

The background of the poster features a high-angle, nighttime aerial photograph of a dense urban landscape. The city is filled with numerous skyscrapers and lower buildings, all of which are brightly lit from within, creating a pattern of glowing windows against the dark night sky. A network of roads and highways is visible, with some traffic lights and streetlights adding to the overall illumination. The perspective is from an elevated position, looking down over the city's rooftops and streets.

SEPT. 2020

TEAM PROJECT

BY GOONY

PREPARED BY:

MA YSABEL DUNGCA (BELLE)
BENJAMIN BULLOCK
TOM BARBER
TUNG NGUYEN
ANDREW CHEN
CAMPBELL BENNETT

FOR:

INTRODUCTION TO
INFORMATION TECHNOLOGY

PERSONAL INFORMATION

Meet the members of **Goony!**



Andrew is an RMIT student studying a Bachelor of Business (Professional Accountancy). He is in his final year of university and has worked at a tax accounting firm since early 2019.

Andrew enjoys playing games with his friends during his spare time, he currently plays a lot of Valorant. His interest in IT began when he was younger and the building of his PC, and he is fascinated in how the hardware and software communicate with each other. He currently has no major IT experience but does not allow that to limit him.

He is determined to complete these projects to enhance his knowledge and use his course knowledge to better understand the world of technology.



Belle is a University of Melbourne student with a major of criminology, also studying at RMIT as they offer a short course. She can speak English, Tagalog and some Italian and loves musical theatre.

Her interest in IT comes from her childhood as she has grown up with many technological changes. She has greater interest in the technology that helps keep us connected, as well the gaming side of technology stemming from playing disc-based games in her childhood.

Belle also has minor experience in HTML/CSS from previous studies and volunteer work, where she worked alongside programmers and coders on an online game. The main reason to study this course is to enhance her knowledge and learn more about her interests.



PERSONAL INFORMATION CONT.

Ben is an RMIT student currently employed at BIG W with a passion for environment studies that improves our way of life whilst increasing sustainability.

Ben has many hobbies; reading books, fitness, computer games, as well as learning and playing musical instruments.

His interest began after convincing his parents to allow him to build his own PC as it would develop his knowledge.

Ben has limited knowledge and experience in the IT field but he is encouraged to learn and grow.



Campbell is currently studying his first year at RMIT, graduating high school only last year. He grew up in Melbourne yet strongly follows the NBA and other sports. Campbell also lives across a park which he will often go to with his family to kick a footy or play basketball. He also enjoys playing video games with friends.

Campbell's interests in IT as a career sprouted when he was in 2016 after he purchased a new Playstation and was curious about the internal processes. This later led onto his first PC build with a friend with a successful outcome on the first attempt.

After discovering his engineering course did not suit, he applied for a Bachelor of Information Technology program.

PERSONAL INFORMATION CONT.



Tom is an RMIT student who has completed his Master's Degree in International Security and Bachelor's Degree in Politics and International Relations. A hobby of Tom's is that he enjoys fantasy football (AFL Supercoach).

He is currently seeking a full-time job but due to COVID-19, is struggling to secure a position and has decided to take RMIT's certificate in IT as an opportunity to enhance his skills.

Although this IT course is quite different from his Master's Degree, Tom is convinced that the learning foundations of this course will be relevant to his future career path.



Tung is an RMIT student enrolled in the COVID-19 IT short-course at RMIT. Tung had been a hospitality professional however, due to the current pandemic, he no longer has consistent work. Tung has always had a passion for music and art, he has grown up always singing and doing theatre.

Tung is always fascinated by what the all new technology is and always follows the latest iPhone and iOS updates. He loves learning about the newest gadgets and would like to learn more about the IT world.

This interest began when he studied visual communication in high school and design/landscape architecture at university. He has now enrolled in this program to learn and understand more of the technical aspects of his favourite technology.





TEAM PROFILE- GOONY

Test outcomes

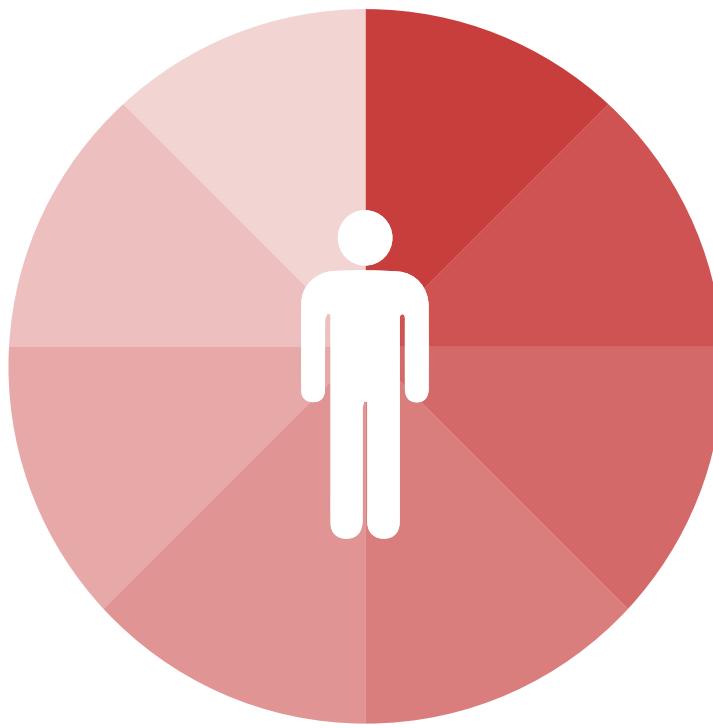
Andrew: Andrew's 16 Personalities test results came up as an "Advocate", he is extremely unique as advocates only make up less than 1% of the population. A common attribute of this is being an introvert. Andrew will be good at making decisions, inspiring and being creative. Loyalty is important to him, if the teams he works with contribute their part, Andrew will happily work with his team.

Andrew works well in the backline as long as there is a strong group leader. Weaknesses that can be seen with Andrew are that he can be sensitive and private. Andrew should be mindful of his weaknesses and ensure that he opens up to the team when he is in need of a hand as his team have great teamwork traits.

Belle: Belle's 16 Personalities test results display that she is driven, passionate and has great communication skills. These are a trait of a "Mediator". Some weaknesses of a Mediator are being too realistic and stretching yourself too thin to cater for others, though is wary about believing that all of the weaknesses attached to mediators as they are all not accurate for her. Belle finds that she gets well involved in a group project and targets getting work done early to stay ahead of schedule. She has good skills in delegating tasks, listening to others' opinions and ensuring balance in teams.

TESTING OUTCOMES CONT.

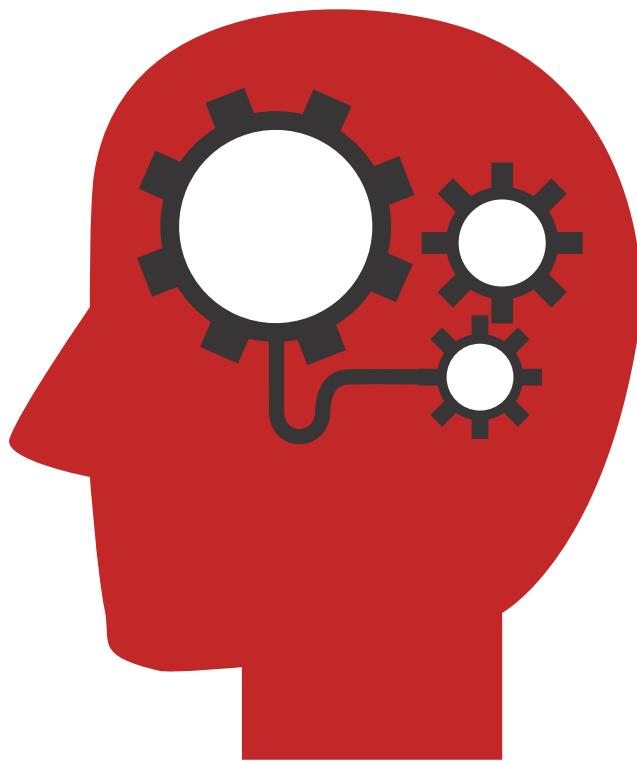
Ben: The test Ben did included the 16 Personalities, Education Planner and Creativity Test. These tests reflect on Ben's judgement and behaviour around others. The aim of these tests is to discover Ben's best suited position in the group. A great trait of Ben is that he finds the best suited conclusion for all parties and believes in fairness amongst peers. His creativity test showed that he mainly has a curious and complex mindset. Ben is seen to be a great listener but can leave this zone and voice valuable opinions.



Campbell: The personality test performed by Campbell indicates that he is introverted, sensing, thinking and perceiving. Campbell agrees with this test as he sees himself as an introverted but once he gets to know others and becomes more comfortable, he opens up to be much more outgoing. This means Campbell will likely be more of an observer at the start of the team project but over time will contribute more willingly. Campbell's learning style is displayed as part auditory learner, visual learner and tactile learner. This means it is expected that he will easily pick up information in any context and can adapt to different situations. This is a great attribute to have in the team. Finally, Campbell's creativity test displayed a score of 37.95. Although less than average, this does not mean his skills are not useful. He should focus on building the ideas of teammates rather than creating his own.

TESTING OUTCOMES CONT.

Tom: The test results completed by Tom indicates that he has introverted, intuitive, thinking, and prospecting personality traits. He is better as a visual learner and has a standard level of creativity. Positive traits that are likely to come out of Tom include analytical thinking, open-mindedness and objectivity, whereas his weaknesses include absent-mindedness, insularity and second-guessing. Tom is aware of what he must consider when working with a team. He will prioritise listening to others and valuing their input by taking notes. Tom will have some great thoughts and suggestions that he should confidently voice out when appropriate.



