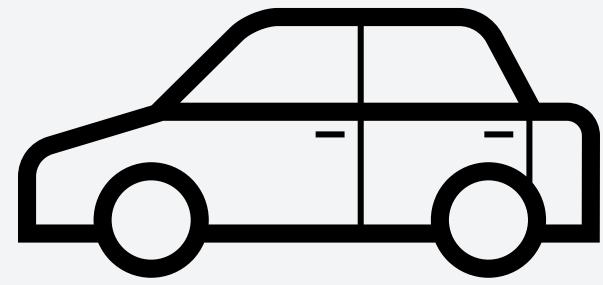




GROUP 7

CAR INSURANCE PREDICTION



AGENDA

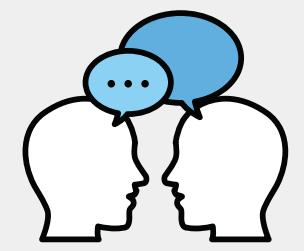
- 1 OBJECTIVE
- 2 DATA DICTIONARY
- 3 LOGIT MODEL
- 4 ANALYSIS
- 5 CONCLUSION



OBJECTIVE



Assessing the role of contact timing and frequency in subscription decisions.



Analyzing how different communication types affect customer subscriptions



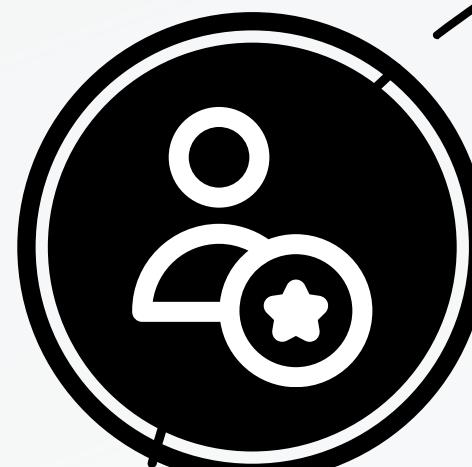
Examining the impact of demographics like age and marital status on subscription



DATA DICTIONARY

Data Features

- 19 Features
- Age
 - Job
 - Marital Status
 - Education level
 - Default credit
 - Household Insurance
 - Car loan
 - Communication type
 - Last contact month
 - Last contact day
 - Previous attempt
 - Campaign outcome



Missing Values

Handling missing values using
Imputation and padding
Job
Education
Communication



Data Splitting

70% - Training Data
30% - Testing Data



LOGISTIC REGRESSION

Coefficients:					
	Estimate	Std. Error	z value	Pr(> z)	
(Intercept)	-4.681e+00	5.340e-01	-8.767	< 2e-16 ***	
Age	4.308e-03	6.330e-03	0.681	0.496088	
Default	-4.731e-01	4.807e-01	-0.984	0.324993	
Balance	2.100e-05	2.001e-05	1.049	0.294062	
HHInsurance	-7.775e-01	1.283e-01	-6.060	1.36e-09 ***	
CarLoan	-4.975e-01	1.682e-01	-2.959	0.003090 **	
LastContactDay	-2.160e-03	7.382e-03	-0.293	0.769815	
NoOfContacts	-5.478e-02	2.707e-02	-2.024	0.042983 *	
DaysPassed	2.229e-04	9.635e-04	0.231	0.817076	
PrevAttempts	7.457e-02	4.041e-02	1.845	0.064970 .	
CallTimeBinned	1.228e+00	5.105e-02	24.056	< 2e-16 ***	
Job_blue.collar	-7.085e-01	2.135e-01	-3.318	0.000907 ***	
Job_entrepreneur	-5.855e-01	3.591e-01	-1.631	0.102981	
Job_housemaid	-5.624e-01	4.011e-01	-1.402	0.160824	
Job_management	-6.828e-01	2.258e-01	-3.023	0.002499 **	
Job_retired	-2.903e-01	2.974e-01	-0.976	0.329062	
Job_self.employed	-7.997e-01	3.297e-01	-2.426	0.015274 *	
Job_services	-6.122e-01	2.520e-01	-2.429	0.015129 *	
Job_student	2.670e-01	3.576e-01	0.747	0.455163	
Job_technician	-3.078e-01	2.059e-01	-1.495	0.134960	
Job_unemployed	-2.896e-01	3.376e-01	-0.858	0.390991	
Marital_divorced	-1.488e-01	1.982e-01	-0.751	0.452759	
Marital_married	-2.705e-01	1.387e-01	-1.950	0.051137 .	
Education_secondary	-1.702e-01	1.758e-01	-0.968	0.332857	
Education_tertiary	2.203e-01	2.152e-01	1.024	0.306007	
Communication_cellular	1.407e+00	1.861e-01	7.562	3.97e-14 ***	
Communication_telephone	1.244e+00	2.857e-01	4.355	1.33e-05 ***	
LastContactMonth_apr	1.564e+00	3.384e-01	4.621	3.82e-06 ***	
LastContactMonth_aug	5.344e-01	3.304e-01	1.617	0.105802	
LastContactMonth_dec	2.431e+00	6.829e-01	3.560	0.000371 ***	
LastContactMonth_feb	1.675e+00	3.773e-01	4.439	9.02e-06 ***	
LastContactMonth_jul	9.032e-01	3.252e-01	2.777	0.005485 **	
LastContactMonth_jun	1.796e+00	3.665e-01	4.900	9.59e-07 ***	
LastContactMonth_mar	2.970e+00	5.011e-01	5.926	3.11e-09 ***	
LastContactMonth_may	1.007e+00	3.284e-01	3.067	0.002160 **	
LastContactMonth_nov	8.757e-01	3.444e-01	2.543	0.010999 *	
LastContactMonth_oct	3.314e+00	4.734e-01	7.002	2.52e-12 ***	
LastContactMonth_sep	3.029e+00	5.097e-01	5.943	2.79e-09 ***	
Outcome_failure	-1.659e-01	3.136e-01	-0.529	0.596865	
Outcome_other	9.394e-02	3.618e-01	0.260	0.795115	
Outcome_success	2.411e+00	3.297e-01	7.313	2.62e-13 ***	

