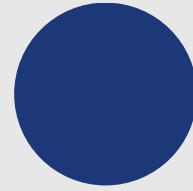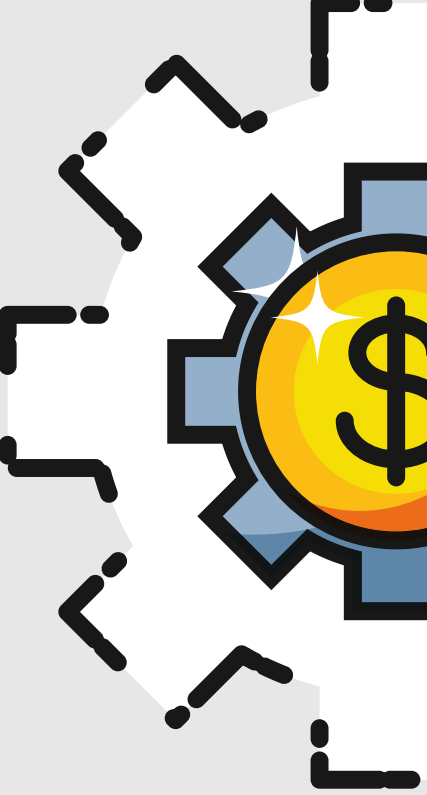# CUSTOMER PROFILING FOR PERFORMING LOANS

Study Case:
Microfinance Loan

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Data Preparation

```python
# Importing all libraries that needed
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
```
✓ 0.0s   Python

```python
# Read from csv data source
df = pd.read_csv('Microfinance.csv', encoding="ISO-8859-1")
df.sample(10)
```
✓ 0.0s   Python

	LoanID	CustomerID	DOB	Occupation	Home Ownership	Township	Region	Issue Date	Expected End Date	Days Overdue	Term Months	Current Term Months	Installment	Outstanding	Loan Status	Loan Amount	Funded Amount	Interest Rate	LoanType	Purpose
1748	ZL0739	CF7895	19/08/1981	Nurse	Family	Patheingyi	Mandalay	13/07/2024	13/08/2025	16.0	13	13	180000	180000	Late (16-30 days)	2400000	1000000	0.14	Hire Purchase Loan	Major Purchase
180	ZL1299	CF1209	09/05/1983	Farmer	Own	Tada7U	Mandalay	12/15/2022	15/08/2025	14.0	32	32	108000	108000	In Grace Period	1500000	1500000	0.15	Agricultural Loan	Agriculture
1245	ZL0264	CF4454	19/05/2000	Freelancer	Own	Taungoo	Bago	13/06/2024	13/08/2025	16.0	14	14	315000	315000	Late (16-30 days)	3700000	2000000	0.11	Home Improvement Loan	Household
54	ZL1135	CF0052	22/10/1976	Business Owner	Family	Nawnghkio	Shan	11/13/2023	13/07/2026	-318.0	32	21	315000	3465000	Current	3900000	700000	0.11	Home Improvement Loan	Household
855	ZL1983	CF3286	06/06/1965	Government Employee	Rent	Gyobingauk	Bago	4/13/2025	13/09/2027	-745.0	29	4	225000	5625000	Current	2900000	500000	0.13	Agricultural Loan	Agriculture
198	ZL1796	CF1267	28/04/1998	Private Company Employee	Rent	Meiktila	Mandalay	10/2/2024	02/01/2027	-491.0	27	10	315000	5355000	Current	3600000	1700000	0.11	Agricultural Loan	Agriculture
923	ZL1887	CF3490	21/11/1986	Teacher	Own	Okpho	Bago	3/31/2025	31/10/2027	-793.0	31	4	135000	3645000	Current	1800000	900000	0.15	Personal Loan	Debt Consolidation
1936	ZL0284	CF9496	27/01/1969	Teacher	Rent	Bago	Bago	13/11/2022	13/08/2025	16.0	33	33	108000	108000	Late (16-30 days)	1400000	1100000	0.16	Personal Loan	Vacation
1014	ZL1003	CF3740	25/10/1999	Doctor	Own	Myittha	Mandalay	9/15/2023	15/04/2026	-229.0	31	23	180000	1440000	Current	2500000	900000	0.13	Personal Loan	Moving
1535	ZL0517	CF5987	22/10/1975	Private Company Employee	Rent	Tharrawaddy	Bago	14/07/2023	14/08/2025	15.0	25	25	63000	63000	In Grace Period	800000	700000	0.18	Education Loan	Tuition Fee

Data Preparation

```
df.info()
```
✓ 0.0s

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 2000 entries, 0 to 1999
Data columns (total 20 columns):
 #   Column               Non-Null Count  Dtype
---  ------               --------------  -----
 0   LoanID               2000 non-null   object
 1   CustomerID           2000 non-null   object
 2   DOB                  2000 non-null   object
 3   Occupation           2000 non-null   object
 4   Home Ownership       2000 non-null   object
 5   Township             2000 non-null   object
 6   Region               2000 non-null   object
 7   Issue Date           2000 non-null   object
 8   Expected End Date     2000 non-null  object
 9   Days Overdue         2000 non-null   float64
 10  Term Months          2000 non-null   int64
 11  Current Term Months  2000 non-null   int64
 12  Installment          2000 non-null   int64
 13  Outstanding          2000 non-null   int64
 14  Loan Status          2000 non-null   object
 15  Loan Amount          2000 non-null   int64
 16  Funded Amount        2000 non-null   int64
 17  Interest Rate        2000 non-null   float64
 18  LoanType             2000 non-null   object
 19  Purpose              2000 non-null   object
dtypes: float64(2), int64(6), object(12)
memory usage: 312.6+ KB
```

Knowledge Source:

- Dataset contains client information for a fintech industry in Myanmar
- The dataset consists of 2,000 rows of data, where each row contains specific information for a microfinance client applying for a loan, detailed across 20 variables.
