

Interpretation of Data

Assignment 1 (Part 2)

(Worth 20% of overall mark)

Aoife, a medical doctor, has set up her own GP practice in the middle of town with 4 doctors and 3 receptionists. She is unsure of what data analytical tools would help with the development of her business. She is thinking of outsourcing the management of this data on an ongoing basis to a consultancy company. In order to negotiate with potential data analytic consultancy companies, she needs a specification detailing what is required. You are required to draw up this specification in the form of a report identifying what the consultancy company will be required to do. The consultancy company is expected to store, manage, organise and perform all required data analysis on an ongoing basis.

Information about the day-to-day operations of the company and the data:

From time-to-time, patients ask for medical expenses reports for end-of-year tax purposes. Each patient has lots of different data in different places e.g., blood results, appointment dates, communications, and payment particulars.

Most of the data is stored in one database management system, containing many files in multiple formats, including csv, txt and Excel formats. Some data will be redundant and some will have to be merged. As doctors are not generally focused on the data analytics processes required in the industry, many categories of data contain very user specific naming techniques. The data is stored in many locations including the Cloud, three desktop PC's, a Microsoft laptop and a MacBook. She also holds some supplier information on her iPhone.

The receptionists can be very busy at times and often things are missed. For example, a patient may leave without paying and it may not be noticed.

GP practices are busy places and receptionists often struggle to find time to complete tasks for all of the patients. Aoife believes that she would find great use in a tool that could complete day to day operations quickly and accurately.

Monitoring all of the appointments and keeping track of all of the public patients etc., is very important for the purpose of reimbursement from the HSE. At the end of each month the receptionists must calculate how much the HSE owes the practice based on the number of patient consultations, etc covered under state schemes. This is a lengthy process, and accuracy is very important to avoid incorrect claims.

There are also monthly reviews (meetings) within the GP practice, required by law. Data needs to be presented in a user friendly, easy to understand way. GP performance, the number of patients, the number of cancelled appointments etc. are all key pieces of monthly information that may need graphical visualisation.

Required:

- Create an R markdown file that shows how R can be used to help with the operations of the company (10%). This R markdown file must also be compiled onto a pdf document.
- You will deliver a PowerPoint Presentation and answer questions based on the Presentation (10%). This will take place on Monday/Wednesday during the lecture hours on 25th November and 27th November. This presentation is designed to be delivered to Aoife and her fellow workmates on the tools and processes that may be useful to them in their line of business. The presentation should be no more than 8 minutes long.

Note:

- Late assignment submissions are subject to a reduction of marks
- Poorly presented work will result in a reduction of marks
- Plagiarism will be dealt with severely
- Artificial Intelligence cannot be used for this assessment
- The R Markdown file and the pdf file must be submitted entitled "StudentNumber_RMarkdown" and "StudentNumber_pdf" respectively
- The PowerPoint slides must be uploaded to Moodle entitled "StudentNumber_PowerPoint"
- All code must be carried out on R for the R Markdown file
- Marks will be awarded for efficiency of code
- Students may be asked questions on the steps taken and the code used in their assignment

Due Date: Sunday 24th November, 2024 at 5pm.