

BANK MARKETING ANALYSIS

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Problem Statement

Bank of Corporate conducted a telemarketing campaign for one of its financial products 'Term deposits' to build a long-term relationship with the existing customers. These campaigns need to be cost efficient such that the bank not only increases their overall revenues but also the total profit.

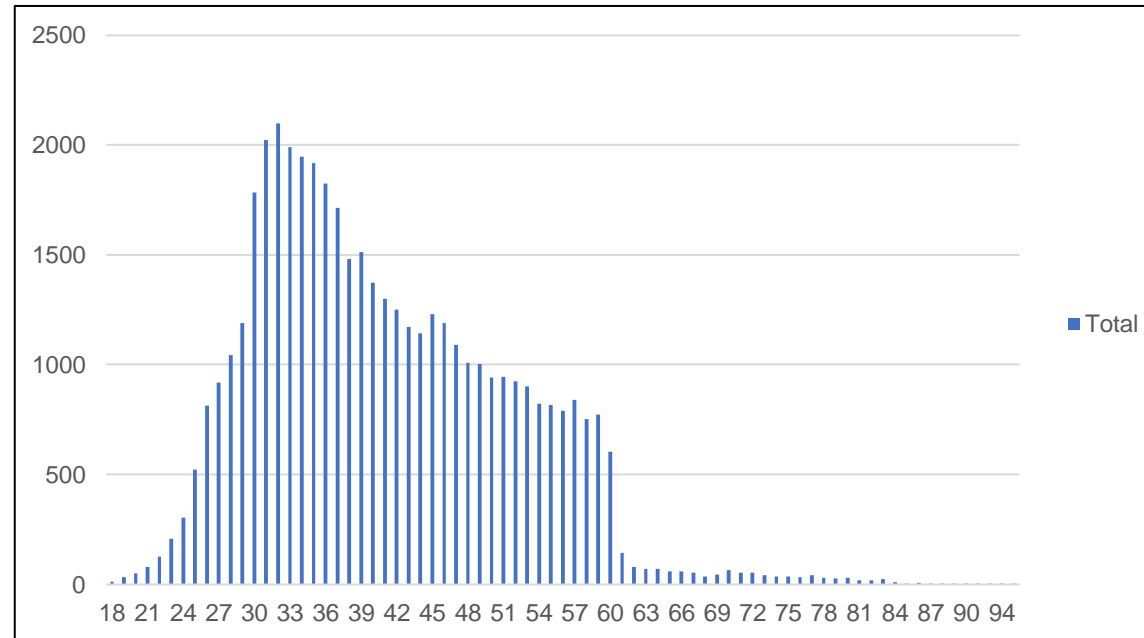
Assignment Objective

To identify the target customers and the driving factors behind the successful conversion of a customer and optimize future marketing campaigns.