Tung: The “Adventurer” personality that Tung has suggests that he is creative and likes to change traditional barriers and social norms. With this, Tung actively engages in opportunities to learn new skills but can quickly become bored and lose interest. Adventurers do not like to be micromanaged and prefer the unconventional method of doing things. Tung’s ability to work in teams is great especially when the team understands his way of doing things. Tung also prefers visual learning and matches his creative personality. As long as the group has trust in Tung and allows for his own method of work, he is a great asset to the team.



Ideal Jobs

Although the group of six are all interested in the IT industry, there is not a common career path we share. Elements that are common within each ideal job is that we are expecting to use technology in the day-to-day operations of our jobs. The IT knowledge we obtain from this course will be used to increase our work experience in the future. Several of our current jobs have been impacted by the global pandemic which has given us the opportunity to study once again to enhance their current skill sets.

The job requirements in our ideal jobs revolve around the compulsory requirement of a completed IT course or other degrees with the voluntary completion of an IT course. Given current circumstances, we all expect it will be difficult to find a suitable role and look for a low tier job or internship to start our journey.

We all have significant differences in each role. We have ideal jobs in accounting, IT and even law, however we all have a good understanding of the roadmap to our final career path. There are also common aspirations to work in a large firm, although all different, we appreciate the status that comes with these companies. Larger companies also allow for greater opportunities, such as for Campbell's desire to develop a game. This differentiates from Andrew's goal as he aims to start his own firm one day.

Across the group, we are quite diverse and are unlikely to work in the same field, however we could still work together and keep in contact with each other and use our expertise in our respective fields to collaborate on a project in the future.



TOOLS

The member of Goony responsible for this section:

- hosted the group's Github repository
- obtained a website template and did the layout of the group's website
- presided over group meetings, recording each meeting and doing agenda/actions documents for each one

GROUP WEBSITE

GROUP REPOSITORY

ACTIVITY LOG COMMENTARY

The group's activity log reflects quite accurately how the group completed their sections. Given that Belle was the person who was assigned to do more of the organisational aspects of the assessments (the Tools section), she was the first to make a start on the website, setting up both the repository and the website layout that the other members could add their information to at their own leisure.

The other members added in information at varying times, with a big bulk of the content being added nearer to submission date due to conflicting and other responsibilities and deadlines in other studies and in their personal lives, as well as some sections having to be changed after feedback was received for Assignment 1.

TOOLS CONT.

Tom and Ben, both of whom started quite early due to getting started and completing their sections ahead of time, started adding their content in early. Given that the project idea was changed a week or so before the submission date, Tung could only add in his content once the group could determine which project idea to do.

Andrew and Campbell elected to place their content into the report first before placing it on the website. Belle can be seen throughout the activity log as she fixes formatting mistakes, adding her own content onto the website, and last minute additions and edits to the website.

MICROSOFT TEAMS MEETINGS INFORMATION

MICROSOFT TEAMS LINK

*MEETING RECORDINGS &
DOCUMENTS*



MEETING ONE: 25/08/2020 || AGENDA || ACTIONS

MEETING TWO: 27/08/2020 || AGENDA || ACTIONS

MEETING THREE: 03/09/2020 || AGENDA || ACTIONS

MEETING FOUR: 08/09/2020 || AGENDA || ACTIONS

MEETING FIVE: 10/09/2020 || AGENDA || ACTIONS

MEETING SIX: 15/09/2020 || AGENDA || ACTIONS

MEETING SEVEN: 17/09/2020 || AGENDA || ACTIONS

Industry data

Group Ideal Jobs and Titles

- **Tom:** Geographic Information Systems Risk Analyst Consultant - **Systems Engineer/Analyst**
- **Ben:** Junior ICT Infrastructure Support Analyst - **Help Desk Officer**
- **Belle:** Cloud Systems Administrator & Developer for the HCA - **Cloud Network and Systems Engineer**
- **Campbell:** C++ Game Developer (Programmer) - **Developer Programmer**
- **Andrew:** Accounting work at a large firm, or an entrepreneur in the taxation field - **Other (Accountant)**
- **Tung:** Computer and System Engineer - **Computer and Systems Engineer**

TOP IT JOB TITLES (FEB 2018)

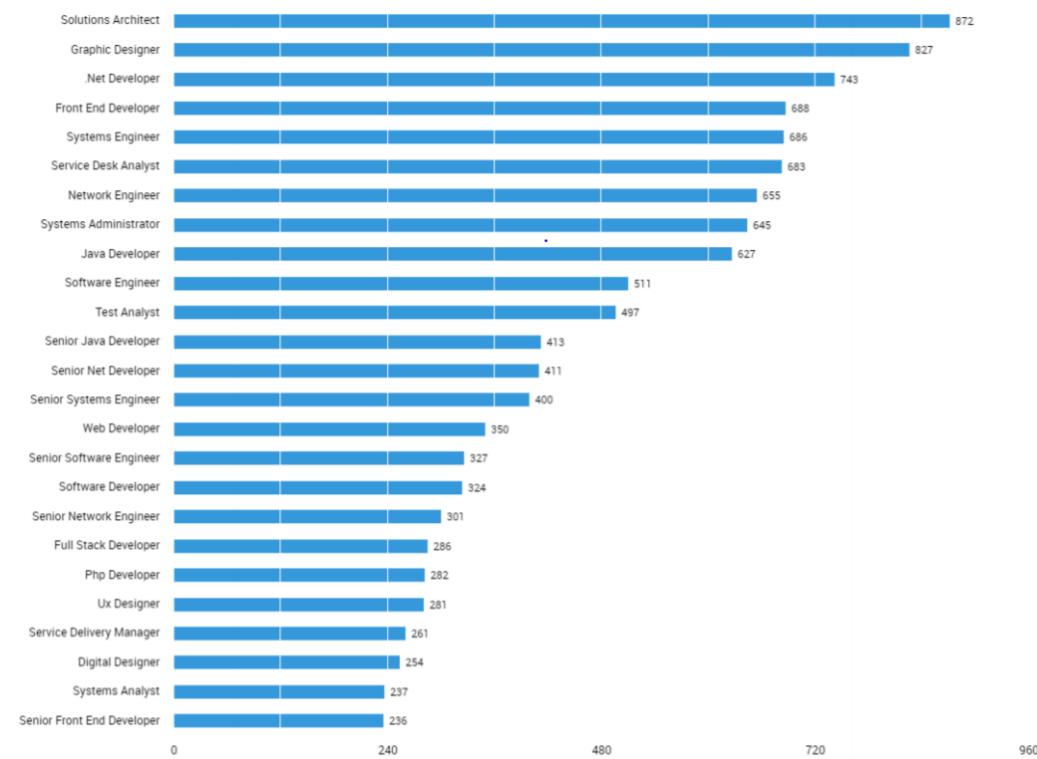
Source: Labour Insight Jobs (Burning Glass Technologies)

Top Titles

Feb. 14, 2017 - Feb. 13, 2018 (Data not available after Feb. 11, 2018)
There are 106,291 postings available with the current filters applied.
There are 5 unspecified or unclassified postings.

Active Selections

Last 365 days AND (Country : Australia) AND (BGTOCC Family : Information Technology)



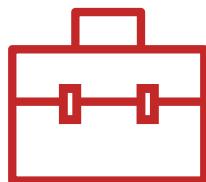
Industry data cont.

Based on a research study by Burning Glass Technologies, we were able to rank the job titles based on their information gathered from the US population. Although this was a US study, their global trends usually have high similarity to the Australian economy.

From the job roles studied, they broke them down to the following 5 categories; flagship jobs, fast-growing jobs, high-growth jobs, modest-growth jobs and declining jobs.

The study had also broken down all jobs into 7 groups:

- Business
- Construction and Transportation
- Digital
- Health Care
- Science, engineering, and manufacturing
- Social services, personal services, and education
- Other



The majority of the group's ideal jobs would be placed in the digital group.

Although not the exact ideal jobs being advertised, the digital group has quite a high demand in online job postings, similarly to business jobs which is relevant for Andrew.

Using data gathered from Burning Glass Technologies' Job Title (February 2018), a developer programmer has a significantly higher amount of postings compared to the rest of the jobs available. The group's ideal jobs are also in the field of systems engineer which is also high in demand. There are also help desk officers included in the study, however do not have as much demand as the others.

In regards to Andrew's ideal job of a tax accountant, demand has been stable and does not seem to be trending downwards. This is due to the fact that there will always be taxes and assistance in that field will be required. As for the digital industry, it is expected that the demand of their jobs will continue to grow as technology advances.

Industry data cont.

Group IT Skills

- Advanced Risk Analysis Skills
- Advanced GIS spatial analysis skills
- Familiarity With Spatial Databases
- Knowledge of the main GIS/Remote Sensing software: ERDAS, ENVI ArcGIS 10;Quantum GIS and other open source software knowledge is an asset
- Desktop experience supporting Microsoft applications
- Understanding of infrastructure architecture: virtualisation, windows, active directory, lan/wan concepts, security and networking tools
- Microsoft cloud-based technology - Microsoft dynamics 365, azure, office 365, sharepoint online
- C++, graphic programming experience, unreal engine experience, unity experience, UI experience, AI algorithms
- Backups and software protection, website development
- Relevant knowledge, experience and skills with NAT, routing and VLAN
- Management and maintenance of database and cloud-based servers

TOP IT SKILLS (MARCH 2018)

Source: Labour Insight Jobs (Burning Glass Technologies)

Skills in Greatest Demand (Specialised Skills)

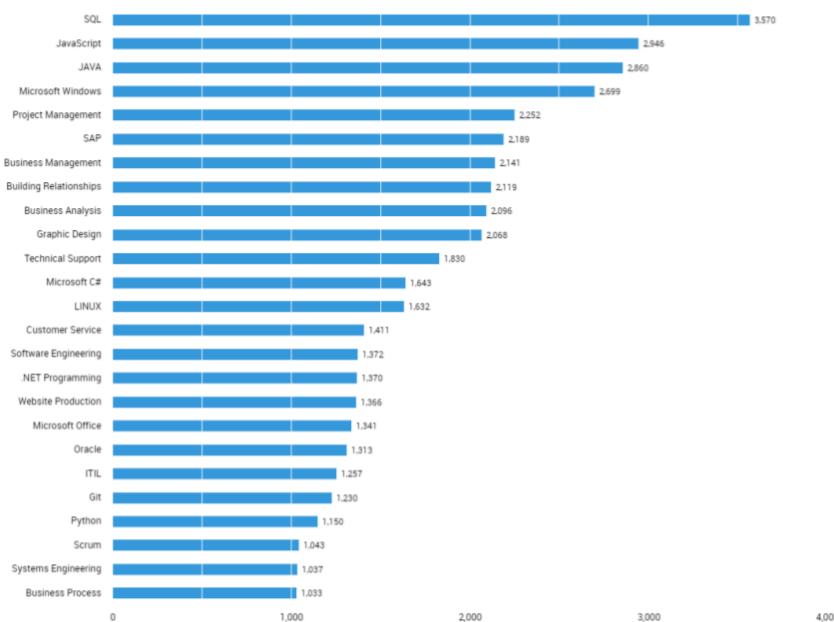
Dec. 24, 2017 - Mar. 23, 2018 (Data not available after Mar. 21, 2018)

There are 27,435 postings available with the current filters applied.

