

# Term Deposit Project

Predicting whether a customer will accept  
the term deposit offer or not !!

# **What is term deposit?**

A term deposit is a cash investment held in the client's account for a fixed period at financial institutions, where the investor won't be able to withdraw their funds before the term ends. money will be locked up for that period of time.

# **Why term deposit is important?**

Because term deposits are a big source of income for the bank, and to increase the number of clients who will accept the term deposit offer, financial institutions need to identify customers with high chance of accepting the offer so they can be targeted and aimed when contacting customers using the different contact methods.

# The Question is ...

In this project, the question that needs to be predicted is that the customer will subscribe to the term deposit offer from the bank or not?

# Dataset Overview:

” Bank Marketing Dataset”

```
1 #view the top 5 records  
2 data.head()
```

	age	job	marital	education	default	balance	housing	loan	contact	day	month	duration	campaign	pdays	previous	poutcome	deposit
0	59	admin.	married	secondary	no	2343	yes	no	unknown	5	may	1042	1	-1	0	unknown	yes
1	56	admin.	married	secondary	no	45	no	no	unknown	5	may	1467	1	-1	0	unknown	yes
2	41	technician	married	secondary	no	1270	yes	no	unknown	5	may	1389	1	-1	0	unknown	yes
3	55	services	married	secondary	no	2476	yes	no	unknown	5	may	579	1	-1	0	unknown	yes
4	54	admin.	married	tertiary	no	184	no	no	unknown	5	may	673	2	-1	0	unknown	yes

```
1 #show no. of rows & columns  
2 data.shape
```

(11162, 17)

# Database Info:

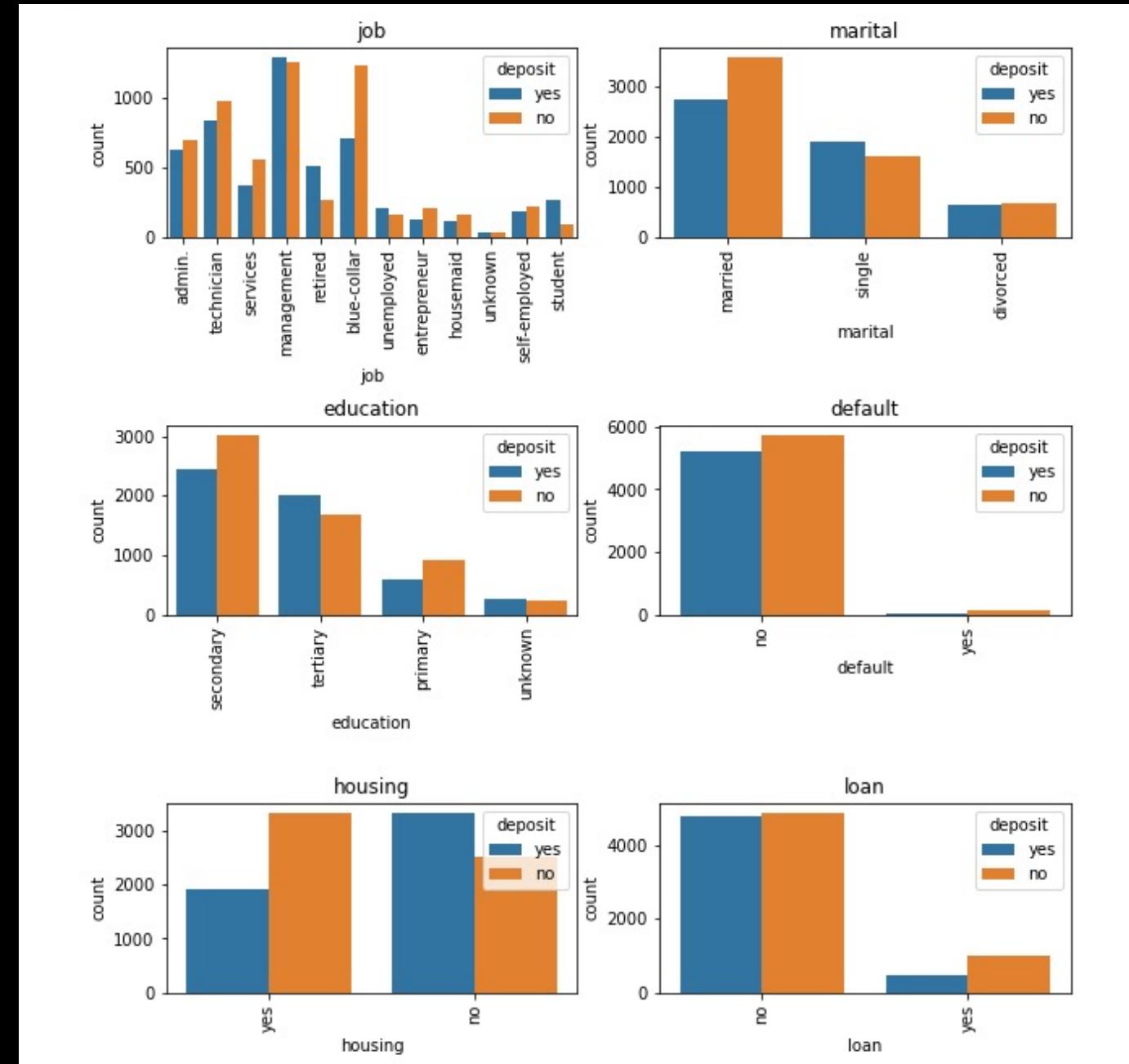
```
1 #check info about the data
2 data.info()

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 11162 entries, 0 to 11161
Data columns (total 17 columns):
 #   Column      Non-Null Count  Dtype  
--- 
 0   age         11162 non-null   int64  
 1   job          11162 non-null   object  
 2   marital      11162 non-null   object  
 3   education    11162 non-null   object  
 4   default      11162 non-null   object  
 5   balance      11162 non-null   int64  
 6   housing      11162 non-null   object  
 7   loan          11162 non-null   object  
 8   contact      11162 non-null   object  
 9   day           11162 non-null   int64  
 10  month         11162 non-null   object  
 11  duration     11162 non-null   int64  
 12  campaign     11162 non-null   int64  
 13  pdays         11162 non-null   int64  
 14  previous     11162 non-null   int64  
 15  poutcome     11162 non-null   object  
 16  deposit       11162 non-null   object  
dtypes: int64(7), object(10)
memory usage: 1.4+ MB
```

Divorced customers are less likely to accept the offer.

Customers without housing loan are more likely to accept the offer.

Customers with personal loan seems to accept the deposit.





We can indicate that during the call is highly correlated with the target variable "deposit". As the duration of the call is more, there is a high chance that the client shows interest in the term deposit which mean that there is a high chance that the client will subscribe to term deposit.

# Conclusion:

The database contains 16 features and 1 target variable for binary classification, yes or no the client will accept the deposit offer.

Multiple classification algorithms have been applied on the data, and it seems that Random Forest Classifier model performed excellent with accuracy of 84% comparing to other algorithms.