PART I : Univariate Analysis

Marketing Campaign Optimization

Variable under consideration: AGE

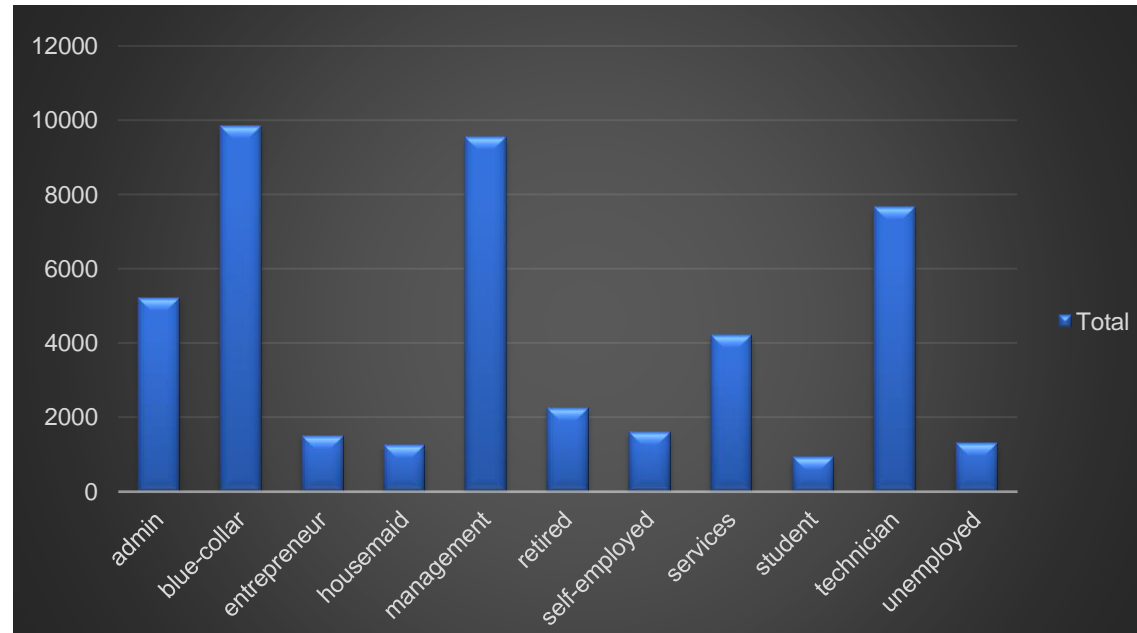


- Majority of the bank customers lie between the range of 23-60 years which can be considered as a working age group.
- Also, there is a steep decline in the number of customers after 60 years.

PART I : Univariate Analysis

Marketing Campaign Optimisation

Variable under consideration: JOBS



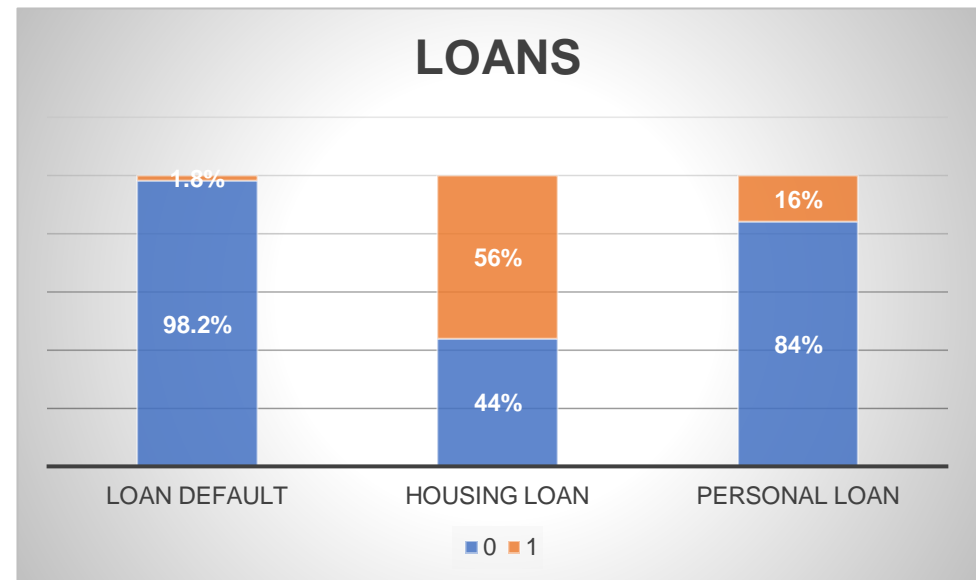
- The majority share of the working professionals are from the blue collar and management customer segment.

PART I : Univariate Analysis

Marketing Campaign Optimisation

Variable under consideration: LOANS

| | Loan Default | Housing Loan | Personal Loan |
|---|--------------|--------------|---------------|
| 0 | 98.2% | 44% | 84% |
| 1 | 1.8% | 56% | 16% |

