BANK MARKETING ANALYTICS

iNeuron
Submitted By: Taj Hasan Mansuri

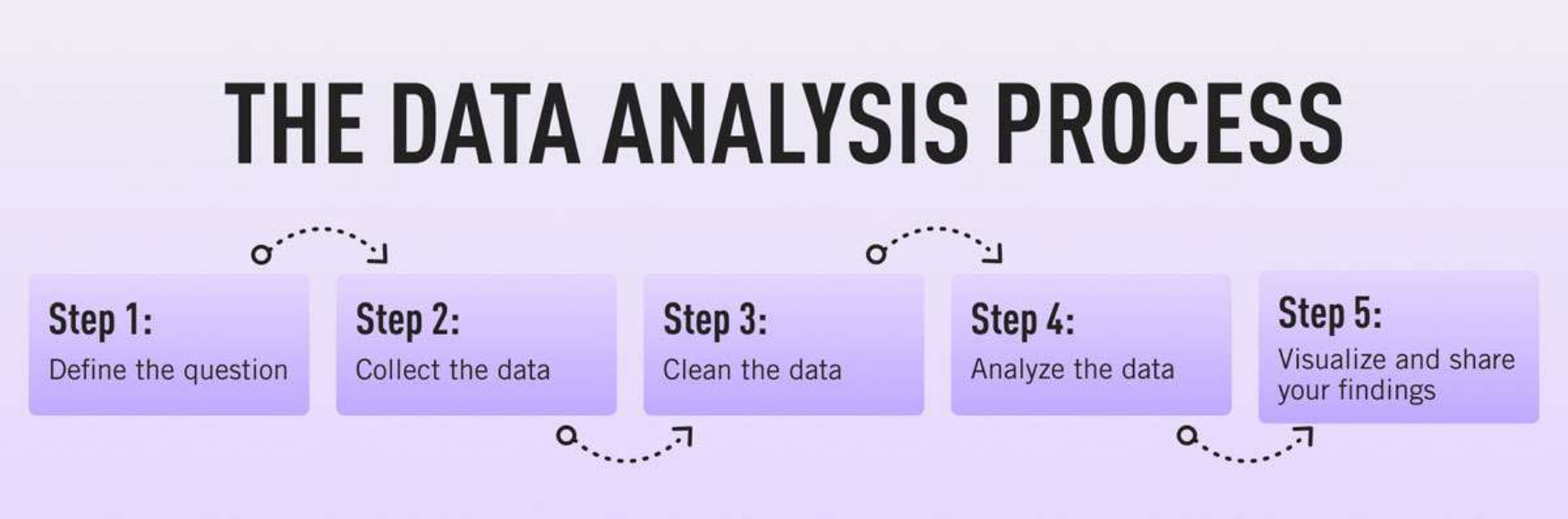
OBJECTIVE :

- To get insights about customers who subscribed term deposits. Insights include their demographical details and various indicators to know the customer better.
- To get insights about the effectiveness of the marketing campaign on the customers. These insights help the company to take data driven decisions which will enable the bank get more revenues by acquiring more customers as well as in cost cutting.

DATA SHARING AGREEMENT

- Sample file name (ex bank-additional-full.csv)
- Length of date stamp(8 digits)
- Length of time stamp(6 digits)
- Number of Columns
- Column names
- Column data type

ARCHIETECTURE



DATA OVERVIEW:

The zip file includes two datasets:

1) bank-additional-full.csv with all examples, ordered by date (from May 2008 to November 2010).
2) bank-additional.csv with 10% of the examples (4119), randomly selected from bank-additional-full.csv.
3) The smallest dataset is provided to test more computationally demanding machine learning algorithms (e.g., SVM).
4) The binary classification goal is to predict if the client will subscribe a bank term deposit (variable y).
5) Number of Instances: 41188 for bank-additional-full.csv
6) Number of Attributes: 20 + output attribute.

KEY PERFORMANCE INDICATOR

Key indicators displaying a summary of the Bank marketing Campaign's results and subscribers' information based on various parameters :

1. No of Subscribers based on age range.
2. Subscriber's demographics such as age, job, education and marital status.
3. Credit default information and analytics
4. Employment variation rate - quarterly indicator
5. Consumer price index - monthly indicator (numeric)
6. Consumer confidence index - monthly indicator (numeric)
7. Euribor 3-month rate - daily indicator (numeric)
8. Number of employees - quarterly indicator (numeric)

INSIGHT SUMMARY:

Insight 1: People who work in Administration, technician and Blue-collar jobs subscribe to term deposit the most.

