2500	1840.0	109	360	
12	LP001028	Male	Yes	2	Graduate	No	3073	8106.0	200	360	
19	LP001041	Male	Yes	0	Graduate	Yes	2600	3500.0	115	342	
...	...	...	...	...	...	...	...	...	...	...	...
590	LP002928	Male	Yes	0	Graduate	No	3000	3416.0	56	180	
593	LP002936	Male	Yes	0	Graduate	No	3859	3300.0	142	180	
601	LP002950	Male	Yes	0	Not Graduate	Yes	2894	2792.0	155	360	
606	LP002961	Male	Yes	1	Graduate	No	3400	2500.0	173	360	
608	LP002974	Male	Yes	0	Graduate	No	3232	1950.0	108	360	

141 rows × 13 columns

In [45]:

```
print("The no customers :", z['Gender'].value_counts())
```

```
The no customers : Male      130
Female     11
Name: Gender, dtype: int64
```

Task 8:-

In [47]:

```
y = ld[(ld.Education=='Graduate')&(ld.ApplicantIncome >=10256)& (ld.ApplicantIncome <=150000)]
y
```

Out[47]:

	Loan_ID	Gender	Married	Dependents	Education	Self_Employed	ApplicantIncome	CoapplicantIncome	LoanAmount	Loan_Amount_Term	Credit_H
9	LP001020	Male	Yes	1	Graduate	No	12841	10968.0	349	360	
34	LP001100	Male	No	3+	Graduate	No	12500	3000.0	320	360	
54	LP001186	Female	Yes	1	Graduate	Yes	11500	0.0	286	360	
67	LP001233	Male	Yes	1	Graduate	No	10750	0.0	312	360	
102	LP001350	Male	Yes	1	Graduate	No	13650	0.0	146	360	
106	LP001369	Male	Yes	2	Graduate	No	11417	1126.0	225	360	
115	LP001401	Male	Yes	1	Graduate	No	14583	0.0	185	180	
119	LP001422	Female	No	0	Graduate	No	10408	0.0	259	360	
126	LP001448	Male	Yes	3+	Graduate	No	23803	0.0	370	360	
128	LP001451	Male	Yes	1	Graduate	Yes	10513	3850.0	160	180	
130	LP001469	Male	No	0	Graduate	Yes	20166	0.0	650	480	
138	LP001492	Male	No	0	Graduate	No	14999	0.0	242	360	
144	LP001508	Male	Yes	2	Graduate	No	11757	0.0	187	180	
146	LP001516	Female	Yes	2	Graduate	No	14866	0.0	70	360	
155	LP001536	Male	Yes	3+	Graduate	No	39999	0.0	600	180	
171	LP001585	Male	Yes	3+	Graduate	No	51763	0.0	700	300	
183	LP001637	Male	Yes	1	Graduate	No	33846	0.0	260	360	
185	LP001640	Male	Yes	0	Graduate	Yes	39147	4750.0	120	360	
191	LP001656	Male	No	0	Graduate	No	12000	0.0	164	360	
199	LP001673	Male	No	0	Graduate	Yes	11000	0.0	83	360	
254	LP001844	Male	No	0	Graduate	Yes	16250	0.0	192	360	
258	LP001859	Male	Yes	0	Graduate	No	14683	2100.0	304	360	
271	LP001891	Male	Yes	0	Graduate	No	11146	0.0	136	360	
278	LP001907	Male	Yes	0	Graduate	No	14583	0.0	436	360	
284	LP001922	Male	Yes	0	Graduate	No	20667	0.0	146	360	
308	LP001996	Male	No	0	Graduate	No	20233	0.0	480	360	
324	LP002065	Male	Yes	3+	Graduate	No	15000	0.0	300	360	
333	LP002101	Male	Yes	0	Graduate	No	63337	0.0	490	180	
369	LP002191	Male	Yes	0	Graduate	No	19730	5266.0	570	360	
370	LP002194	Female	No	0	Graduate	Yes	15759	0.0	55	360	
409	LP002317	Male	Yes	3+	Graduate	No	81000	0.0	360	360	
424	LP002364	Male	Yes	0	Graduate	No	14880	0.0	96	360	
432	LP002386	Male	No	0	Graduate	Yes	12876	0.0	405	360	
438	LP002403	Male	No	0	Graduate	Yes	10416	0.0	187	360	
443	LP002422	Male	No	1	Graduate	No	37719	0.0	152	360	
467	LP002501	Male	Yes	0	Graduate	No	16692	0.0	110	360	
475	LP002527	Male	Yes	2	Graduate	Yes	16525	1014.0	150	360	
478	LP002531	Male	Yes	1	Graduate	Yes	16667	2250.0	86	360	
483	LP002541	Male	Yes	0	Graduate	No	10833	0.0	234	360	
487	LP002547	Male	Yes	1	Graduate	No	18333	0.0	500	360	
506	LP002624	Male	Yes	0	Graduate	No	20833	6667.0	480	360	
509	LP002634	Female	No	1	Graduate	No	13262	0.0	40	360	
525	LP002699	Male	Yes	2	Graduate	Yes	17500	0.0	400	360	
533	LP002729	Male	No	1	Graduate	No	11250	0.0	196	360	
561	LP002813	Female	Yes	1	Graduate	Yes	19484	0.0	600	360	
572	LP002855	Male	Yes	2	Graduate	No	16666	0.0	275	360	
594	LP002938	Male	Yes	0	Graduate	Yes	16120	0.0	260	360	
604	LP002959	Female	Yes	1	Graduate	No	12000	0.0	496	360	

In [ ]:

```

```