- 20 Variables: LoanID, CustomerID, DOB, Occupation, Home Ownership, Township, Region, Issue Date, Expected End Date, Days Overdue, Term Months, Current Term Months, Installment, Outstanding, Loan Status, Loan Amount, Funded Amount, Interest Rate, LoanType, Purpose

Show Bar Chart for All Statuses

Jumlah Pelanggan Berdasarkan Semua Loan Status
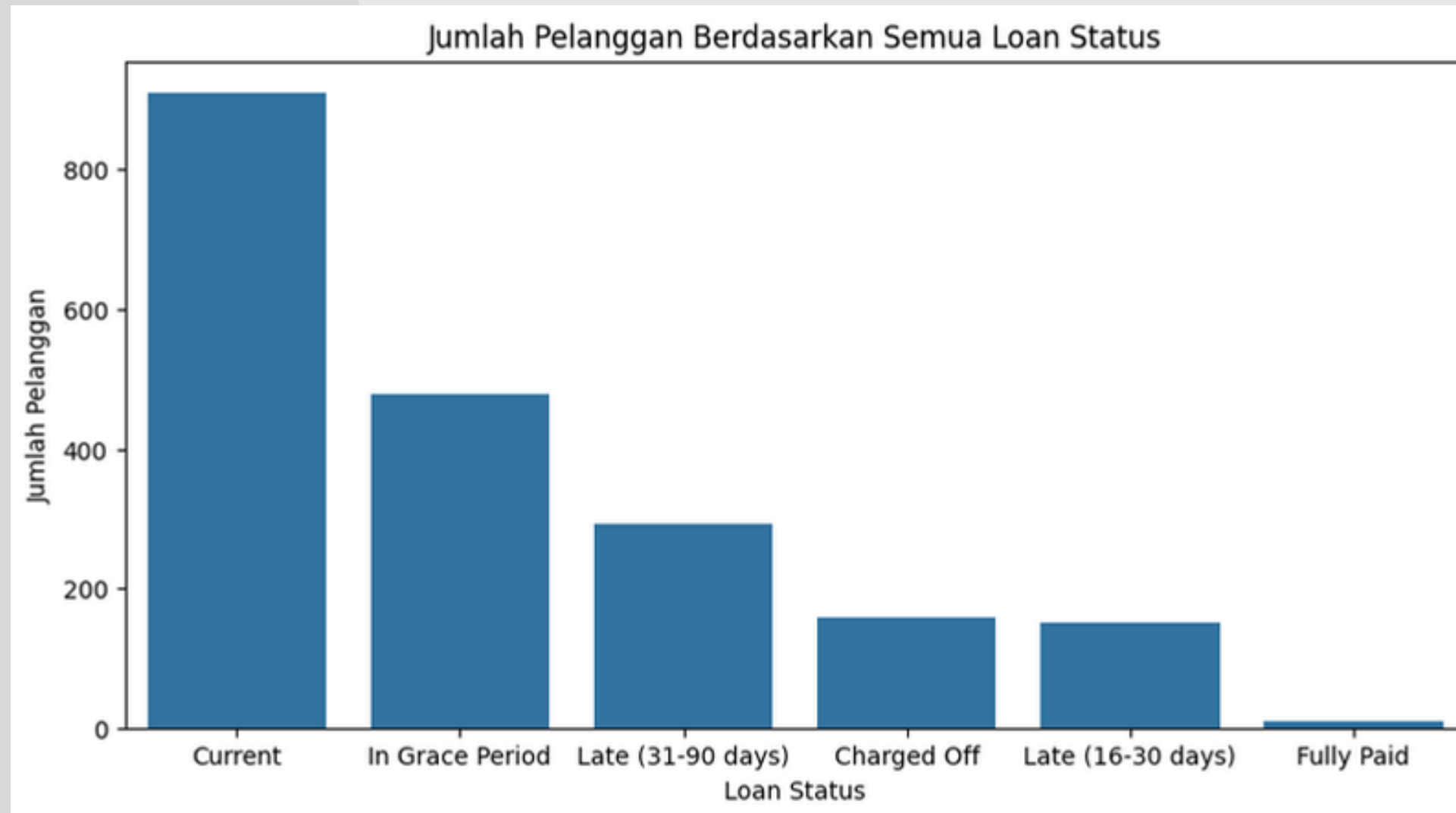
- Status "current" masih mendominasi portofolio credit ini, akan tetapi masih banyak yang berisiko terlambat bayar (in grace period)
- Jumlah kredit macet (charged off) dan terlambat parah (31-90 days) cukup signifikan
