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ASSIGNMENT COVER SHEET

Lecturer's Name: Dr James Connolly

Assessment Title: CA 4 - Predictive Modelling

Work to be submitted to: _____

Date for submission of work: 2020-05-24

Place and time for submitting work: _____

To be completed by the Student

Student's Name: Danny Regan

Class: MSc in Big Data Analytics

Subject/Module: Data Science

Word Count (where applicable): _____

I confirm that the work submitted has been produced solely through my own efforts.

Student's signature: _____ Date: _____

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CA 4 - Predictive Modelling

Health in Ireland

Title: Predictive mdelling to forecast Irish hospital waiting list figures
Author: Danny Regan
Supervisor: Dr James Connolly
Degree: MSc in Big Data Analytics
Module: Data Science
Github: https://github.com/ancodia/hospital_waiting_lists

Abstract

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Introduction

The volume of patients waiting for hospital procedures and the length of these waits constitute a major shortfall in the Irish public healthcare system. According to the most recent Euro Health Consumer Index (Health Consumer Powerhouse 2018, p.15), Ireland has the longest waiting times in Europe despite having one of the greatest levels of expenditure on health (OECD and European Union 2018, p.133).

The National Treatment Purchase Fund (NTPF) is the organisation assigned the task by the Irish government of collecting, collating and validating data about individuals who are waiting for treatment in public hospitals. This is the source of data for the current project.

_____A description of the data and steps taken to clean it are the feature of the next section. This data description section also includes justification for choices of statistical methods to aid in answering the research question displayed below. The sections that follow this cover the hypothesis testing to be carried on the waiting list data and reporting and discussion of results obtained from the analysis undertaken.

Research Question

The NTPF waiting list data will be used in this project to answer the following research question:

How accurately can waiting list figures be forecasted using predictive modelling?

Predictive Model Selection

Build and Evaluate Model

Model Evaluation

Model Forecasting and Appraisal

Conclusions

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References

- Health Consumer Powerhouse (2018) *Euro Health Consumer Index 2018* [online], Health Consumer Powerhouse, available: <https://healthpowerhouse.com/media/EHCI-2018/EHCI-2018-report.pdf> [accessed 17 Mar 2020].
- OECD, European Union (2018) *Health at a Glance: Europe 2018: State of Health in the EU Cycle* [online], Health at a glance: Europe, OECD, available: https://www.oecd-ilibrary.org/social-issues-migration-health/health-at-a-glance-europe-2018_health_glance_eur-2018-en [accessed 18 Mar 2020].

Appendix