

A person in a dark blue suit and red tie is pointing their right index finger at a digital interface. The interface features a network of white human icons (male and female) inside circular frames, connected by dashed white lines. The background is a blurred office setting. A large blue banner is overlaid on the right side of the image, containing the title and author information.

Capstone Project: Bank Client Targeting

- by Carol C

Business Background

Portuguese banking institution was launching a direct marketing campaign.

The campaign:

- Based on **phone calls**.
- The product was a **term deposit**.
- Clients were contacted to access if the product would be **('yes') or not ('no') subscribed**.





Problem Statement

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Base on the dataset, only **11%** of the clients subscribed the product.

That means, by randomly contact the clients, average **9 clients** need to be contacted to get **1 successful subscription**.



Can we launch the campaign in a **more cost effective** way by **accurately targeting the clients**?

Solutions(Goals)

1. Targeting existing clients

Provide the campaign a list of clients that most of them will subscribe the term deposit.

- Create a model to accurately predict whether a client will or will not subscribe the term deposit.



Solutions(Goals)

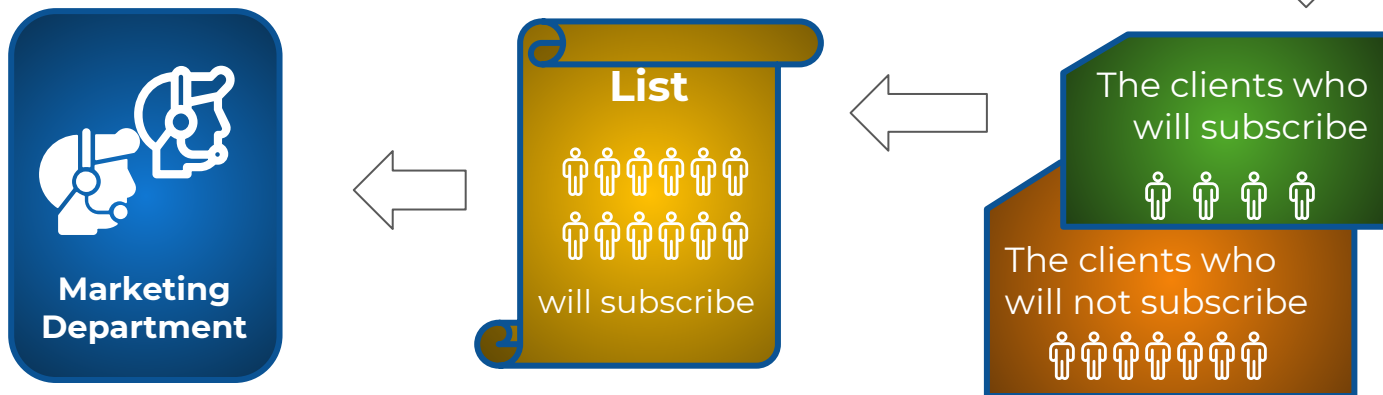
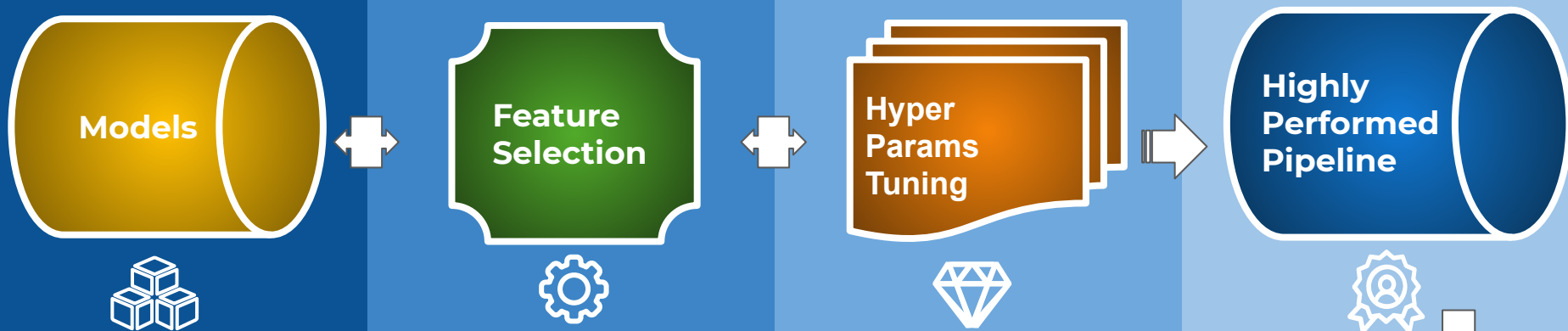
2. Targeting potential clients