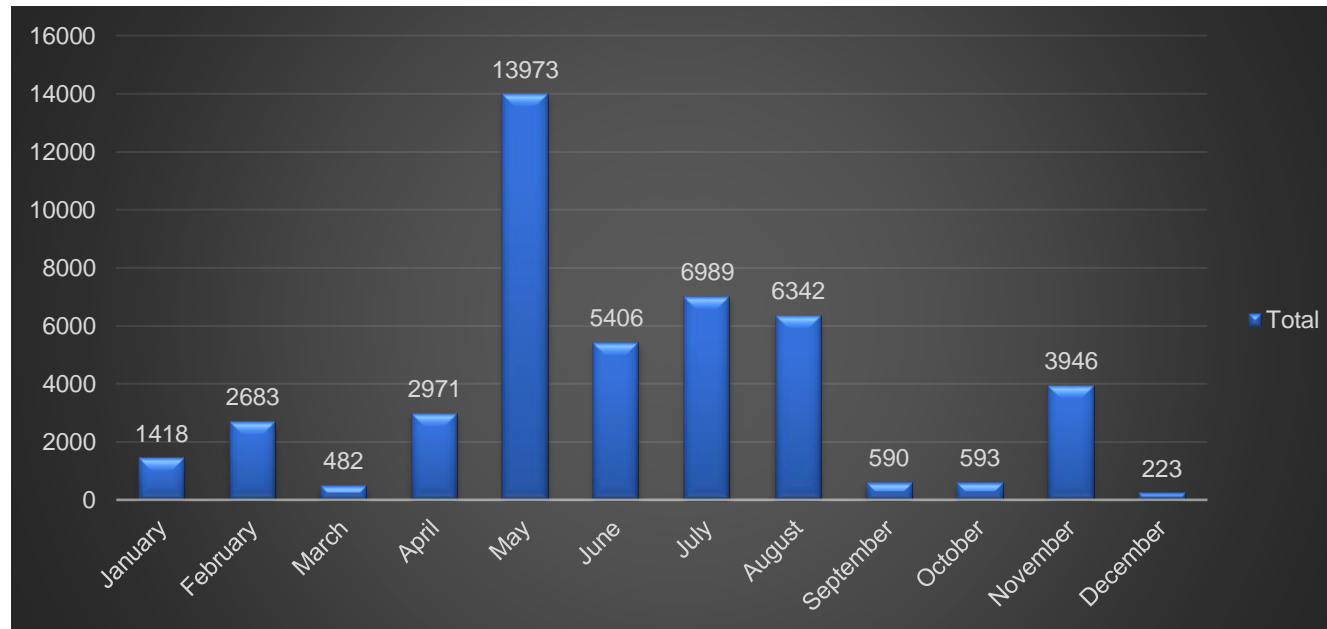


- The customers who defaulted the loan are very less which is **1.80%** of the total customers.
- Majority of the customers have taken the housing loan when compared to the personal loan, maybe due to the tax evasions and also for investment purposes.