There are 3,686 unspecified or unclassified postings.

Active Selections

Last 90 days AND Australia OR New Zealand AND (BGTOCC Family : Information Technology)



Industry data cont.

Although our jobs will require information technology, our jobs are not dependent on the highest three skill sets - SQL, Javascript, and Java. The IT specific skills required involve many from Microsoft Windows onwards (based on March 2018).

As per our group's IT skills, we have experience or working on the experience of what is required and could soon have many more IT required skills. The skills required for our ideal job industries do revolve around some more specific IT requirements, however we expect to learn these skills on the way.

TOP IT SKILLS (MAY 2017)

Source: Labour Insight Jobs (Burning Glass Technologies)

Skills in Greatest Demand

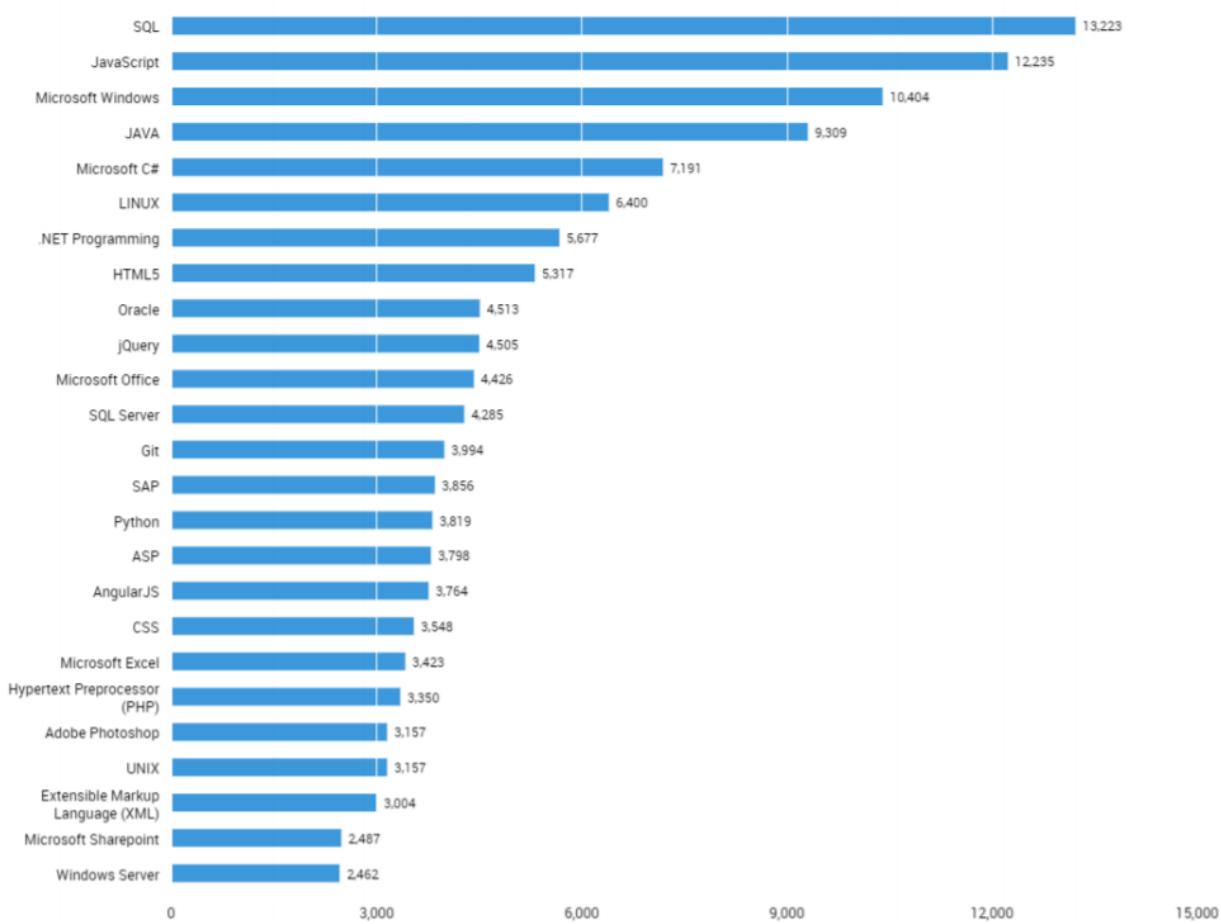
May 25, 2016 - May 24, 2017 (Data not available after May 22, 2017)

There are 98,802 postings available with the current filters applied.

There are 20,744 unspecified or unclassified postings.

Active Selections

Last 365 days AND (Country : Australia) AND (BGTOCC Family : Information Technology)



Industry data cont.

Group Generic Skills

- Fluent English research, analysis and writing skills; capacity to read and analyse reports in French is an advantage;
- Ability to work within (and support) multi located business user base
- Demonstrated ability to think laterally and strategically networking experience
- Strong customer relation skills, online advertising
- Able to work in a team environment with strong communications skills
- Understanding of market trends and the ability to work with strong analytical and time management skills

TOP GENERIC SKILLS (MARCH 2018)

Source: Labour Insight Jobs (Burning Glass Technologies)

Skills in Greatest Demand (Baseline Skills)

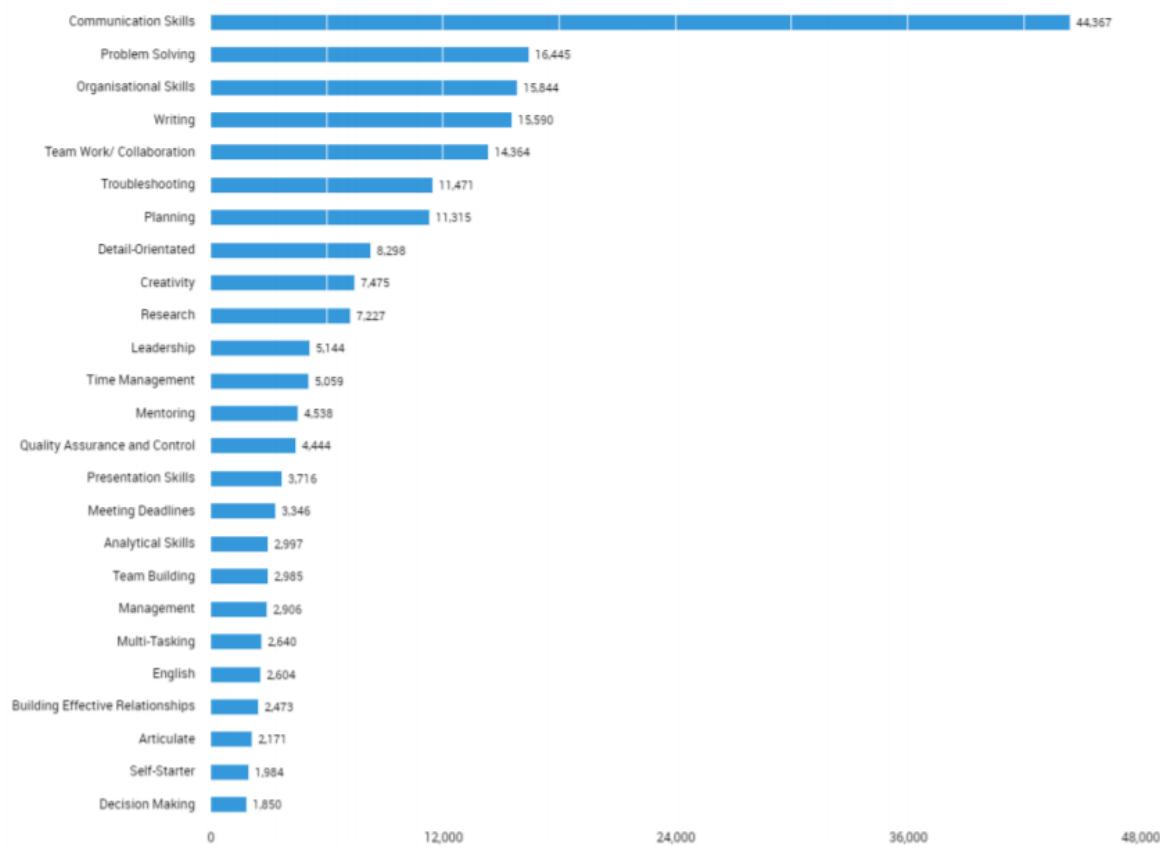
Mar. 01, 2017 - Feb. 28, 2018

There are 121,997 postings available with the current filters applied.

There are 16,729 unspecified or unclassified postings.

Active Selections

Last 12 months AND Australia OR New Zealand AND (BGTOCC Family : Information Technology)



Industry data cont.

Given that general skills can be applicable to any industry, it's important that members of our group appreciate how crucial it is to keep building a repertoire of sought-after skills that help them stand out in the job market.

