ASSESSMENT 2

COSC2196/CPT110

Abstract

URL Repo: https://github.com/Team-TBD-RMIT/Assessment-2.git
Website: https://team-tbd-rmit.github.io/Assessment-2/index.html

Bronagh Falloon;Malachi Cleland;Meg Maroni;Patrick Reyes;Scott Percival

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Contents

Team Profile:

Team Name: Team TBD

Who are, Team TBD?

Team TBD are a group of 5 Passionate RMIT University Students who have banded together to deliver an outstanding assessment 2 and 3 for Introduction to IT, working together on a project that if it was to go live, we believe would have a positive impact on Australian Consumers.

What does TBD stand for?

It stands for to be decided.

Why To be decided?

Because like the future our potential is boundless, the possibilities endless and we do not want to be limited to a singular idea. TBD stand for much than just to be decided, it stands for:

- Tenacity – We are a determined team who strive to be at the forefront of technology and how it can benefit humanity
- Belief – We are believers of a better world; a better society and we believe that is possible through the innovation of technology
- Discovery – We're discoverers of tomorrow's innovations today, through the exploration of technologies and the furthering of our studies

Tomorrow's discoveries are yet to happen. The future is TBD.

Personal Information:

Bronagh Falloon - s3965252:

Name: Bronagh Falloon

Student ID: S3965252

Student Email: S3965252@student.rmit.edu.au

Nationality: British/Australian/New Zealand?

Languages Spoken: English

Highest Education: Certificate IV in Healthcare

My name is Bronagh Falloon, I am of British descent, and my family came over to Australia when I was just 1 year old from New Zealand, being granted Australian citizenship in 2014. I got a Certificate IV in health care, studied nursing for 2 years and I now work at Factory Blinds making hollands. One odd hobby I have is learning about personality systems and the categorization of these traits. I have spent many hours learning the MBTI (Myers Briggs Type Indicator) personality inventory and then I learned about Jungian cognitive functions which in the context of MBTI are the extroverted or introverted versions of Feeling, Thinking, Sensing, and Intuitive. A few years ago, a YouTuber came out with an expanded system that came from the MBTI inventory called objective personality types, which contains 512 types that I have spent over a hundred hours learning.

Malachi Cleland s3965226:

Name: Malachi Cleland

Student ID: S3965226

Student Email: S395226@student.rmit.edu.au

Nationality: Australian

Languages Spoken: English

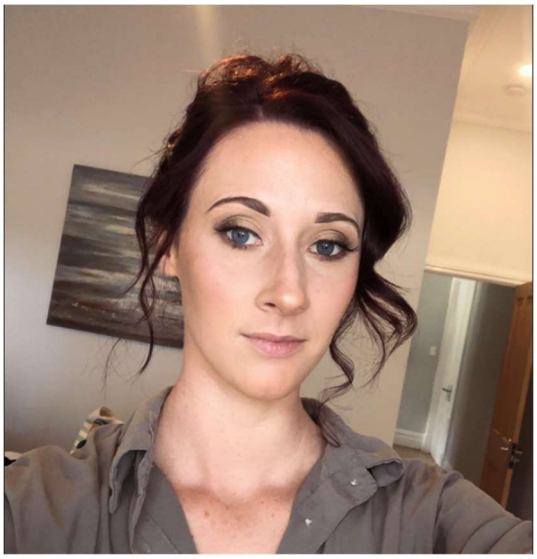
Highest Education: Year 12 VCE (Victorian Certificate of Education)

My name is Malachi Cleland, and I was born and raised in rural Australia where I still live today. I am looking toward moving to Melbourne soon, having lived there for almost two years in the past in which I almost completed an advanced diploma degree.

Hobbies I love include writing and drawing. I haven't drawn in a while, but pencil is my medium of choice as I am a bit of an art snob/purist with an opinion using a tablet and stylus is a bit of an easy route to art. It’s something about seeing my imagination forged into reality that really excites me. Most of the time I’m not interested in technologies or gaming consoles, I will be reading my heart out.

