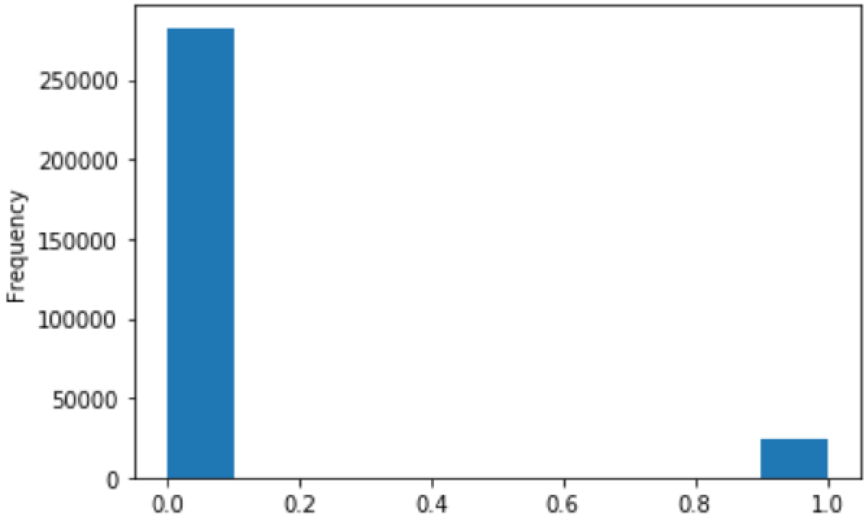
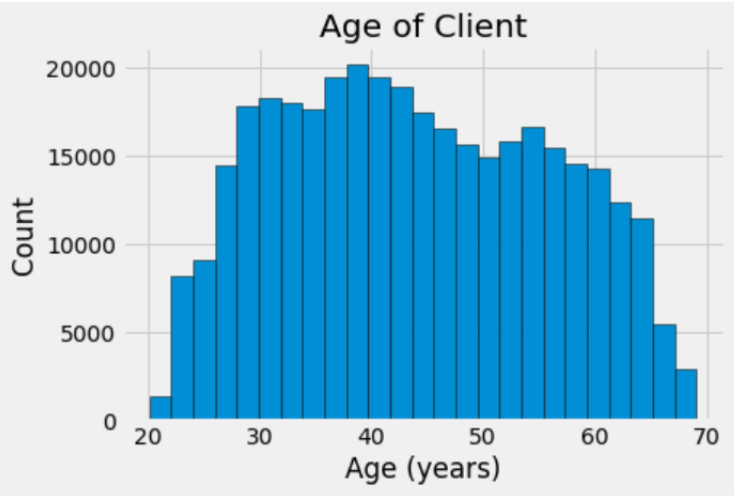
Distribution of Target :

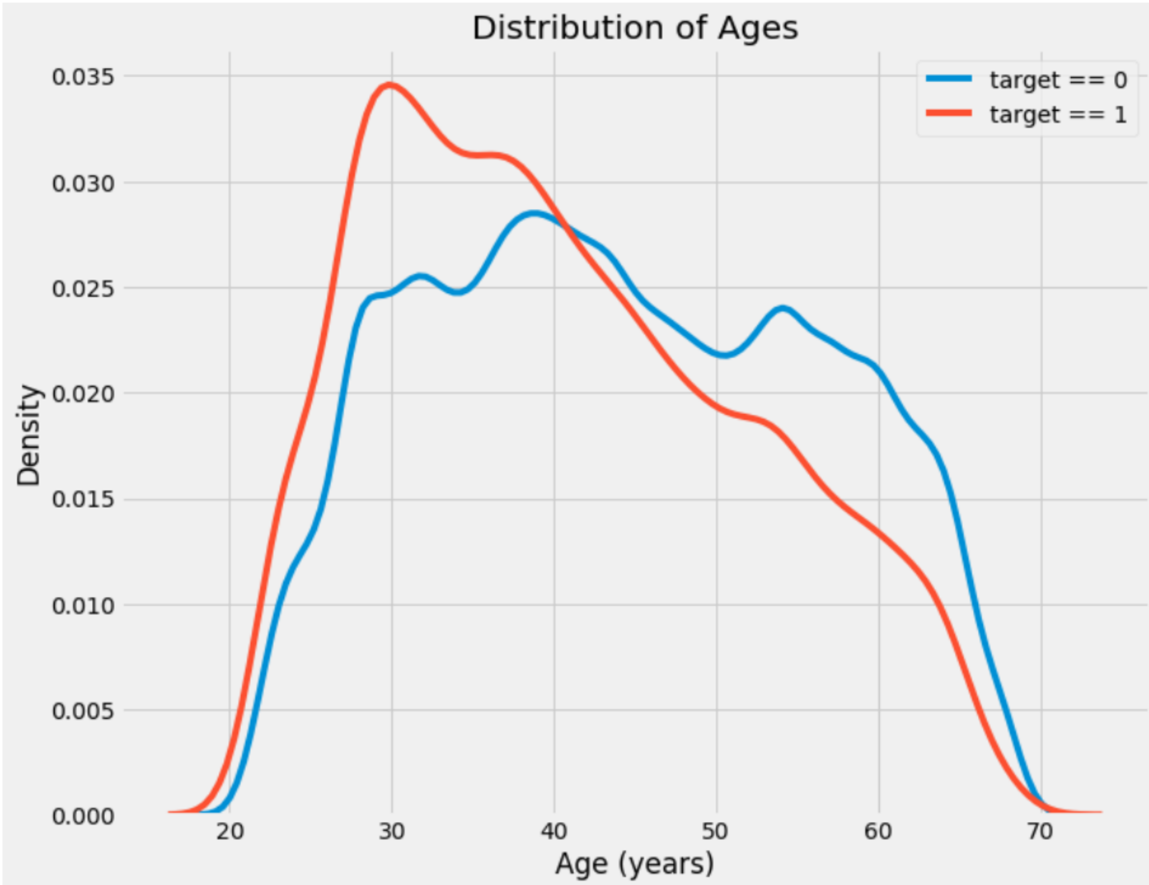
```
In [47]: df['TARGET'].plot.hist();
```



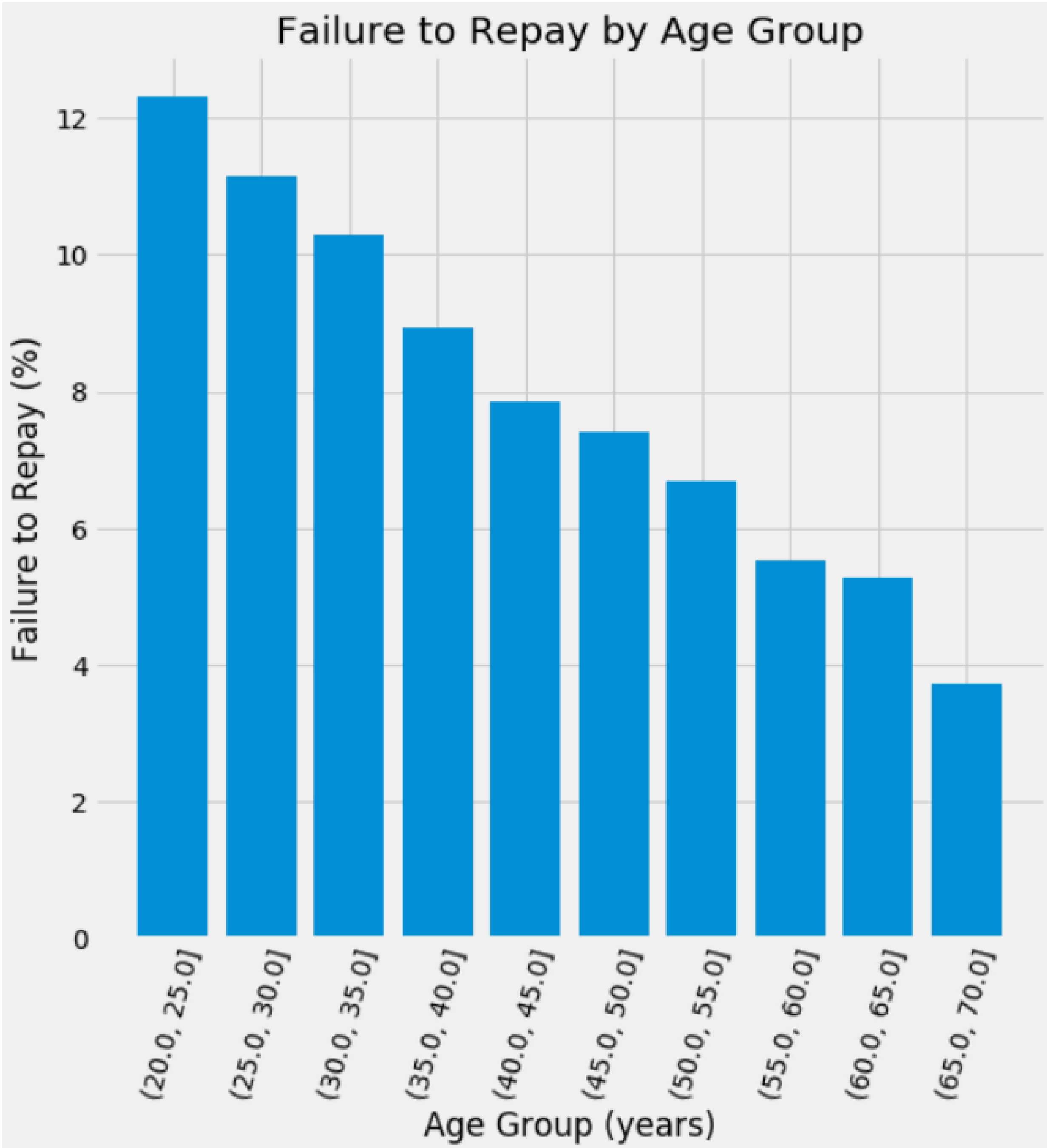
Effect on Age of Repayment:



