The spread of COVID-19 with and without vaccine in xxx

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Introduction

You can have the choice to DIY your own task, including problem definition, data collection, methodology design, results analysis, etc. The task should be related with data analytics, machine learning, and other contents learned in COMP1433. For option 3, you are required to submit a report covering the following parts:「您可以选择自己动手做自己的任务，包括问题定义，数据收集，方法设计，结果分析等。任务应与数据分析，机器学习以及在COMP1433中学习的其他内容相关。对于选项3，您需要提交一份包含以下部分的报告」

目标简述

- 问题定义：Research and analysis of the spread of COVID-19 with and without vaccine in Israel「在以色列，带有和不带有疫苗的COVID-19的传播的研究和分析」
    - 选以色列的原因：新冠接种率最高
- 研究步骤
    - 数据源可视化(研究以色列，可能还需要其他国家数据源进行对比)
    - 不同接种率下感染人数和死亡人数和治愈人数的数据和公式预测
    - 不同接种率下感染速度和死亡速度和治愈速度的数据和公式预测
    - 不同接种率下感染率和死亡率和治愈率的数据和公式预测
    - 不同接种率下传播率和传播数据和公式预测
    - 结果和公式可视化
    - 得出预测模型
    - 误差分析
    - 分析感染人数增加的关键因素
    - 证明疫苗是降低感染人数和提高治愈率的最有效手段「需要其他国家对比」
    - 预测未来香港的在不同接种率下的几种可能
    - 给出关于香港疫苗接种的合理化建议
- 数据收集
    - 初期无疫苗时的传播数据
    - 现在有疫苗是的传播数据
    - 数据源：https://github.com/CSSEGISandData/COVID-19 (COVID-19 Data Repository by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University「COVID-约翰霍普金斯大学系统科学与工程中心（CSSE）的19个数据存储库」)

重要提示

In the report to be submitted, the organization is suggested to be in this way:

- Motivation.「动机」 The reason why the task you pick up is important and who can be benefited from the task you tackle.
- Background.「背景」 The history and development of the related area, e.g., what previous research did on the task. Present a short literary review with brief description, which is different from option 1 (where you need a detailed introduction).
- Description. 「描述」First define task you are exploring. Then, describe the methods (or tools) you used to analyse the data and explain why they can be helpful.
- Implementation.「实施」 How you implement the data analysis tools (describing both variables and functions used in the R scripts).
- Data.「数据」 Describe the data you are using for analysis and the way you collect them. Present the key statistics in the data you are working on, such as the average value, value range, distributions, etc.
- Results and Observations. 「结果和观察」Show your analysis results (in figures, tables, or numbers) and list the observations drawn from the results.
- Discussions「讨论」. Your thoughts and opinions after analysing the data (can be from different perspectives such as public health, business, etc.

In addition to the report, please also submit a zipped file with the R scripts used to analyse the data and implement the Regression models. Please make sure that the codes are consistent with the implementation parts in the report and commented well to allow reviewers to capture the key idea.「除报告外，还请提交带有R脚本的压缩文件，该脚本用于分析数据和实现回归模型。请确保代码与报告中的实施部分一致，并且注释正确，以使审阅者可以掌握关键思想。」

资料

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