- Sangat sedikit pinjaman yang sudah lunas, hal ini mengidentifikasi bahwa portofolio ini masih baru
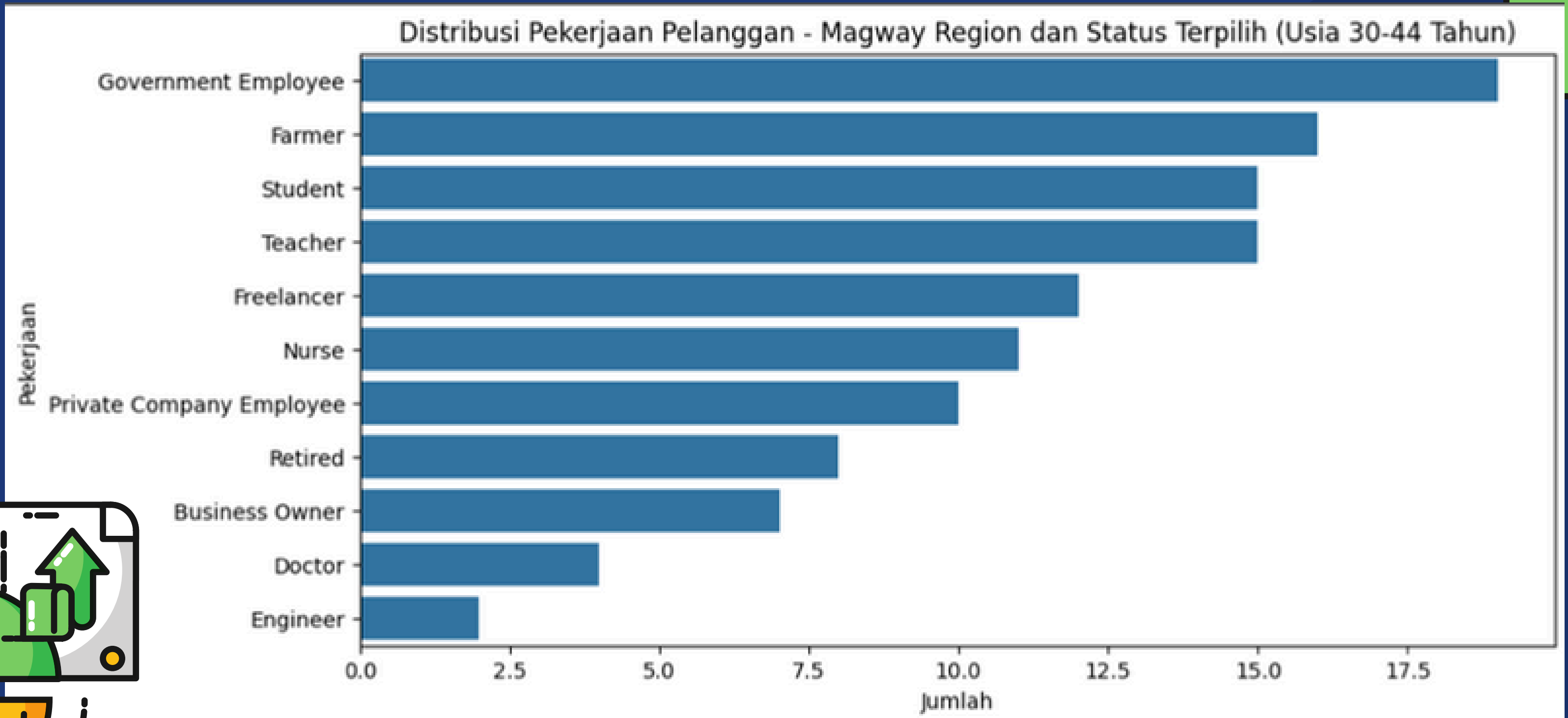
Show Top Regions based on the selected Loan Status

Distribusi Region (Current, Fully Paid, In Grace Period)
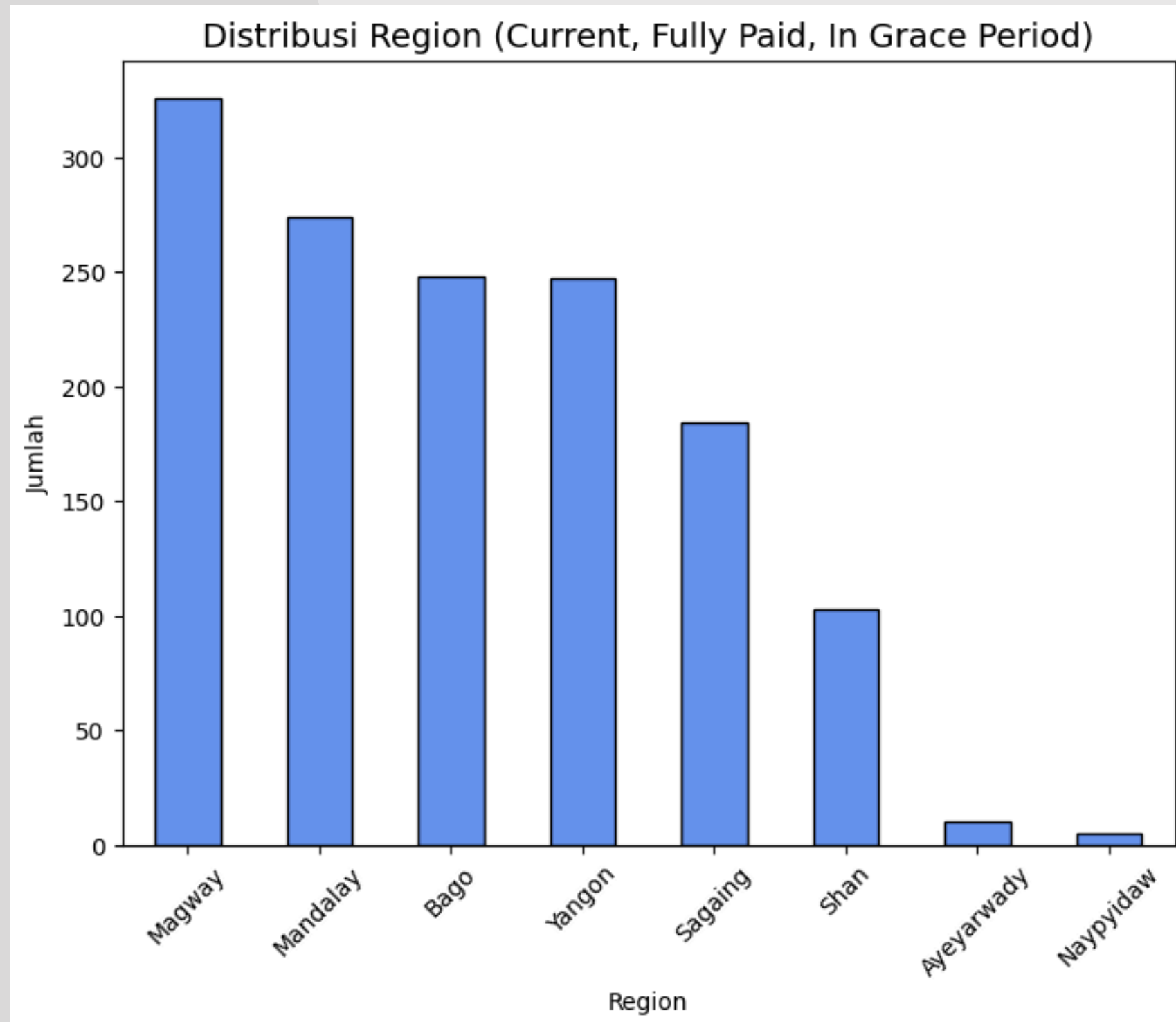
- Mayoritas portofolio credit lancar (lebih dari 70%) terkonsentrasi hanya di beberapa wilayah seperti Magway, Mandalay, Bago, dan Yangon.
- Wilayah Ayeyarwady dan Naypyidaw memiliki kensenjangan yang sangat tinggi dengan wilayah lainnya.
- Fokus bisnis dan akuisisi pelanggan saat ini sangat dominan di wilayah utama saja sementara wilayah lainnya memiliki kontribusi yang sangat kecil.