Signif. codes: 0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1					

Testing Accuracy

Confusion Matrix and Statistics

		Reference	
		Prediction	0 1
0	1422	266	
1	253	859	

Training Accuracy

Accuracy : 0.8146

95% CI : (0.7997, 0.8289)

Confusion Matrix and Statistics

		Reference	
		Prediction	0 1
0	611	111	
1	110	368	

Accuracy : 0.8158

95% CI : (0.7927, 0.8374)

ANALYSIS

A	B	C	D	E	F	H
1	VarName	Definition	OddsRatio	Importance	Actionable	What Action
2	LastContactMonth_oct	Month of last contact - October	27.50764	27.50764	Yes	+ Focus marketing efforts during October month : Seasonal trends, targeted campaigns, adjusting budget allocations, cross selling opportunities, customer offers
3	LastContactMonth_sep	Month of last contact - September	20.68123	20.68123	Yes	+ Focus marketing efforts during September month : Seasonal trends, targeted campaigns, adjusting budget allocations, cross selling opportunities, customer offers
4	LastContactMonth_mar	Month of last contact - March	19.48572	19.48572	Yes	+ Focus marketing efforts during March month : Seasonal trends, targeted campaigns, adjusting budget allocations, cross selling opportunities, customer offers
5	LastContactMonth_dec	Month of last contact - December	11.36964	11.36964	Yes	+ Focus marketing efforts during December month : Seasonal trends, targeted campaigns, adjusting budget allocations, cross selling opportunities, customer offers
6	LastContactMonth_jun	Month of last contact - June	6.02416	6.02416	Yes	+ Focus marketing efforts during June month : Seasonal trends, targeted campaigns, adjusting budget allocations, cross selling opportunities, customer offers
7	CallTimeBinned	Duration of the call	3.41471	5.75846255	Yes	+ Optimize call schedules for contacting clients, analyzing peak engagement times, follow up strategy, communication strategy
8	LastContactMonth_feb	Month of last contact - February	5.33983	5.33983	Yes	+ Focus marketing efforts during February month : Seasonal trends, targeted campaigns, adjusting budget allocations, cross selling opportunities, customer offers
9	LastContactMonth_apr	Month of last contact - April	4.77623	4.77623	Yes	+ Focus marketing efforts during April month : Seasonal trends, targeted campaigns, adjusting budget allocations, cross selling opportunities, customer offers
10	Communication_cellular	Cellular contact type communication	4.08479	4.08479	Yes	+ Prioritize cellular communication in contacting clients, integration with CRM, optimize call scripts, Quality assurance
11	Communication_telephon	Telephone contact type communication	3.47041	3.47041	Yes	+ Prioritize telephone communication in contacting clients, integration with CRM, optimize call scripts, Quality assurance
12	LastContactMonth_may	Month of last contact - May	2.73796	2.73796	Yes	+ Focus marketing efforts during May month : Seasonal trends, targeted campaigns, adjusting budget allocations, cross selling opportunities, customer offers
13	LastContactMonth_jul	Month of last contact - July	2.46743	2.46743	Yes	+ Focus marketing efforts during July month : Seasonal trends, targeted campaigns, adjusting budget allocations, cross selling opportunities, customer offers
14	LastContactMonth_nov	Month of last contact - November	2.40048	2.40048	Yes	+ Focus marketing efforts during November month : Seasonal trends, targeted campaigns, adjusting budget allocations, cross selling opportunities, customer offers
15	Job_self.employed	Job of the client - Self employed	0.44947	2.22484259	No	- Job type doesn't effect the car insurance
16	HHInsurance	Is household insured?	0.45954	2.17608913	No	- Identify clients with household insurance and develop tailored communication or bundled product offerings that provide additional value or discounts for multiple insurance subscriptions
17	NoOfContacts	No of contacts performed during the campaign for the client	0.9467	1.31058164	Yes	- Limit the number of contacts with a client to avoid contact fatigue, focus on the quality and relevance of each contact
18	Marital_married	Marital status of the client - Married	0.76302	1.17359534	Yes	- Married, Divorced individuals are less likely to subscribe to car insurance - doesn't effect the car insurance
19	Age	Age of the client	1.00432	1.05132151	Yes	- Effect of age on insurance subscription is not statistically significant as p value is greater than 0.05 - doesn't effect the car insurance

FINDINGS

01

02

03

04

Timing and frequency of contact significantly influence subscription decisions, with specific months showing a higher likelihood of successful subscriptions.

Communication type is crucial, with cellular contact proving more effective than telephone contact.

Demographic factors like marital status and age are less likely to effect the insurance subscriptions

With targeted strategies from the analysis, we can enhance the efficiency of our campaigns, improve client satisfaction, and ultimately, increase subscription chances.

THANK YOU!

QUESTIONS?

