

# SAMPLE SLIDES

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## SAMPLE SECTION

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- *Data Source*: Database of a local financial institution whose name will not be revealed because of security issues
- *Goal*: Risk Management in lending to customers
- *Institution Needs*: Detecting if a customer is loyal or disloyal to decide about lending to him or not and also decide about maximum amount of lending with minimum risk of refund
- *Target Question*: Given some demographic parameters such as age, sex, job, education, income rate, marital status, ... , is a customer loyal for lending? If yes, what is the maximum amount of lending for him?

- The most dependency for maxloan amount is on education.
- The least dependency is on acc type
- Marital Status has no affect on prediction of  $\text{max}_{\text{loan}}$

```
2 summary(GBM_model)
4
6           var    rel.inf
8 education    education 34.962469
   age          age 28.642135
   job          job 15.714282
   sex          sex 14.206087
   acc_type      acc_type  6.475026
   maritalstatus maritalstatus  0.000000
```

To determine the number of clusters. We can use a plot of the within groups sum of squares by number of clusters extracted.

```
2 wss <- (nrow(mydata)-1)*sum(apply(mydata,2,var))  
   for (i in 2:15) wss[i] <- sum(kmeans(mydata,  
   centers=i)$withinss)  
4 plot(1:15, wss, type="b", xlab="Number of Clusters",  
   ylab="Within groups sum of squares")
```