

Module 1 Assignment Project – Singapore Jobs Analytics

Business Case – IT Sector

Business Scenario

- Singapore's IT sector is entering a structurally tight labour phase driven by sustained digitalization, AI adoption, cybersecurity demand, and platform engineering expansion.
- Outlook – Continued expansion but constrained by skilled-talent availability rather than job creation.

Objectives (mid-term)

- Offset labour scarcity by shifting firms toward automation, AI-assisted development and high-value work.
- Strengthen conversion from training → employability → job performance in advanced technical domains.
- Ensure Singapore remains an attractive hub for technology investment and high-value digital jobs

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Target Group

- IT Firms (including SMEs)
- Skills and Workforce Development

Actionable Steps

- IT Firms
 - Build internal talent pipeline; Reduce reliance on external hiring
 - Prioritize deep technical capability over headcount growth; Invest in AI / Automation
 - Job Redesign
- Skills and Workforce Development
 - Drive the implementation of IT / AI / DevOps / Cloud skills frameworks and transformation
 - Drive cross-border / cross-continent expertise initiatives

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Business Value Proposition (**if objectives met**)

- IT Firms (including SMEs)
 - Stronger innovation capability → higher productivity → wage growth → retention
 - Greater resilience to labour shortages
 - Great potential for sustainable high growth
- For Singapore -
 - Stronger digital and innovation ecosystem → Continued attractiveness as regional tech hub
 - Sustained IT sector growth → long-term competitiveness against global tech centres
 - Productivity-led wage growth → reduced reliance on external talent
 - Higher value job creation

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Business Value Proposition (**If objectives are not met**)

- IT Firms (including SMEs)
 - Erosion of growth and competitiveness within the industry local and overseas
 - Chronic hiring shortages → Increased outsourcing or off-shoring
 - Reduced productivity and wage stagnation
- For Singapore -
 - Digital competitiveness decline → loss of regional tech leadership position → reduced attractiveness for tech investment
 - Greater reliance on foreign specialized labour → impacting local labour market
 - Limiting economic growth

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Data Handling and Process

Tools used:

- DBGate
 - Data cleaning
 - Removing columns that are not needed for the dashboard
 - Validating the datatypes for each column and modifying them if required

| type | name |
|------------|--------------------|
| =“VARCHAR” | |
| VARCHAR | employmentTypes |
| VARCHAR | positionLevels |
| VARCHAR | postedCompany_name |
| VARCHAR | salary_type |
| VARCHAR | status_jobStatus |
| VARCHAR | title |
| VARCHAR | sector |

| type | name |
|------------|------------------------------------|
| =“INTEGER” | |
| INTEGER | metadata_repostCount |
| INTEGER | metadata_totalNumberJobApplication |
| INTEGER | minimumYearsExperience |
| INTEGER | numberOfVacancies |
| INTEGER | salary_maximum |
| INTEGER | salary_minimum |
| INTEGER | average_salary |

| type | name |
|---------|------------------------------|
| =“DATE” | |
| DATE | metadata_newPostingDate |
| DATE | metadata_originalPostingDate |

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Data Handling and Process

Tools used:

- ChatGPT
 - Vibe coding and troubleshooting
- Huggingface
 - Web Hosting – <https://sofian75-dsai-module01-assignment.hf.space/> (Public)
 - Reverse engineering method of learning code
- Github
 - Storing of deployed codes (including back-ups)
 - <https://github.com/DSAI-Sofian/6m-data-coaching-wk3-assignment> (Public)