PART I : Univariate Analysis

Marketing Campaign Optimisation

Variable under consideration: MONTH

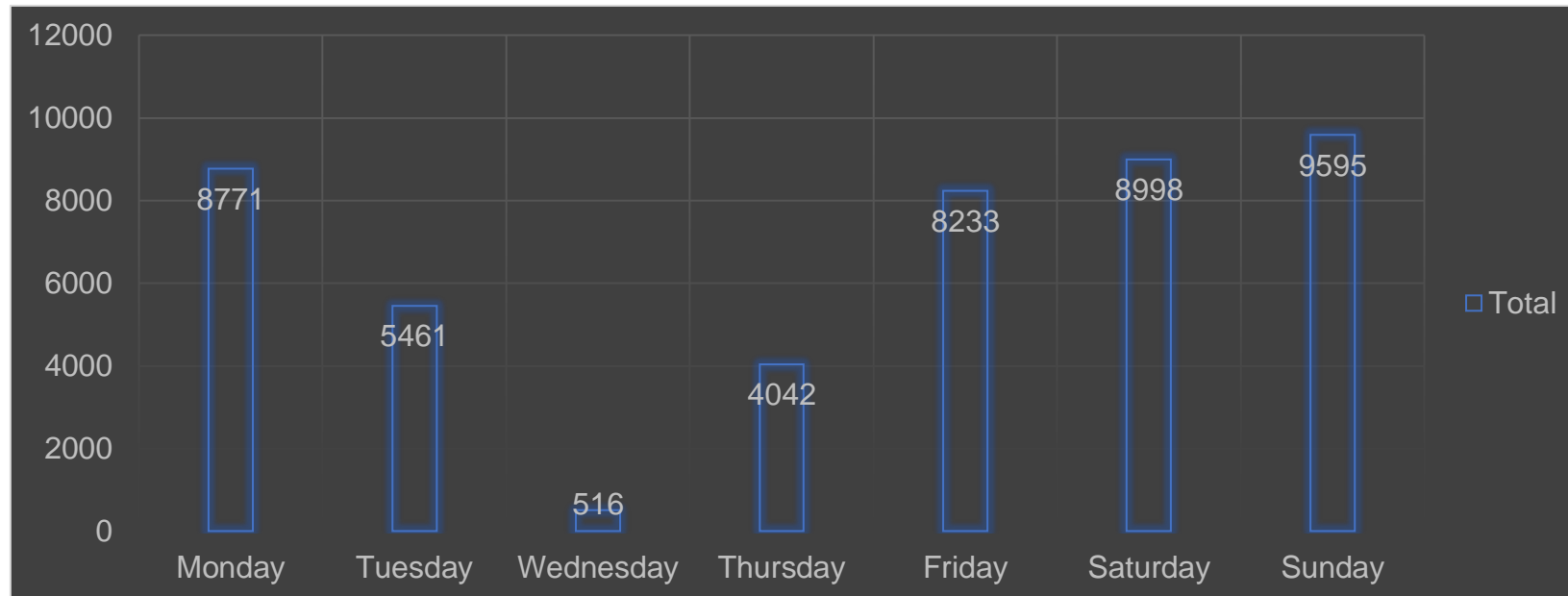


- The maximum calls are made to the customers in the month of **May**, i.e. (30.51%).
- The minimum calls are made in the month of **December**, i.e. (0.48%).

PART I : Univariate Analysis

Marketing Campaign Optimisation

Variable under consideration: DAY

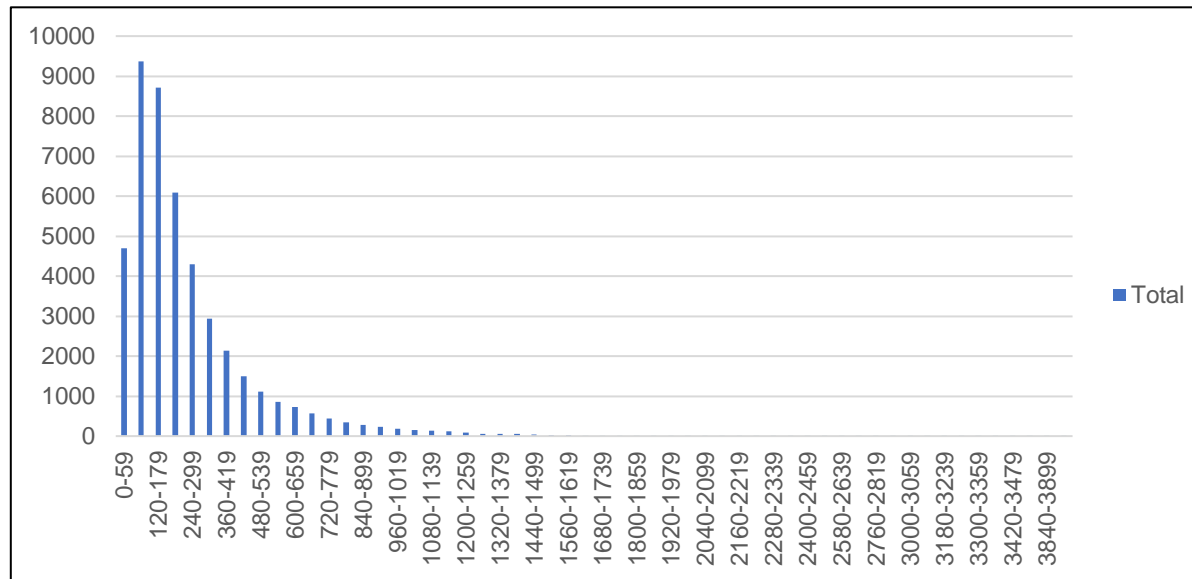


- The graph depicts that the bank reaches out to its customers only on **Weekends over Weekdays**.
- The reason for this action could be that majority of the customers are **working population**.