The most important general skill in demand is communication. This is followed by other general skills from problem-solving to organisation. The group so far has shown great communication skills, which should reflect greatly on the team's job prospects.

As opposed to IT specific skills, general skills were required for all of our ideal jobs, as these skills will reflect on how well we work with others and how well we will be able to manage ourselves in the office and beyond. For example, all jobs will require some form of good communication, but not all will require SQL skills.

There were a few highly ranked skills from the Burning Glass data that was not within the general skills that was listed as an explicit requirement for an ideal job posting:

- Troubleshooting
 - Planning
 - Detail oriented
-

Has Our Ideal Job Changed?

Andrew: Although interesting to me, I am not seeking a job in the IT industry. The general skills were quite appealing to me as those were more relevant. I always knew how important those skills were but not to that extent. Ultimately my ideal job remains the same.

Belle: My ideal job hasn't really changed! It looks like the job title and skills relevant to my ideal job rank quite highly, which is a bonus given that it's also within the legal sphere! Seeing SQL's prevalence in the data, however, does make me consider whether it'd be beneficial to work with databases.

Industry data cont.

Has Our Ideal Job Changed? - Cont.

Ben: Taking a look at the data, I can see that the field of my ideal job is not as high in demand as others but I am still passionate about it. I will keep this data in mind but I will still follow my roadmap into ICT Infrastructure Support Analyst.

Campbell: Being a game developer had been on my mind for a while now. The data from Burning Glass Technologies show that there are high demands for developers, so my ideal job hasn't changed. I will take the general skills data into consideration and will continue to work on communication skills and other highly desired general skills.



Tom: Given that I am seeking a job in the broader Systems Engineer area, it is reassuring that there should be at least as many, if not more opportunities to attain my ideal job (or something similar to it), given the projected industry growth and demand.

The IT specific skills required appear daunting now, especially given my relative inexperience and newcomer status in terms of IT. However these are things I will be incrementally working towards over a period of years. Setting short-, medium- and long-terms goals will allow for steady progression towards building my ideal career.

Tung: As a Computer and System Engineer, I think that I am happy where I am. Although my future is not certain and I could possibly branch out to different areas, my career path is definitely looking good as it is. There is good demand for my area and I don't think that there is a big issue in this industry. Like the others, I will consider the general skills but ultimately do not intend for any big changes.

IT Work



KOHEN GROGAN

Kohen Grogan is the Founder and Managing Director of the Yappy Group, a social media marketing company based in Perth, Western Australia. After completing a Bachelor of Communications in 2009, he worked briefly as an online reputation management and social media strategy consultant. During this period, he was constantly asked by clients about what the return on investment was for social media advertising. From their clear unfamiliarity with an emerging market, he saw an opportunity to fill a niche.

Thus, in March 2012, he quit his job and created Yappy in his garage; his \$2,000 savings constituting the budget (Edith Cowan University, 2018). His aim was to create a platform that would be able to ‘accurately measure the effectiveness of clients’ social media marketing’ (40under40, 2016). The platform he created allows ‘users to set up and manage campaigns, harvest databases and track conversions from content across any platform on the social web’ (Hatch, 2015).

Within the space of a few months, Yappy had moved from the garage to a St George’s Terrace office in the Perth CBD, and by 2020 it had become a multi-million dollar business that employed over 15 people and counted among its clients multinational companies such as McDonalds, Finbar and Thermomix.

Kohen was kind enough to speak with us about his experiences, and offered some valuable insights into the tech sector.

Good afternoon and many thanks for giving up your time to be interviewed. To begin, could you please tell us a bit about what you and your company do?

Yeah, no worries. I work in the digital space, essentially using big data and social intelligence to figure out what to serve to people in order to get them to take an action.

Yappy started eight years ago to solve return on investment in social media, so we're one of the very early players in that space. We profitably scale e-commerce businesses, and we're the best in the Asia-Pacific with direct response with all of Facebook's platforms. We're in a pretty unique spot because we've got three-way partnerships between us, the platforms and online and transactional data companies, which means we can get highly granular with who we're targeting..

Sounds interesting, and what is your role in that process?

I'm the founder and managing director, so my role is largely focused the strategy and analytics side of things, as well as the general management of the business.

Could you give a brief synopsis of the industry that you and your company operate within?

Yeah sure, so there are a couple of industries that we span. I guess digital marketing and analytics would probably be the bucket that we'd be thrown in, and more specifically in the social media space.

E-commerce is at the core of what we do. It's an area that is growing exponentially, and there are so many new markets that are opening up. This opens up opportunities for companies that can be based anywhere in the world, and our role is to help them scale their business to take advantage.

Who are the different types of colleagues and stakeholders that you interact with in your daily work, and what are their roles?

So there's the people in strategy, the people in content and creative, the people in campaign management and analytics, developers, etc. There's a whole range really.

And what about your interactions with clients and investors and those types of people? How savvy are they with knowing exactly what the IT side of things entails?

I interact with a board of directors, and investors as well, and their IT knowledge would be somewhat limited I'd say. It generally comes down to explaining things in basic terms, and there's a whole array of different IT components to the business. There's the infrastructure piece – things like making sure we've got fast enough internet with, say, fibre to the node. There's the background analytics piece to make sure that we're measuring and delivering objectives for clients, but also being able to figure out specifically what works for different cohorts of people. And then there's also just the IT mix of software and programs and other technical things that we use to run the business day-to-day. On that point, I think COVID has certainly changed some elements of that, in particular how we communicate with stakeholders, including clients, but also with our staff as well.

We've become a lot more digitally-focused in that respect, with communication through things like Zoom increasingly common. It's meant that we've had to put much more structured programs in place for project management and things like that, so that we can properly see what people are doing and make sure that we achieve outcomes while we're unable to collaborate physically in offices. So that's been interesting.

Your background is in PR and business, what kind of IT technologies do you consider to be most valuable for businesses, and what trends do you think are most important or interesting moving forward?

There are some real core technologies that are trending that are going to be really important. One of them is artificial intelligence, and particularly its impact in terms of being able to analyse and predict things. AI is going to have a whole heap of different impacts on a wide range of businesses from a disruption point of view. Another key trend is blockchain and being able to run smart contracts and things like that so that they are seamless – it will almost be an experience that involves no human element at all! Another core technology trend revolves around the robotics and automation side of things. So that relates to automating processes within a business, but also automating day-to-day activities that a human would traditionally do. They're probably the three main ones.

The companies that are really winning at the moment are companies that have their own platforms, because when you've got your own tech platform – and if you've got enough data and data analytics capacity (that's probably another key trend) – it can be a very, very powerful tool because of the things we've just discussed, like machine learning and AI. A lot of the businesses that we're interacting with are starting to see that this side of things is becoming more important – many of them have a lot of data, but they're unsure with what to do with it and in some cases can't make sense of it. Often they go down the rabbit hole with the wrong assumptions and draw the wrong conclusions because they're focusing on the wrong data, or looking at the right data but in the wrong way.

There's also a real trend towards personalisation. Everyone wants an experience that is unique for them and tailored to them. You'll notice with things like online banking that you can tailor your own dashboard and preferences, to mention a basic example. There's definitely a trend in which people want that unique experience tailored just to them, and that comes from communication and making sure that people are getting communicated to in way that will resonate with them and add value. It also comes from how people interact with IT and technology, so making sure that there is a tailored approach is becoming more important for businesses.

In terms of your own role, what aspects do you find most challenging, and what do you spend most of your time on?

I would say that one of the key challenges would be that there are so many solutions that are out there from an IT perspective, and so a lot of time needs to be spent honing in and making sure that you pick the right kinds of solutions for your needs. It can be quite fragmented with the number of platforms out there that can help with your IT needs, but there is rarely, if ever, a ready-made solution for your exact needs. It comes back to the personalisation issue that I was talking about before, and how you can implement the best IT solutions for your business and its day-to-day workings. There is a lot of ensuring that API's (application programming interface) and other things can communicate so that you can get the outcomes that you want. That can be challenging and can take up a lot of time.

Can you share an example of the work that you do that best captures the essence of the IT industry?

A good example I guess is the whole process of transforming something from a concept, having it designed and implemented so it is ready for market, and then analysing the results and data, and putting that in a format that's right for the end user (in our case the client). It's a very broad example, but that process holds true for almost any client that we work with.