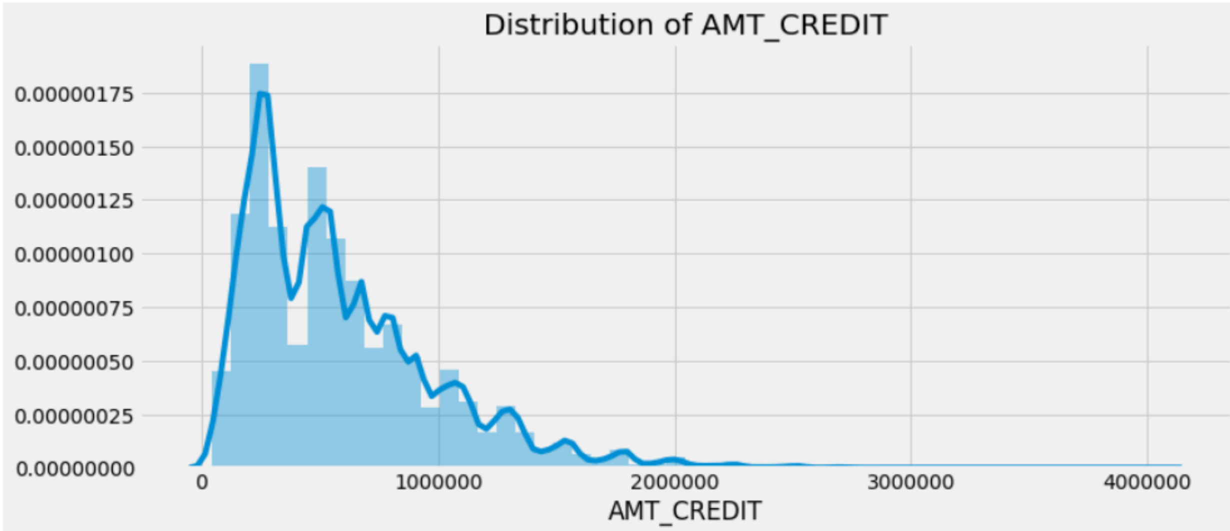
Distribution of Ages :



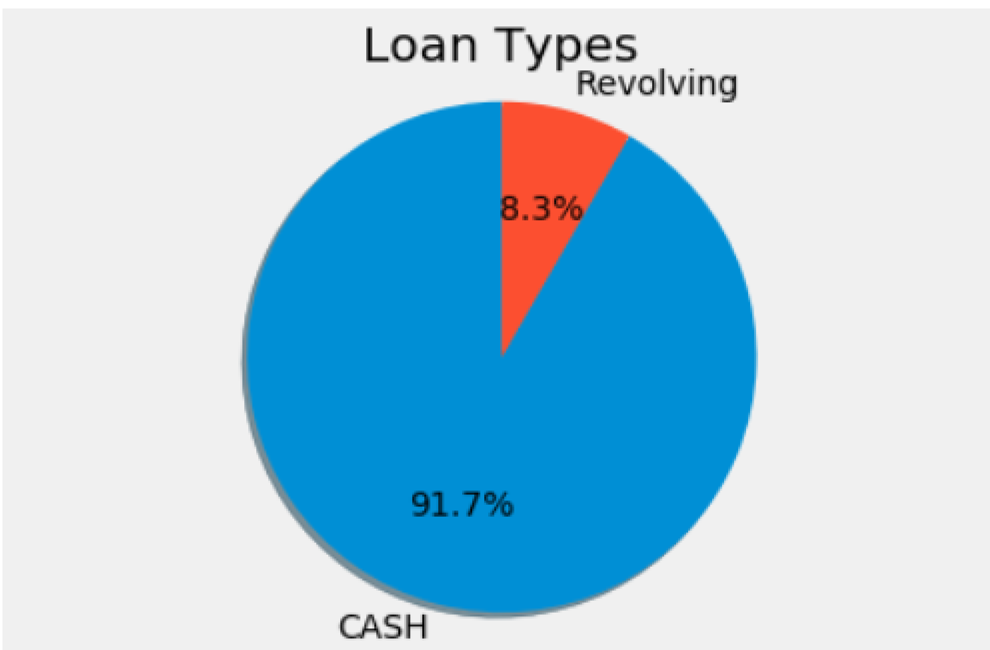
Distribution of Ages
target == 0
target == 1
Density
0.035
0.030
0.025
0.020
0.015
0.010
0.005
0.000
20
30
40
50
60
70
Age (years)



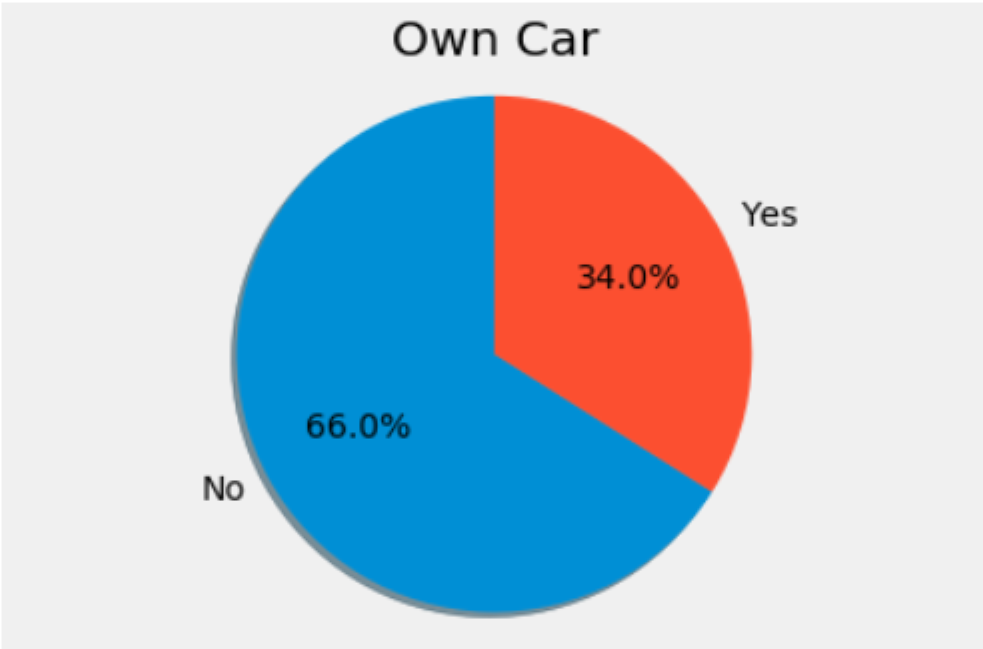
Distribution of Amount Credit :



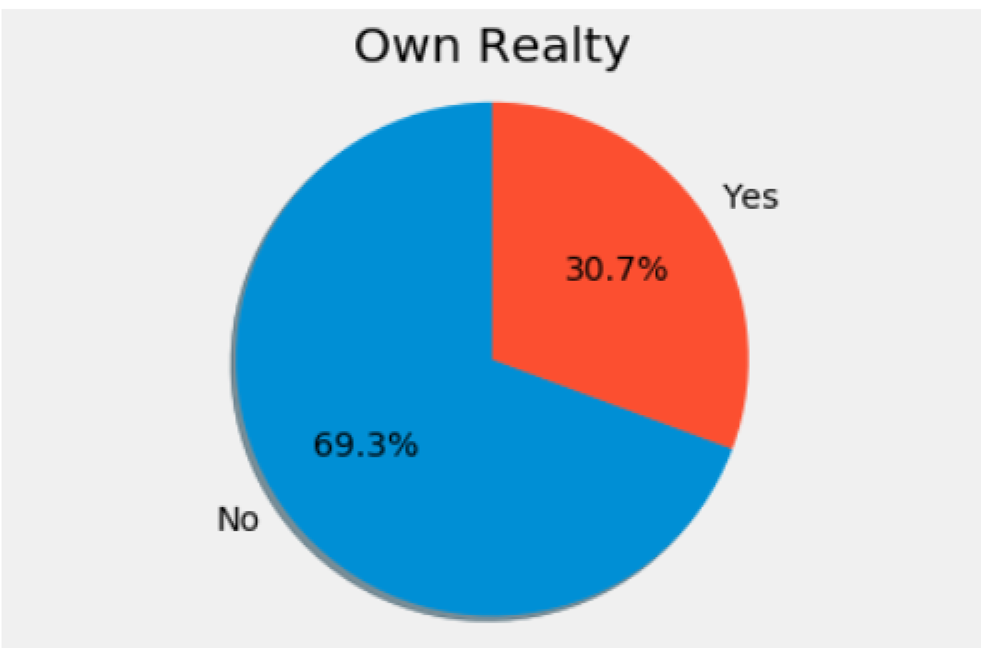
Type of Loans :



Car Ownership:

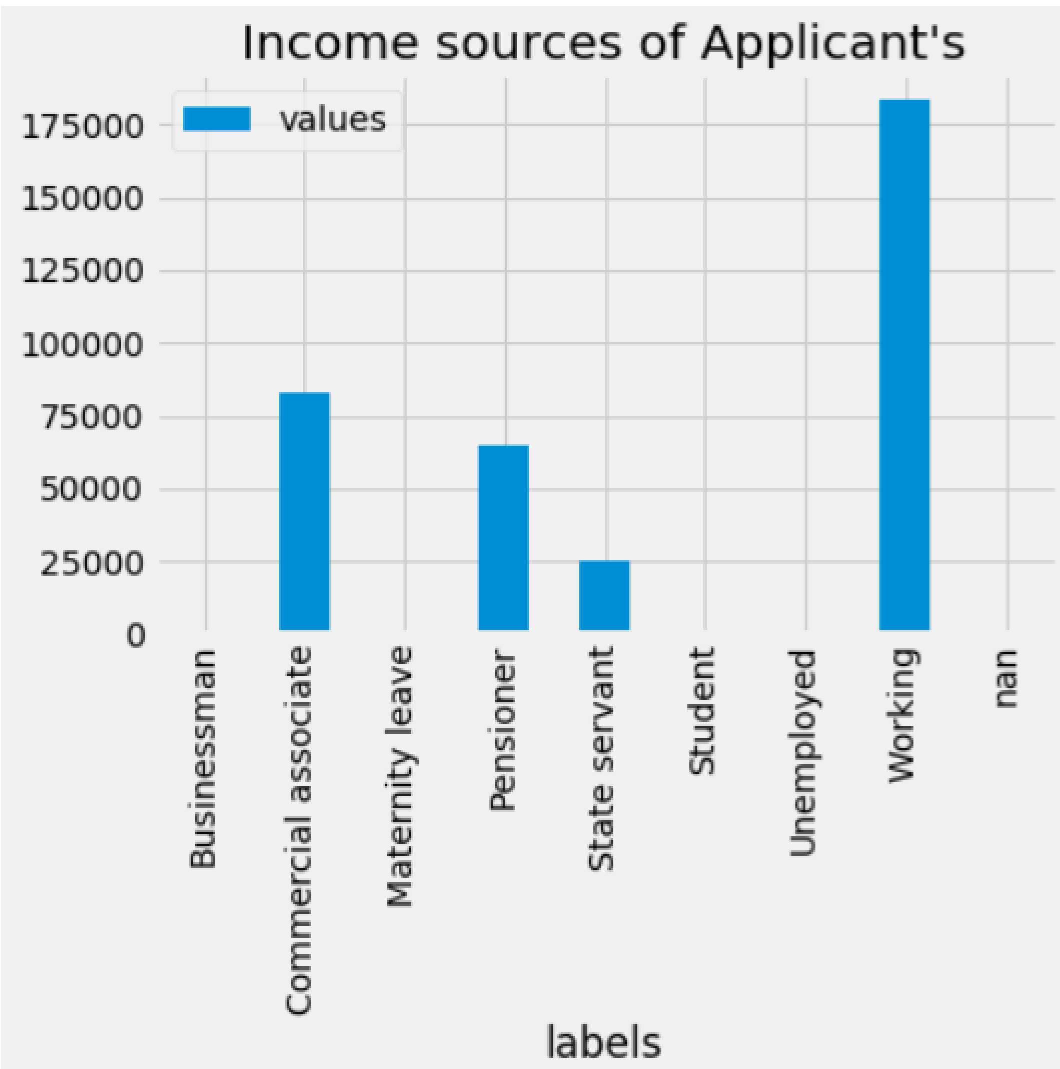


Realty Ownership:



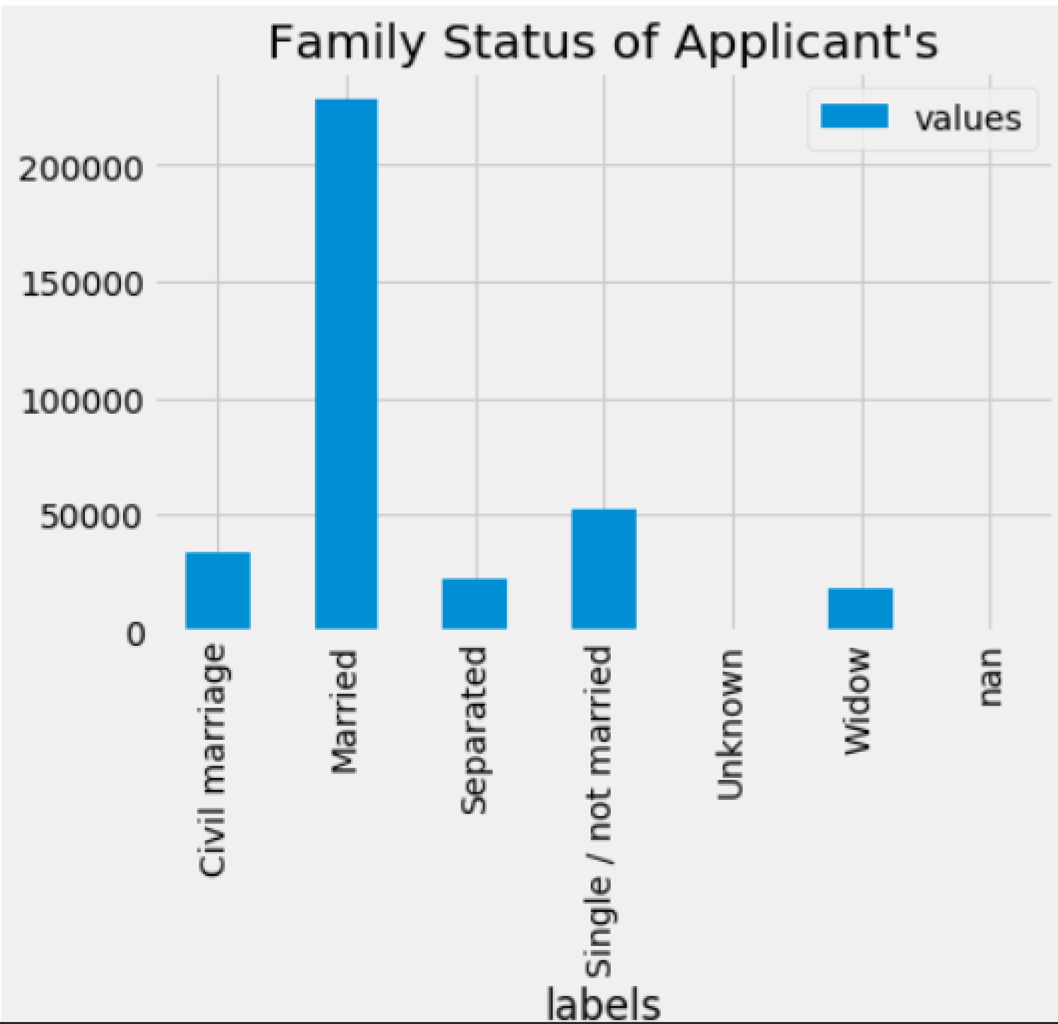
Income Source of Applicant's:

```
                 labels    values
0           Businessman      11.0
1  Commercial associate   83018.0
2       Maternity leave       5.0
3             Pensioner   64635.0
4         State servant   25235.0
5               Student      20.0
6            Unemployed      23.0
7               Working  183304.0
8                   nan       NaN
<matplotlib.axes._subplots.AxesSubplot at 0x218709819c8>
```



Family Status of Applicant’s :

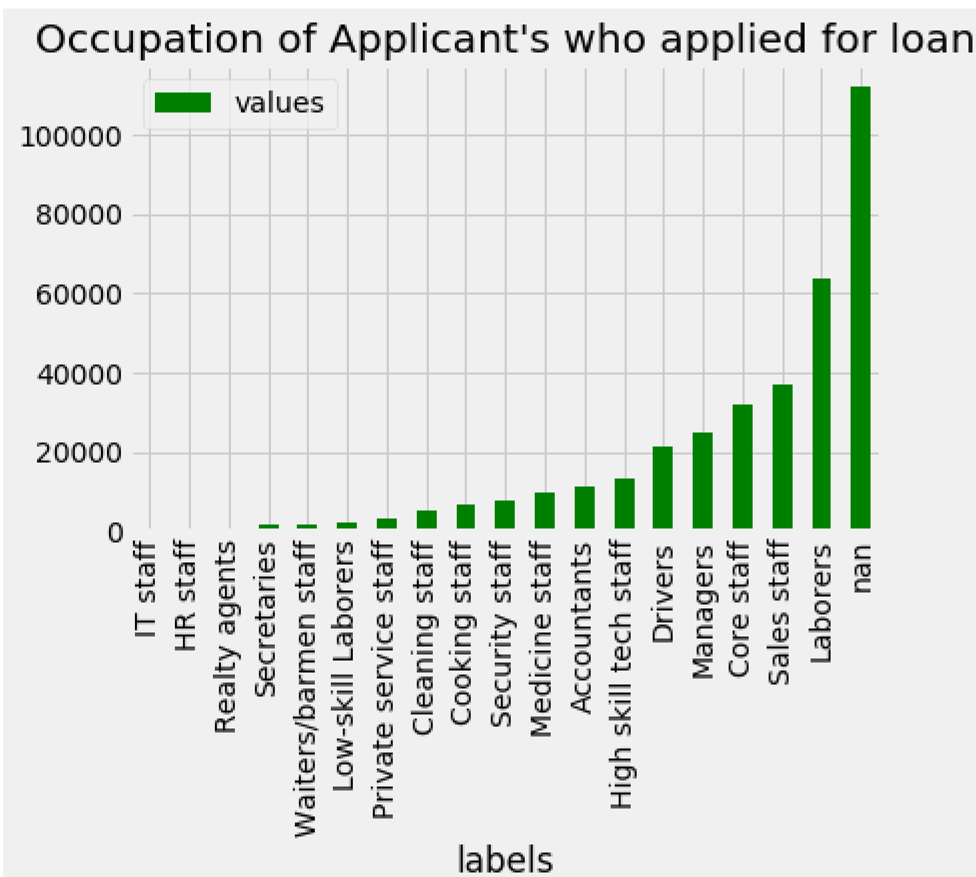
```
                  labels    values
0        Civil marriage   34035.0
1               Married  228712.0
2             Separated   22725.0
3  Single / not married   52480.0
4               Unknown       2.0
5                 Widow   18297.0
6                   nan       NaN
<matplotlib.axes._subplots.AxesSubplot at 0x21806ad16c8>
```



Occupation of the Applicant's:

```
                    labels  values
7                 IT staff     607
5                 HR staff     667
13           Realty agents     889
15             Secretaries    1518
17    Waiters/barmen staff    1526
9        Low-skill Laborers   2364
12   Private service staff    3107
1           Cleaning staff    5309
2            Cooking staff    6840
16          Security staff    7636
11           Medicine staff   9853
0              Accountants   11441
6    High skill tech staff   13234
4                  Drivers   21376
10                Managers   24945
3               Core staff   31930
14             Sales staff   37174
8                 Laborers   63841
18                     nan  111994
```

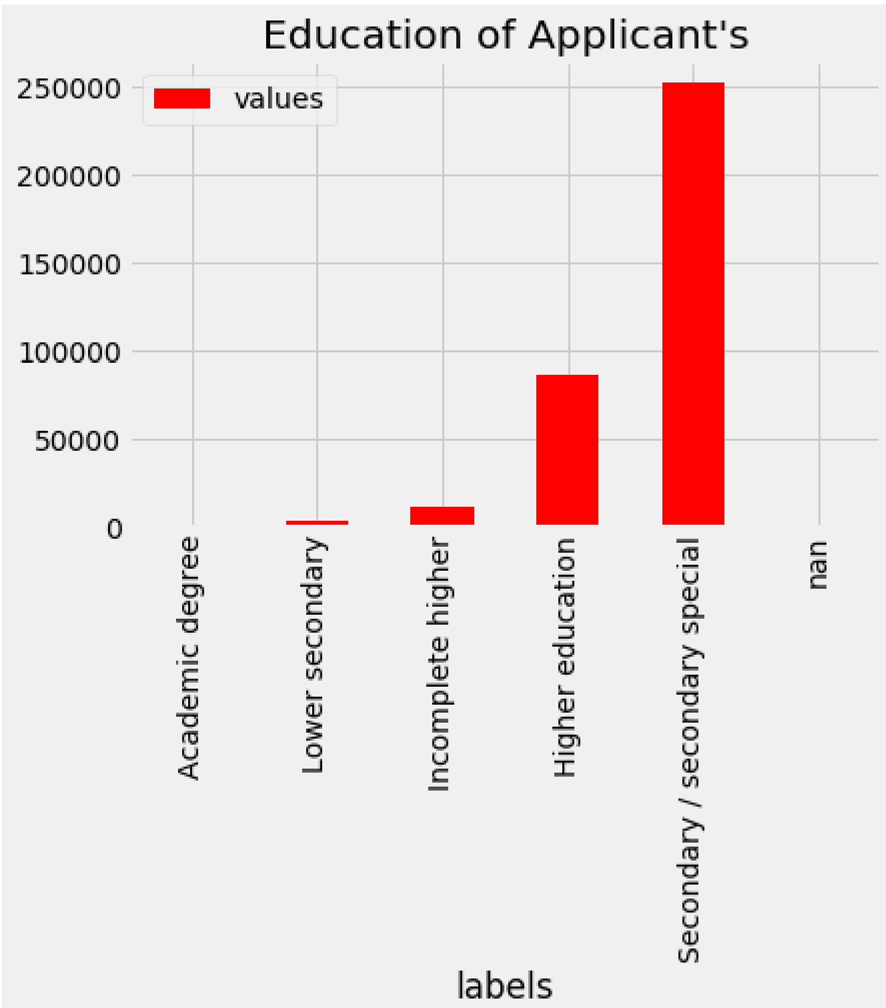
```
: <matplotlib.axes._subplots.AxesSubplot at 0x218709fe748>
```



