

# Call Center Productivity Boosting with ML Exercises



The telephone had rung when Jean was watching her favorite TV Show. It was a call center selling newspaper, so she got really upset. This situation is not unpleasant just for Jean. The call center is losing too! By calling a person the will never buy whatever is been sold, the call center is wasting money. Modern machine learning algorithms can help predicting who will be a buyer before the agent pick up the phone. This exercise will teach how to do this task using R.

Answers to the exercises are available [here](#).

## **Exercise 1**

Load libraries randomForest, ggplot2, and caret.

## **Exercise 2**

Download bank-full.csv from [This website](#).

## **Exercise 3**

Take a look at this data set using head function. Read the data dictionary to understand all variables.

## **Exercise 4**

Compare age, housing and loan using ggplot boxplots to find out any relations with y variable.



**Learn more** about Machine Learning in the online course [R:](#)

## [Complete Machine Learning Solutions.](#)

In this course you will go over 100 solutions to analyze data and predict outcomes, going thru use cases of machine learning A-B. It is one of the highest rated courses on Udemy at this moment in Machine learning.

### **Exercise 5**

Compare day, marital and loan using ggplot boxplots to find out any relations with y variable.

### **Exercise 6**

Make a data partition in order to separate training and testing sets. Reserve 30% of all data for testing procedures.

### **Exercise 7**

Create a prediction model using random forest algorithm. To make this experiment reproducible set seed equals to 1234.

### **Exercise 8**

Predict values for the testing set, and take a look at those values using head function.

### **Exercise 9**

Figure out how many trees were create using this algorithm and the estimate error rate. Create a confusion matrix using the testing versus predicted data using the table function. Why this is different from the Confusion matrix stated in the model description?

### **Exercise 10**

Consider that you are making 100 calls to make a single sale. How many calls you will need now using this machine learning algorithm?