Insight 2: People who are entrepreneur, unemployed or housemaid subscribe to term deposit the least.

Insight 3: Students, retired and unemployed are easiest to get whereas entrepreneur, blue-collar and service people are difficult to get subscribed.

Insight 4: Conversion rate of married people is higher than the single and divorced people.

Insight 5: Customers who have either University degree or went High school or have enrolled in professional course subscribed the term deposits most.

Insight 6: In the age between 60 to 80 and above the Leads conversion rate is maximum.

Insight 7: People in the age range of (30-40) are targeted maximum.

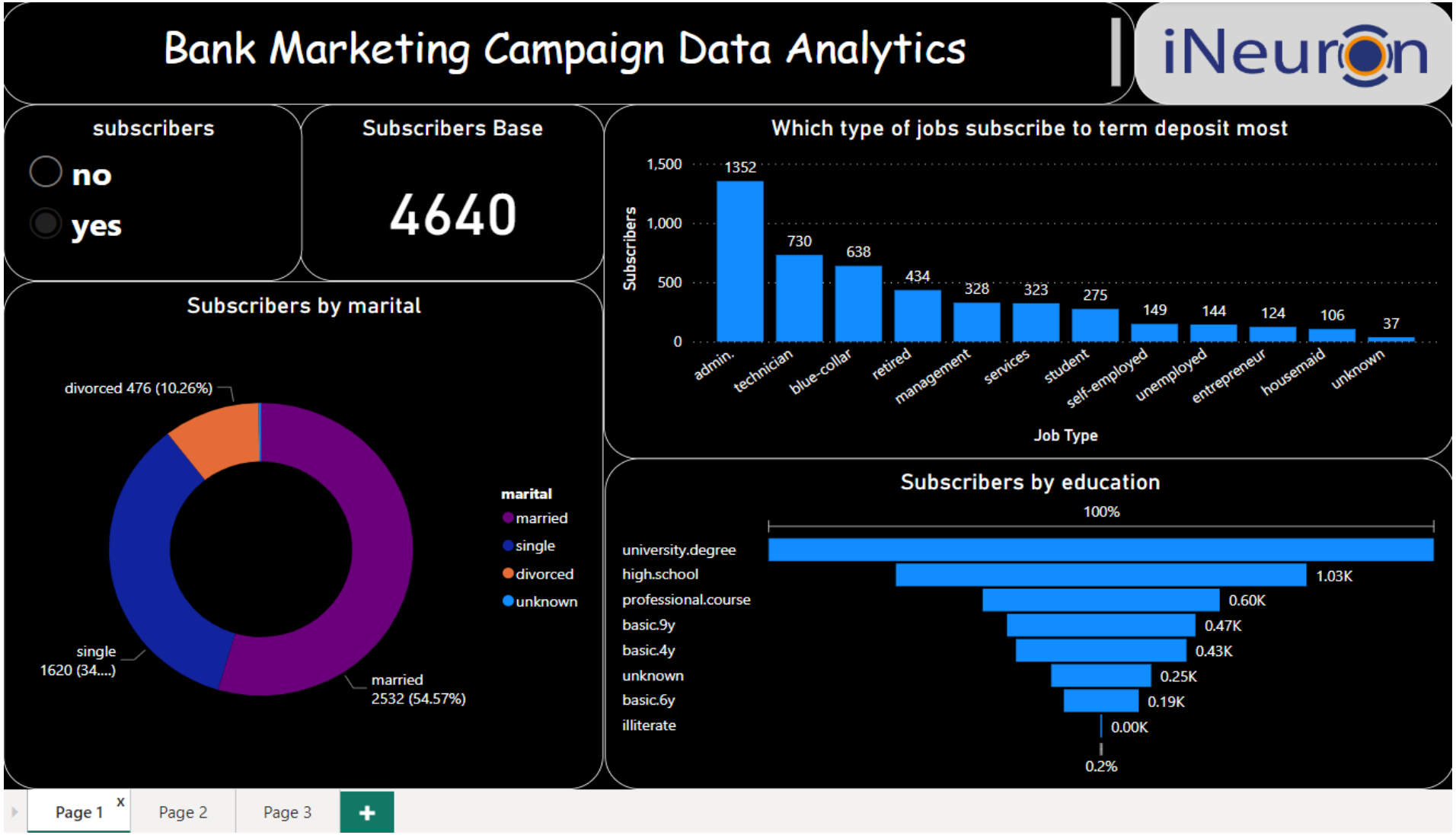
Insight 8: All of the Customers who have subscribed term deposit have not defaulted on credit.