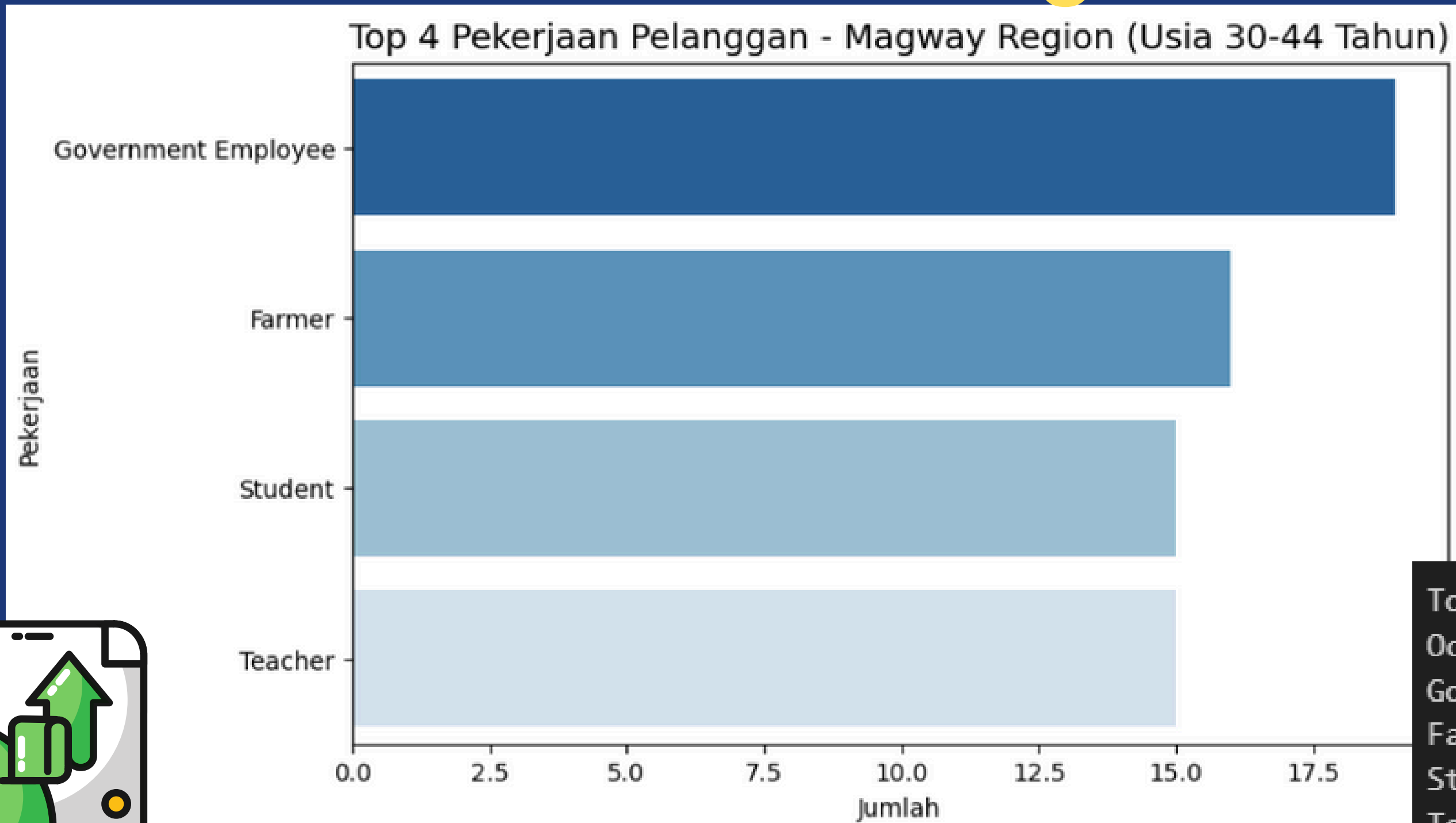
Profiling Based on Age dengan Status "Fully Paid", "Current", "On Grace Period"
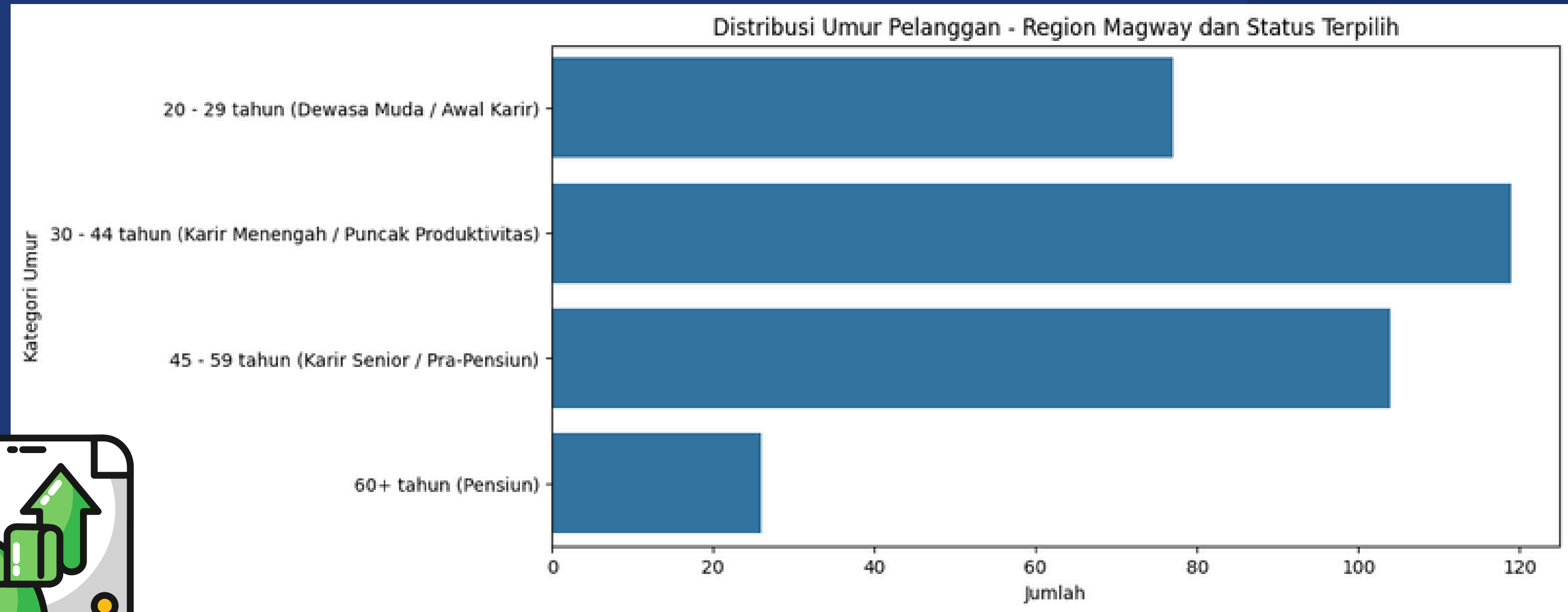
Distribusi Umur Pelanggan - Region Magway dan Status Terpilih

Show Occupation based on the selected Age

Distribusi Pekerjaan Pelanggan - Magway Region dan Status Terpilih (Usia 30-44 Tahun)

Show Occupation based on the selected Age