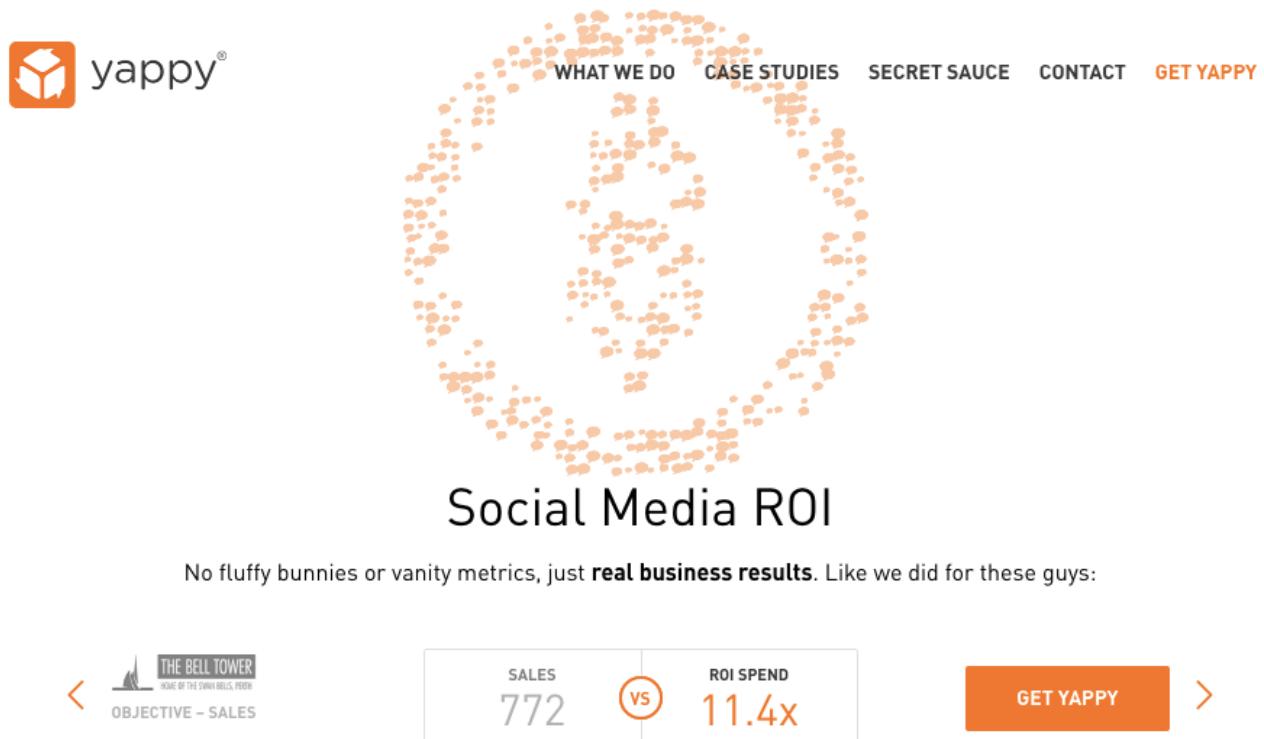


Figure 1) A screenshot of Yappy Group's website

IT TECHNOLOGIES

Cybersecurity

Cybersecurity is at the frontlines of protecting personal and professional assets in a modern and dynamic world of cloud storage, online banking and network solutions. There are many different applications for cybersecurity and it is an ever changing and highly sought after position by businesses in the information technology industry.

Norton states the applications of cybersecurity at the moment are (Norton p3):

- Critical infrastructure security
- Network security
- Application security
- Information security
- Cloud security
- Data loss prevention
- End-user education

Norton also provides a list of different types of cyber threats that can occur (Norton p3):

- Preventing social engineering,
- APTs (Advanced Persistent Threats)
- Preventing malware
- Preventing ransomware

The different types of attacks that can occur are attacks on confidentiality, attacks on integrity and attacks on availability. Attacks on confidentiality are designed to take personal information about a customer or client in order to sell the information elsewhere. Attacks on integrity are when information is stolen about a business and leaked online. Finally, attacks on availability are normally when an unauthorized user accesses a network and uses ransomware to lock out parts of a business and demands a payment from a business for the hacker to unlock those areas of the network that the business requires to operate normally (Norton).





Cybersecurity cont.

Cybersecurity is a pretty exciting industry in terms of what are the possibilities of this technology. With the breakthroughs in artificial intelligence and machine learning this leads to exciting new possibilities with cybersecurity, like including an adaptive AI into the protection of your network and assets is a good way of staying on top of network threats. This artificial intelligence would have to be able to effectively predict where network threats are likely to occur, as well as comb through business data to look for infectious and nefarious programs and remove them like a white blood cell would remove a virus from your body.

Implementing this technology into cybersecurity can certainly help, and to some extent has already been implemented in the defense of networks. According to an article *Trusting artificial intelligence in cybersecurity is a double-edged sword* 2019, artificial intelligence and machine learning are already being used to defeat attacks autonomously, generate strategies for the attack in the future and even generate decoys and create honeypots for attackers to steal instead of actual any business IP that would be detrimental to a business's unique assets. However, from the same article, it's also shown that an AI that is used to protect a business from cyber attacks can actually be repurposed to steal information and poison data streams. If done correctly by an attacker, this can be very difficult to discover due to artificial intelligence programs sometimes lacking transparency (Taddeo, McCutcheon & Floridi 2019).

Like most aspects of information technology and engineering, automation of cybersecurity is a very likely possibility for the future of this technology. A key aspect of this will be the ever evolving abilities of artificial intelligence and machine learning. The main issue that employees tasked with protecting a network face is the volume of attacks that a business might face daily, and this can become overwhelming for one or even many people trying to constantly defend against these automated attacks. The detection of threats before they happen will be the future of cybersecurity especially threats that haven't actually happened yet.

Cybersecurity cont.

The impacts of implementing AI and machine learning into cybersecurity to automate some aspects are pretty substantial in terms of minimising human effort. The amount of effort required for a network security department to manually skim through network logs and alerts could be manageable if they didn't have very much in the way of network infrastructure, but when you get to huge companies like google, amazon or even military grade networks it would almost be impossible to stop all the cyber attacks that occur manually. In addition to this, the tolerance for discovering a possible threat and then trying to stop the attack before it was complete would be very small. Most of the time, if a new kind of cyber attack was discovered it might be after the attack has already successfully occurred, leading to the business having to invest their time into damage control to try and discover what data was stolen or what the ramifications of this breach could mean for their company.

The market for cybersecurity is growing rapidly, a post by Forbes estimates that the current cybersecurity market is worth "173B in 2020" and suggests that it might grow "to 270B by 2026" (Columbus p9 2020). In addition to this, the U.S bureau of statistics estimates that the job market for positions such as information security analysts will increase by 31% between 2019 to 2029 while SEEK estimates job growth of 18% for the same position over the next five years. From these statistics, it's clear to see that the cybersecurity industry is growing rapidly and will continue to grow for the foreseeable future. Furthermore, an information security analyst is only one kind job in the cybersecurity industry; other types of jobs in cybersecurity can be programming, infrastructure, security engineers and much more.

The effects that cybersecurity will have on an everyday user's life are huge and are felt almost every day and it's becoming easier for an everyday user to implement cybersecurity into their lives. The ramifications of cyber attacks for an end user could be devastating to their lives, whether that is a personal information leaked for public viewing or their personal data is stolen and used by someone else.





Cybersecurity cont.

This is also true if a user were to access a network that doesn't have adequate network security or entrust their personal details to a business that doesn't protect their assets well enough, or are ethically compromised and sell customer data to ad companies for profit could lead to some serious consequences for a user in the future.

The reason why we're so focused on the end-user in this context is because they are everyday people like us who are trying to make it in this ever changing world of the internet and being constantly connected to some sort of network. Luckily for the end-users, there are always ways that you can protect yourself and your privacy while browsing the internet and connecting to networks. Simple methods such as: not clicking on strange links or opening foreign emails, using strong passwords that include a mixture of numbers, lower and upper case letters and symbols, using two-factor authentication, avoiding using unsecure wifis and using virtual private networks can all be ways an end-user like RMIT students can employ simple network security methods to keep online browsing safe.

With services and businesses quickly going online, it is so important for an end-user like myself and my family to protect themselves online from malicious and nefarious cyber attacks that prey on the naivety of users. In addition to this, it is crucially important that when an end-user can't control the level of cybersecurity used, like when they access everyday services such as online banking, the security of the end-users that use the product or service is held to high regard by the company, because many people put their trust in a service to deliver a safe and stress free experience for their customers.

IT TECHNOLOGIES CONT.

Clouds, Services and Servers

In the modern age of technology, some computer users struggle to find enough space to store all of their data on hard drives or other external storage devices. This is where cloud storage and servers can play an influential part in retaining this information. Cloud storage is a service where data and information is stored on remote storage systems accessible through a network, commonly the internet.

The two main types of cloud storage's are public and private cloud. Public cloud offers almost unlimited scalability, both up and down, and reliable services at a lower price, however have less control over the security of the data. Meanwhile a private cloud offers higher security and greater control and customisation to align with the businesses intentions, although has a higher initial cost and less scalability in terms of storage space.

Dedicated servers also store data via the internet; however, they utilise physical servers exclusive to the client. Primarily, large organisations utilise dedicated servers while individuals use cloud storage. Companies choose dedicated servers due to the faster processing and information retrieval since the data is locally processed. Meanwhile cloud storage is a cheaper alternative along with the practicality of not requiring a server room in the individuals' home.

With the ever-increasing processing times within cloud storage services, many choose to ditch hard drives as their primary storage location. Steve Jobs, Co-founder, CEO and Chairman of Apple Inc., states that he “[doesn’t] need a hard disk in [his] computer if [he] can access the server faster”. However, in saying this it is smart to have at least one completely separate storage location to back everything up just in case something does happen.





Clouds, Services and Servers cont.

Currently, the top companies offering cloud storage offer the best security, to match their ease of use and processing speed. Features such as two-factor authentication, where the user must have access to two devices in order to log in, provide an extra barrier to help keep the users' data safe and secure. Other state of the art features include the ability to edit files without requiring downloading the file first or file versioning, where the cloud service automatically creates a backup of the edited file so the user can revert to a previous version in case of an irreversible mistake.

Many suggest that the future of cloud storage is advancements in hybrid storage. IT professionals were asked 'what's the future of cloud computing?' Michael Corrado, World Wide Marketing Manager for Hewlett Packard Enterprise, suggested "a hybrid IT solution". Tom Gillis, Founder and CEO of Bracket Computing, answered "a radically different hybrid cloud computing model". In addition, Jeff Fisher, VP, Strategic Alliance & Category Creating Enterprise Technology Executive at Kemptechnologies, responded that "the future of cloud computing is undeniably hybrid".

Hybrid cloud computing is the combination of and communication between a private cloud and one or more public clouds to achieve a more efficient outcome. Ideally, the user can use both cloud environments together through their usual workflow with a seamless flow of information. This allows businesses to store their confidential information on the more secure private cloud or local server, while concurrently storing the rest of their data on the cheaper and scalable public cloud.

Developments in technology such as machine learning, automation and artificial intelligence is critical in the improvements and evolution in hybrid cloud storage. This would allow it to run faster and smoother, while allowing the user to store more information within the high performance hybrid cloud.

Clouds, Services and Servers cont.

As hybrid storage improves and grows in popularity, businesses across the world would slowly transfer across from the dedicated servers they currently use. In addition, with the amount of organisations going out of business due to the corona virus lock-down, it is very plausible that those who take their place after the lock-down elect to go with hybrid storage as they first start.

