Part II - what kind of status does the borrowers needs to augment the chances of getting a loan/number of investor.

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Investigation Overview

> in this investigation iam trying to find out if the status of the borrowers affect the chances of getting a loan/number of investor.

Dataset Overview

> This data set contains 113937 loans with 81 variables on each loan, for the purpose of this investigation I've taken the following variables: Term, LoanStatus, BorrowerRate, ProsperRating (Alpha), ListingCategory (numeric), EmploymentStatus, DelinquenciesLast7Years, StatedMonthlyIncome, TotalProsperLoans, LoanOriginalAmount, LoanOriginationDate, Recommendations, Investors. All to manipualte and study to find an answer to my question.

```
# import all packages and set plots to be embedded inline
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sb

%matplotlib inline

# suppress warnings from final output
import warnings
warnings.simplefilter("ignore")
```

```
from google.colab import drive
drive.mount('/content/gdrive')
```

```
Mounted at /content/gdrive
```

```
!cp '/content/gdrive/MyDrive/prosperLoanData.csv' '/content/'
```

```
# load in the dataset into a pandas dataframe
df = pd.read_csv('/content/prosperLoanData.csv')
```

```
# here we put the Selected_columns in an array
selected_columns =  [
     'LoanStatus', 'BorrowerRate', 'ProsperRating (Alpha)','Term', 'ListingCategory (numeric)', 'EmploymentStatus',
    'DelinquenciesLast7Years', 'StatedMonthlyIncome', 'TotalProsperLoans', 'LoanOriginalAmount',
     'Recommendations', 'Investors','LoanOriginationDate'
]
```

```
# and we use them here two filter only what we want
new_df = df[selected_columns]
```

```
# data wrangling
new_df.TotalProsperLoans = new_df.TotalProsperLoans.replace(np.nan, 0)

new_df = new_df.dropna(subset=['ProsperRating (Alpha)']).reset_index()

new_df['LoanOriginationDate'] = pd.to_datetime(new_df['LoanOriginationDate'])

new_df.drop('index', axis=1, inplace=True)
```

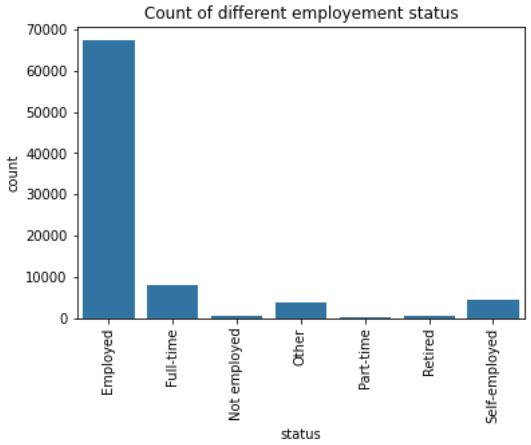
Employment Status

> Observation:

- The majority of borrowers are employed.
- a small quantity of borrowers are either not employed, retired or part-time.

```
default_color= sb.color_palette()[0]
```

```
sb.countplot(data=new_df, x=new_df['EmploymentStatus'].sort_values(), color=default_color)
plt.xticks(rotation=90);
plt.title('Count of different employement status')
plt.xlabel('status');
```



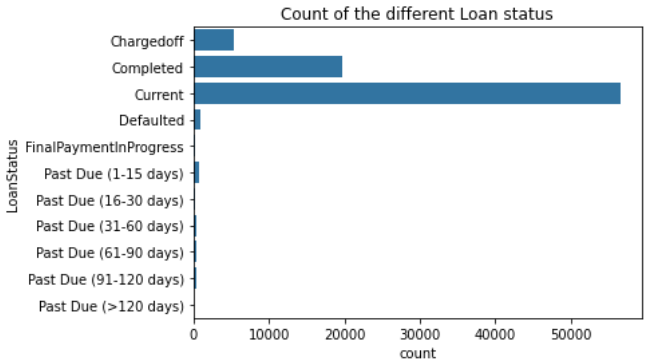
Loan status

> Observation 1:

- Most of the loans in the data set are actually current loans.
- Other relativly big part are completed loans, defaulted loans, and chargedoff loans.

```
# we set the default color
default_color = sb.color_palette()[0]

# and draw the plot using seaborn countplot
sb.countplot(data=new_df, y=new_df['LoanStatus'].sort_values(), color= default_color)
plt.title('Count of the different Loan status');
```



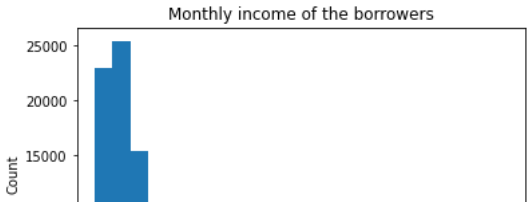
Stated Monthly Income

> Observation 3:

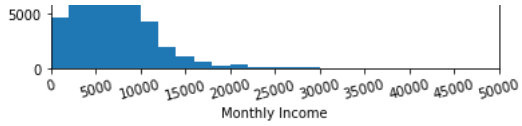
- the plot is right skewed with a the most frequent monthly income for a borrower is about 5000$.

```
binss = np.arange(0, new_df['StatedMonthlyIncome'].max(), 2000)
ticks = np.arange(0,50000+5000, 5000)

plt.hist(data=new_df, x='StatedMonthlyIncome', bins=binss)
plt.xlim(0, 50000)
plt.xlabel('Monthly Income')
plt.ylabel('Count')
plt.xticks(ticks, ticks, rotation=15)
plt.title('Monthly income of the borrowers');
```




```
!jupyter nbconvert Part_II_slide_deck_template.ipynb --to slides --post serve --no-input --no-prompt
```



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