MATH557: Applied Linear Algebra
Term Project

Due 11th December 2025[a]

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This project should be carried out by a team of at least 3 and at most 4 students.

1. Project Description

The acquired dataset contains telecommunication traffic data collected on a daily basis over a period of time. The collected data indicates: the Day order within the week (1 to 7), the period of measurement within the day (1 to 24), the price per GB (1 or 2), and the measured traffic arrival (connected) and departures (disconnected).

2. What To Do?

You are asked to use what you have learned in this course, and do your own research in order to analyze the telecommunication traffic and forecast it for the next **100 periods**.

You may focus your interest on applying different approaches among the following:

- Variance-Covariance matrices.
- SVD Applications to PCA.
- Pseudo-Inverse approach and linear regression.
- Time Series and Auto-Regressive Models.
- Gradient Descent Methods.
- Neural networks.

3. Report Format

Your report should detail your work methodology, with research references related to the problem, and Discussion section which values the performance of your forecasting technique, using figures and tables. Your term project submission should contain the following:

- A PDF report file with the corresponding MS Word, or Latex file source file.
- A forecasting result Datafile: .csv, .txt, xlsx, or any other.
- Any code you have used to realize your project.