I learned Indonesian in my high school years, many moons ago. Though it’s instilled a desire to learn plenty of languages since (German at the top of the list). On the list of jobs, I would love to be is a translator, because bridging down language barriers to bringing people together is a beautiful thing, in my opinion. Plus, if you do what you love you never call it work, right?

Meg Maroni s3967486:



Name: Meg Maroni

Student ID: S3967486

Student Email: S3967486@student.rmit.edu.au

Nationality: Australian

Languages Spoken: English

Highest Education: Cert IV in Information Technology

My name is Meg Maroni, and I am apart of Team TBD. I was born and have lived majority of my life in Albany, a stunning coastal city in Western Australia, which boast a wealth of hiking trails, wildlife, and bush tracks that I enjoy taking advantage of in my leisure time. Here, I also finished my K-12 education and received my TAFE (technical and further education) credentials, earning my highest certificate – a Cert IV in Information and Technology – in 2020.

I am honoured to have been named the 2020 Vocational Student of the Year by the Apex Club of Albany, and one of the 2020 Southern Regional TAFE Students of the year throughout the 12 campuses in the Great Southern Region in appreciation of my academic achievements. My current position as a Technical Support Officer for two primary schools and one secondary school in my area has given me extensive experience in managing, maintaining, and fixing the physical technological infrastructure and networking of medium-sized organisations.

Patrick Reyes s3966071:

Name: Patrick Reyes

Student ID: S3966071

Student Email: s3966071@student.rmit.edu.au

Nationality: Australian

Languages Spoken: English

Highest Education: Certificate III in Information Technology (Networking)

My name is Patrick, and I am an Australian-born Filipino raised in Sydney, NSW Australia.

I have a Certificate III in Information Technology (Networking) which I obtained in 2007 and I am currently taking online courses at RMIT with the goal of completing the Bachelor of Information Technology or possibly looking at entry to Bachelor of Software Engineering through transfer after completing first year subjects.

I enjoy riding motorbikes when it's warm and snowboarding when it's cold. Lately I've been exploring and learning how to build applications by implementing a range of open-source software. I have learned that there is a lot of moving parts and technologies involved when constructing an application so when the parts eventually start working together it is deeply satisfying.

Scott Percival s3966885:

Name: Scott Percival

Student ID: S3966885

Student Email: s396685@student.rmit.edu.au

Nationality: Australian

Languages Spoken: English

Highest Education: Cert IV in IT networking (2006)

Born 1989 in Sydney, Australia. I was released onto this world alongside The Simpsons and the release of Gameboy in Japan and North America. I have lived predominately in the outer Western Suburbs of Sydney in a region called the Hawkesbury. I currently both work and study IT.

Outside of work and study, I live a rather simple and peaceful life. My most notable interest, to me at least would be Sci-fi. I love all things Sci-Fi including games, movies, shows, etc. I think it may be fairer to say I love all things space-related in general. On clear nights I love looking up at the night sky and gazing across the stars imagining the possibilities, similarly to IT. What draws me to it is the vastness of space, the unknown, and the possibilities. I believe in a brighter future for humanity, and I believe to get to that brighter future, we need to look to technology, and we need to look to space.

Team profile:

Individual Websites:

Bronagh Falloon
https://bronagh-falloon.github.io/Intro-to-IT-AT1/

Malachi Cleland
https://gitterdammerung.github.io/HTML-and-CSS-test/

Meg Maroni
https://meglm.github.io/IIT-A1/

Patrick Reyes
https://patrick-reyes.github.io/

Scott Percival
https://scottyp1989.github.io/

Teams Test outcomes:

Scott	Patrick	Meg
Myers-Briggs **Type:** Turbulent Defender (ISFJ-T) **Role**: Sentinel **Strategy:** Constant improvement **Traits:** Introverted 62%, Observant 60%, Feeling 52%, Judging 58%, Turbulent 71% 	**Myers-Briggs** **Type:** Turbulent Mediator (INFP-T) **Role**: Diplomat **Strategy:** Constant improvement **Traits:** Introverted 79%, Intuitive 70%, Feeling 52%, Prospecting 67%, Turbulent 82% 	**Myers-Briggs** **Type:** Turbulent Advocate (INFJ-T) **Role**: Diplomat **Strategy:** Constant improvement **Traits:** Introverted 65%, Intuitive 86%, Feeling 68%, Judging 57%, Turbulent 92% 
Learning Style: Kinesthetics	**Learning Style:** Visual	**Learning Style:** Visual
Big Five Personality Extroversion – 25%, emotional stability – 26%, agreeableness - 45%, conscientiousness – 62%, intellect/imagination – 59%	**Test My Creativity** **55.08** Abstraction & Curiosity strong points	**IQ Test** 138

Malachi	Bronagh
Myers-Briggs **Type:** Turbulent Mediator (INFP-T) **Role**: Mediator **Strategy:** Constant Improvement **Traits:** Introverted 69%, Intuitive 61%, Feeling 60%, Prospecting 56%, Turbulent 57% 	**Myers-Briggs** **Type:** Mediator (INFP) **Role:** diplomat **Strategy:** confident individualism **Traits:** Introverted 61%, Intuitive 62%, Feeling 66%, Prospecting – 67%, Assertive – 57% 
Learning Style: Visual	**Learning Style:** Visual
Big Five Personality Openness - 90%, Conscientiousness – 52%, Extroversion – 46%, Agreeableness - 73%, Neuroticism – 54%,	**Enneagram** **Result:** Type 2 (The Giver) Strive to be helpful and find belonging

How this information is helpful?

The results of the test were mildly helpful, the primary value was promoting self-reflection in the individual and how they perceived their own results. We do not believe these tests impacted the formation of the team nor were they a driving factor in the ongoing actions of the team. The result of the nature had minor impact on how roles and work were assigned to the team members. The team has discussed the results and again while somewhat insightful, the consensus appeared to be that these kinds of tests are limited and do not offer the depth of accuracy to truly analyse an individual and provide worthwhile insight into how they may or may not contribute to the team or what role they make undertake. Though in reviewing the personality tests we did note some similarities amongst ourselves that proved interesting if nothing else. The similarities included:

1. All but one team member tested as a visual learner with everyone agreeing with their learning style results were represented accurately.
2. All had introverted as a trait and all members agreed they were introverted to one degree or another. We feel this trait may be common in the industry across the board.
3. We had 3 members who tested as an INFP (Mediators), and we pondered if this result may be common among those in the IT industry.

Ideal Jobs:

What common elements are there?

Below is a non-exhaustive list of common elements

- All the roles or paths to the roles (bar one) require reasonable in-depth coding/developer and knowledge surrounding various programming languages, a common one being JAVA.
- All, bar one, require a relevant tertiary qualification such as a Bachelor of Information Technology to be eligible.
- 3 Roles are remarkably similar, with two being near identical, being 2 Software Engineering roles and 1 Front End Developer.
- All roles require strong analytical and/or problem-solving skill.
- All roles require the person to have strong teamwork and collaboration skills.
- Several of the roles require various leadership skills.
- Several of the roles require familiarities and skills associated with project management, either as part of the project or leading it.

What differentiates each position from the others?

Below is a non-exhaustive list of some of the notable differences between the roles

- One role requires a Ph.D. before being eligible.
- Two of the roles could be considered quite late-stage and advanced positions in one career path, requiring 10+ years of education or work experience while the others are reasonably more on the side of intermediary roles to be considered.
- Only one role requires skill or experience with graphic application such as Illustrator.
- Only one role requires skills or knowledge specific to project methodologies PRINCE2, PMBOK, SCRUM, etc.
- Only one role requires experience in sensor fusion or expertise in usage of signal and imaging processing practices and techniques

How similar or different are the career plans across the group?

Our teams' career plans at the most basic level are somewhat similar. All involved completing a relevant bachelor's degree in information technology, computer science, information systems, software engineering, or similar certification. Most involve pursuing further expertise and skills by completing MOOC courses or similar such as Scriba or industrial-specific courses such as PRINCE2/PMBOK methodologies. Several involve working in similar roles to that of the group to build further work experience for eligibility for their desired roles.

