

MAC0425 - PE04 Report

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1 Summary

The purpose of the following project is to exercise important topics discussed in the latter parts of the class. Together with the always expected research on the object of interest, the project relies on selection of features, on data treatment, on a general understanding of machine learning and training and on the specific topics of k-folding method and loss functions. This report, that describes the programming part of the assignment, is also given great importance.

You will find that a large amount of the effort is designated to the treatment of data and preparing it for the training portion portion, which is brief and more focused on displaying and understanding results. This report will follow the steps taken during the project and can be used as a check-list for most things done in the programming parts of the project.

2 Introduction

The treatment of a few hospital's public data and the creation of a neural network that, from the results of other ordinary exams, can predict those specific of COVID-19 is a multipurpose project purpose from professor Marcelo Finger. The extensive work with the hospital's data, prepares the student to handle data-sets or databases one can easily find working outside the academy: they can be elusive with non-standard column names or explanation, can keep unexpected or non-standardized entries, can keep "garbage" data, can be much larger than samples sets and can be poorly planned out.

Another most important motivation for the project is dealing with something that is very current and achieving results that are meaningful outside the learning experience. Working with a small and invented problem prepares for the work with a much more complex and large problem but, unlike this project, might not give the confidence to do so, because they may seem very far apart. Although those two reasons might seem more important, the mechanical ability to treat data-sets, select a learning model and build neural network, exercised in the project, is paramount for any student.