Advice will be provided to the campaign on:

- what kind of people more tend to subscribe the term deposit?
- What factors has influence on people's decision on the subscription?



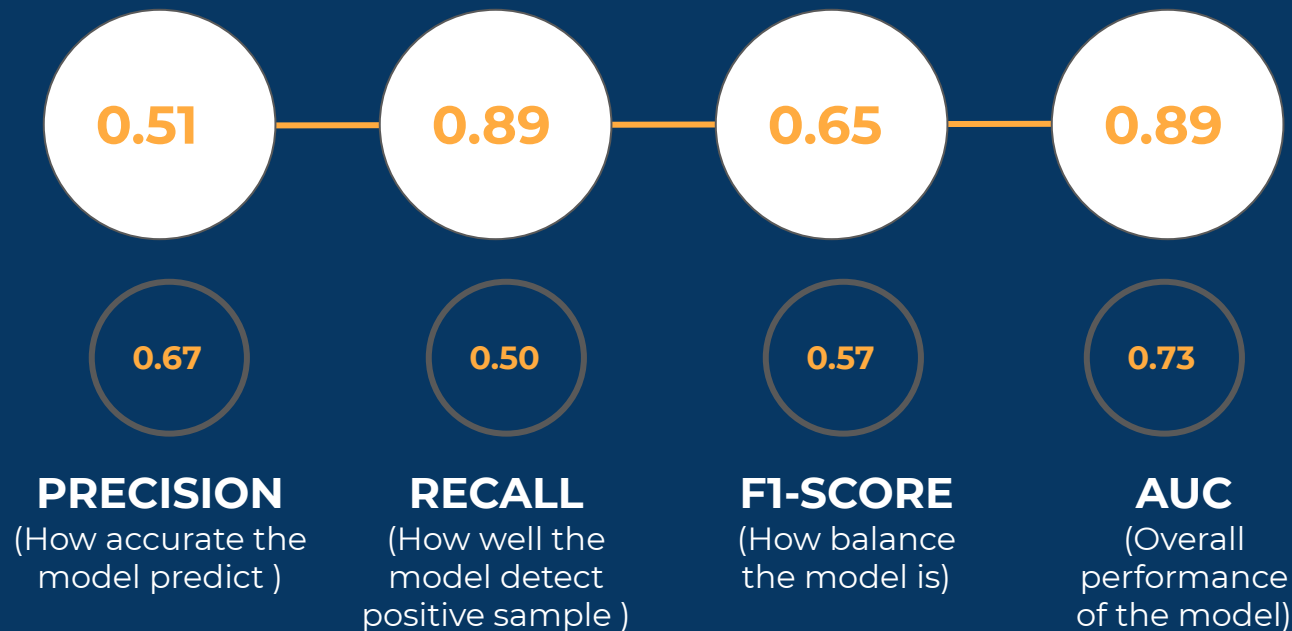
TARGETING EXISTING CLIENTS



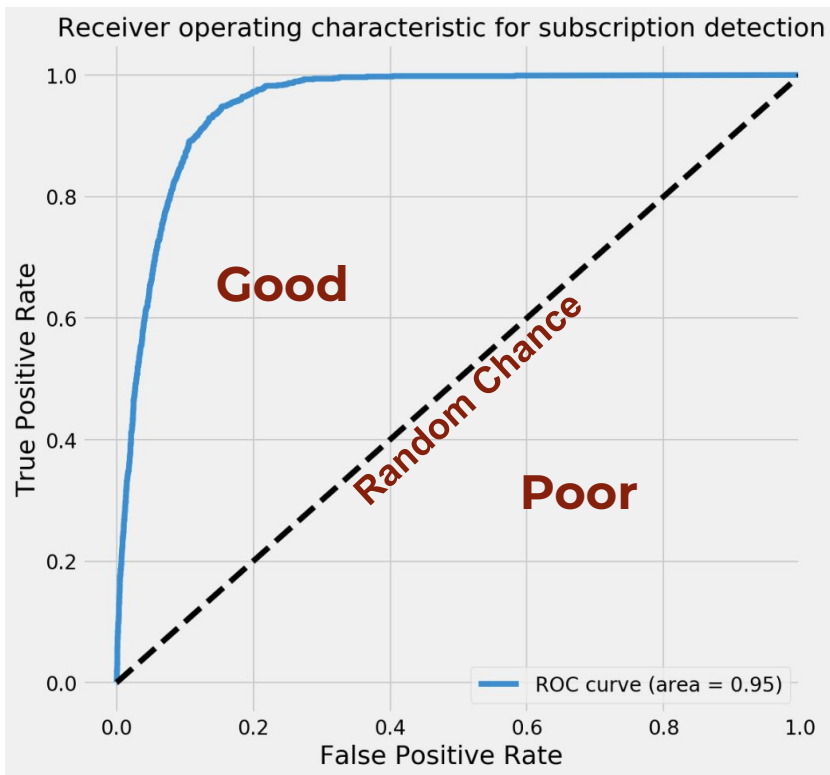
Pipeline



MODEL PERFORMANCE



MODEL PERFORMANCE



RECALL 0.89

AUC 0.89

VALUE TO BUSINESS

Random Call

9.1 Calls



1 subscription

VS

Targeted Call

1.1 Calls



1 subscription

Save 88%
Manpower



FLEXIBILITY TO SUIT DIFFERENT BUSINESS NEEDS

Less Cost



More Sales



Adjust the predicted probability threshold to meet different business needs

	predicted_subscribe	predicted_not_subscribe
will_subscribe	1008	121
will_not_subscribe	979	7917

	predicted_subscribe	predicted_not_subscribe
will_subscribe	1072	57
will_not_subscribe	1426	7470

	predicted_subscribe	predicted_not_subscribe
will_subscribe	1111	18
will_not_subscribe	2194	6702