Applicant’s Education:

```
                              labels     values
0                    Academic degree      205.0
3                    Lower secondary     4291.0
2                  Incomplete higher    12000.0
1                   Higher education    87378.0
4  Secondary / secondary special   252377.0
5                                nan        NaN
```

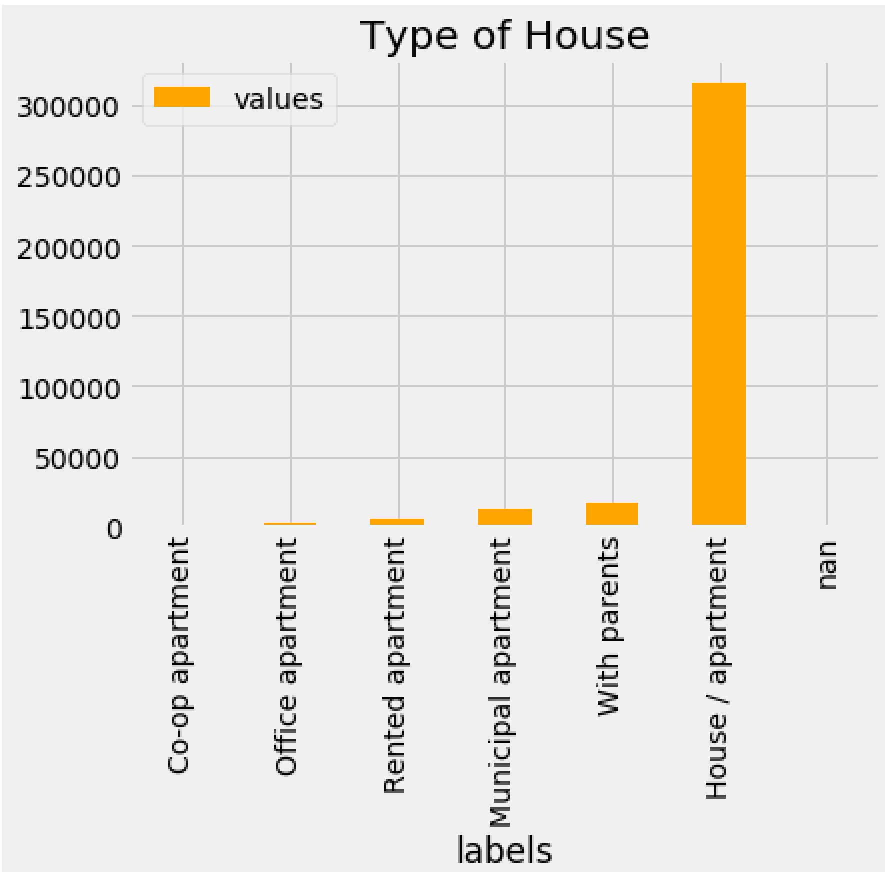
```
<matplotlib.axes._subplots.AxesSubplot at 0x21807469208>
```



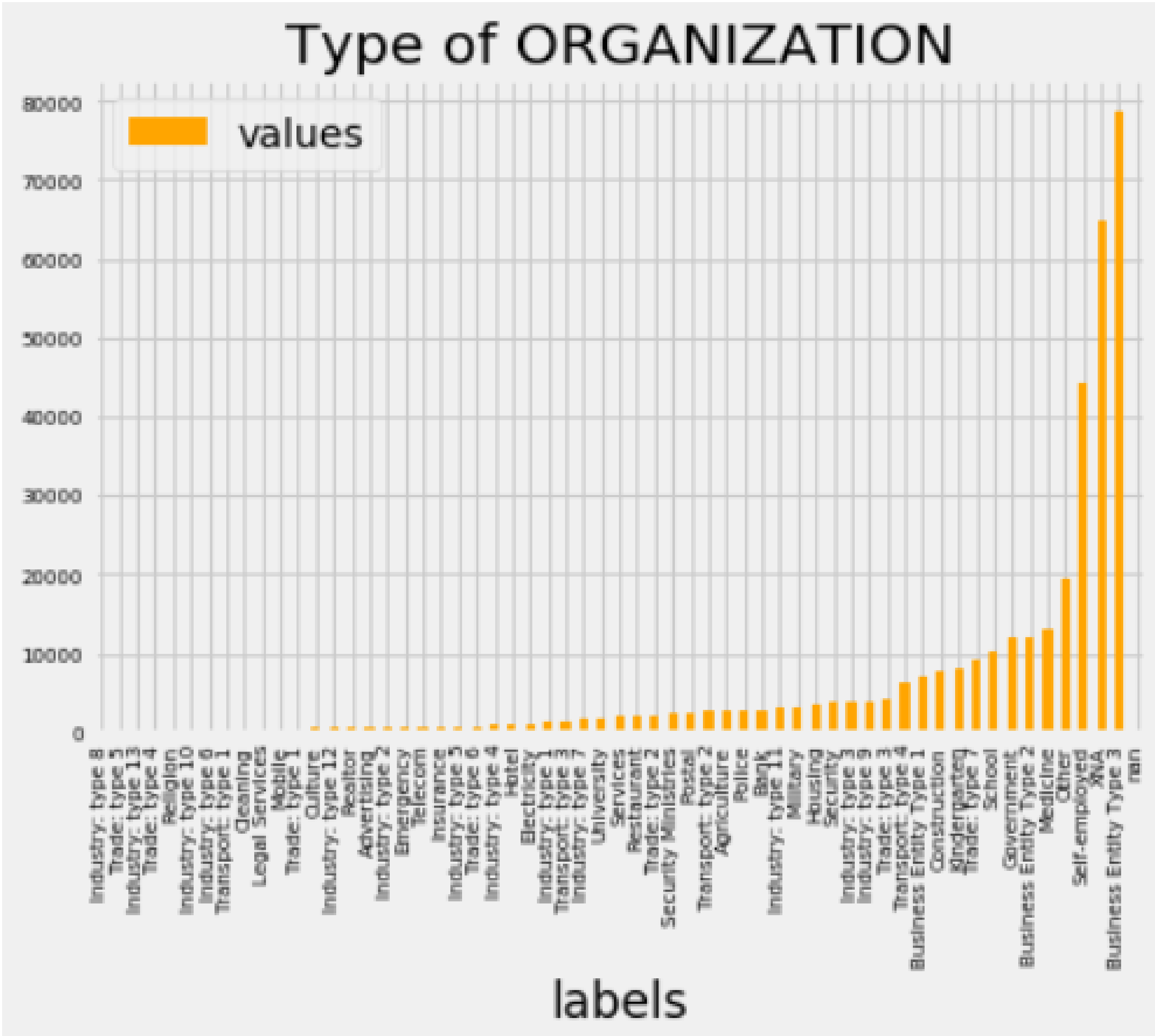
Type of House :

```
              labels    values
0      Co-op apartment    1245.0
3     Office apartment    3024.0
4     Rented apartment    5599.0
2  Municipal apartment   12799.0
5         With parents   17074.0
1    House / apartment  316510.0
6                  nan       NaN
```

<matplotlib.axes._subplots.AxesSubplot at 0x218089eaac8>



Type Of Organization :