For the average consumer, transferring from hard drives and external storage devices to cloud storage is suggested due to the increased storage capacity, ease of use and organisation capabilities of it. However, while it can vary from person to person, it is unlikely there is enough reason to switch from cloud storage to hybrid storage as the added security does not outweigh the cost.

Business areas such as hospitals and medical clinics rely on their dedicated servers in order to keep all of the patients' private and important information secure and confidential. As these companies have so many patients, they are unlikely to switch to hybrid storage as the security is significantly stronger while storage capacity remains high.

On the other hand, business without confidential about their customers would be inclined to convert to hybrid storage as it has a far lower upfront cost to set up instead of inbuilt physical servers. With the improvements made in cloud storage in terms of usability, smaller companies would find it extremely easy to start up and organise all of their files and documents.

The increase in businesses transferring from dedicated servers to hybrid cloud storage would not make them redundant as they still have an important place in some areas, but their use would drastically drop off over time. Additionally, as hybrid cloud improves at the same time, the security levels will increase to match dedicated servers, eventually replacing them entirely down the line.





Clouds, Services and Servers cont.

With the increasing use of cloud storage for the average consumer, the connection it has between devices can prove to be incredibly helpful and time saving. The days of running out of storage on your phone and not even being able to take a photo are over. All photos will be save directly to the cloud storage. In addition, the time taken connecting the phone to a computer with a hard drive connected is cut down as you can easily connect both devices to a cloud storage service.

While it may not be very noticeable for the user on a day-to-day basis, a cloud service is an organised way to store pictures, videos, files and documents. It also provides an easy connection between all of the users' devices. However, it is still important to have a hard drive or some other form of storage as a back-up location. Cloud makes backing up data even easier as it is all in one place ready to copy across to a separate storage location.

Cloud storage provides a low cost, reliable and scalable service, which is a great option for anyone in any situation. It is especially helpful for those struggling to organise all of their data across the multiple hard drives strewn around their house. With how quick and easy it is to set up, it can instantly improve someone's data storage arrangement.

IT TECHNOLOGIES CONT.

Machine Learning

Machine learning is the ability for computer systems to extrapolate unordered or labelled data on its own to develop algorithms and processes to complete tasks more efficiently and effectively. In a ZDNet post about machine learning, Nick Heath describes the difference between “traditional computer software is that a human developer hasn’t written code that instructs the system how to tell the difference between the banana and the apple. Instead a machine-learning model has been taught how to reliably discriminate between the fruits by being trained on a large amount of data.”(Heath p6 2020). The main takeaway from the statement is that machine learning is like trying to teach someone something new: it just requires a lot of information and repetition but eventually it will become ingrained within the person’s brain.

Big data companies such as Google and Facebook are really demonstrating what state-of-the-art for machine learning is. The scope of Google's implementation of machine learning into all of their products is pretty astounding. Machine learning is in Google products such as Gmail, Google Maps, Google's search engine, the Google Assistant, Google Translate and many more of their products.

An important aspect of Google's service is that they wish to provide a fast and robust system that reacts quickly to changing trends and information. Google Maps is a remarkably fast way of gauging how long it will take to reach a destination and understanding the possible delays in real-time for the user's journey.

There are many applications of machine learning that are in use today. Some of them include:

- Online shopping websites like Amazon recommending products





Machine Learning cont.

- Streaming services recommending what to watch based on previous items streamed
- Google and Facebook recommending ads based on search history
- Outlook recognizing and removing suspicious emails from your inbox
- Predictive text trying to predict what word you are going to need next or what phrase you are about to type out

The main technology that will be focused on in this report is autonomous vehicles. A post from the IIoT World explains “one of the main tasks of any machine learning algorithm in the self-driving car is a continuous rendering of the surrounding environment and the prediction of the possible changes to those surroundings” (Anil Gupta p2 2018).

The challenge of this is developing a computer system that will be able to compute all the data coming in from all of the sensors, cameras and radars needed to visualise the surroundings into a logical and accurate prediction of what could happen.

The use of deep learning to improve on machine learning will be a vital component to make autonomous vehicles. Deep learning is a subclass of machine learning and it’s when a deep neural network is developed for a computer system so that it can improve on its own accord without the need of human intervention. The more data and scenarios that a network of autonomous vehicles can be introduced to, the more likely it will be that the autonomous vehicle will be able to act in a way that will simulate a real driver.

Some of the other applications of deep learning are (MathWorks p3):

- Virtual assistants
- Medical research
- Implementation into traffic management systems
- Hearing and speech recognition

Machine Learning cont.

- WorkSafe to ensure the safety of workers around automated machinery
- Aerospace and Defence

The impact of this development is limitless and incredibly exciting in terms of the technology advancements that are possible by utilizing a deep neural network (DNN) for new technologies like autonomous vehicles, medical imaging and virtual assistants. Although, these new technological advancements don't come without its own issues.

Some likely changes that will be seen with DNNs are that they are built with many different layers of algorithms which result in complex software architecture. "An explanation for a certain decision made by a DNN cannot be retrieved by simply scrutinizing the inference process" (Ras, Gerven, Haselager p5 2018) this demonstrates that as a DNN are created with more and more layers and have a more complex architecture, this will mean that the source of the decisions made by the DNN will become more and more ambiguous. This change to independent learning for machine learning will lead to some difficulty in debugging decisions if the network picks up on trends that are socially or ethically inappropriate.

While there are some setbacks to DNNs there are still positives to them also. If self driving cars become commonplace on the roads in the near future, the ability for people who weren't able to drive in cars previously might be able to live a more independent life using this new technology. In addition to this, other deep learning techniques such as convolutional neural networks (CNN) which is a type of network that is designed to analyze images will be implemented into the medical industry to process MRI results or x-rays. Studies are also starting to show that "some CNNs are approaching - or even surpassing - the accuracy of human diagnosticians when identifying important features in diagnostic imaging studies" (Bresnick, J. p29 2018). This demonstrates that the potential for the uses of neural networks are not just limited to one industry and has the potential to help people across most industries that require the extrapolation of data.





Machine Learning cont.

Unfortunately machine learning is key in the production of artificial intelligence and automation, which is certainly the way the world is going and that means that there will definitely be jobs that may no longer exist in the future. There is a high possibility that all data input and analysis jobs will all become more efficient and effective with machine learning instead of humans, so there is the possibility that whole industries will no longer support human jobs for those roles.

Machine learning is already prevalent in today's society so it is already affecting everyone in their daily lives. We all have access to google services and facebook which in many aspects is run by machine learning. All of your search history and cookies are being collected by these companies and made into context for their advertisements that will be constantly viewed and clicked on by their users. These advertisements are crucially important for companies to get revenue so they will try to put them in view for their users.

This is important because it changes your ability to manage your privacy if you decide to use these services. If all of your data is constantly being collected by these companies it can leave your personal information in a position that you wouldn't be able to control the distribution of this information. This can lead to your data being vulnerable to hackers and company data breaches. Of course, it's not all bad outcomes from machine learning and it can be used to improve a user's experience through providing sophisticated image and data processing neural networks to allow real-time updates about a planned journey in google maps. Finally, machine learning and deep learning is an interesting topic and is still a new technology with huge potential. These technologies have the potential to improve the predictive capabilities of many businesses and services. It's crucial that the users like myself, my friends and family aren't left behind in terms of the transparency of these technologies. It's a slippery slope if the user's privacy is neglected so that the services that we use can exploit our personal data so they can get more revenue through ads or analytics.

IT TECHNOLOGIES CONT.

Natural Language and Chatter Bots

Everything we say or write carries an incredible amount of information along with it, outside of just the content. It also includes things like tone and selection of words that can drastically change what we mean. This is easy for humans to notice and understand due to the constant exposure to language every day. The fact that we are speaking it every day allows us to predict the behaviour of others based off this additional information outside of just the topic. Natural language processing is the connection between computers and the human language. It is a type of artificial intelligence, which helps computers to read and interpret human language.

The improvements in this technology have allowed for the introduction of chatterbots. Chatterbots are computer programs designed to simulate a human conversation, spoken or written. This allows a human to interact with a computer seamlessly. This interaction may vary from a simple single-line answer to the user's question to a digital assistant that has learnt to give increasing levels of personalisation. There are three main types of chatterbots, rule-based or algorithmic chatterbots, intelligent chatterbots using machine learning, and AI-powered chatterbots.

Machine learning allows the device learn language as it is exposed to more and more of it. This means that it starts at a lower level but has an incredibly high ceiling as it improves with time. This allows the computer to pick up on the minor details presented through tone, volume and tempo, which would not have been possible. Meanwhile, an algorithmic approach teaches the chatterbot to recognise patterns, key words, or phrases. This gives the computer a strong starting point straight away, however it will not develop any further knowledge of its own, meaning the language rules provided by the programmer is the limit.





Natural Language and Chatter Bots cont.

AI-powered chatterbots combine the use of algorithms with machine learning in order to create the most realistic simulation of a human interaction. These chatterbots have the ability to remember past conversations as well as adapt to the user and understand user preferences. This makes the interaction between humans and the computer feel more natural.

Rule-based chatterbots are common on websites with an expandable text chat option usually in the bottom right corner. These chatterbots answer any questions or queries the customer may have by comparing the input to the algorithm and patterns and providing the user with a pre-determined answer.

AI-powered chatterbots are present in many household products such as the Google Assistant, Amazon's Alexa and Apple's Siri. These use voice driven chatterbots where the device interprets the voice command and completes the desired action. They search for key words or phrases such as "find a recipe for...", "what is..." or "play..." to determine the action, before accurately identifying the topic within the content provided by the user. The device uses this information to search for a recipe, definition, song or any other request. Meanwhile they also have the ability to remember past conversations, and adapt to the users way of speaking and common choice of words.