Top 4 Pekerjaan Pelanggan - Magway Region (Usia 30-44 Tahun)

Top 4 Occupation:
Occupation
Government Employee   19
Farmer   16
Student   15
Teacher   15
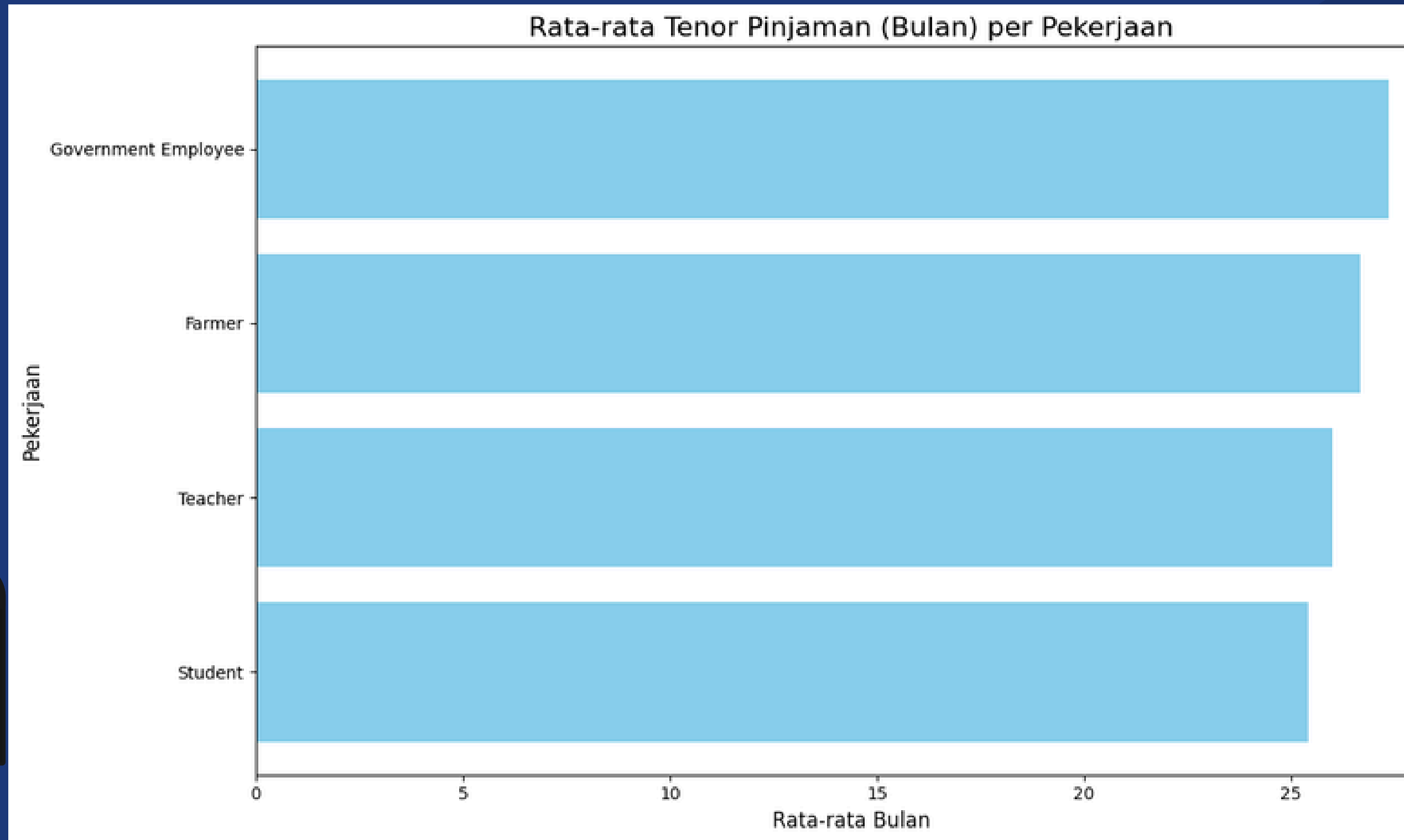Name: count, dtype: int64

# Show Avg Loan Amount of Occupation based on the selected Age

Rata-rata Jumlah Pinjaman (Loan Amount) per Pekerjaan
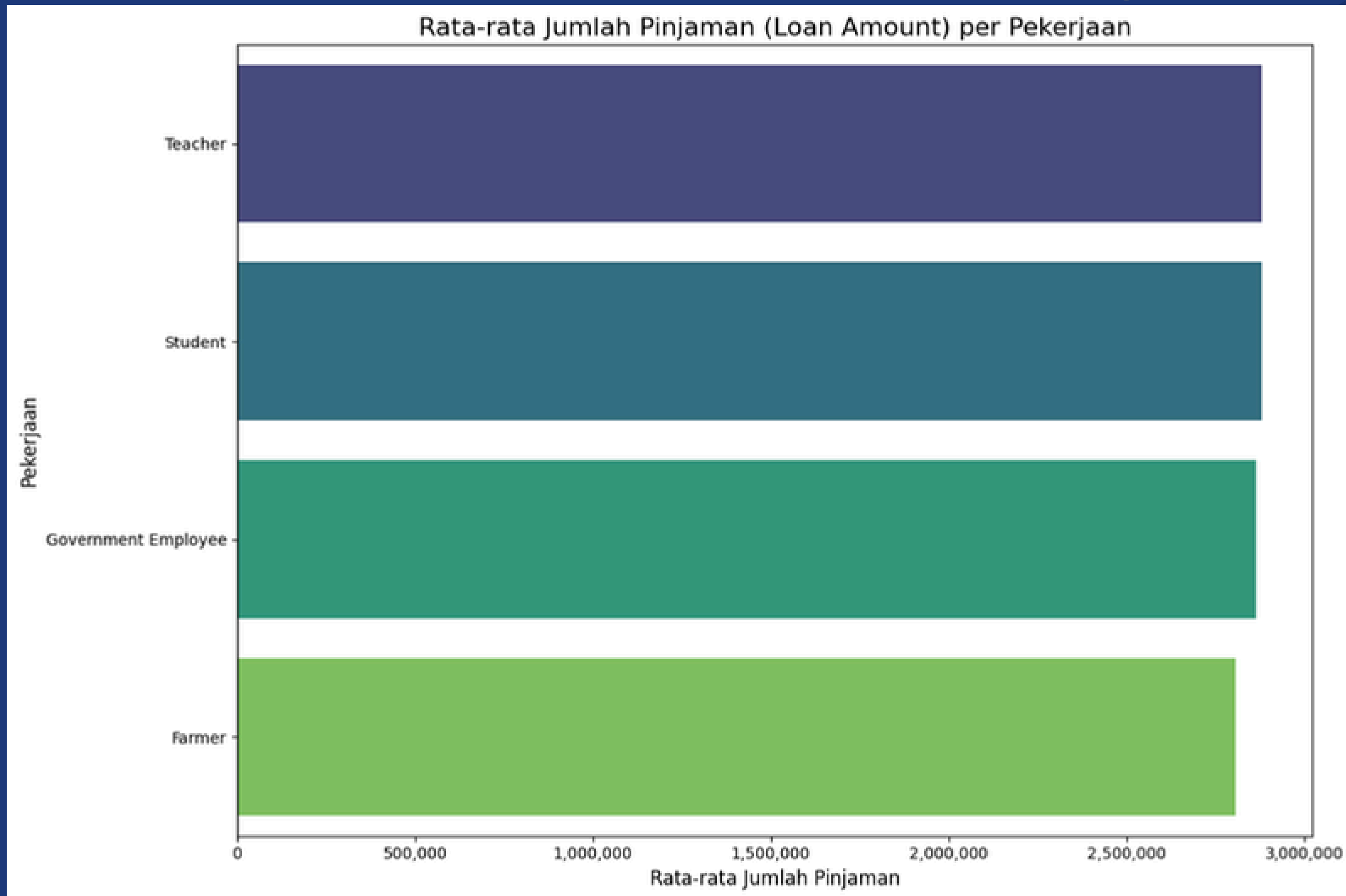