Where they differ, at least in two of the cases, is the timeline to reach a stage where the person would be considered skilled and experienced enough to fill such a position. Both Senior Project management and Machine Learning Researcher positions will require 10+ years of additional education and/or relevant work experience. Machine learning Researcher by far has the greatest academic requirements requiring a Ph.D. on top of establishing a career in similar roles prior to being eligible.

Conclusion:

Team TBD's ideal jobs are both diverse yet similar; we have two software engineers and a Front-End Developer, yet we also have Machine Learning Researcher and a Senior Project manager. While the nature and requirements of the jobs are different in each case even among the software engineering roles there are some core similarities amongst almost all the roles along with some unique

differences between them. What is interesting to see is some of these roles are obtainable relatively soon, if they stick to their career plan. While the other two are quite senior roles and will require many years of further education and experience before the team members would be realistically eligible to obtain their ideal jobs. See below for more information.

Ideal Job Table:

Name	Description	Minimum Qualifications	Required Experience	Skills	Career Paths
Scott Percival	A senior project manager overseeing a large-scale project for an NSW government body specifically in the education industry.	A bachelor's degree in relevant field such information technology or business	10 or more years' experience as a Project Manager; Experience in Project methodologies; asExperience in in using ICT/Technology to deliver projects	Excellent stakeholder management skills; Advanced presentation skills; Strong Leadership Skills; Strong Risk management skills; Excellent communication skills; Strong Documentation processes; Strong Analytical skills; Team oriented with Strong team and	Obtain a bachelor's degree in information technology or Information systems; Further studies in relevant subjects such as project methodologies like Prince2/PMbok ; Continue in current career trajectory gaining experience in Projects ; Transition into a business/system analyst role; Improve on existing soft skills relevant to the role
Patrick Reyes	A software engineer in a technology consulting company that focus on data & analytics, digital, cloud & technology, customer engagement, artificial intelligence and cyber security	A bachelor's degree in relevant field such as computer science or cloud technologies	Extensive experience in working in cloud environments; Experience in CI/CD,TDD and secure coding practices; Experience in integrating web-based applications and backend API services; Experience with	Consultative Mind set; Strong Stakeholder management skills; Strong Communication Skills; Passion for teaching, coaching or mentoring teams members; Skills working in an Agile Environment;Team player	Obtain a bachelor's in information technologies or computer science; Complete additional certifications in frameworks, methodologies etc; Obtain work experience with a business that utilizes relevant desired technologies and methodologies
Meg Maroni	Machine Learning Researcher with Lockheed Martin Australia. With a focus on the research and development of Machine Learning technologies to advance Australia's understanding and proficiency in computer science, image processing, analytics, and	A PHD in a relevant discipline from a recognized institute which would also likely require a relevant undergraduate, postgraduate and masters.	Project experience in research and development; Experience in a research team that combined multiple professional specialisation; Experience with reporting present research	Excellent communication skills; Excellent Reporting Skills; Experience in sensor fusion, plus manage the errors that can be present in collected data; Expertise with usage of signal and	Obtain Bachelor of Information technology; Obtain an honour or master's degree in a specialization of IT; Work experience as a graduate software engineer or similar; Complete a PHD
Bronagh Falloon	Front-End Designer for a large global business working on high profile government projects.	n/a	Experience with HTML, Javascript, CSS and Markdown; Experience with front-end technologies such as vueJS as-well as preprocessing platforms suchs as SCSS; Experience with	Team player; Innovative and out of the box thinking; Designing user experience information flow, interaction models and users interfaces; Creation of Deliverables such a wireframes,	Obtain a bachelor of information technology; Learn HTML and CSS Via Scrimba; Do course on graphic applications
Malachi Cleland	Software Engineer for Australian Target Systems who has experience in researching, building, and delivering high end software solutions.	Relevant bachelor's degree	Experience with Web frameworks- Aurelia, React, View, AngularExperience with Languages - C++, JavaScript, TypeScript, Node.JS, Python, C#, GOExperience with Data Management - MongoDB, SQL, InfluxDB, Redis, ElasticsearchExperience User Interfaces - HTML, CSS, SVG,	Software design, development, testing, documentation, and delivery; Source code management; Excellent Communication and collaboration skills; Root cause analysis and problem-solving skills; work with the full development life cycle, delivering complex iterative solutions	Complete Bachelor of Information Technology