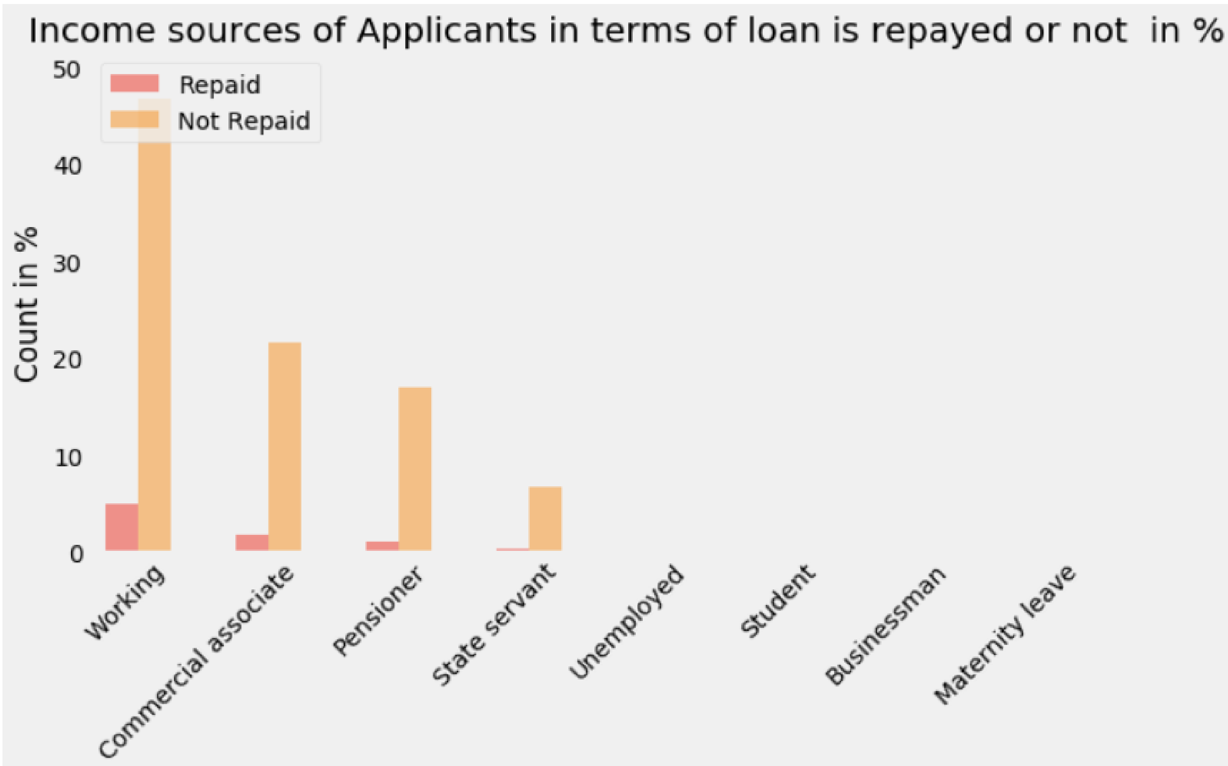


Type of ORGANIZATION
values
labels

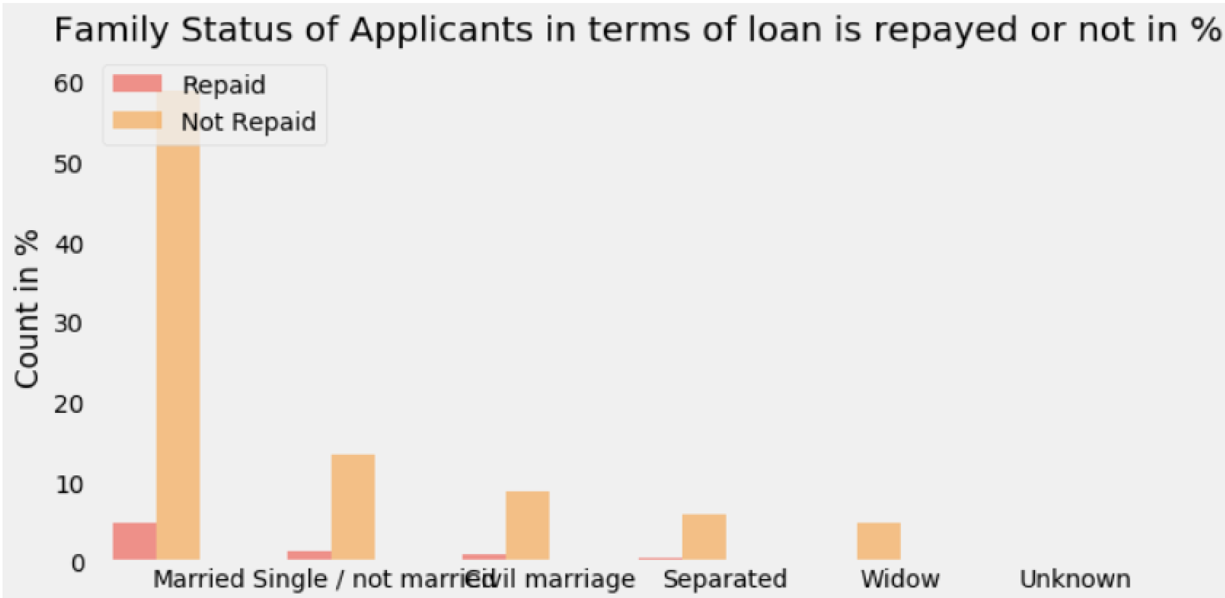
	labels	values
25	Industry: type 8	27.0
49	Trade: type 5	58.0
18	Industry: type 13	73.0
48	Trade: type 4	78.0
37	Religion	97.0
15	Industry: type 10	133.0
23	Industry: type 6	139.0
52	Transport: type 1	236.0
6	Cleaning	303.0
29	Legal Services	358.0
32	Mobile	362.0
45	Trade: type 1	412.0
8	Culture	440.0
17	Industry: type 12	446.0
36	Realtor	468.0
0	Advertising	500.0
19	Industry: type 2	535.0
10	Emergency	651.0
44	Telecom	672.0
27	Insurance	677.0
22	Industry: type 5	696.0
50	Trade: type 6	753.0
21	Industry: type 4	1044.0
12	Hotel	1100.0
9	Electricity	1106.0
14	Industry: type 1	1217.0
54	Transport: type 3	1361.0
24	Industry: type 7	1524.0
56	University	1548.0
43	Services	1877.0
38	Restaurant	2095.0
46	Trade: type 2	2142.0
41	Security Ministries	2315.0
35	Postal	2451.0
53	Transport: type 2	2652.0
1	Agriculture	2746.0
34	Police	2782.0
2	Bank	2881.0
16	Industry: type 11	3120.0
31	Military	3164.0
13	Housing	3393.0
40	Security	3719.0
20	Industry: type 3	3766.0
26	Industry: type 9	3867.0
47	Trade: type 3	4070.0
55	Transport: type 4	6282.0
3	Business Entity Type 1	6870.0
7	Construction	7760.0
28	Kindergarten	7917.0
51	Trade: type 7	9134.0
39	School	10180.0
11	Government	11912.0
4	Business Entity Type 2	12032.0
30	Medicine	12908.0
33	Other	19390.0
42	Self-employed	44332.0
57	XNA	64648.0
5	Business Entity Type 3	78832.0

Repaid Or not Based on Previous Data :

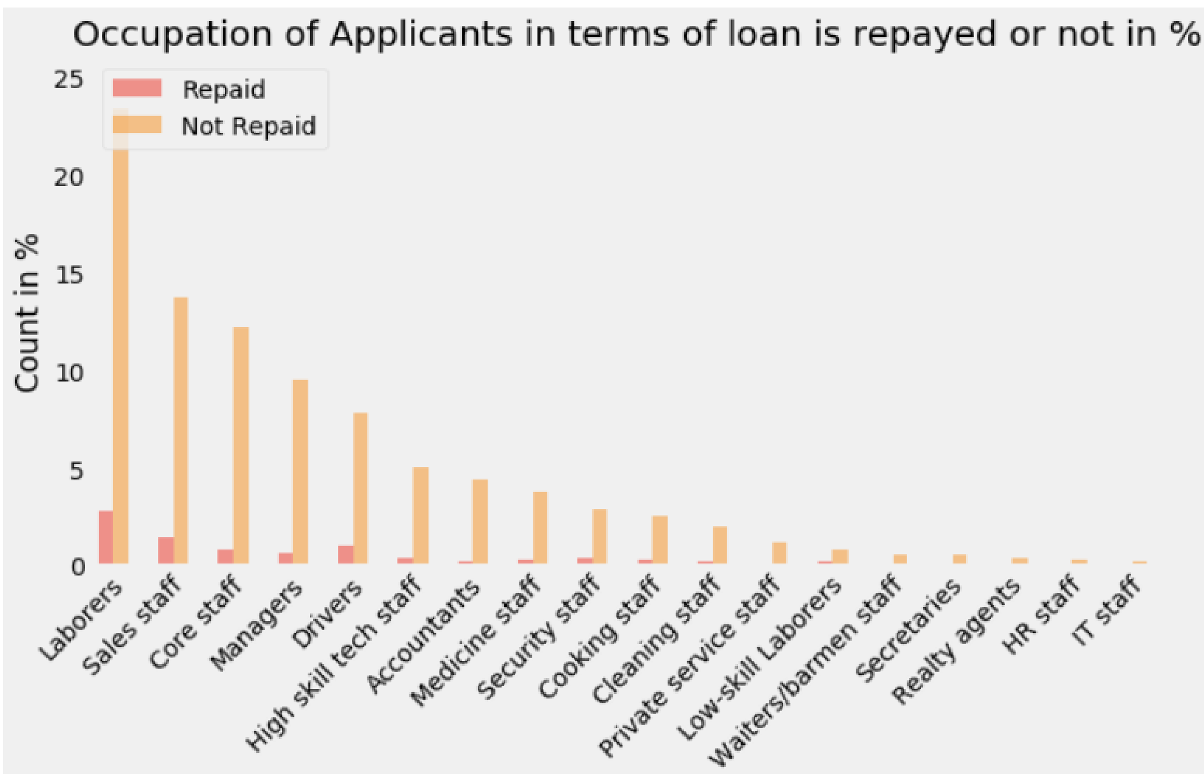
```
         business_name   success    failure
0              Working  4.950717  46.681257
1  Commercial associate  1.743027  21.546221
2            Pensioner  0.969721  17.033537
3        State servant  0.406164   6.651469
4           Unemployed  0.002602   0.004553
5              Student  0.000000   0.005853
6          Businessman  0.000000   0.003252
7       Maternity leave  0.000650   0.000976
```



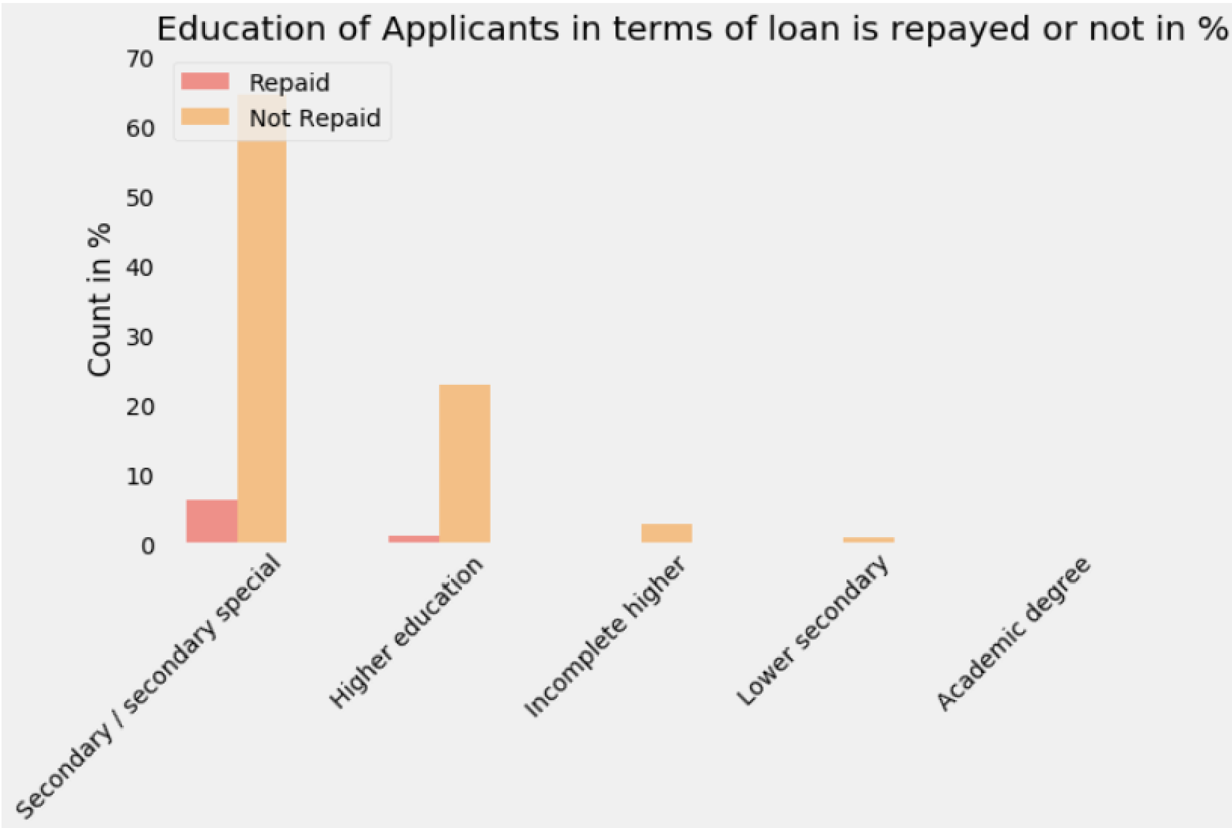
	business_name	success	failure
0	Married	4.829096	59.048945
1	Single / not married	1.449379	13.328629
2	Civil marriage	0.962892	8.719688
3	Separated	0.526810	5.902228
4	Widow	0.304705	4.926978
5	Unknown	0.000000	0.000650



