assignment3-gg

Result for each figure

Figure 1- Tuition Fee

Monash University's tuition fee for the entire two-year program is USD 42,800.
Compared to other universities, Monash slightly above the meadian, with many U.S. and U.K.
universities charging over USD 50,000.
This suggests that Monash offers a relatively more affordable tuition fee for master programs
among English-speaking countries.
For computer science is two-year duration, the annual tuition fee is USD 21,400.

Several European and Latin American universities, such as University of Sao Paulo, Goethe
University, and University of Oslo, etc., show a tuition fee of USD 0 in the dataset. This likely
reflects the real-world policy of these public universities offering free or nearly free education
to international students. However, in some cases, this may also indicate missing or non-
standardized data. We treat these values as valid representations of low-cost or no-tuition
programs.

Figure 2- Living Cost Index

Figure 2 presents the normalized Living Cost Index, where New York City is assigned a baseline
value of 100.

Monash University is located in Melbourne and the courses of computer science are mainly
in Clayton. The day-by-day living cost index is 72.8. This means with real-world data from
NUMBEO, which reports the average monthly living cost for single person (excluding rent) in
New York City as USD 1,709.20 and in Melbourne as USD 1,244.30. It indicates that daily
expenses such as food, transportation, and utilities in Melbourne are relatively manageable
than major global cities.

As a result, Monash students are less likely to encounter excessive living costs compare to
other universities for international study.

Figure 3- Rent

Students at Monash pay around USD 1,700 per month in rent.

This number is in the first quintile of the whole dataset, which means though the rent is lower than cities such as Cambridge, L.A. and Sydney, the rent still may be a burden for the budget.

The total rental expenses over a two-year program may sum up to USD 40,800, which forms the largest portion of non-tuition expenses.

Figure 4- Visa

The visa application fee required for international students varies by country and it is necessary.

For Monash University, the Australian student visa fee is USD 450, according to the dataset. This is quiet high, with only a country is higher like the United Kingdom charging up to USD 485, while some European countries charge as little as USD 75 and USA is 160.

Although a one-time fee, visa costs still contribute to the total pre-departure expenses. Australia's fee is not among the lowest, but it is unlikely to pose a major barrier relative to larger ongoing expenses like tuition fee or rent.

Given our case budget of USD 43,593.9, this visa fee constitutes roughly 1% of the total cost, but still a necessary consideration in the budgeting process.

Figure 5- Insurance Fee

Oversea Student Health Covers (OSHC) is another non-negligible and one-time cost and that varies significantly across countries and institutions.

The insurance cost for studying at Monash University is estimated at USD 650, which is required for the full 2-year program. This value is close to the median.

Insurance is an essential expense that ensures students have access to healthcare during their stay. Its value is especially important in countries like Australia, where OSHC is a visa requirement.

For our budget-focused analysis, this one-time cost is modest but necessary. When paired with visa fees, they cost total USD 1,100, which should be accounted for in advance planning.

Result of the report

The following figure compares the total estimated cost of pursuing a Master of Computer Science across selected universities

```r
library(tidyverse)
# Load the dataset
cost_data <- read_csv("data/International_Education_Costs.csv")

# Filter the data
cost_data <- cost_data |>
  filter(Level == "Master" & Program == "Computer Science") |>
  # columns for calcuation
  mutate(Monthly_Living_Cost = Living_Cost_Index / 100 * 1709.2,
         Tuition_PerYear = Tuition_USD / Duration_Years,
         Total_Cost = Tuition_PerYear + (Rent_USD + Monthly_Living_Cost) * 12 + Visa_Fee_USD

# Plot with top 30 of living cost
cost_data_top <- cost_data |>
  arrange(desc(Total_Cost)) |>
  slice_head(n = 30)
# Monash Label
monash_label <- cost_data_top |>
  filter(University == "Monash University")
total_cost_plot <- ggplot(cost_data_top,
                          aes(x = reorder(University, Total_Cost),
                              y = Total_Cost,
                              fill = University == "Monash University")) +
  geom_col()+
  geom_text(data = monash_label,
            aes(label = paste0("USD ", Total_Cost)),
            hjust = -0.1, colour = "black", size = 3.5) +
  coord_flip() +
  labs(x = "University", y = "Total Estimated Cost (USD)") +
  theme_minimal() +
  theme(legend.position = "none",
    axis.text.y = element_text(size = 7))
print(total_cost_plot)
```
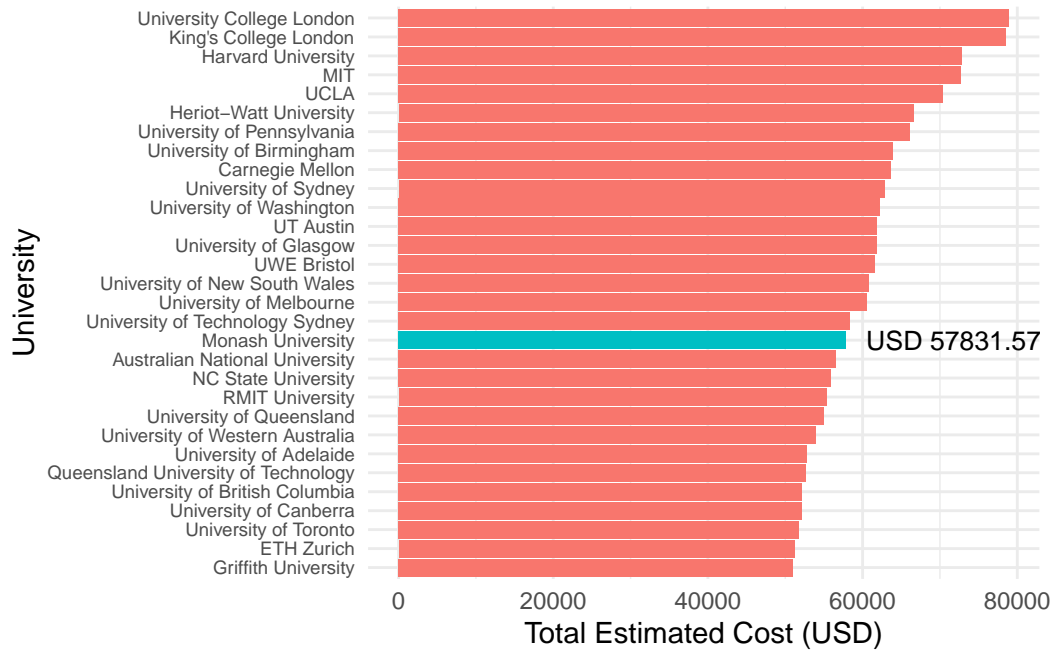
Figure 1: Top 30 Estimated Total Cost of Master of Computer Science

Figure 1 shows the top 30 universities with the highest estimated total cost for completing a Master of Computer Science. Monash University ranks in the **upper-middle range**, with a total cost is **USD 57,831.6** for one academic year. Although its tuition fee is moderate, relatively high rent and living expenses in Melbourne contribute to the overall cost. These results highlight the role of rent and living expenses form the full financial burden of international education.