In January 2020, Google announced the newest, state of the art, chatterbot named Meena. The company believed that everyday chatterbots tended to be highly specialised and did not perform well when the user strayed too far from its intended use. This was the idea behind creating Meena, to make a chatterbot that can communicate about almost any topic. Meena has a network model with 2.6 billion parameters and was trained using 341 GB's of text.

As chatterbot technology improves in the near future, programs with the capabilities of Meena can become more mainstream and be included in devices such as the Google Assistant, while also being introduced in a live chat option on website.

Natural Language and Chatter Bots cont.

The developments of this technology could mean that it acts as the customer support section of a website as it is more personalised and can retrieve information shortly after the customer asks a question. It can also help the user resolve problems they may have been having.

As the company does not need to pay for wages when utilising a chatterbot over a customer service employee, it is a far cheaper alternative with a high success rate. This lower cost incentivises businesses to introduce customer service chatterbots across all fields, forcing those employees into redundancy and out of a job.

According to a survey conducted on Facebook in the United States, over 50% of customers say they are more likely to shop with a business if they can connect through a live chat. Dominos have introduced a chatterbot named Dom, with whom you can ask questions and place orders through the Facebook Messenger app.

A survey conducted by Drift, Audience, Salesforce and Myclever, asked participants what frustrations they had experienced within the past month. The results show that 34% had found sites hard to navigate, 31% could not find answers to simple questions, and 27% found that it took too long to find their desired service.

The addition of a chatterbot on these websites could be influential in assisting the customer in finding what they want. A simple chat box gives the customer the option to ask questions and find what they want.

The results to these two surveys demonstrate a great incentive either for businesses to include a chatterbot feature on their own website, or in a messaging app. It could increase profits through both not requiring an employee, as well as helping customers who may have otherwise struggled and given up.



Natural Language and Chatter Bots cont.



For the average consumer, improvements in the technology behind chatterbots and natural language processing could provide a far better customer service system. This will vastly decrease the time spent on websites, struggling to find what the customer wants. Along with customer service chatterbots, businesses will start to introduce and improve chatterbots on messaging apps. These are used to help the customer place orders quicker and easier than ordering online.

Christi Olson, head of evangelism for search at Bing, stated, "Gartner predicts that by 2020 people will have more conversations with chatbots than their spouse". While this may not be entirely true, people are heading down that path. As the technology evolves and becomes more prevalent in peoples everyday actions, it is definitely still possible in the near future.

These days, majority of homes have a chatterbot device in the form of a mobile phone or a Google Home or Amazon Echo, which include Google Assistant, Alexa or Siri. As the AI-powered chatterbots improve and edge closer to simulating a high quality human conversation, users will have more and more interaction with these devices. Everyday tasks will include more uses for chatterbot assistants, slowly transitioning towards conversations with these devices without any service required.

PROJECT IDEA: INCREASING THE ACCESSIBILITY OF LEGAL SERVICES



Overview

In the same vein as similar initiatives (such as the [Legal Aid NSW application](#) and the [Go To Court application](#)) that aim to close gaps in accessing justice, our project will be the creation of a mobile application that focuses on aggregating different legal services available within Victoria, as well as providing general resources for Victorians to learn about the law. In order to achieve this, Xamarin, an open source tool, will be used to create a mobile application that will work on both iOS and Android devices. Successfully completing this project will result in an easily accessible mobile application that places legal assistance and guidance in the pockets of Victorians, reducing the barriers that people (especially disadvantaged Victorians) face when it comes to navigating the justice system.

MOTIVATION

The law and justice system should be impartial. To achieve this, everyone should have access to it and be judged fairly in the court of law. The legal system only works when everyone is informed of the law and their rights, and understands how the law is implemented and upheld. Given that we live in a capitalist society with no limit to monetary gain, obtaining legal representation has become very costly, and high quality representation is very much available only to those who can afford it.

Considering the state of America and the protests happening across the country, as well as the persisting divisions that are reinforced by the over-representation of Indigenous people in Australia, there is a clear divide between law enforcers and the people they should be protecting. A problem lies with law enforcers who are exploiting the law for their own gain and individuals who aren't fully informed of the law to properly protect themselves from such exploitations.

As humanity as a whole is becoming a much more technologically advanced society, where information about these topics should be easily accessible to the masses, using technology will be instrumental in removing the factors that hinder people from accessing the justice system, particularly vulnerable and disadvantaged Victorians.

Having a free mobile application that anyone can install onto their phones means that legal services can be easily delivered to those who would best benefit from it, but perhaps may not be able to access them due to factors such as:

- being unable to afford private legal representation
- living in rural areas where legal resources are limited
- not knowing where to look for legal advice, not being able to consult someone for legal advice, or not being able to understand legal advice given

As such, we hope this mobile application proves particularly beneficial to Victorians affected by these factors.

DESCRIPTION

This mobile application will place different legal service providers, as well as being a resource for accessing general information about Victorian law, in one central place. As such, the features of the application include:

Allowing users to find a community legal centre (CLC) near them

- This will involve being able to enter in a user's location (using either a phone's GPS functions or inputting in a location manually), where the contact details, the address and directions to CLCs near them (using something like Google Maps) will be displayed.
- Users can tap on a CLC's hyperlinked phone number to call them directly from their mobile phone, or be able to use Google Maps to direct them to the CLC in real time.

A dedicated section for Victoria Legal Aid and its resources

- Users can call-in directly to Victoria Legal Aid's phone services to get legal advice by clicking on hyperlinked numbers.
- On the app itself, users can apply for lawyers that can represent them at court as well as facilitating applications for grants to help them afford legal representation. Easily shareable links and important documents will also be provided should the user prefer to do so on desktop, but have had little success in finding the information they need to do so themselves.
- Users can also locate and contact a Victoria Legal Aid office near them. Much like the CLC function, users can find a Victoria Legal Aid office by inputting in a location or through their phone's GPS, and be given the office's address and contact details.

A directory of lawyers and law firms that can be filtered to show the services that are relevant to the user's needs. The directory will work as follows:

- Each listing for a lawyer or law firm will show what area of law they specialise in, the locations their service covers, their contact details, an email address/a link to their website, whether they offer pro-bono services or solely a private practice etc.
- The directory can be filtered to show only what the user is looking for. For example, if the user is only looking for pro-bono lawyers and law firms associated with them, only those listings will show up. Similarly, the user could also be looking for lawyers and law firms near them.



DESCRIPTION CONT.

- The directory can be easily updated to show the status of each lawyer or law firm and whether they're available to take on more clients, whether they've expanded the areas of law they cover, etc.

A dedicated section for the Victorian Aboriginal Legal Service (VALS) for Aboriginal and Torres Strait Islander peoples

- This feature will provide easy access to VALS's 24-hour hotlines by hyperlinking their numbers, as well as other important contact details and addresses.
- There will also be general information about VALS and what their service does for the Indigenous community.

A general repository for users to learn more about the law, in plain English

- This can include more in-depth looks at the legal issues that people commonly encounter throughout their lives (like speeding tickets) and the process that's undergone when dealing with them, and the sanctions associated with them.
- This can also include insights as to your rights as a Victorian, such as your rights when it comes to dealing with police.
- The repository can support content presented in both text form and in video forms. The text and contents of the video will be written in plain English and stripped of unnecessary legal jargon so it can easily be understood by all.

A feature to improve accessibility via translated resources of important legal information, as well as a directory of interpreters/interpreting services that can assist individuals

- Where possible, the resources found in the plain English repository will be translated in the most prominent languages spoken by Victorians.
- Much like the directory of lawyers and law firms, a directory specifically for accessing interpreters and interpreting services dedicated to working in the legal sphere will be provided. Each listing will detail the name of the interpreter/interpreting service, their contact details, an email address/website, and the languages they're able to speak and translate.

DESCRIPTION CONT.

An inquiry feature where users of the app can send queries regarding legal topics that are of interest to them and would like to know more about legal practitioners or other legal experts who can answer them

- The queries will not be answered in a rush to ensure accuracy and be of a high quality, but will be answered in due time.
- Users will input an email address where a response can be sent to. After typing out and sending a query, it sends an email confirming that their query has been received.

TOOLS AND TECHNOLOGY

As we intend to make an application that works for both iOS and Android devices, a tool that facilitates cross-platform development is essential. For this purpose, we've chosen [Xamarin](#), an open source tool that combines C# and .NET to create applications for the OS of your choice. We would require a desktop through which we can run Xamarin and begin creating the application, as well as having an iOS device and an Android device so we can test the application in the future.

SKILLS REQUIRED

Acquiring the software and hardware for this project, notably installing and running the necessary programs like Visual Studio, XCode and SDKs on my desktop, is quite straightforward and feasible. The more difficult portion, however, is learning how to use these resources to make a functional mobile application. As our team is new to programming and have limited IT experience, this will prove to be a challenging learning experience for us. Though Xamarin seems to have many tutorials for beginners and provides extensive support, we would still need to write the coding behind the application. As such, we think it would be beneficial to have some familiarity with C# and .NET, which is feasible, but will certainly take some time to achieve.

OUTCOME

To summarise and re-iterate, if we expect the law to be respected by everyone, then the law should be accessible and available to everyone, not just the privileged and the rich.

Socioeconomically disadvantaged individuals and communities lack access to the materials and resources necessary to let them participate fairly in the justice system, further isolating disadvantaged individuals and communities from getting the legal support they may need if they feel as if the law doesn't even care about them.

If ignorance of the law cannot be used as an excuse, then it is important that steps are taken to make sure that everyone is informed of the law. It is the justice system's responsibility and within their best interest to ensure that everyone is well informed and educated about the law and the system that serves to protect them. If people understand the legal consequences of their actions, they are better able to uphold and respect the laws they must abide by, and feel less inclined to believe that they were sanctioned for an arbitrary reason if they did something wrong.

If this project is successful, the end result is a mobile application that extends the precedent for mobile-based legal resources to Victoria. With this application, we hope that the barriers to justice that Victorians face are dissolved because these legal services, advice and resources fit neatly in their pockets at no cost to them to access. The success of this project will inspire others to utilise technology to lift up and help others so that they too may be treated fairly in the eyes of the law, and exercise the rights afforded to all.