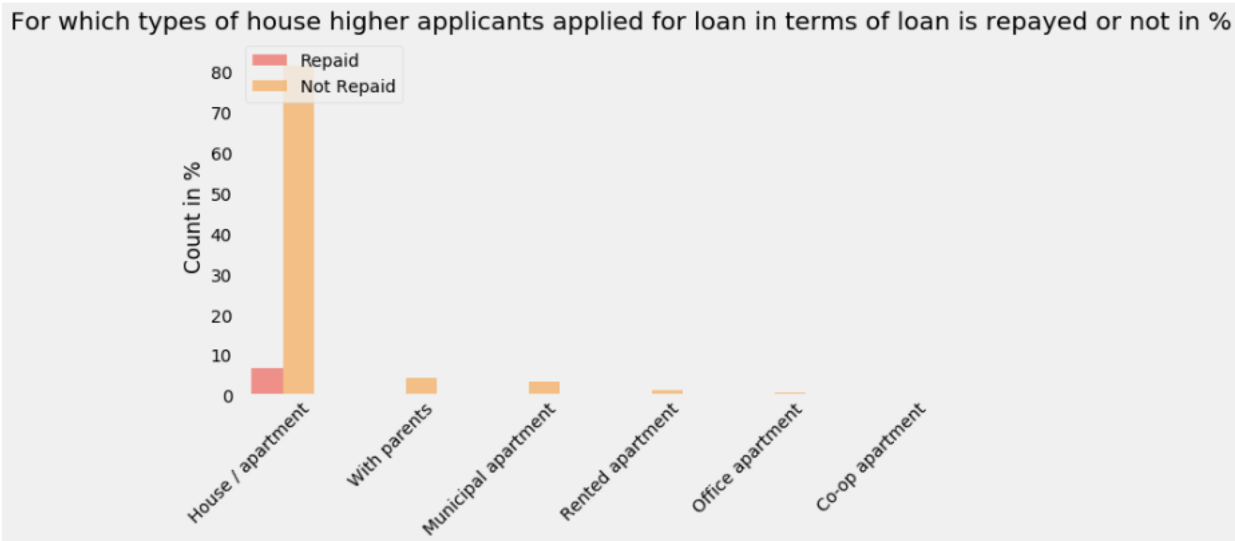
	business_name	success	failure
0	Laborers	2.765252	23.374384
1	Sales staff	1.464570	13.741000
2	Core staff	0.823228	12.235695
3	Managers	0.629026	9.493653
4	Drivers	0.998011	7.813566
5	High skill tech staff	0.332039	5.058261
6	Accountants	0.224517	4.423551
7	Medicine staff	0.270936	3.772736
8	Security staff	0.341986	2.841512
9	Cooking staff	0.294146	2.522262
10	Cleaning staff	0.211728	1.992232
11	Private service staff	0.082891	1.173266
12	Low-skill Laborers	0.170045	0.821334
13	Waiters/barmen staff	0.071997	0.566502
14	Secretaries	0.043577	0.574555
15	Realty agents	0.027946	0.327776
16	HR staff	0.017052	0.249621
17	IT staff	0.016105	0.233043



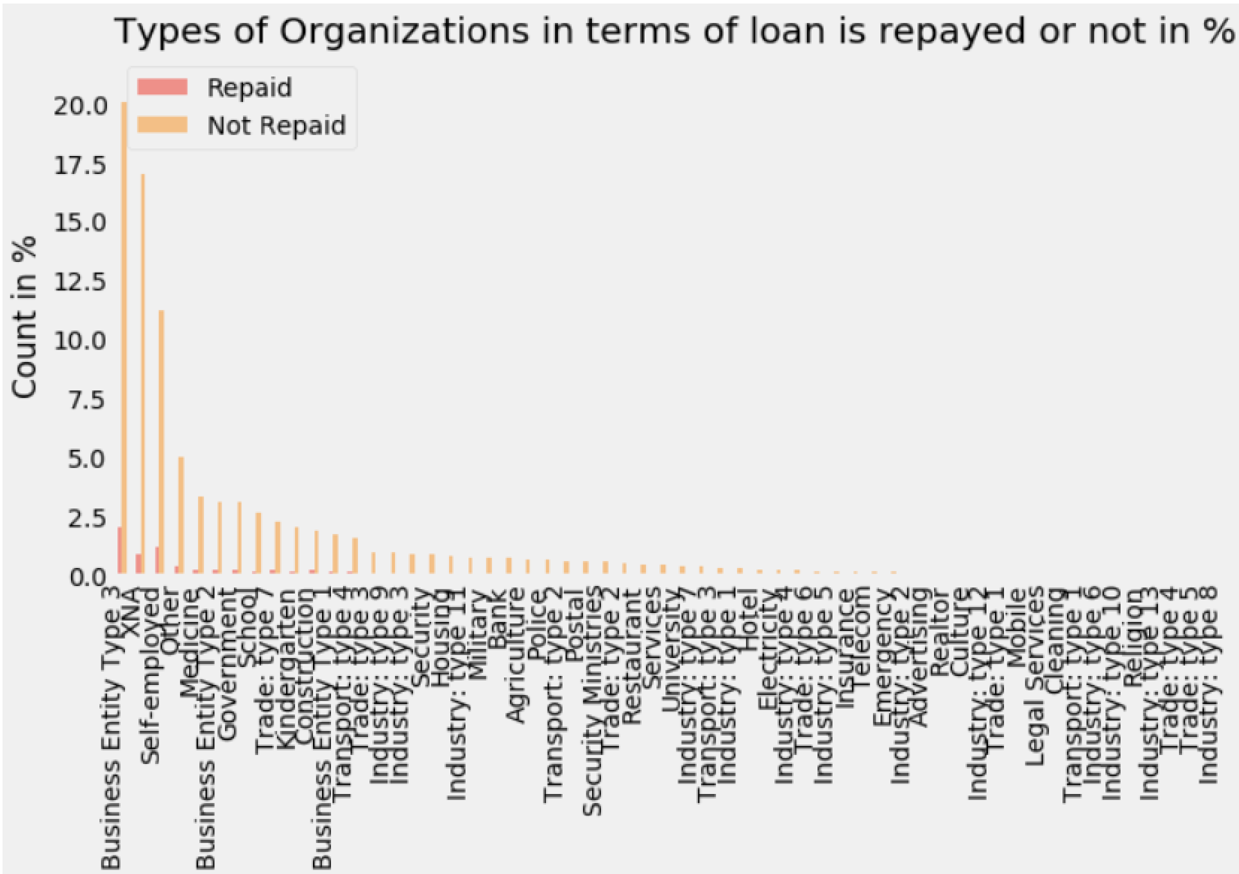
	business_name	success	failure
0	Secondary / secondary special	6.349041	64.669882
1	Higher education	1.303693	23.041127
2	Incomplete higher	0.283567	3.058427
3	Lower secondary	0.135605	1.105326
4	Academic degree	0.000976	0.052356



```
        business_name   success    failure
0    House / apartment  6.917476  81.816911
1         With parents  0.564533   4.261311
2  Municipal apartment  0.310558   3.326060
3     Rented apartment  0.195440   1.391820
4     Office apartment  0.055933   0.795094
5      Co-op apartment  0.028942   0.335923
```