PART I : Univariate Analysis

Marketing Campaign Optimisation

Variable under consideration: CALL DURATION

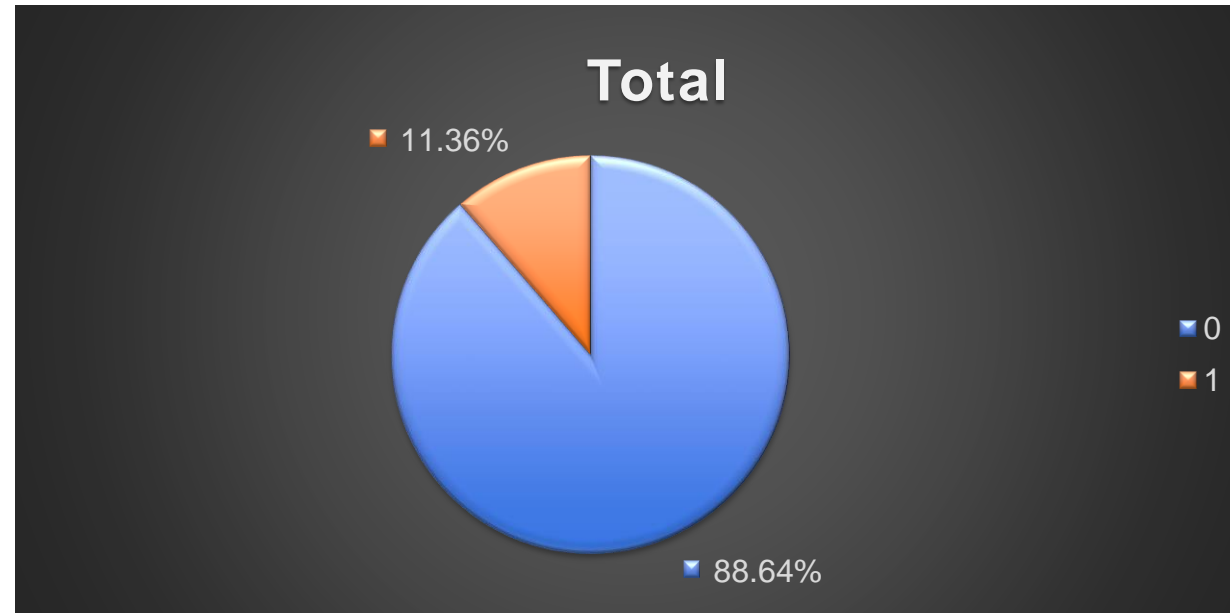


- From this graph, you can observe that the call duration with most of the customers lies **between 1-3 minutes**.
- The median of call duration is approx. **180 seconds**.

PART I : Univariate Analysis

Marketing Campaign Optimisation

Variable under consideration: SUBSCRIPTION

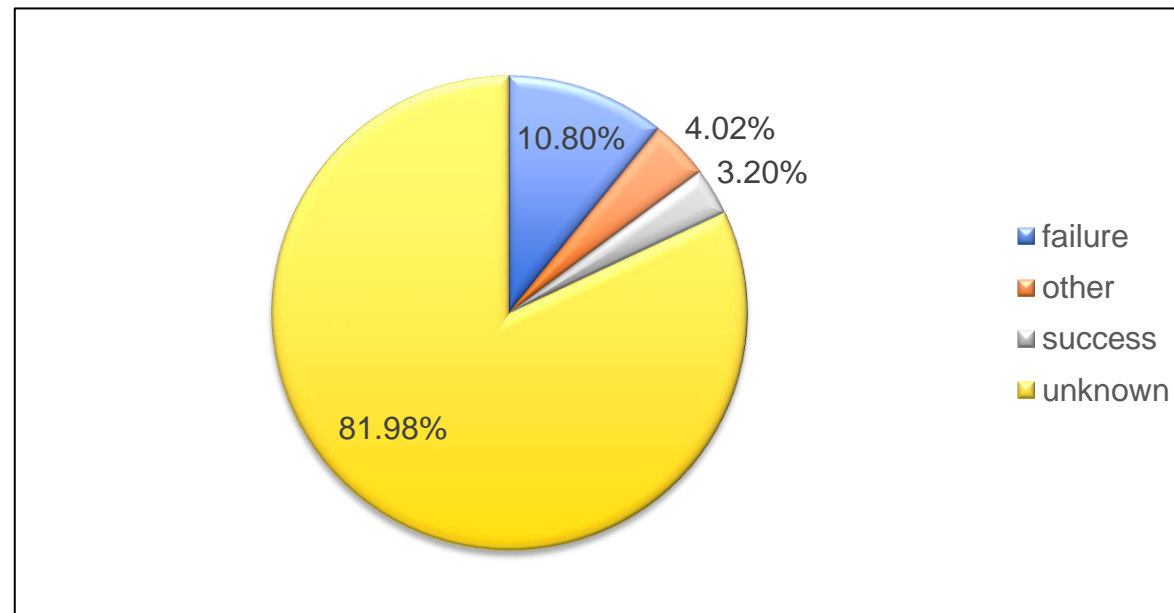


- Around **88.64%** of the customers have only subscribed to the product, and **11.36%** of them have not subscribed.