2. TARGETING POTENTIAL CLIENTS



PICTURING
POTENTIAL
CLIENT

“

**What kind of people
more tend to subscribe
a term deposit? ”**

IMPORTANT FACTORS

Marital

Education

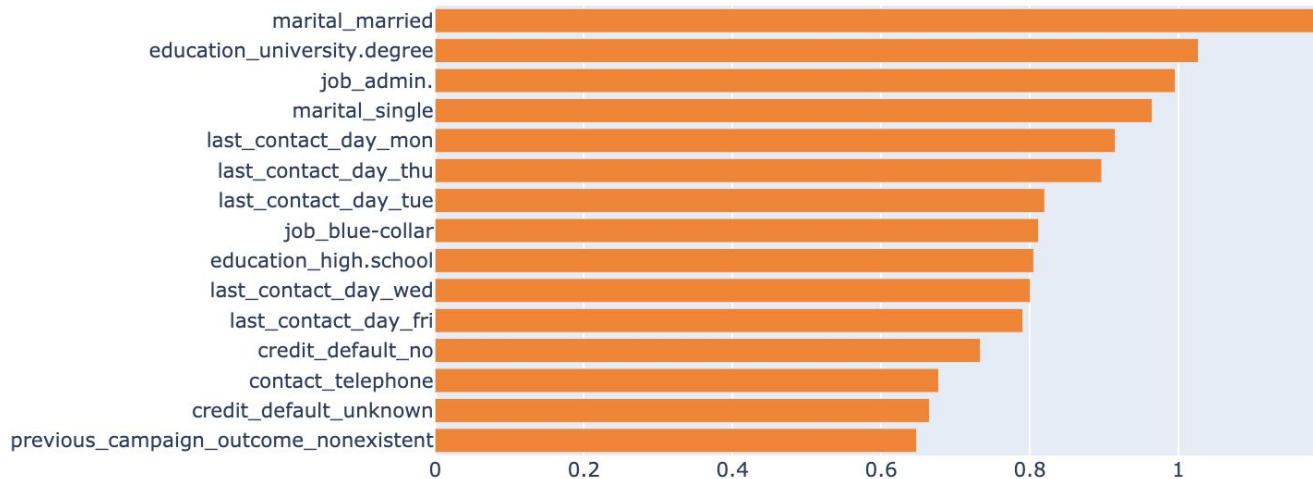
Job

Contact

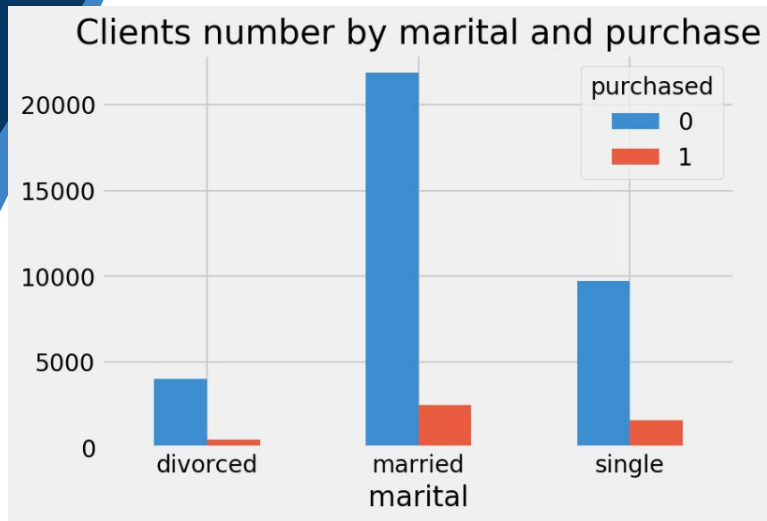
Credit Default

Contact Method

Overall Importance:
Mean Absolute Score



