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Project 2: Customer segmentation to derive Customer Strategies

Company Background:

Rimilia is a fast-growing company focusing on providing full stack intelligent Finance process automation. It provides state of the Art AI-based models to intelligently conduct all the processes which need to take place in a finance back office to make sure that a business has efficient cash flow and sufficient working capital. As parts of our continuous R&D, we are looking at enhancing our knowledge of customers payment behaviour and boosting our ability to predict their behaviour both on an invoice level (i.e. being able to predict when an invoice get paid) as well as on a debtor level (how much and when a customer will make payments). This is to sport trends in customers' behaviour and be able to derive more personalised (customer specific strategies).

Problem Description:

- a. Customers come from various backgrounds, sectors, regions, services and with different payment behaviour and each would ideally require a unique strategy. We want to explore what different categories or clusters the customers can be grouped into based on their payment behaviour. This will then be used to potentially drive strategy in how to deal with those customers. E.g. Should we trust this newly joined customer with longer payment terms (opportunity to pay us later) because it falls in a category of trusted customers?
- b. In particular (and this can be treated as a stretcher objective/exercise) we are interested to investigate the impact of region and business type on customers' payment behaviour. We would like to see whether customers from a particular geographical region or business sector are demonstrating any different payment behaviour or trend. For example: "Customers from region A, on average, pay their invoices 15 days later than region B". or Customers from Business Sector X are demonstrating a different predictability performance (e.g. they are more predictable than customers from sector Y). At the moment, Information such as region and sectors are either not available in our datasets or partially available and they can be subject to human error (e.g. Appear in wrong formats). However, information such as Location, region, duration in business etc can be found from UK Company House website or other resources. Therefore, this task includes writing a small innovative plugin to extract companies' region and sector information from internet, and use them when clustering/grouping customers.

Data Description:

There are both invoice specific as well as payment specific. For many customers there are 2 or 3 or 4 years of worth of data available. Data needs to be made anonymised and we need an NDA in place before we proceed. Data will be provided by the Data Intelligence team at Rimilia.

Project outcomes and deliverables:

- Commented Python Code of the implemented clustering techniques.

- Visualisations and graphs demonstrating that the customer clusters actually do indicate independent (different) payment characteristics.
- The plugin which extract data from Company House website or other sources (if stretcher exercise is attempted)
- Visual evidence of how region and sector are influencing payment behaviour and if they lead to formation of separate clusters (or if they are strong predictors/distinguishers when defining clusters)- This is needed if the stretcher exercise is selected.
- List of attempted clustering models and explanations as to why they have, or they have not worked.
- Documentation of code, methodology together with visualisations where necessary.

Additional Information:

Confidentiality of data and the project as described are absolutely crucial for us. We'd like to keep the company name secret and only disclosed to the persons/team who choose the project(s).

An NDA is needed before any work is undertaken. What and how data are provided will be discussed with the team to make sure protocols are not breached.