Insight 9: Approximately half of the total leads have a home loan on them.

Insight 10: Approximately 50% of the customers subscribed within 1 contact.

Insight 11: There are two types of people that is; Cellular and Telephone Users and out of which there are 63.47% of the Subscribers are Cellular users.

Insight 12: Average duration per call for customers who subscribe to term deposit is 258.29 secs, maximum call duration is 4918 secs and minimum is 0 sec.


Bank Marketing Campaign Data Analytics
iNeuron
subscribers
no
yes
Subscribers Base
4640
Which type of jobs subscribe to term deposit most
Subscribers
1,500
1,000
500
0
1352
730
638
434
328
323
275
149
144
124
106
37
admin.
technician
blue-collar
retired
management
services
student
self-employed
unemployed
entrepreneur
housemaid
unknown
Job Type
Subscribers by marital
divorced 476 (10.26%)
single
1620 (34....)
married
2532 (54.57%)
marital
married
single
divorced
unknown
Subscribers by education
100%
university.degree
high.school
professional.course
basic.9y
basic.4y
unknown
basic.6y
illiterate
1.03K
0.60K
0.47K
0.43K
0.25K
0.19K
0.00K
0.2%
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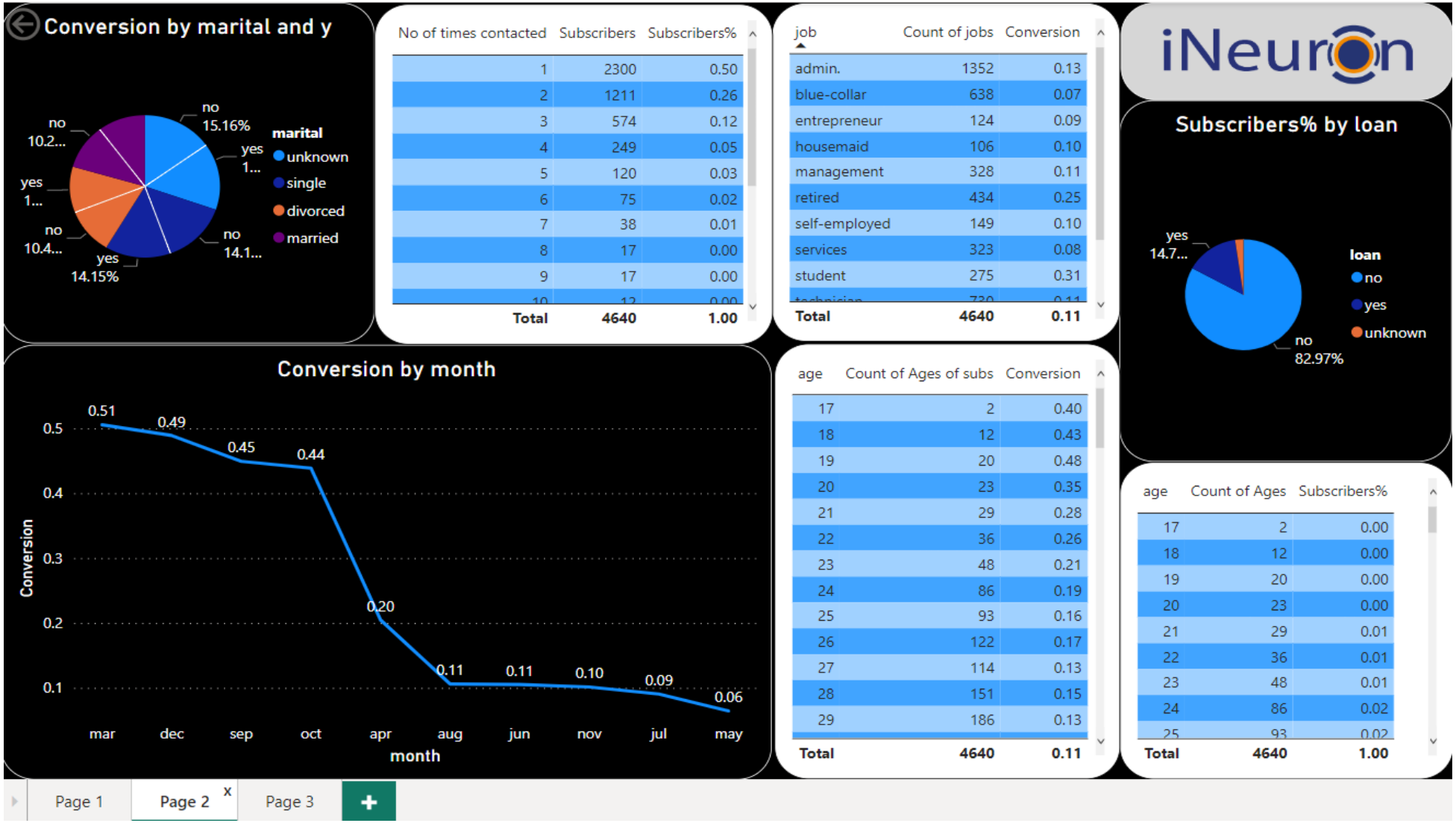
Conversion by marital and y
no 15.16%
yes 1...
no 14.1...
yes 14.15%
no 10.4...
yes 1...
no 10.2...
marital
unknown
single
divorced
married
No of times contacted Subscribers Subscribers%
1 2300 0.50
2 1211 0.26
3 574 0.12
4 249 0.05
5 120 0.03
6 75 0.02
7 38 0.01
8 17 0.00
9 17 0.00
Total 4640 1.00
job Count of jobs Conversion
admin. 1352 0.13
blue-collar 638 0.07
entrepreneur 124 0.09
