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BA222

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Project 3

For this project, we decided to run a regression using 5 variables. The variables are: euribor3m (euribor 3 month rate), success, cons.conf.idx (consumer confidence index), cons.price.idx (consumer price index), and month. We were inclined to choose these variables as they justifiably explain the reasons that would propel a customer to subscribe to a term deposit. We included 'euribor 3 month rate' as it represents a benchmark for interest rate and if it is more, then a customer is less likely to say yes and vice-versa. Similarly, we chose customer confidence index and consumer price index as they indicate customers' optimism towards the state of the economy and the changes over time in prices of common goods and services bought by households, respectively. Both of these indicators can influence the purchasing power and financial decision-making of the bank's customers. Then we chose May as the reference month as it aligns with historical data revealing heightened subscription rates during this period. Furthermore, we chose the success variable to understand how the achievement of previous marketing campaigns has influenced customer responsiveness. Moreover, this variable has been a crucial key in predicting how likely a customer would apply for a subscription to the term deposit.

Our fitted equation was:

$$\text{Yes} = -7.6382 - 0.0740 * \text{euribor3m} + 0.3399 * \text{success} + 0.0094 * \text{cons.conf.idx} + 0.0899 * \text{cons.price.idx} - 0.0875 * \text{may}$$

The R^2 was 0.192 and the out-of-sample R^2 was 0.191.

PDF of Regression Output

Dep. Variable:	yes	R-squared:	0.192
Model:	OLS	Adj. R-squared:	0.191
Method:	Least Squares	F-statistic:	195.2
Date:	Tue, 05 Dec 2023	Prob (F-statistic):	3.92e-187
Time:	17:57:29	Log-Likelihood:	-611.83
No. Observations:	4119	AIC:	1236.
Df Residuals:	4113	BIC:	1274.
Df Model:	5		
Covariance Type:	nonrobust		

	coef	std err	t	P>|t|	[0.025	0.975]
const	-7.6382	0.961	-7.948	0.000	-9.522	-5.754
euribor3m	-0.0740	0.004	-19.065	0.000	-0.082	-0.066
success	0.3399	0.026	12.946	0.000	0.288	0.391
cons.conf.idx	0.0094	0.001	9.111	0.000	0.007	0.011
cons.price.idx	0.0899	0.010	8.591	0.000	0.069	0.110
may	-0.0875	0.009	-9.231	0.000	-0.106	-0.069

Omnibus:	1761.051	Durbin-Watson:	1.941
Prob(Omnibus):	0.000	Jarque-Bera (JB):	7201.781
Skew:	2.131	Prob(JB):	0.00
Kurtosis:	7.878	Cond. No.	2.24e+04

In terms of each team member's participation, we all came together and put in effort to complete the project. Camila and Noor ran the regression while Ananya and Sonakshi analyzed the regression and put it into writing in order to complete the deliverable part of the project.