An assessment of the current state of the Australian tech sector labour market and a prediction analysis for future trend

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This report written in R discusses how the development of volume of jobs in tech sector is impacted by the volumes of jobs in other industries. The goal of this report is to determine the current state of tech sector labour market as well as to find out the supervised model best suited to predicting volume of tech sector jobs.

Datasets were collected from Australian Bureau of Statistics website which outlined volume of jobs arranged by each occupation types, areas, etc. In the data-pre-processing stage, the datasets were integrated and transformed to align with the data mining goals of the study.

Models were evaluated by their root mean square error (RMSE) and mean absolute error (MAE) values to determine how the model performed with the lower score being the better models. The random forest model performed the best with a RMSE of 0.34 and MAE of 0.25.

Through the analysis and visualization stages, it was found that the volume of jobs in tech sector is closely associated with that of other industries. Subsequent analysis of feature importance using the random forest model revealed that the Health Care and Social Assistance industry is most closely related to the volume of jobs in tech sector.

In the Forecasting stage, Random Forest model was used to generated future trend of jobs in tech sector. The prediction result shows that the volume of jobs in tech sector is expected to decrease by average change of -0.17 percent in each quarter for the next 12 months (until Dec 2022).

Data - https://www.abs.gov.au/statistics/labour/employment-and-unemployment/labour-force-australia-detailed/latest-release#industry-occupation-and-sector