FEATURE ANALYSIS - MARITAL

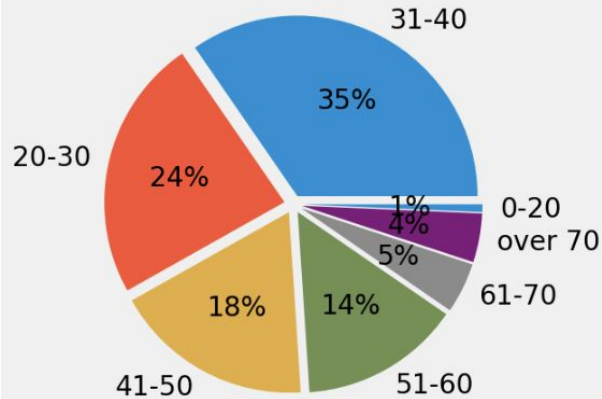


Single: 14% purchased
Married: 10% purchased
Divorced: 10% purchased

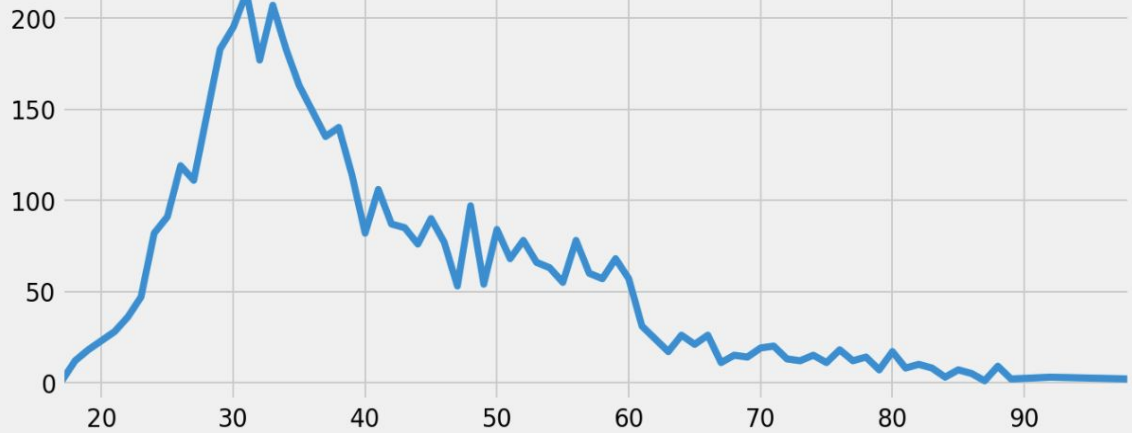


FEATURE ANALYSIS - AGE

Ages distribution of the clients who has purchased the product

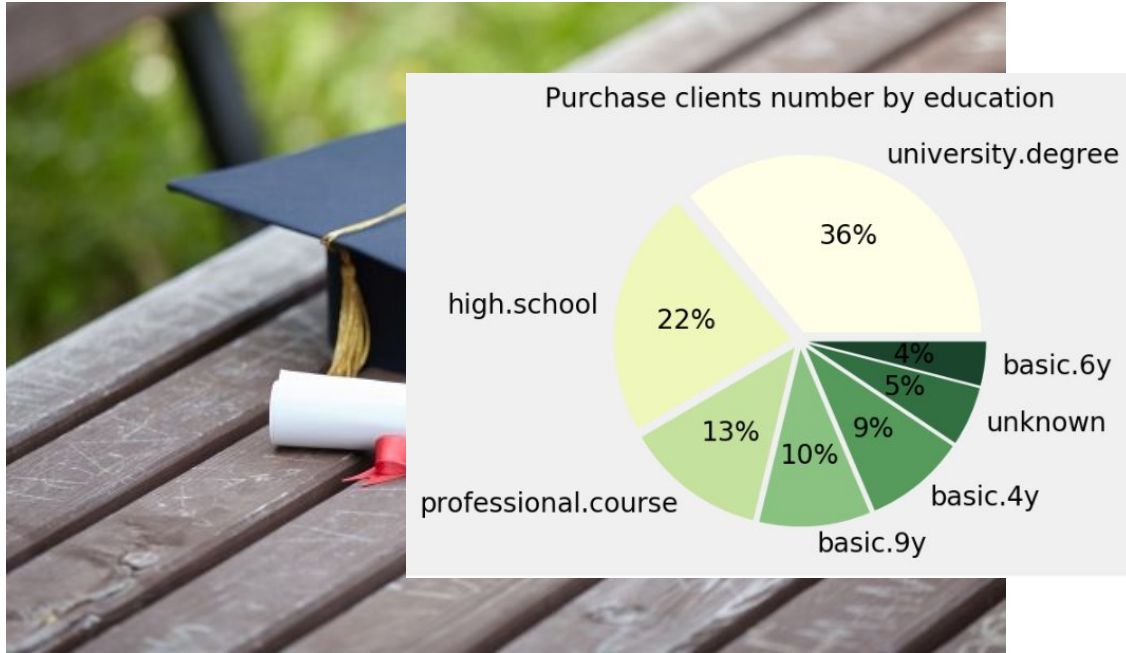


