

**Data Science Fundamentals**

Year 1 (2021/22), Semester 1

**SCHOOL OF INFOCOMM TECHNOLOGY**

Common ICT Programme

**Assignment**

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| **Team Name:** | Team 2 |
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Stakeholder: Student/Parent

A2. Stakeholder Background:

After graduating from Polytechnic or Junior College, students will want to get into a university with sound education and choose a course that matches their interest and improve their job prospects. Their decision is guided by what they are exposed to in the media.

* Is the university well recognised and does it have a good global reputation?
* What are the intakes for the various courses?
* What courses do the universities offer?
* What are the job opportunities for graduates?

A3. Actionable Statements

Students enroll to study in university to earn additional degrees, credentials, and skills to improve their job prospects. Students and parents often spend a lot of time to make the correct decision due the vast amount of information across the internet. Students and their parents need an easy and a reliable way to know which university to enroll in, what courses are provided, the cut off points, and job prospects of graduates.

B1. Data Analysis and Visualisation

Q1: Is the University well recognised and does it have a good global reputation?

Table

Description automatically generated

Above shows the world rankings of NTU, NUS, and SMU (except for SUSS, SUTD, and SIT because they were not present in the dataset)

On the left column, it shows the year. And on the right, it shows the respective university’s ranking in that year. On the last row, it is the average ranking of the universities from 2017 to 2021.

(a lower average = better global reputation)

Q2: What are the intakes for the various courses?

Chart, bar chart

Description automatically generated

Above shows the total enrollment for courses\* (bar chart above) from 2005 to 2019 and its respective graduation percentage (bar chart below) from 2005 to 2019. Using the slicer on the left, you can select which course you would like to see (e.g., Accountancy, Dentistry) and the bar charts would update automatically.

\**Courses in this case means the category of course (i.e., courses that do Accountancy, courses that do Medicine)*

Q3: What courses do the universities offer?

Chart, treemap chart

Description automatically generated

Above shows a treemap diagram. The different rectangles represent the types of courses are offered within the different Schools of Study in the universities. The bigger the rectangle, the more courses are offered in that School relative to the other Schools. The top left of every rectangle shows which School it is, and the bottom left shows the number of courses offered in that School. There is a slicer on the left which you can select which university you want to see. The universities include NUS, NTU, SMU, SUSS, SUTD\*, and SUSS, and the courses shown in the diagram are from 2018.

*\*in SUTD, there is no School name, as such, it is labeled as “na”*

Q4: What are the job opportunities for graduates?

Chart, bar chart

Description automatically generated

Above shows a bar chart for the overall employment rate for graduates in NTU, NUS, SMU, SIT, SUSS, and SUTD from 2013 to 2018. In the slicer on the left, you can not only select which university you want to see, but you can also select which School of Study in that university you want to see. A tall bar chart signifies that more university graduates can get employed.

Chart, waterfall chart

Description automatically generated

Above shows a waterfall chart of the employment change in various industries from 1991 to 2019. The blue column at the end of every chart represents the net change, it can be a net increase or a net decrease. In the slicer, you can choose from 4 different industries as well as the employment change for locals or foreigners in that industry. This allows one to determine if there is a rising competitiveness with foreign workers taking more jobs. If there is net increase in your industry of choice, it means that there is more demand in that sector, which can help with job security.

Chart, bar chart

Description automatically generated

Above shows a clustered bar chart of different monthly income categories from NTU, NUS, SMU, SIT, SUSS, and SUTD from 2013 to 2018. The bar chart is currently showing the average of all the universities. There are Basic Mean, Basic Median, Gross Mean, Gross Median, Gross 25-percentile, and Gross 75-percentile. In the slicer on the left, you can select which university you want and see how the different monthly incomes change across the year. If the columns increase with time, it shows that graduates can expect to earn more.

From the 3 charts that were used to explain Q4, it shows that overall employment rate and monthly income of graduates are increasing. And if the employment change in the industry is increasing, graduates can have a better time getting employed.

B2. Dashboard

Graphical user interface, application

Description automatically generated

To create my dashboard, I had to consider how many visualsations would fit within the screen. This is because I felt that all the visualisations presented in B1 were relevant to my exploratory questions proposed. As such, I had trouble deciding whether to omit some visualisations or to reduce the size of them, though this may affect their readability.

D: Individual Reflection

In doing this assignment, I learnt that it was important to have your data in the proper format before importing them into Power BI

Overall, the challenge was manageable. However, when trying to upload the files into Power BI, many errors occurred, and the visualisations did not come out as I expected. This led me to format/clean the data beforehand properly before uploading to Power BI

When making the visualisations, I had to refer to past lab exercises. This helped reinforce my learning with how to use Power BI which might help me in employment