Report

Here we will are trying to gather data of various sectors and from their corresponding sectoral indices and by comparing with the NIFTY 50 index we will try to predict whether a certain sector will outperform with respect to the broader market so that it helps the investors to get an idea whether they should invest in it or not.

Here we are given step-wise by doing individual tasks here are the tasks.

Task-1:

We will gather the data of previous 10 years using yfinance, and we will try to read all the micro-economic and macro-economic variables from it like GDP growth rate, inflation rates and interest rates. The code snippet is in download_data and the data is loaded into their corresponding csv files.(Had an issue loading NIFTY BANK,NIFTY PHARMA, NIFTY FINANCE couldn't understand why)

Task-2:

We will try to see the trends of the economic variables, we will do this by using matplotlib library by ploting the of the macro economic variables wrt the years and even the correlation matric of those sectors. The plots are there in GDP_growth_rate.png and NIFTY_AUTO_index.png, and we also have the correlation matrix that we have printed in the code in analyse_and_model.py the matrix is

	Close	GDP	CPIAUCSL	FEDFUNDS
Close	1.000000	0.728867	0.656275	0.359444
GDP	0.728867	1.000000	0.981084	0.376116
CPIAUCSL	0.656275	0.981084	1.000000	0.310637
FEDFUNDS	0.359444	0.376116	0.310637	1.000000

Task-3:

Here we will try to predict the indices of those sectors and we will try to make a model for it for training data we will take the first 8 years of the 10 years and we will test our model on the next 2 years and check for the accuracy. Here we have used ARIMA model to train our data set and the parameters were set to p = 5(number of AR terms), q = 0(number of MA terms), d = 1(number of first differences to make it stationary), and we calculated MAE,MSE and R-2 on the test data and used these to check for the accuracy of the model we used.

Here we could try to do some basic preditions by using a standard model and in future we could try to use more advanced models to increase the accuracy of the predictions.