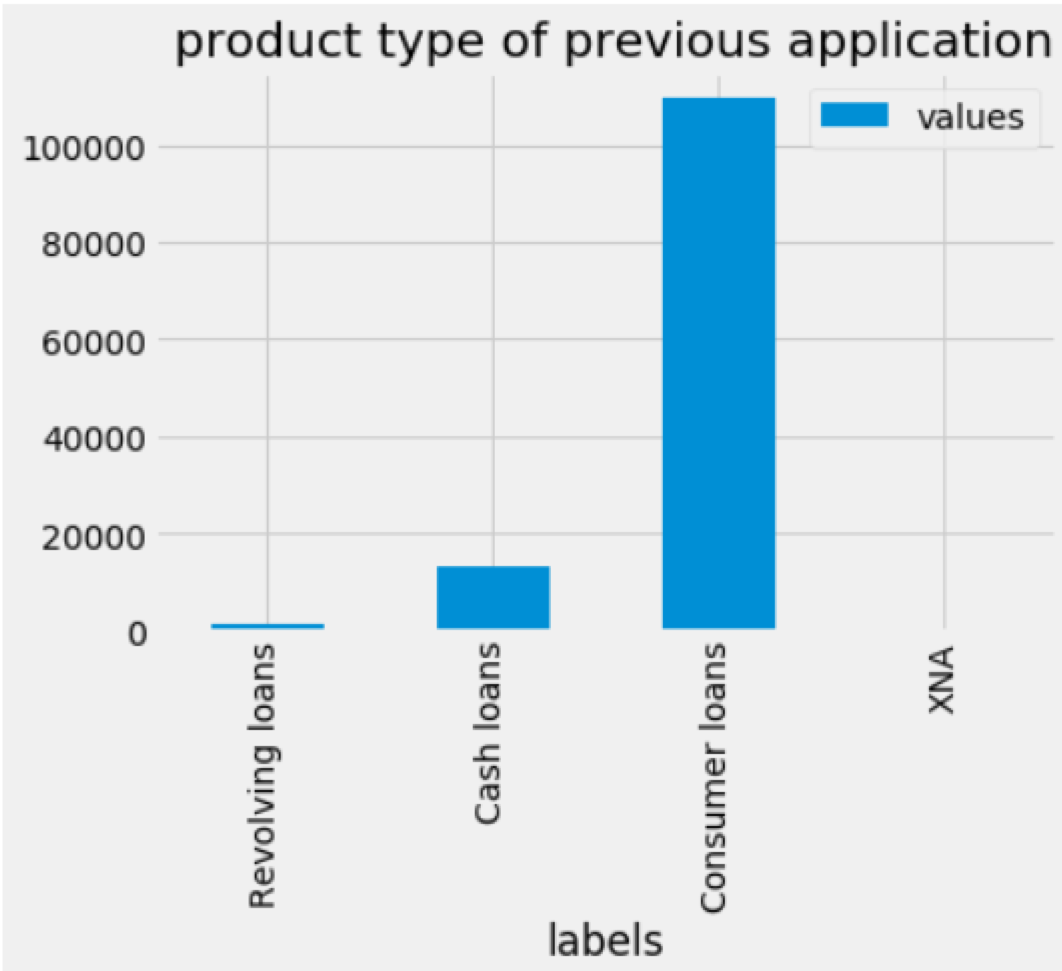


	business_name	success	failure
0	Business Entity Type 3	2.056187	20.054242
1	XNA	0.972323	17.034838
2	Self-employed	1.270849	11.220412
3	Other	0.414619	5.010552
4	Medicine	0.239666	3.400204
5	Business Entity Type 2	0.292672	3.139075
6	Government	0.236089	3.147204
7	School	0.171051	2.720878
8	Trade: type 7	0.240642	2.305934
9	Kindergarten	0.157393	2.079926
10	Construction	0.255275	1.930337
11	Business Entity Type 1	0.158368	1.787578
12	Transport: type 4	0.162921	1.592463
13	Trade: type 3	0.117394	1.018175
14	Industry: type 9	0.073168	1.022077
15	Industry: type 3	0.113167	0.952811
16	Security	0.105362	0.950535
17	Housing	0.076420	0.885497
18	Industry: type 11	0.076095	0.803223
19	Military	0.043901	0.812654
20	Bank	0.042275	0.772980
21	Agriculture	0.083574	0.714446
22	Police	0.038047	0.723226
23	Transport: type 2	0.055933	0.660789
24	Postal	0.059185	0.642253
25	Security Ministries	0.031218	0.610710
26	Trade: type 2	0.043250	0.574614
27	Restaurant	0.068941	0.519981
28	Services	0.033820	0.478357
29	University	0.021137	0.410392
30	Industry: type 7	0.034145	0.390880
31	Transport: type 3	0.060811	0.325192
32	Industry: type 1	0.037397	0.300477
33	Hotel	0.020162	0.293973
34	Electricity	0.020487	0.288445
35	Industry: type 4	0.028942	0.256251
36	Trade: type 6	0.009431	0.195765
37	Industry: type 5	0.013333	0.181457
38	Insurance	0.011057	0.183083
39	Telecom	0.014308	0.173327
40	Emergency	0.013008	0.169100
41	Industry: type 2	0.010731	0.138206
42	Advertising	0.011382	0.128125
43	Realtor	0.013658	0.115118
44	Culture	0.006829	0.116419
45	Industry: type 12	0.004553	0.115443
46	Trade: type 1	0.010081	0.103086
47	Mobile	0.009431	0.093655
48	Legal Services	0.007805	0.091379
49	Cleaning	0.009431	0.075119
50	Transport: type 1	0.002927	0.062437
51	Industry: type 6	0.002602	0.033820
52	Industry: type 10	0.002276	0.033170
53	Religion	0.001626	0.026015
54	Industry: type 13	0.002927	0.018861
55	Trade: type 4	0.000650	0.020162
56	Trade: type 5	0.000976	0.014959
57	Industry: type 8	0.000976	0.006829


Types of Organizations in terms of loan is repayed or not in %
Repaid
Not Repaid
Count in %
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0
Business Entity Type 3
XNA
Self-employed
Other
Medicine
Business Entity Type 2
Government
School
Trade: type 7
Kindergarten
Construction
Business Entity Type 1
Transport: type 4
Trade: type 3
Industry: type 9
Industry: type 3
Security
Housing
Industry: type 11
Military
Bank
Agriculture
Police
Transport: type 2
Postal
Security Ministries
Trade: type 2
Restaurant
Services
University
Industry: type 7
Transport: type 3
Industry: type 1
Hotel
Electricity
Industry: type 4
Trade: type 6
Industry: type 5
Insurance
Telecom
Emergency
Industry: type 2
Advertising
Realtor
Culture
Industry: type 12
Trade: type 1
Mobile
Legal Services
Cleaning
Transport: type 1
Industry: type 6
Industry: type 10
Religion
Industry: type 13
Trade: type 4
Trade: type 5
Industry: type 8

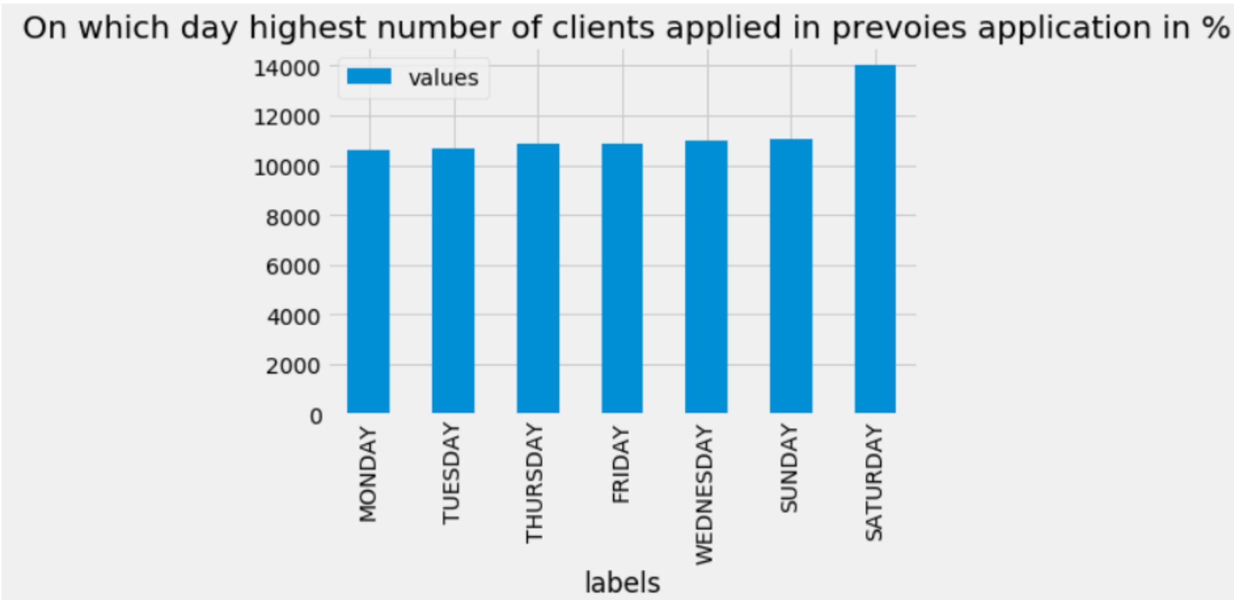
```
            labels     values
2  Revolving loans     1691.0
0       Cash loans    13257.0
1   Consumer loans   109781.0
3              XNA        NaN
```

```
1]: <matplotlib.axes._subplots.AxesSubplot at 0x218070a7ec8>
```



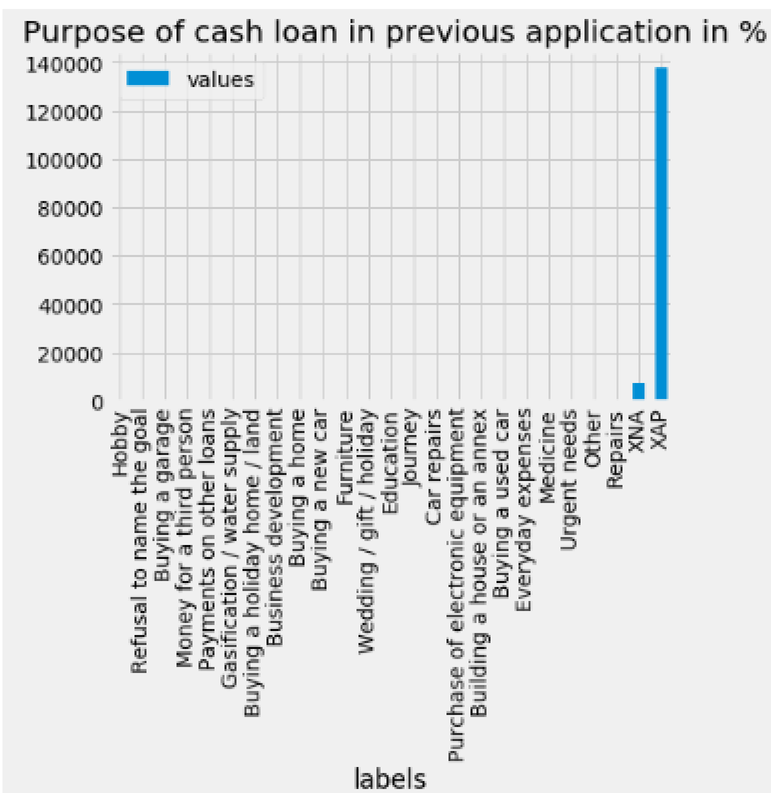
	labels	values
1	MONDAY	10595
5	TUESDAY	10678
4	THURSDAY	10838
0	FRIDAY	10896
6	WEDNESDAY	10966
3	SUNDAY	11076
2	SATURDAY	14060

<matplotlib.axes._subplots.AxesSubplot at 0x2180a314688>



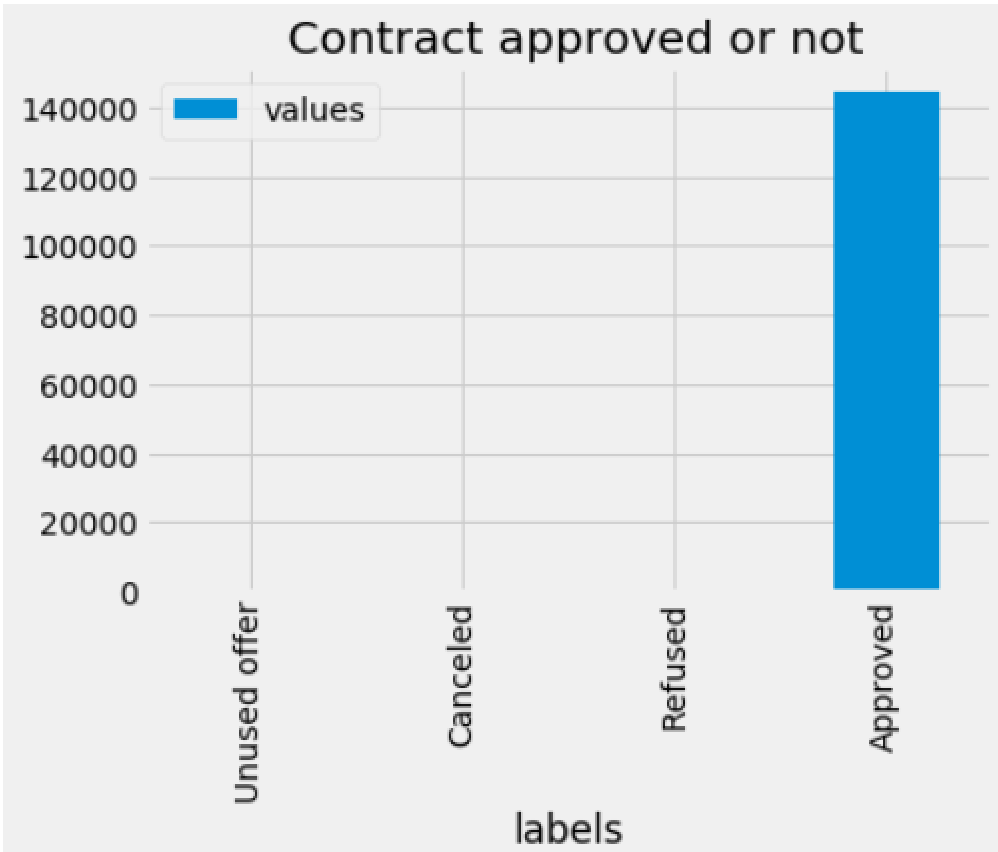
```
                           labels  values
12                          Hobby       1
19          Refusal to name the goal    1
2                  Buying a garage      2
15          Money for a third person    2
17           Payments on other loans    9
11        Gasification / water supply  11
3        Buying a holiday home / land  12
1               Business development   13
4                      Buying a home   17
5                   Buying a new car   20
10                         Furniture   30
22          Wedding / gift / holiday   35
8                          Education   40
13                           Journey   42
7                        Car repairs   43
18  Purchase of electronic equipment   43
0        Building a house or an annex  63
6                   Buying a used car  68
9                 Everyday expenses    74
14                          Medicine   86
21                      Urgent needs  323
16                             Other  456
20                           Repairs  757
24                               XNA 7365
23                               XAP 138032
```

