Mathematical Modeling Project 1

In this project, you need to complete **Questions 1 and 2** from Problem C of the 2018 China Undergraduate Mathematical Contest in Modeling (CUMCM). Questions 3, 4, and 5 are optional. The project can help you become familiar with exploratory data analysis, data processing, and the implementation of the K-means algorithm.

Requirements

1. Form a team of **no more than three members**, follow the provided report template, and collaboratively finalize the report.

2. You should format the report **using LaTeX**.

3. You are required to prepare presentation slides using either Beamer or PowerPoint. The presentation time for each group is 10 - 15 mins.

4. The programming language to be used is **not restricted**.

Notes

1. You can study and refer to the content of the exemplar report for guidance. The report can be found at https://dxs.moe.gov.cn/zx/hd/sxjm/sxjmlw/2018qgdxssxjmjslwzs/.

2. You are **encouraged** to use any AI tools, such as ChatGPT, DeepSeek and Claude, to generate a framework of the source code, assist with mathematical modeling and report writing. Please **describe** how you use the AI tools in your report.

Rules

1. **Deadline**: The deadline is **14:00, March 20(Thursday of the fifth academic week)**.

2. **Report**: The report should be easy to understand and describe each member's work well, especially the highlights of the work. The report must include the **names and Student ID** of all group members.

3. **Submission**: Please send the project to **jzlisustc@gmail.com** to keep record.

   1. **Email Subject**: MM project 1-Team X(Replace "X" with your actual group number)

   2. **Submission Content**:

      - **Report**: Must be in **PDF format**.

      - **Presentation Slides:** Must be in **PPT or PDF format**.

      Attention: Only the submission of the report is required, the submission of source code is not necessary.

   3. **Only one member per group** needs to submit the project.