Brisbane IT Jobs Analysis

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# Introduction

The purpose of the analysis is to find out how well the Queensland University of Technology covers the necessary skills demanded by the IT industry within Brisbane and make recommendations on how QUT could improve its units/ courses based on the findings. This report will cover the three major areas of the analysis, namely the method used to gather & sort the data, as well as come up with the findings. The results of the analysis and the recommendations to QUT based on these findings.

In the highly competitive education industry it is vital to always be considering industry trends and demands, this ensures that the institution is offering courses that will lead to gainful employment for students and a higher quality of education offered by the university, this contributes greatly into helping maintain the university's reputation and keep it in business as a world class university.

The analysis and the report are only focused on the Brisbane job market, other cities/ states are out of scope for this report.

# Method

To obtain the results that will be looked at in the next section two main methods were used, firstly data collected from a Scrappy script and secondly data that was collected manually.

The first method produced the bulk of data as the script was able to generate 10,000 entries, however it was later discovered only about 2,000 of the entries were relevant to the analysis which is still a decent enough sample size for analysis purposes. The first step for this method was to go through the original 10,000 entries and find all the relevant ones to the analysis, this ended up being quite a time-consuming task that required multiple members, the types of entries that needed to be weeded out were entries with not enough data, such as not having a job title or entries that were listed as one job type but weren't actually IT related. Once the list was narrowed down to only the data relevant to the analysis, it was then recombined into one document which in itself was time consuming as errors did not allow all the documents to be merged at once. When the merge was completed the data was sorted so that it could be categorized, this was carried out using Nvivo, the merged data was imported into Nvivo where it was by hand sorted into categories such as Analysis or Programming for example. To do this a starting list of known categories was used, when a job that did not fit into any of the existing categories was found a new category would be created to house it and any similar, once all the data was sorted the resulting list of groups became the basis for both the analysis and the websites automated sorting of jobs. While this method wasn't too difficult to carry out it was extremely time consuming as many of the steps required each entry to be checked one at a time resulting in a thorough and accurate result at the cost of time and effort.

The second method used was to contact recruitment agencies and companies that take graduates directly, this method did not produce any results as most companies and recruitment agencies were not willing to share data or how they go about their selection processes. In fact of the companies contacted none were willing to share this information and others pointed to their websites which did not have the information needed. Due to this the report is based largely on the information gathered using the first method.

After the data was fully categorized it was then used to produce various charts that will be discussed in the following section.

# Results

Using the methods above the analysis produced a number of different results that cover different areas.

Firstly, it produced the SEEK vs QUT skills comparison chart which gives an overall view on how QUT matches up against seek by comparing the grouped skills from QUT against the categories produced during the analysis, overall QUT’s taught skills manage to cover 90% of all the jobs on offer by SEEK. From the perspective of seek there were three skills QUT was missing, the first being CIO/Management, as this is a skill gained through long term employment it is understandable that there is no directly matching unit, secondly Teacher/trainers, this category could have its own course, that will be covered further in the next section. Thirdly Testers, this has room for improvement and will be discussed in detail in the following section.

From the perspective of QUT there were two completely unutilised skills being taught, those being artificial intelligence and social media. Artificial intelligence is a very specialised skill set, because of this there is very little demand for it, adding to this the large technology companies are based largely in other countries, gaining employment within artificial intelligence would be quite challenging in Australia. As for social media this shares the same problem as AI, it’s a very specialized field leading to a lack of demand.

This is the main result of the analysis as it answers the question laid out from the beginning, “How well does QUT match up to the Brisbane job market?”.

The Analysis did produce other results that aided in the creation of the visualisation tool such as the categories, and matching keywords for the visualisation tool to use in matching to get fewer jobs being listed as unknown. It also aided in choosing that data to display on the visualisation tool as well as what charts that would best display the data.

Some of the trends found were as expected, programming is the highest demand skill by a decent amount, followed by analysis and project management.

Figure 1. Seek job groupings & frequency chart

All three of the most in demand skills are all covered very well by the current QUT curriculum and do not require changes.

And finally, the analysis produced some charts which showed the demand of certain jobs which can be sorted by major as well as data on the amount of jobs that are advertised by recruitment agencies.

# Recommendations

From the results of the analysis key areas of improvement have been identified and will be described in detail. The following is a list of recommendations that the analysis shows may be beneficial to the Queensland University of Technology.

The first recommendation would be a dedicated unit to teach testing. There is a lot of industry demand for testers while testing is taught as a more secondary skill, usually only being covered within 1-2 lectures in various units. While these do teach students the fundamentals of testing they do not go into greater detail, this is the main area that QUT appears to be lacking in terms of industry skills gaps as there is a large number of industry tools and techniques not really taught to students in great detail or tested for thoroughly in exams.

The next skill to address is IT educators, while there is a skill gap it is not created by the lack of a dedicated educator unit, as such with the CIO group these skills are largely based on experience, with experience being far more valuable than teaching skills themselves, it is not believed that QUT needs to take any action towards this field currently.

Another factor is the skills taught by QUT that do not match any jobs SEEK has to offer, these include artificial intelligence and social media. Both skill groups did not match any of the skills SEEK was searching for, as stated in the previous section this is caused by both skills being very specialised leading to a low number of job listing for them, QUT may want to look into the number of students that graduate and actually find job in these fields whether it be in Australia or more likely overseas to better judge the future viability of these units.

The final area of concern for skills is the gaming sector, QUT offers a large number of dedicated units to teach game development, but within Brisbane there exist almost no jobs to fulfil this niche. Though this may not be an issue as most jobs for this industry are within other countries, namely America, it is possible students undergo their training at QUT then move to a country where the market for game designer/developers is much greater so it is not believed that this area needs urgent attention but it may be cause for further investigation, however that is out of scope for this report.

# Conclusion

In conclusion the analysis aimed to uncover weaknesses within the Queensland University of Technology's units, the skills they taught to students and how this affected the student's employment prospects. Through data gathered by scripts and sorted by hand it was shown that QUT generally covers the great majority of skills demanded by the industry, however the analysis uncovered one flaw as well as some minor issues that could be looked at, this included the addition of a new unit to teach testing as its main focus as well as addressing a potential problem area that is the current games development job market within Brisbane and the steps QUT should take in these cases.