

**Predictive Modelling for *TechScape***

**Machine Learning | MDSAA 2021/22**



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## **Introduction**

(Introduzir o tema, objetivos e metodologia)

## **Data preparation**

(Dataset inicial e alteração nos tipos de variáveis)

## **Dataset exploration**

## *Descriptive statistics*

(Análise das estatísticas descritivas e dos gráficos)

## *Coherence checking*

(Explicar o raciocínio)

## *Missing values*

(Explicar que não há)

## *Outliers*

(Metodologia adotada para lidar com outliers)

## **Feature engineering**

Besides the original variables of the dataset, we created new … variables by combining or discretizing the initial ones to increase the number of possible independent variables that influence our target. This feature engineering process also included some adjustments of incoherent values to allow correct calculations, namely on the new variables Total\_Pages, Total\_Duration, AvgTimeOnAccountMng, AvgTimeOnFAQ and AvgTimeOnProduct.

These new variables and the description of their engineering process are presented below in table 2.

|  |  |
| --- | --- |
| New variable | Description |
| Apple | 1 if OS equals MacOSX or iOS, 0 otherwise |
| Windows | 1 if OS equals Windows, 0 otherwise |
| Android | 1 if OS equals Android, 0 otherwise |
| Returner | 1 if Type\_Of\_Visitor equals Returner, 0 otherwise |
| New\_Access | 1 if Type\_Of\_Visitor equals New\_Access, 0 otherwise |
| Total\_Duration | AccountMng\_Duration + FAQ\_Duration + Product\_Duration |
| Total\_Pages | AccountMng\_Pages + FAQ\_Pages + Product\_Pages |
| PropTime\_AccountMng | AccountMng\_Duration/Total\_Duration |
| PropTime\_FAQ | FAQ\_Duration/Total\_Duration |
| PropTime\_Product | Product\_Duration/Total\_Duration |
| PropPages\_AccountMng | AccountMng\_Pages/Total\_Pages |
| PropPages\_FAQ | FAQ\_Pages/Total\_Pages |
| PropPages\_Product | Product\_Pages/Total\_Pages |
| AvgTimePerPage | Total\_Duration/Total\_Pages |
| AvgTimeOnAccountMng | AccountMng\_Duration/AccountMng\_Pages |
| AvgTimeOnFAQ | FAQ\_Duration/FAQ\_Pages |
| AvgTimeOnProduct | Product\_Duration/Product\_Pages |
| Month | Month extraction from Date |
| Covid | 1 if Month is greater than 3, 0 otherwise |
| Browser | One new variable per each Browser type |
| Country | One new variable per each Country |

***Table 2*** *– New variables.*

## **Feature selection**

(Processo de decidir as variáveis, explicar o raciocínio do k-folds)

## **Model training**

## *Data partition*

(Explicar o objetivo do k-folds)

## *Data preprocessing*

(Tratamento do train depois da partição)

## *Models*

(Desenvolvimento dos modelos)

## **7. Model deployment**

(Implementação do melhor)

## **8. Discussion**

(Discussão dos resultados – comparação de vários modelos?)

## **9. Conclusions**

(Contextualização dos resultados no problema e limitações)

## **10. References**

## **11. Appendices**