Show Avg Monthly Income of Occupation based on the selected Age

Rata-rata Pendapatan Bulanan per Pekerjaan
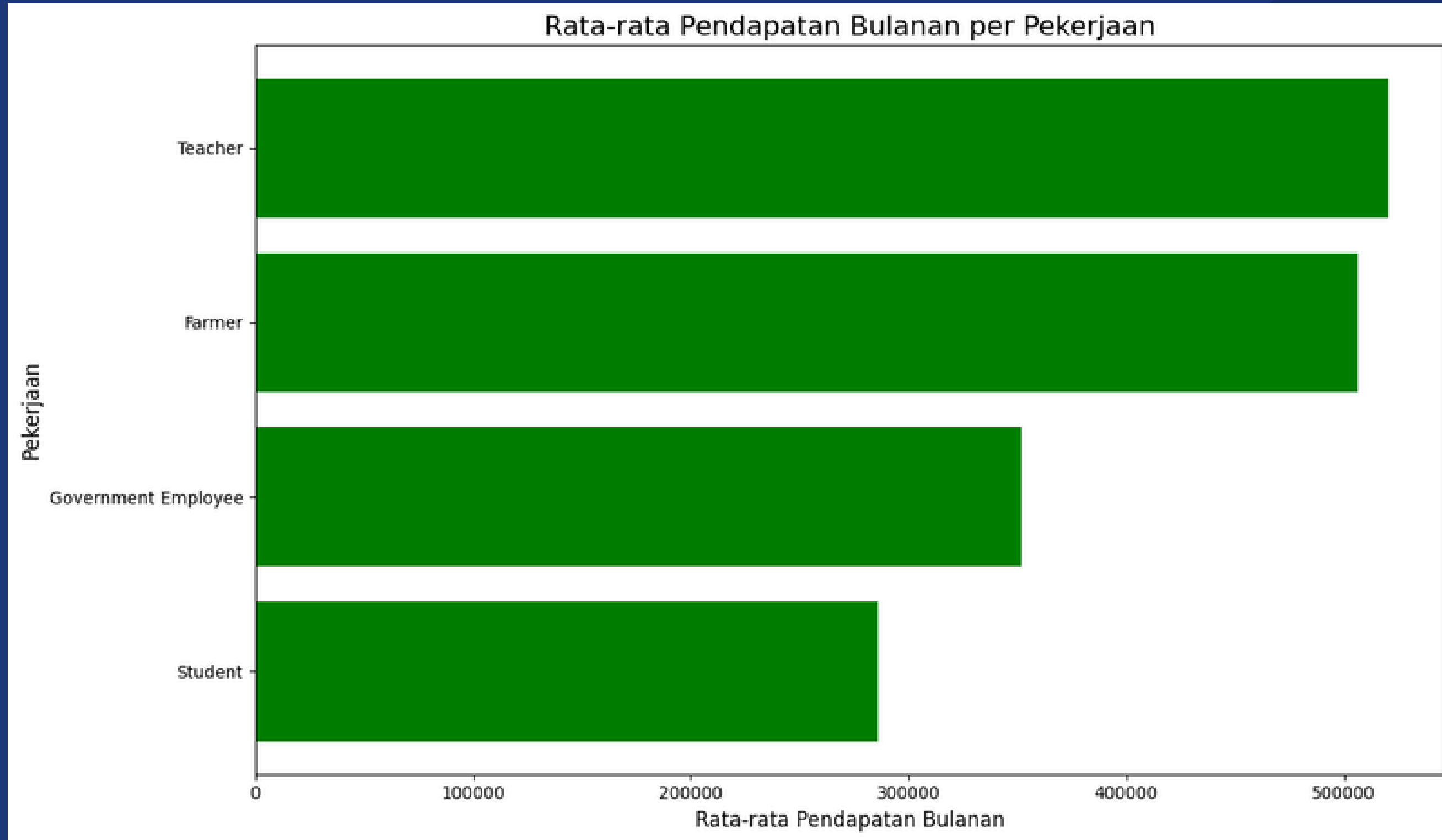
Show Avg Tenor Month of Occupation based on the selected Age

Rata-rata Tenor Pinjaman (Bulan) per Pekerjaan

Show Avg Interest Rate of Occupation based on the selected Age

Rata-rata Suku Bunga per Pekerjaan
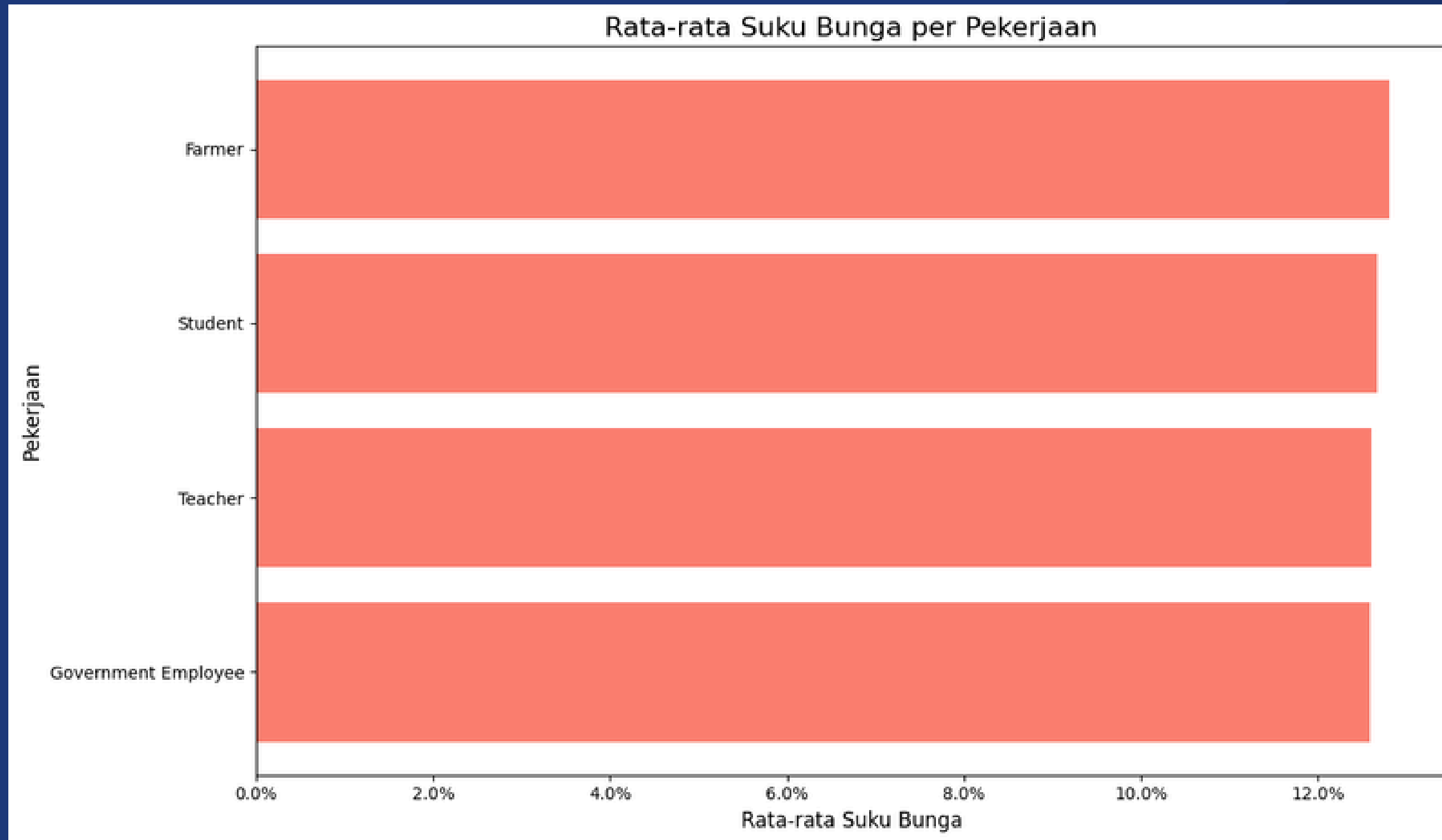
