MATH 304 - Numerical Analysis and Optimization

Project ---Least Squares Regression

<Your name here>

<Your email here>

Keep in mind that the entire report should be around 5 pages, **CANNOT BE LONGER THAN 8 PAGES IN THIS FORMAT**!

0. Abstract

Insert a very brief paragraph describing the content of your project

1. Introduction

Describe the background of this project.

2. Methodology (4 marks)

(1) Describe how you formulate the model fitting problem by the least squares regression;
(2) Describe the role of regularization; (Describe the cross validation in next year)
(3) Describe how you implement the Least Squares Regression algorithm. **Do not copy the code here**.

3. Experimental Results (4 marks= one for each task)

Show the results which are required in the tasks. If you have any other ideas, you can do additional experiments and show your additional results. Give your conclusion.

4. Discussion (2 marks)

Please try to interpret your experimental results. Topics may include, but not limited to:

- Accuracy of different models with different setting (like the training data size, the model complexity, the regularization weights);
- Possible improvements that can be done;
- Anything unique you have done to improve/validate your program's accuracy/complexity

References

[1]Use an enumerated list here for any references, such as books or journal/conference papers.