PART I : Univariate Analysis

Marketing Campaign Optimisation

Variable under consideration: SEGMENTED UNIVARIATE (P outcome)



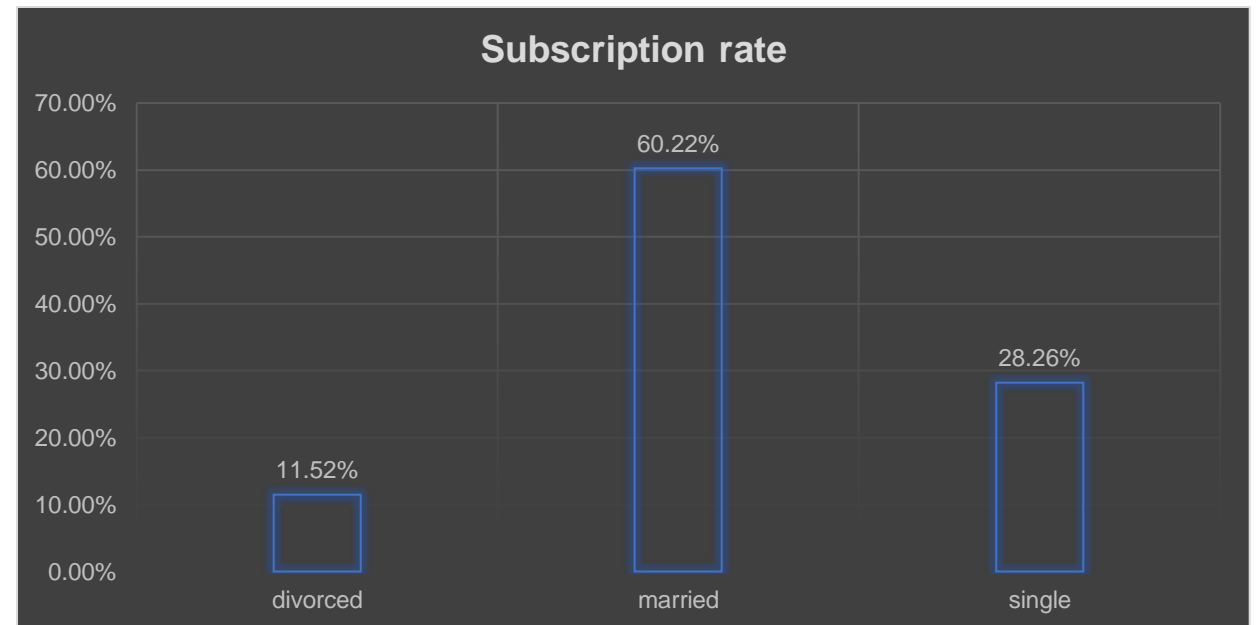
- Around **81%** of the customers are not reached earlier and reached out for the first time regarding some product by the bank.

PART II : Bivariate Analysis

Marketing Campaign Optimisation

Variables under consideration: SUBSCRIPTION, MARITAL STATUS, CALL DURATION

| Marital Status | Subscription rate |
|----------------|-------------------|
| divorced | 11.52% |
| married | 60.22% |
| single | 28.26% |



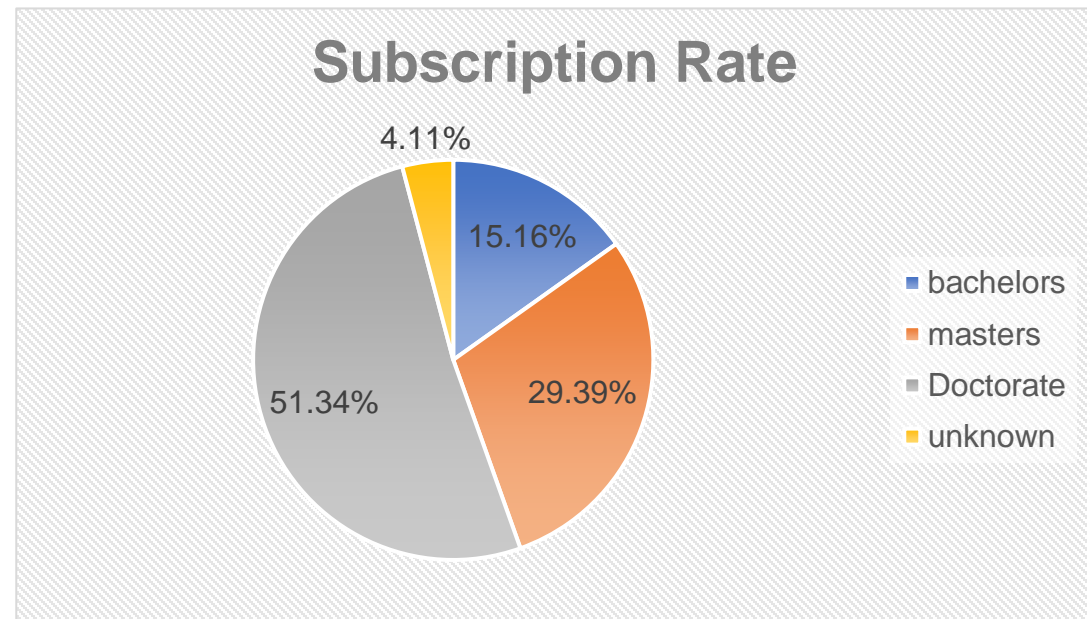
- Customers who are married have the highest subscription rate and divorced customers have the lowest subscription rate.