housemaid 106 0.10
management 328 0.11
retired 434 0.25
self-employed 149 0.10
services 323 0.08
student 275 0.31
Total 4640 0.11
iNeuron
Subscribers% by loan
yes 14.7...
no 82.97%
loan
no
yes
unknown
Conversion by month
0.51
0.49
0.45
0.44
0.20
0.11
0.11
0.10
0.09
0.06
0.5
0.4
0.3
0.2
0.1
Conversion
mar
dec
sep
oct
apr
aug
jun
nov
jul
may
month
age Count of Ages of subs Conversion
17 2 0.40
18 12 0.43
19 20 0.48
20 23 0.35
21 29 0.28
22 36 0.26
23 48 0.21
24 86 0.19
25 93 0.16
26 122 0.17
27 114 0.13
28 151 0.15
29 186 0.13
Total 4640 0.11
age Count of Ages Subscribers%
17 2 0.00
18 12 0.00
19 20 0.00
20 23 0.00
21 29 0.01
22 36 0.01
23 48 0.01
24 86 0.02
Total 4640 1.00
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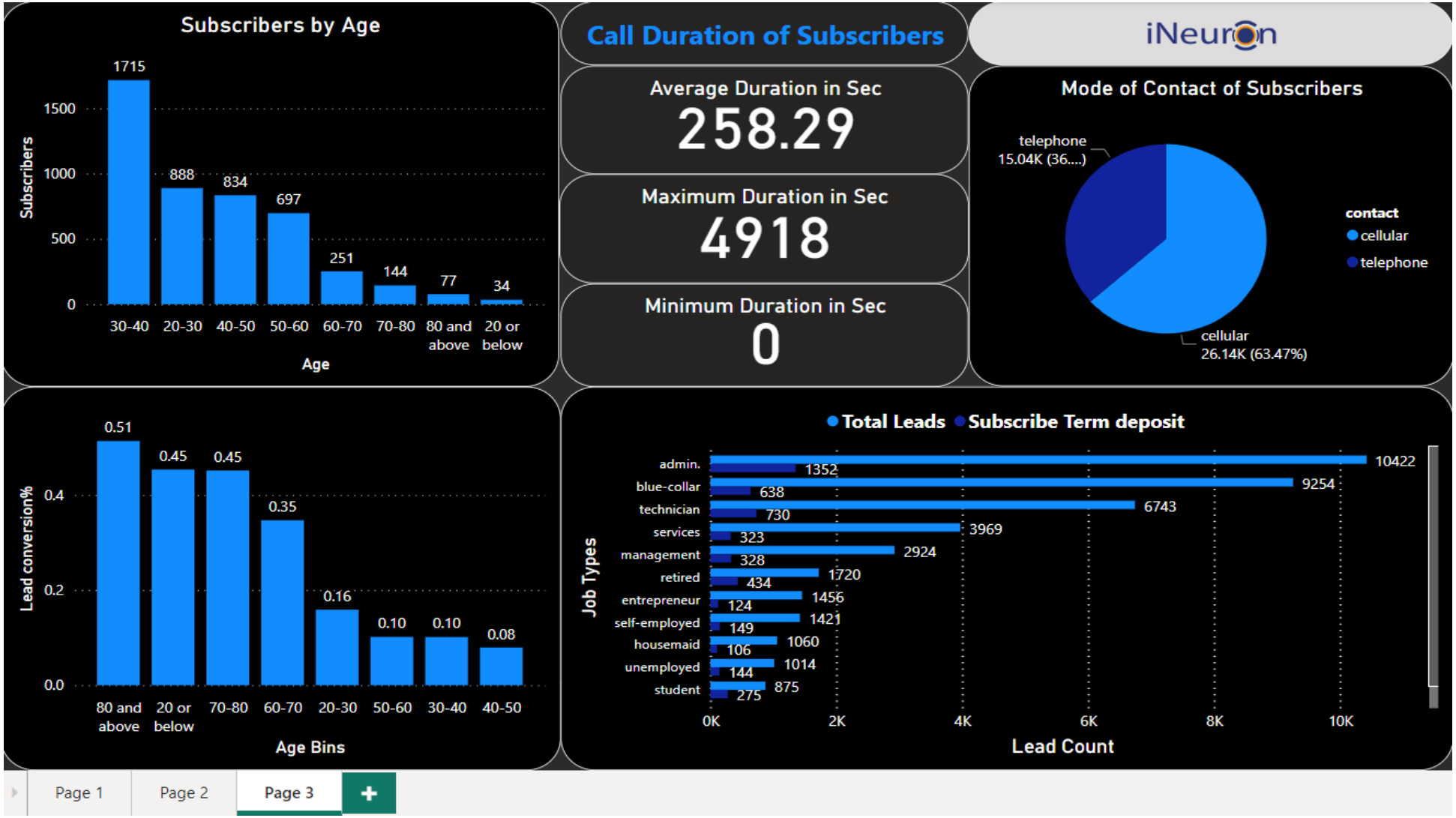
Subscribers by Age
Subscribers
1715
888
834
697
251
144
77
34
1500
1000
500
0
30-40
20-30
40-50
50-60
60-70
70-80
80 and above
20 or below
Age
Call Duration of Subscribers
iNeuron
Average Duration in Sec
258.29
Maximum Duration in Sec
4918
Minimum Duration in Sec
0
Mode of Contact of Subscribers
telephone
15.04K (36....)
cellular
26.14K (63.47%)
contact
cellular
telephone
Lead conversion%
0.51
0.45
0.45
0.35
0.16
0.10
0.10
0.08
0.4
0.2
0.0
80 and above
20 or below
70-80
60-70
20-30
50-60
30-40
40-50
Age Bins
Total Leads
Subscribe Term deposit
Job Types
admin.
blue-collar
technician
services
management
retired
entrepreneur
self-employed
housemaid
unemployed
student
1352
10422
638
9254
730
6743
323
3969
328
2924
434
1720
124
1456
149
1421
106
1060
144
1014
275
875
0K
2K
4K
6K
8K
10K
Lead Count
Page 1
Page 2
Page 3