INDIVIDUAL REFLECTION

Ben Bullock

My opinion of my group is a positive one. I believe that communication, organisation and attendance were all strengths for my group. Everyone showed up in the group meetings that we were having two times a week and everyone communicated what was going well and their issues for that week. My group was easy to communicate with and were helpful when issues arose. The project selection went pretty smoothly because we discussed what projects we wanted to do, so we agreed to go with Tung's virtual assistant. After feedback from all of our first assignments, we touched base again about the project idea that we wanted to do and based on teacher feedback we decided that the virtual assistant would be out of our intended scope for assignment two, so we decided to go with Belle's legal aid project idea. One thing that I was surprised about was how engaged everyone was in the group meetings, tutorials and MS Teams, I always dread group projects and I was pleasantly surprised about the group that I was put with this semester. I don't really have anything negative to say about the performance of my team and I think that is a credit to the way that we divided up the work for the assignment two.

Campbell Bennett

I am extremely happy with this group. After joining the group slightly late, they welcomed me with open arms. The communication between group members exceeded my expectations as I usually do not enjoy group work. Additionally everyone was in attendance to all of our group meetings allowing us to make important decisions as a group at almost every meeting. We got along very well and were all accountable for our own work. From early on we all knew which parts we were supposed to do and got them done. By having two group meetings a week, everyone was up to date with what had been done and what had to be done, allowing us to help each other out when needed. Originally we had agreed to do Tung's project idea, a virtual assistant, however after receiving our results for assignment 1, we decided to switch to Belle's legal aid app. I was pleasantly surprised how smoothly and easily everything ran through MS Teams. It made communication extremely easy while being a perfect platform on which to hold our meetings. Overall, the group worked incredibly well together and everyone was present the entire way throughout our work on assignment 2.

INDIVIDUAL REFLECTION CONT.

TOM BARBER

On the whole, I think our group worked well together and made each other accountable in a constructive way. We clearly identified everybody's area of responsibility at an early stage, which helped each of us to focus on our tasks. At the same time, our twice-weekly meetings allowed for us to engage with each other, understand how our parts interacted, provide advice and suggestions to each other, and refine the overall direction of our assignment in line with how the individual parts lined up. This allowed for a healthy flexibility, a good reflection of which was the group's collective decision to change our project idea mid-assignment. Once we received our assignment 1 feedback, we discussed how this might impact our initial selection of a virtual assistant app, which would have required some advanced technical nous to proceed with in assignment 3. Taking this on board, the group collectively decided to change to a more workable project in terms of prototyping, with everyone having valuable input in that decision. Lastly, the fact that everyone attended all of our group meetings, as well as the tutorials, speaks to the conscientiousness of the individuals in Goony.

TUNG NGUYEN

Overall, everyone was wonderful to work with! When starting any new group assignment there is always that fear of people not getting along or team-mates not taking initiative and doing their individual work. I personally think our group as a whole got along very well and there were no personality clashes or any one person dictating and controlling the direction of the group. Everyone was confident enough in themselves to voice their ideas and opinions during group discussions. We were also able to communicate openly when discussing our individual assignment 1 marks and feedback, which was really useful feedback to help us decide on the direction of the group assignment. The work was divided up very well and we all decided on which part we'd individually like to work on with no issues. Team meetings are always productive, and updating everyone during our individual progress kept us accountable. Although I would like to get to know everyone a bit better to help with teamwork, I'm sure that'll come with a bit more time. 10/10 would work with again!

INDIVIDUAL REFLECTION CONT.

ANDREW CHEN

I am happy with the work provided from the group. I was surprised that there was great contribution from everyone, and the team performed much better than any other group I have been in. The group got along well with each other and all made a great effort to contribute for team meetings. What got the team going was team meetings twice a week was extremely beneficial as everyone was kept up to date and was a good reminder of what to follow up on. Improvement I could work on next time would include getting the work done completed faster to then assist others. The most important thing I have learnt from working with this team is that having regular group meetings encourage everyone to stay on board and assists a lot with organisation.

BELLE DUNGCA

I believe the group worked really well together! We were able to make a very quick start on the assessment and get most of the important decisions done so we can make substantial progress where possible. People also consistently showed up to meetings, which was great. People were able to get started on their work where they could and people were forthcoming about their results. There's a nice transparency and camaraderie with this group that I found quite surprising as I'm not super used to working with super functional groups such as this one. One thing that could be improved was others being more proactive and trying to see if they could help others with their sections so that more sections of the assessment could be done and nobody would be lagging behind. I learned that groups work well if everybody is committed to getting the task done and getting it done well. If the workload is shared and everyone puts in their best effort, working with a group isn't so bad and daunting tasks seems less so.

GROUP REFLECTION

As a group, we all felt that we worked very well together and we all had a very positive experience, which in itself was what every single member of the group found to be the most surprising thing! It was a learning experience for all of us to work with a team where everyone was pulling their weight and committed to getting the work done and done well. Most importantly, we learnt how crucial communication, organisation and presence are in ensuring that group work gets completed to the highest standard it can be, which were - fortunately - areas where we believe we excelled in:

- Communication - As a group we made very effective use of Microsoft Teams as our communication platform. Everyone had a voice in our group meetings and we made sure to get everyone's input when making decisions.
- Organisation - Using Microsoft Teams to remind each other of anything that needs to be done and updating each other our progress has been integral to keeping each other accountable for our own individual work. Having a Google Drive folder and a group repository to collect all our work together really helps when we need to cross-reference different parts of the assignment and also works as an effective way to visually see our progress.
- Presence - Every meeting so far has had full attendance, where everyone comes with a positive attitude and willingness to work together and collaborate.

Where the group believed we could improve on was how assessment tasks could be better divided in the future. While it was great that our group got itself organised early on, on reflection we probably should have split the assignment tasks up in a less compartmentalised way. Our initial method of division reflected the way in which the assignment marks were split up, and we therefore each 'specialised' in one particular area of the assignment. While we all kept each other updated about our respective parts, we didn't really get a feel for the assignment until it was completed, and we could read it as an entire document. After discussions with Anthony, we have decided to rectify this by using the Kanban app on teams to allocate tasks, and divide assignment 3 in a way that we each contribute to every section.

Doing so will allow us to create a more cohesive assignment with better flow, and at the same time allow us the opportunity to work more closely together and share ideas.

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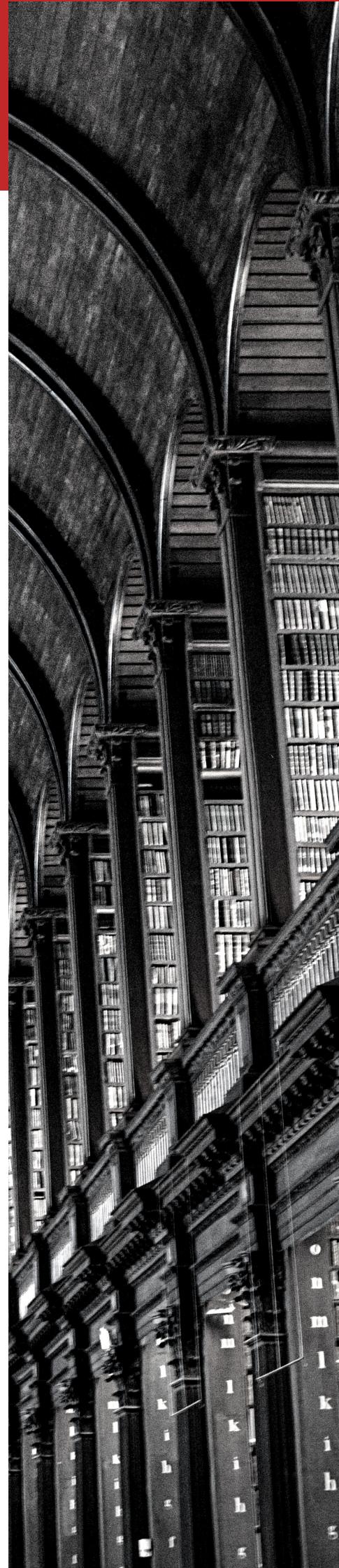
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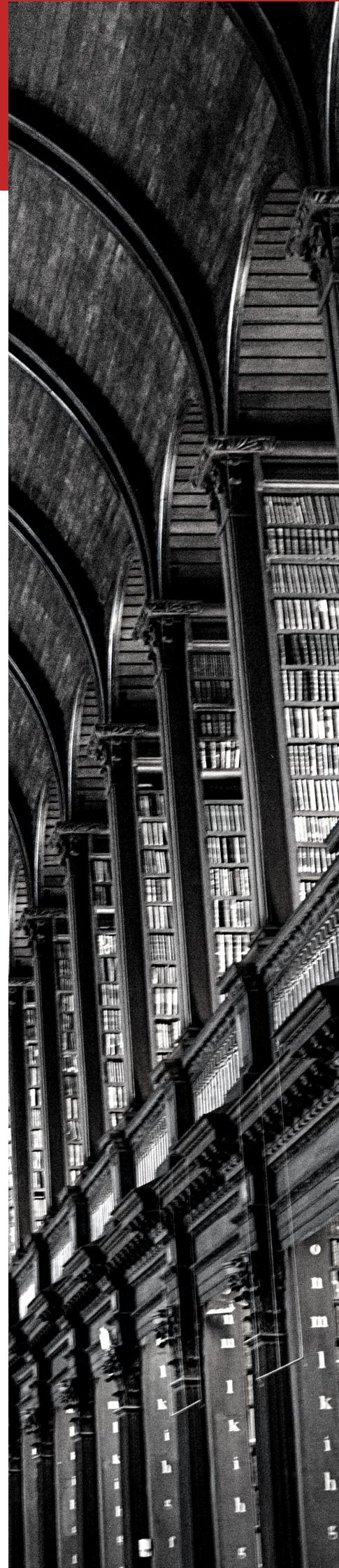
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