Show Purposes based on the Top 4 Occupation
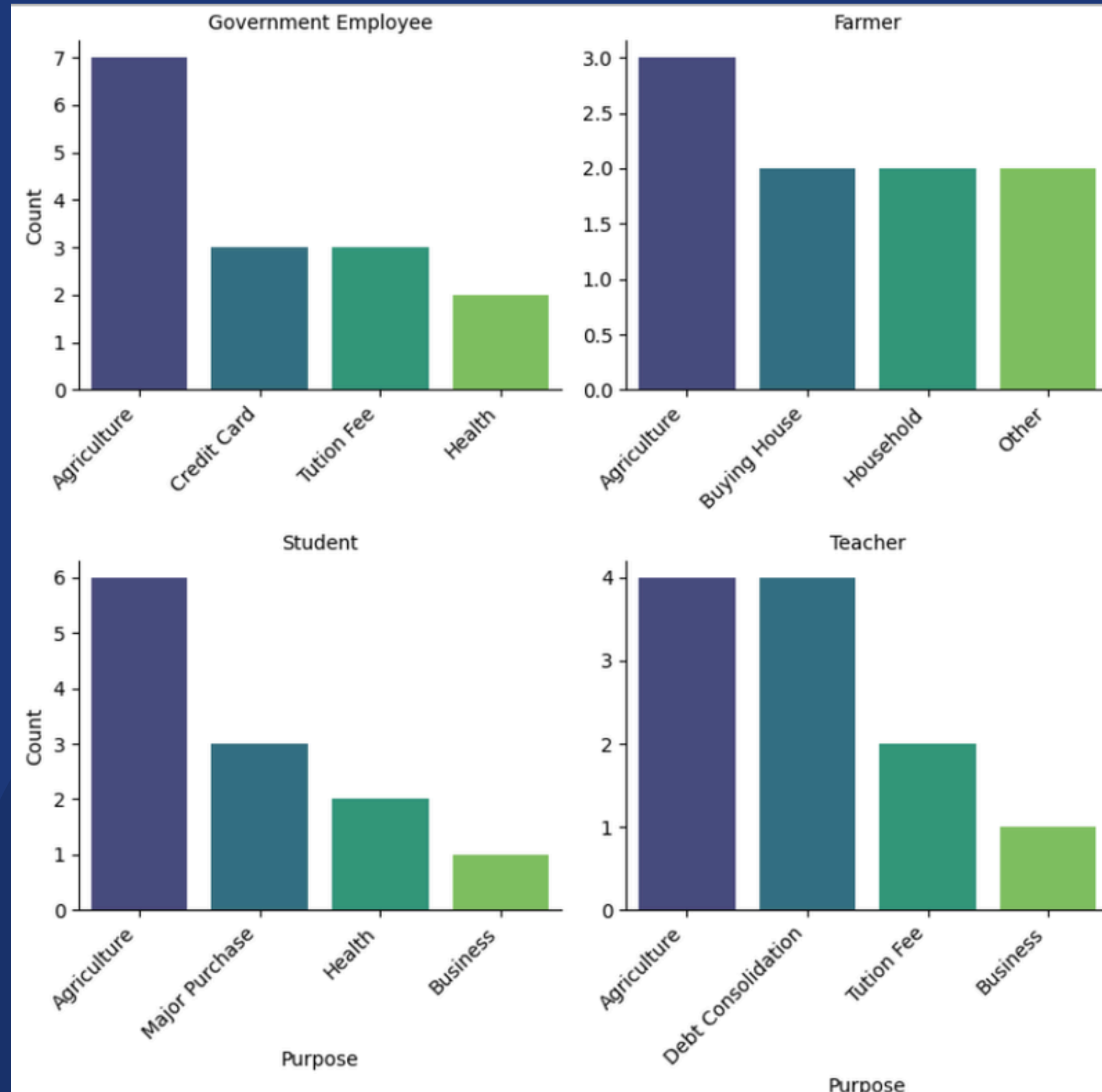
Show Home Owenership based on the Top 4 Occupation

Status Kepemilikan Rumah per Pekerjaan (Top 4, Usia 30-44, Magway)
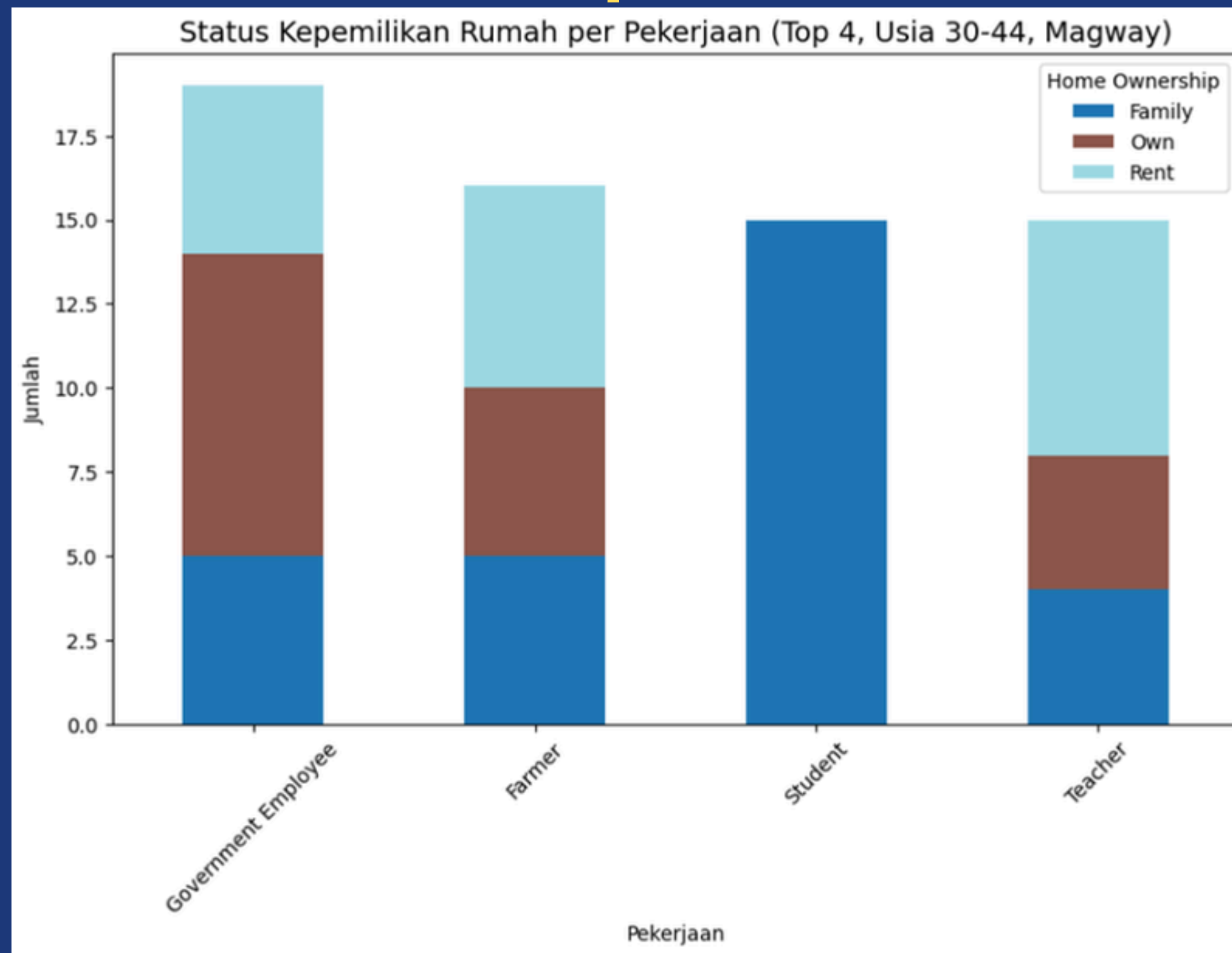
Our Customer Profile - Magway Region

- Usia 30-44 tahun
- Pekerjaan Utama: Government Employee (Pegawai Pemerintahan), Farmer (Petani), Student (Mahasiswa), dan Teacher (Guru).
- Tujuan peminjaman untuk agriculture
- Loan amount berada di antara 2.500.000 - 3.000.000
- Range pendapatan di 250.000 - 550.000
- Rata-rata mengambil tenor di antara 25-30 bulan
- Suku bunga favorit di 12-13%

Thank You

The best way to manage the future is not to predict it, but to create it with the right decisions today.