INSIGHTS FROM DASHBOARD

1. A total of 41188 people were called during the campaign out of which 4640 subscribed to the term deposit.
2. Call duration time for age group 60-80 and above is more as compared to age group 20-50 which indicates that younger customers need less time on call.
3. Out of 4640 customers, 54.57% of customers are married, 34.91% customers are single and 10.26% are divorced.
4. Many customers have a university degree or went to high school. Only 0.15% customers are illiterate.

5. Most common jobs of customers are in Administration, Technicians and Blue-collar. Very few number of customers are entrepreneurs or housemaid.
6. In the month of April, May, Jun, Jul, Aug and Nov the conversion ratio is least.
7. The highest leads conversion ratio stood at 0.51% whereas lowest is 0.06%.
8. Maximum customers are in the age range of 20-60. Maximum people were called in the age range of 20-50. Hence, leads conversion rate of people of age range 50-60 is highest
9. The lowest number of customers are age range of 80+ and 20 below. Usually, the people in the age range don't have much time and earnings. So, they don't invest in term deposit.
10. Average call duration of customers in 258.29 secs. Average consumer confidence index is -40.50 and Average Euribor 3m rate is 3.61.

Question & Answer:

Q1) What's the source of data?
This dataset is publicly available for research.
Available at: [pdf]
http://dx.doi.org/10.1016/j.dss.2014.03.001 titled
"Bank Marketing (with social/economic context)"

Q 2) What was the type of data?
The data was contained in the zip folder in csv format.

Q 3) What's the complete flow you followed in this Project?
Refer all slides in sequence for better Understanding.

Q 4) What steps should I follow to get insights from the data?
Step1 – Download the data and store it in a location in your PC.
Step2 – Open PowerBI_Report.pbix file in your pc and then you can see all the insights.