The change of purchased clients numbers across all ages



Around 70 % of purchasers are age from 25-45

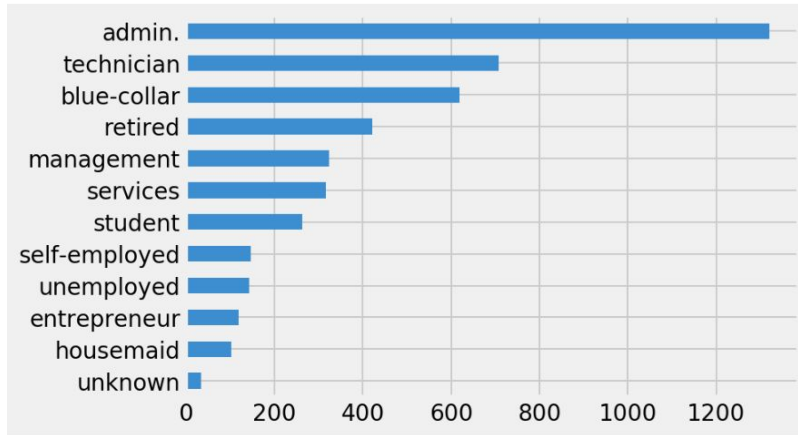
FEATURE ANALYSIS - EDUCATION



Highly educated people
more tend to purchase
term deposit

FEATURE ANALYSIS - JOB

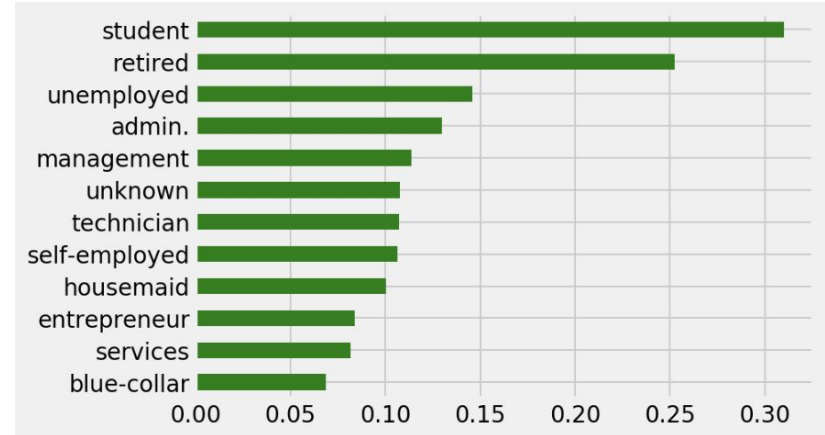
Absolute number of purchases by job



Top 3 (Absolute No.)

