Mine, Analyse and Visualize Healthcare Data

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Agenda

- Problem Domain

- Project Aim

- Datasets

- Learning

- Challenges

- Demo

Problem Domain

- Healthcare data available in public domain

- Huge volumes of data

- Multiple variables

- Insights hidden within

Project Aim

- Mine and analyze Practice level prescription Data

- Data Exploration

- Focus on Diabetes and related drug groups

- Build Insights and correlation with other datasets

Datasets

- NHS-Digital
  - Practice level prescription data
  - CCG level prescription data

- NHS BSA
  - Patient List Size including age demographics
  - GP Count

- Public Health England
  - Health Indicators – disease prevalane
  - Index of Multiple Deprivation
  - Many more

Learning

- Practices can be clustered based on average age, index of multiple deprivation, % of Diabetic patients

- Correlation exists between costs, age, disease prevalence and measure of deprivation

- Understand the variations between per patient cost and prescriptions costs overall

- Build a system to assist data exploration by domain experts

Challenges

- Domain knowledge

- Application of data science principles

Technology

- Python for data analysis

- Matplotlib and Plotly for visualization

- HTML, CSS, Bootstrap, JavaScript and JSON for Application Prototype

Demo

- Application prototype demo

- Cluster Analysis

- General information

- Parameter selection

- Costs information
  - Chapter level
  - Drug group level

Questions

Thank you

Next steps

- To complete the data model for prescription cost prediction

- Additional datasets should be explored:

- Various health indicators provided by Public Health England

- Other disease prevalence

- Prescription cost analysis

- Dispensing data (Pharmacies data) link it to prescriptions and practices.

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Next steps

- Configurable drug groups and trend dates

- Aggregation and distribution of costs within Drug Group (Drill up and down)

- To conduct user interactions with different stakeholders and understand the need for advanced visualizations.

- Work on the feedback provided by the end-users during the demo.

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