# MSc Data Science project

## Jake Dascombe – Actuary

### The project

Understanding the features of our clients’ pension data is crucial for the Government Actuary’s Department (GAD) to provide high quality advice and valuable insights. We worked with university students on this project as part of our ongoing collaboration with the University of Manchester.

The purpose of the project was to perform exploratory data analysis for one of our pension schemes and identify the principal factors that determine the fraction of pension a member decides to give up in return for a lump sum payment at retirement. Then to create at least one model using machine learning to predict the proportion of pension we expect members to commute at retirement.

### Introduction and engagement

Prior to the project we shared a project specification document with the students. It included background information, and a high-level overview of the steps expected to be carried out when processing, analysing the data and modelling.

We arranged an initial meeting to discuss the overall project. We had weekly meetings to discuss progress, any questions the students had, difficulties they encountered and expectations for progress made by the next meeting.

This ensured we had consistent dialogue which would help them to produce as high-quality report as possible in a relatively short time.

### Students’ performance

The students were exposed to a large dataset which can be complex to understand. Despite this and time constraints, they processed the data to the point where the datasets were fit to be used for data exploration.

The students successfully solved our real-world problem by performing a breadth of exploratory analysis. The insights of this and from their model will help us to better inform our clients.

The students also started to develop crucial analytical skills, which included always considering the bigger picture and the trade-off between breadth and depth of analysis.

These skills are vital to master to ensure the work produced is of maximum value to the client or reader. When reviewing the project with the students, we identified some key features which would have been advantageous to have been analysed in greater depth. This is something we will continue to encourage students to consider in future GAD projects.

Overall, it was a pleasure supervising the students and seeing the challenges they overcame and the quality of their presentation.

Project lead: Jake Dascombe is an Actuary in the Government Actuary’s Department where he works in the Analytical Solutions Team.