PART II : Bivariate Analysis

Marketing Campaign Optimisation

Variables under consideration: EDUCATION, SUBSCRIPTION RATE, CALL DURATION

| Education | Subscription Rate |
|-----------|-------------------|
| bachelors | 15.16% |
| masters | 29.39% |
| Doctorate | 51.34% |
| unknown | 4.11% |

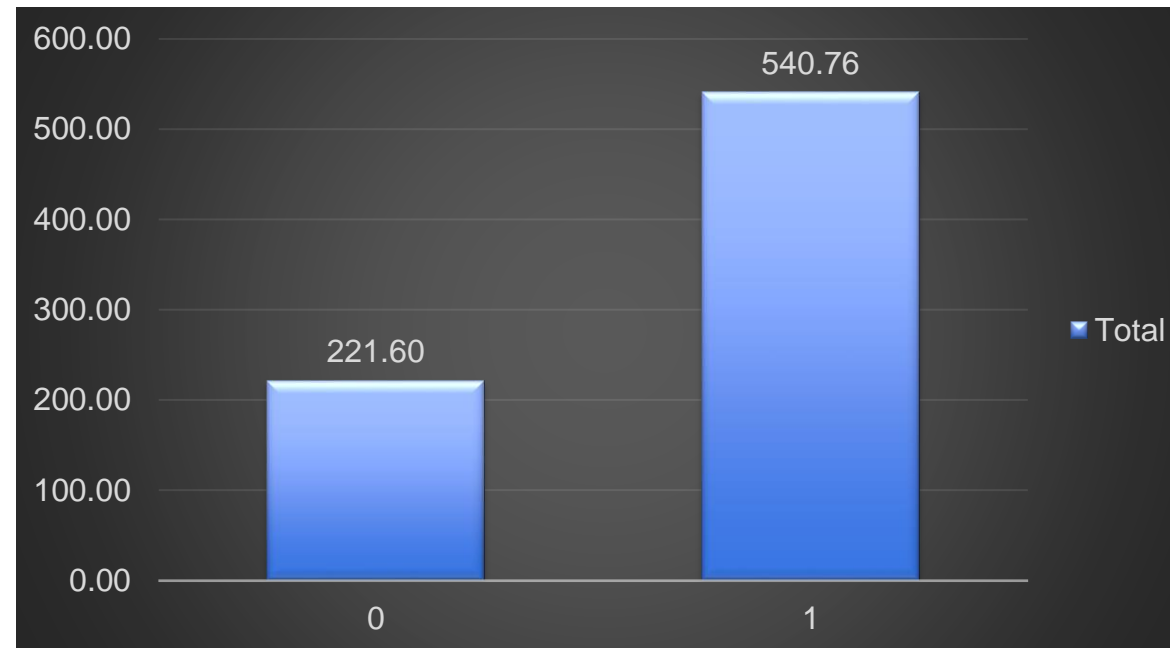


- Customers with **Doctorate & Masters** level of education have **higher subscription rate** and Customers with **bachelors** level of education and unknown have **low subscription rate**.

PART II : Bivariate Analysis

Marketing Campaign Optimisation

Variables under consideration: SUBSCRIPTION, AVG. CALL DURATION



- Average call duration is **high for the subscribed customers** and Average call duration is **low for unsubscribed customers**.

