Homework on Bass Model

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Points: 50

Deadline: 2025-02-28

Innovation Diffusion Analysis Based on TIME's Best Innovations List

Assignment Overview

Every year, Time magazine publishes a list of the top 100 innovations of that year. For this assignment, you will:

1. **Choose an innovation from the list.**
   The link to the 2023 innovations list is here. Once you select a product from the list, add its link here.
2. **Identify a similar innovation from the past.**
   Reflect on an innovation that resembles the one you've chosen. In 1–2 paragraphs, justify your choice by comparing both innovations in terms of their functionality, technology, or market impact.
3. **Find historical data.**
   Use Statista (the university provides access through AUA Wi-Fi) or another reliable resource to find a time series that matches your look-alike innovation. Provide the reference for the data source.
4. **Estimate Bass Model parameters.**
   Using the time series data for your look-alike innovation, estimate the Bass diffusion model parameters (coefficient of innovation p, coefficient of imitation q, and market potential M).
5. **Predict the diffusion of the innovation selected in step 1.**
   Based on the Bass Model, predict the diffusion path of the chosen innovation. Ensure your predictions are supported with relevant data.
6. **Choose a scope (global or country-specific).**
   Decide whether to analyze the diffusion worldwide or within a specific country. Justify your choice with references or data.
7. **Estimate the number of adopters by period.**
   Using your Bass model parameters, estimate the number of adopters of the innovation over time. If necessary, use Fermi's logic to make rough estimations in the absence of concrete data.

Important Notes

- Any number or data used in this analysis must have a credible reference.
- If you are using external research or studies, make sure to provide proper academic citations.

Submission Requirements

Please submit the following items to **GitHub**:

- **Markdown or Notebook file** (Jupyter or equivalent)
- **PDF output**
- **Source files** (e.g., code, datasets)
- **Research articles or references used** (in PDF or reference list form)

Directory Details

- **img/**: This directory contains all the images used in the project.
  - `image1.png`: Description of the image.
  - `image2.jpg`: Description of the image.
  - `image3.svg`: Description of the image.
- **data/**: This directory holds datasets used for analysis.
  - `dataset1.csv`: Description of the dataset.
  - `dataset2.csv`: Description of the dataset.
  - `dataset3.json`: Description of the dataset.
- **report/**: This directory contains the project report.
  - `report.pdf`: Final report in PDF format.
  - `report_source.md`: Source markdown file to generate the report.
- /: the root directory holds the code files for the project. **
  - `script1.py(r)`: Description of what the script does.
  - `script2.py(r)`: Description of what the script does.
  - `helper_functions.py(r)`: A collection of helper functions used in the project.
- **readme.md**: The main documentation file. You can build the report here if you prefer, providing an overview of the project, instructions for setup, and usage.