<matplotlib.axes._subplots.AxesSubplot at 0x21809625648>



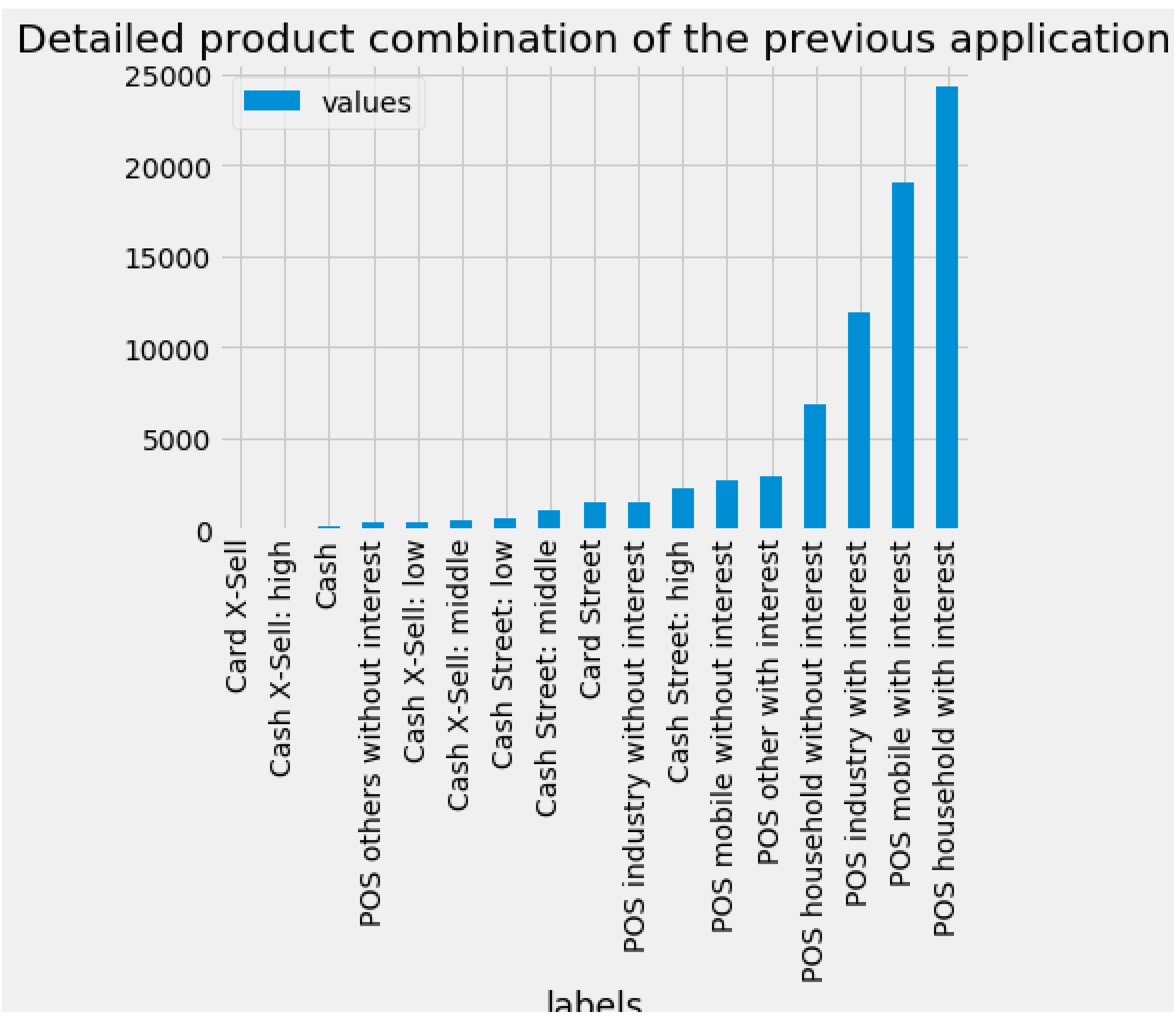
```
         labels  values
3  Unused offer     175
1      Canceled     255
2       Refused     499
0      Approved  144615
```

<matplotlib.axes._subplots.AxesSubplot at 0x2187062c1c8>



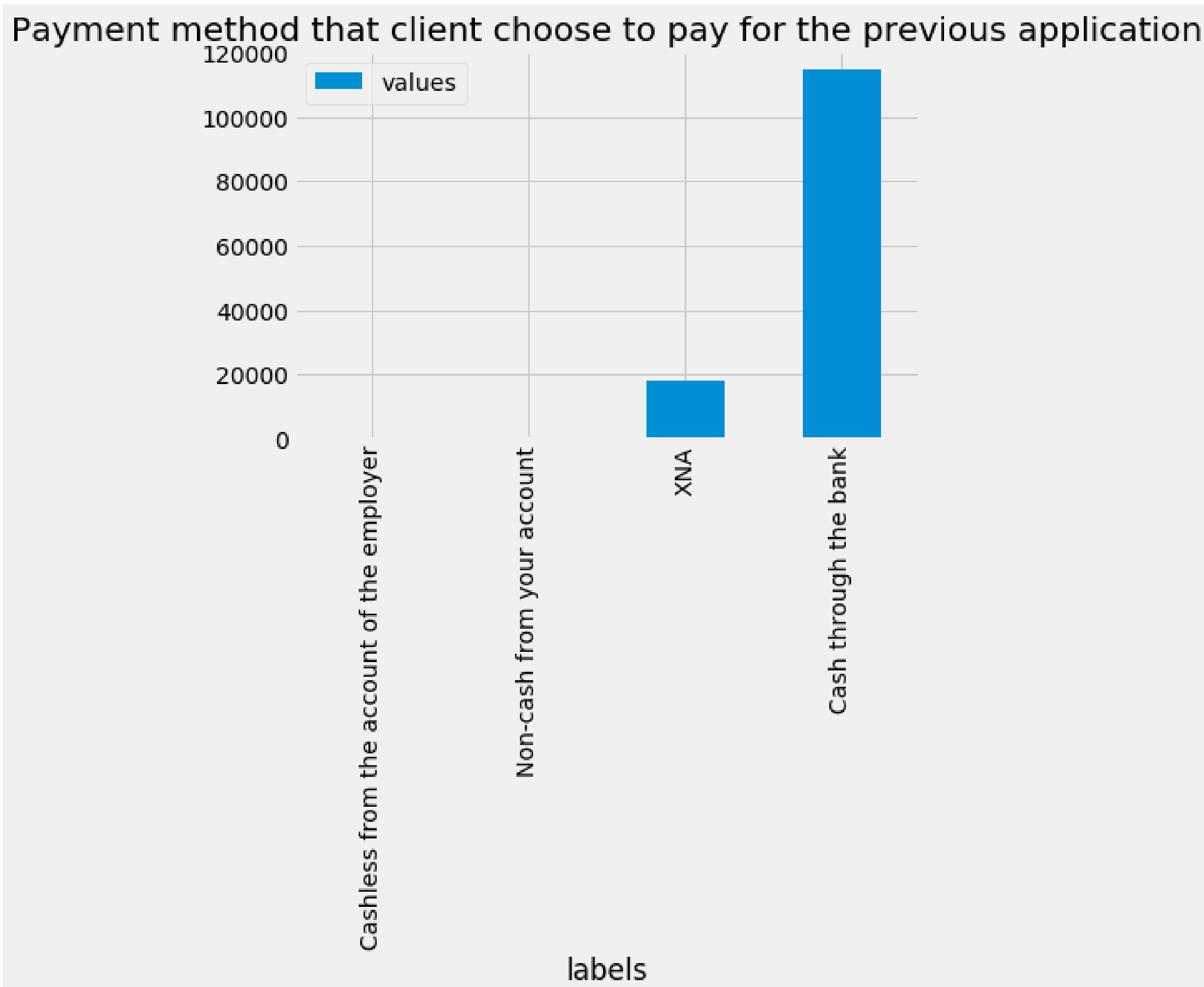
```
                                labels  values
1                          Card X-Sell     104
6                   Cash X-Sell: high      112
2                                 Cash     234
16       POS others without interest      361
7                    Cash X-Sell: low      375
8                 Cash X-Sell: middle      540
4                   Cash Street: low      630
5                Cash Street: middle     1053
0                         Card Street     1527
12    POS industry without interest     1534
3                   Cash Street: high     2225
14      POS mobile without interest     2678
15          POS other with interest     2879
10  POS household without interest     6887
11       POS industry with interest    11931
13         POS mobile with interest    19062
9       POS household with interest    24355
```

<matplotlib.axes._subplots.AxesSubplot at 0x21808c17448>



	labels	values
1	Cashless from the account of the employer	52
2	Non-cash from your account	567
3	XNA	18194
0	Cash through the bank	114980

```
<matplotlib.axes._subplots.AxesSubplot at 0x21809ca1108>
```



```
                     labels  values
1                Car dealer      22
3            Contact center     491
2  Channel of corporate sales     500
0             AP+ (Cash loan)    1590
6            Regional / Local   11383
5      Credit and cash offices   12685
7                       Stone   23451
4                Country-wide   56174
```

<matplotlib.axes._subplots.AxesSubplot at 0x2180f08e7c8>