

Portfolio Specification

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1 Introduction

This is a technical specification document for the Data Science (DS) and Machine Learning (ML) module run by Greg Doyle. As a part of the module, we, the students, are required to create this document to plan the various machine learning and data science projects that we will be working on throughout the first semester. By the end of the semester we are expected to have completed all the projects defined in this document and then present them to the class. This document will be used as a reference throughout the semester to ensure that we are on track to complete the projects on time.

2 Ideas

2.1 Sea Level Prediction

- **Brief Description:** Predict future sea levels using a polynomial regression algorithm.
- **Dataset Source:** <https://www.kaggle.com/datasets/kkhandekar/global-sea-level-1993-2021>
- **Technologies:**
 - Python
 - Pandas
 - Numpy
 - Matplotlib
 - Scikit-learn
 - Jupyter Notebook
 - Polynomial Regression
- **Detailed Description:** In a world where global warming is steadily heating up the planet, a side effect is the rise of the sea levels across the globe. It is important that we have a prediction of where the sea levels will end up in the future so that we can prepare for the worst. To do this, we can use a polynomial regression algorithm to predict future sea levels. The dataset will have to be cleaned and preprocessed before we can use it to train the model.

2.2 Titanic Death Prediction

- **Brief Description:** Predict whether a passenger on the Titanic survived or not.
- **Dataset Source:** <https://web.stanford.edu/class/archive/cs/cs109/cs109.1166/problem12.html>
- **Technologies:**
 - Python
 - Pandas
 - Numpy
 - Matplotlib
 - Scikit-learn
 - Jupyter Notebook
 - Possible ML Models:
 - * Decision Tree