PART III: Optimisation Results

Marketing Campaign Optimisation

| Marital Status | Education | Average Call Duration (non-converted) | Average Call Duration (converted) | Conversion Rate | No. of Calls | Est. No. of Converted Calls | Est. no. of Non-Converted Calls | Estimated Cost |
|-----------------|-----------|---------------------------------------|-----------------------------------|-----------------|--------------|-----------------------------|---------------------------------|----------------|
| divorced | | 218.03 | 589.53 | 0.12 | 0 | 0 | 0 | 0 |
| | bachelors | 222.38 | 592.25 | 0.17 | 0 | 0 | 0 | 0 |
| | Doctorate | 215.68 | 562.08 | 0.34 | 0 | 0 | 0 | 0 |
| | masters | 218.09 | 608.07 | 0.48 | 0 | 0 | 0 | 0 |
| married | | 221.55 | 546.04 | 0.52 | 0 | 0 | 0 | 0 |
| | bachelors | 220.74 | 626.95 | 0.15 | 0 | 0 | 0 | 0 |
| | Doctorate | 218.41 | 484.91 | 0.35 | 0 | 0 | 0 | 0 |
| | masters | 223.41 | 564.1 | 0.5 | 0 | 0 | 0 | 0 |
| single | | 222.47 | 527.95 | 0.36 | 0 | 0 | 0 | 0 |
| | bachelors | 218.49 | 708.03 | 0.05 | 0 | 0 | 0 | 0 |
| | Doctorate | 217.03 | 493.03 | 0.48 | 0 | 0 | 0 | 0 |
| | masters | 226.67 | 544.96 | 0.17 | 0 | 0 | 0 | 0 |

- **Conversion Rate** = No. of Calls Converted / Total number of calls (No. of converted calls + No. of non-converted calls)
- **Converted Calls** = (No. of calls) * (Conversion Rate)
- **Cost / minute** = 10
- **Total Converted calls** = 0
- **Estimated cost** = [Cost/min. * (Est. no. of converted calls * Avg. call duration (converted)) + (Est. no. of non-converted calls * Avg. call duration (non-converted))] / 60

PART III: Optimisation Results

Marketing Campaign Optimisation

Constraints :-

| Constraints | LHS | Sign | RHS |
|-------------------------|-----|------|--------|
| Married | 0 | >= | 600 |
| Single | 0 | >= | 300 |
| Divorced | 0 | >= | 350 |
| Bachelors | 0 | >= | 400 |
| Doctorate | 0 | >= | 500 |
| Masters | 0 | >= | 600 |
| Budget | 0 | <= | 150000 |
| Conversion of Bachelors | 0 | >= | 120 |
| Conversion of Doctorate | 0 | >= | 120 |
| Conversion of Masters | 0 | >= | 120 |
| Conversion of Married | 0 | >= | 150 |
| Conversion of Single | 0 | >= | 150 |
| Conversion of Divorced | 0 | >= | 100 |
| NN1 | 0 | >= | 50 |
| NN2 | 0 | >= | 50 |
| NN3 | 0 | >= | 50 |
| NN4 | 0 | >= | 50 |
| NN5 | 0 | >= | 50 |
| NN6 | 0 | >= | 50 |
| NN7 | 0 | >= | 50 |
| NN8 | 0 | >= | 50 |
| NN9 | 0 | >= | 50 |

PART IV: Major insights

Marketing Campaign Optimisation

- Majority of the bank customers lie **between the range of 23-60 years** which can be considered as a working age group.
- The majority share of the working professionals are from the **blue collar and management** customer segment.
- Majority of the customers have **taken the housing loan** when compared to the personal loan, maybe due to the tax evasions and also for investment purposes.
- The maximum calls are made to the customers in the month of **May**, i.e. **(30.51%)**.
- The minimum calls are made in the month of **December**, i.e. **(0.48%)**.
- Around **88.64%** of the customers have only subscribed to the product, and **11.36%** of them have not subscribed.
- Around **81%** of the customers are not reached earlier and reached out for the first time regarding some product by the bank.
- Customers who are **married have the highest subscription rate** and **divorced customers have the lowest subscription rate**.
- Customers with **Doctorate & Masters** level of education **have higher subscription rate** and Customers with **bachelors** level of education and unknown have **low subscription rate**.
- Average call duration is **high for the subscribed customers** and Average call duration is **low for unsubscribed customers**.