

# Assignment 4

## Introduction

This report focuses on producing a model, using clustering methods to determine links within the data. It analyses the links to determine the most significant and most valuable one to the business.

Looking at the Dendrogram and Elbow Method Plot it seems that  $k = 7$  is the optimal value for the plot. We will use  $k = 7$  for the analysis of the clusters.

## Results

Variables	Cluster1	Cluster2
AGE	39	42
JOB	blue-collar	technician
MARITAL	married	married
DEFAULTCREDIT	unknown	no
HOUSING	yes	yes
LOAN	yes	no
CONTACT	cellular	telephone
PREVIOUS	1	2
%YES	11%	64%

## Discussion

In the table above there are two different groups that present unique business opportunities. Only 11% of customers in the first group are likely to take up the offer whereas customers in the second group are more likely to take up the offer at 64%.

People in the first group have an unknown default credit rating and hence consideration should be taken in as there isn't a definite answer to if they will be able to pay back or substantiate the payments. The telemarketing club should not focus on these customers until they have to as these customers are a potential risk due to their unknown default-credit rating and their low take up percentage rate.

Customers in the second group are a target group for the telemarketing company as they have a high take up rate and they also have no default credit rating. In addition these customers are not likely to default in nature unlike customers in group one. These customers have also been previously contacted and a potential change in the method of contact might help as they were being contacted via telephone and not cellular mobile which is now more common. These customers do not also have a loan and hence are a target customer type as they might be seeking a loan or be in need of a loan as well. Resource would be better allocated to customers in group 2 rather than group 1 and hence resource allocation should be diverted into group 2 until they need to move to another group.

## Recommendation

### Cluster 1:

1. The Telemarketing Club should be offering some sort of security to these customers as they are known to default and a type of insurance should be added onto their products.
2. Customers need to be checked and updated regularly for internal purposes to make sure they are keeping up to date with all payments and requirements. If customer falls into red zone, customer might need to be removed.

## **Cluster 2:**

1. Keep in contact with these customers as they have a loan and due to the high percentage of take up there is room for an increased uptake. These are valuable customers for the company.
2. Incentivise these customers by offering lower interest rates or other tangible benefits.

## **Conclusion**

The clusters present unique business opportunities for the Portuguese Telemarketing Club to become more efficient and run more effectively and hence increase profits.