Admin,
Technician
Blue-collar

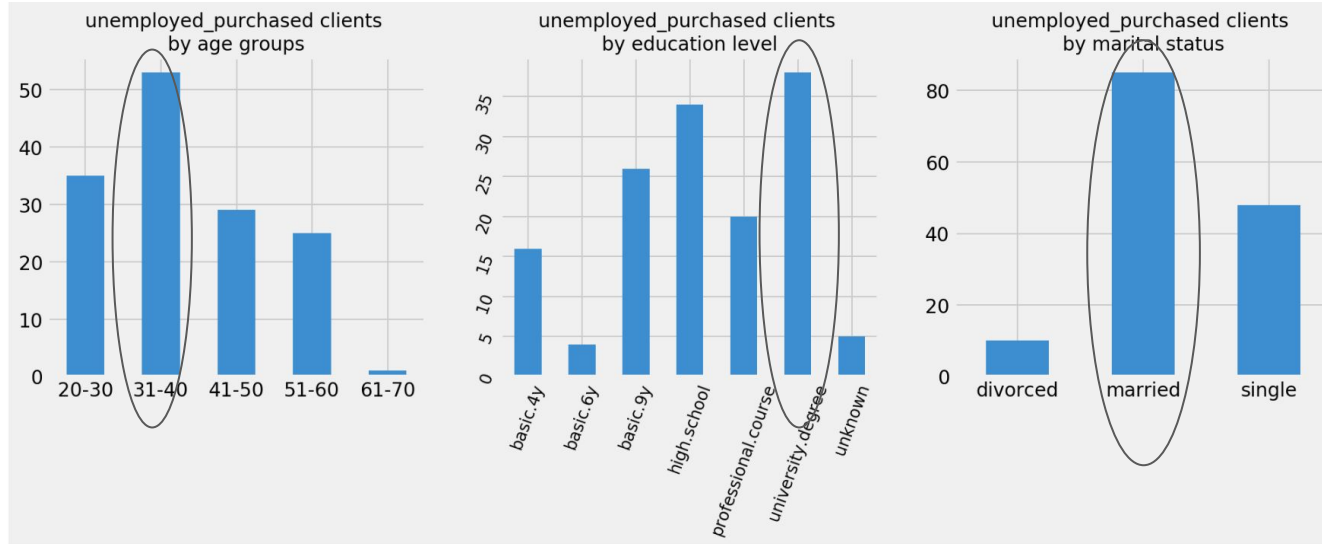
Percentage of purchases by job



Top 3 (Percentage)

Student
Retired
Unemployed

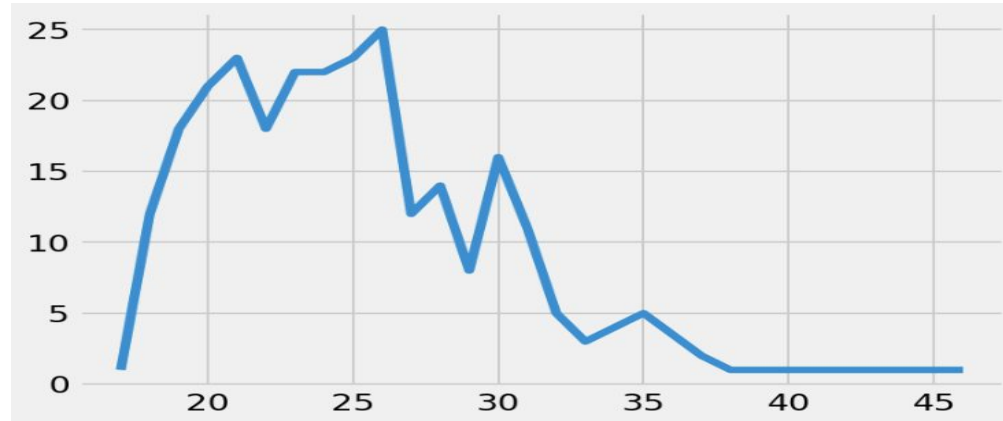
FEATURE ANALYSIS - JOB(Unemployed)



Interesting Fact: Term deposit is popular among the unemployed people who married, age between 31 to 40, and has university-degree of education.

FEATURE ANALYSIS - JOB(Student)

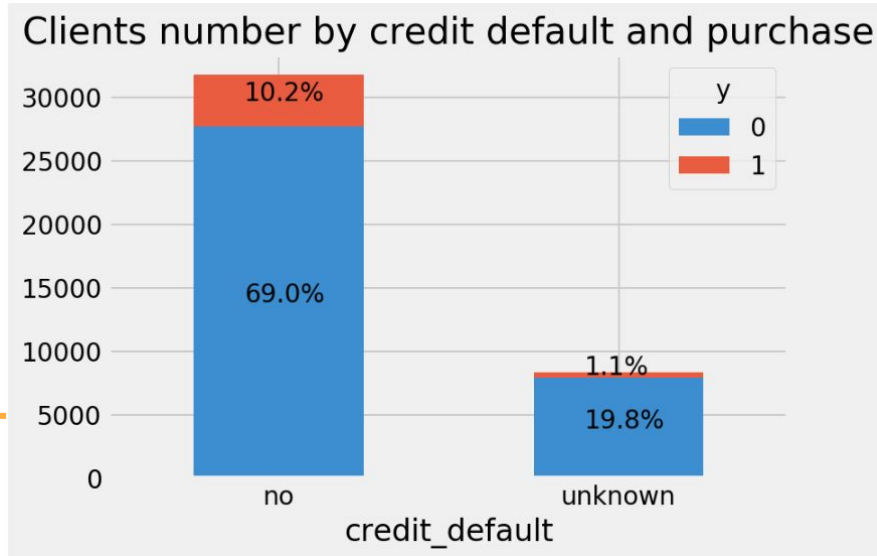
Student purchases by age



Interesting Fact: Over 30% of the student clients has purchased term deposit.

Possible Reasons: Students aged 20-26 are normally studying at university, They might have received financial support for their education and living from their parents. They might tend to put their unused fund into a term deposit for a higher interest rate.

FEATURE ANALYSIS - CREDIT DEFAULT

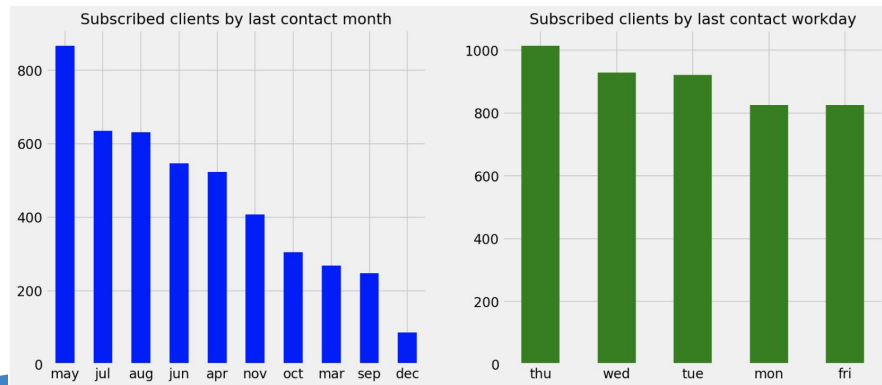
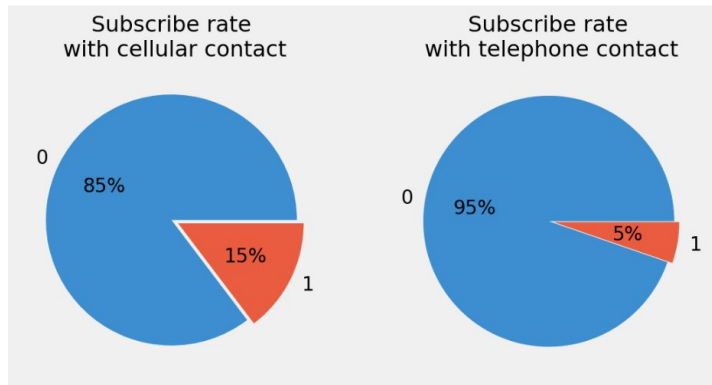


People without credit default is **9 times** more possible to subscribe a term deposit compare to people whose credit default is unknown .

FEATURE ANALYSIS - CAMPAIGN CONTACT

- Contact via **cellular** had **3 times** higher chance of success than contact via telephone.

- Timing for launching the campaign:
Month: April to August are good.
Weekday: Thursday is the best.



PICTURING POTENTIAL CLIENT

Age 25-45

University education

Admin, Technician or Blue collar

Has no credit default

Has no personal loan



CAMPAIGN RELATED FACTORS TO CONSIDER



CONTACT METHOD

Cellular over Telephone

LAUNCHING MONTH

May is the best
April to August are good
Avoid the 4th quarter

WEEKDAY TO CALL

Thursday is the best
Avoid Monday and Friday

Thanks!

Do you have any questions?

carolcheng.au@gmail.com

Credits

- Presentation template by [Slidesgo](#)
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