Tools:

Overview:

Team TBD utilizes a combination of tools for collaborating and completing work including GitHub and Microsoft Teams. Our A2 progression and collaboration has been predominately done and tracked in Microsoft teams, utilizing a range of its inbuilt features and additional app integrations such as Tasks and Planner to track actions and overall project completion. Wiki for useful information like team info, Microsoft Forms for voting, One Note for meetings and other notes, etc. Below you'll find links to both our GitHub repository, website, and Microsoft Team resources that demonstrate our progress. This includes our meeting records, meeting notes including Agenda, minutes, and actions from our formal meetings as well as other information on other areas such as, our vote results, a task and planner export, wiki link & Document Library link.

Microsoft Teams:

Microsoft Teams Project Invite: Team TBD

Meetings:

27/06/2022 Agenda Recording Actions

30/06/2022 Agenda Recording Actions

04/07/2022 Agenda Recording Actions

07/07/2022 Agenda Recording Actions

12/07/2022 Agenda Recording Actions

14/07/2022 Agenda Recording Actions

Document Library:

General

Interview

Votes:

Team Name

Project Idea

Teams Tasks and Planner:

Planner

GitHub:

Group Website:

https://team-tbd-rmit.github.io/Assessment-2/

Group Git Repository:

https://github.com/Team-TBD-RMIT/Assessment-2.git

Audit Tail Success:

As a central location for our team's assignment work or the assignment's versioning history and audit trail, GitHub was not very helpful for this team's processes on the assignment. Although tracking the website uploads and contributions history on GitHub is useful, it is only a small part of

the overall assignment criterion and thus was left under the sole authority of one person who felt the most confidence with that component.

Our main effort to manage versioning and contributions has been a manual process of keeping track of each person's completed tasks, which are then entered into a spreadsheet to calculate a reasonable contribution percentage based on their written efforts, and the versioning history has been managed in Microsoft Teams with one main document being contributed to for the content and versions being implemented at different stages of progress, for example, V1 being an initial draft of documentation week before the due date, V2 being final draft contributions closer to the due date, V3 will be the final draft for submission.

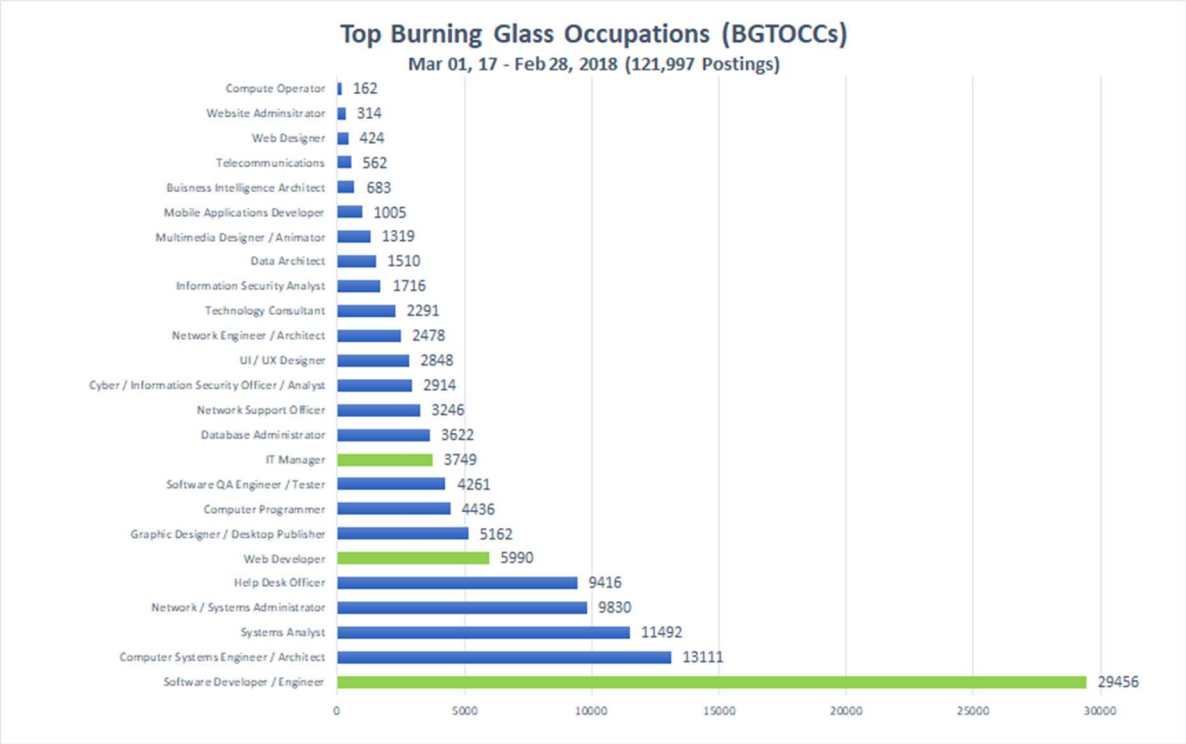
Industry Data:

Job Titles & Industry Ranking:

- Front End Developer – Bronagh Falloon
- Software Engineer – Malachi Cleland
- Machine Learning Researcher – Meg Maroni
- Software Engineer – Patrick Reyes
- Senior Project Manager – Scott Percival

Our teams' ideal jobs offered quite the variation and each with a unique vision for their future careers. The job titles were as follows: Machine Learning Researcher, Senior Project Manager, Front End Web Developer, and two Software Engineers. As some of these roles are more specialized positions that didn't offer many useful data that could accurately be portrayed in the Burning Glass Data and other data resources, they were categorized into four umbrella Job Titles: Software Engineer, Web Developer, and IT Project Manager. These may vary slightly in name specification over the data sets, but each role accurately represents the main aspects of what the groups' position was described in both general and ICT skill sets required for the positions.

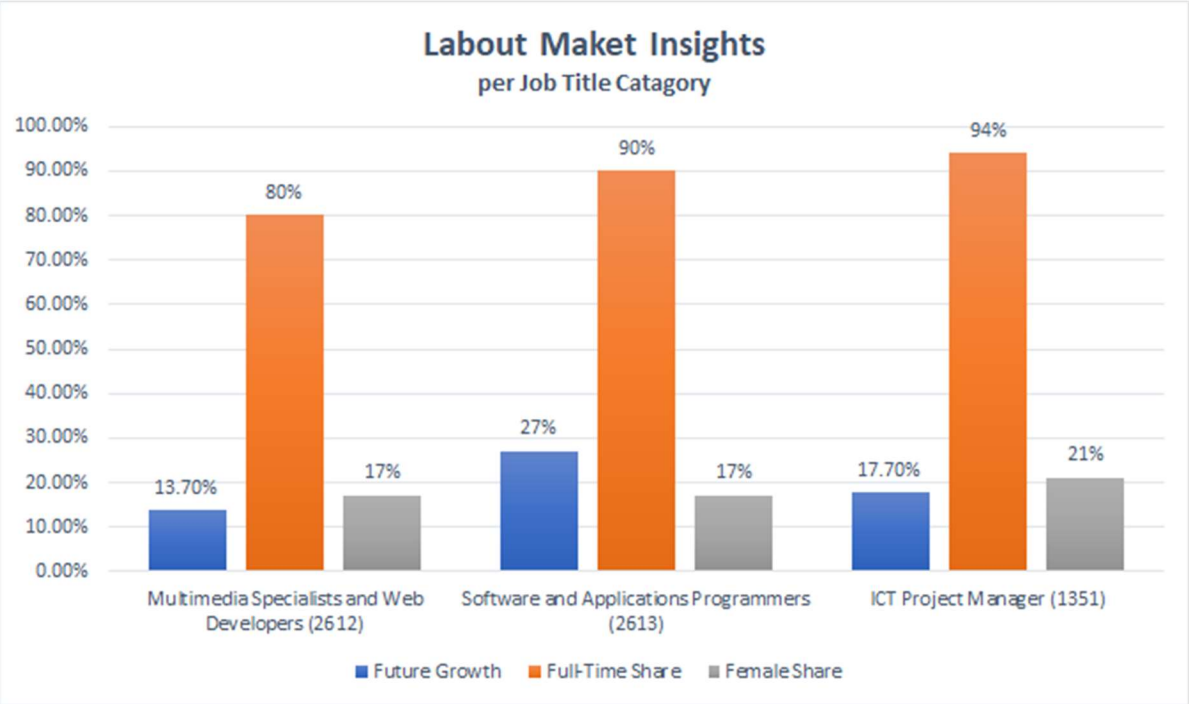
Burning Glass Data:



Job Tile/Occupation Ranking:

1. Software Engineer (29,456)
2. Web Developer (5,990)
3. IT Manager (3,749)

Labour Market Insights Data:



Future Growth Prospects

1. Software & Application Programmers (27%)
2. ICT Project Manager (17.70%)
3. Multimedia Specialists and Web Developers (13.70%)

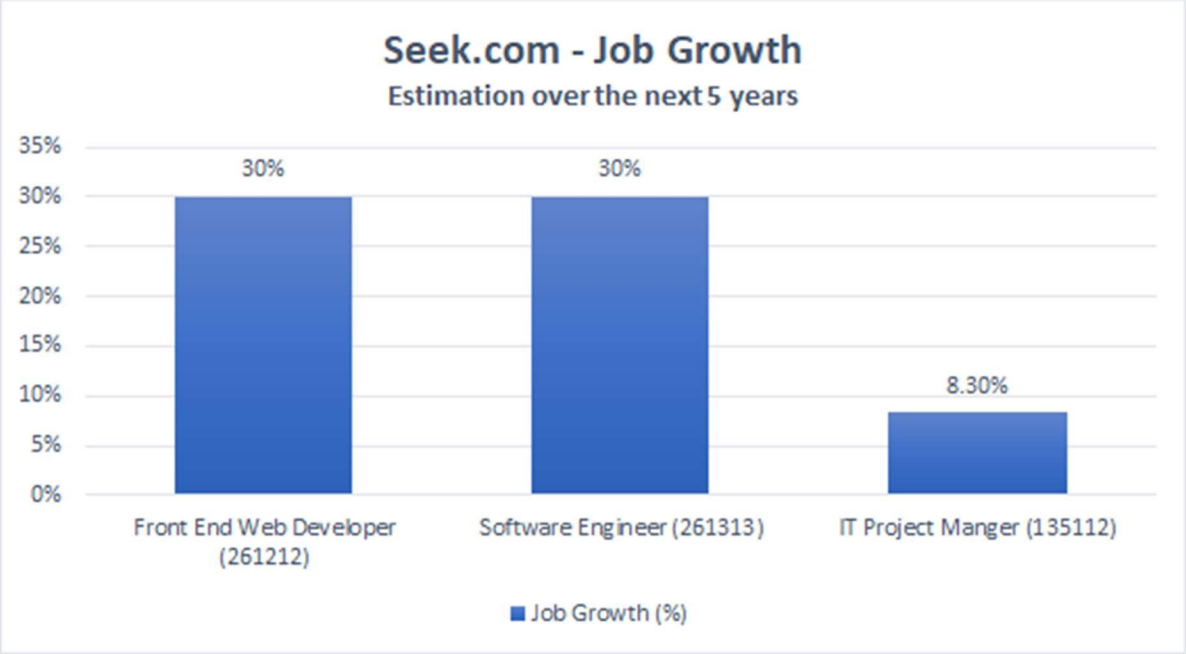
Full Time Share (Current workforce working Full-Time)

1. ICT project Manager (97%)
2. Software & Application Programmers (90%)
3. Multimedia Specialists and Web Developers (80%)

Female Share (Current female workforce)

1. ICT Project Manager (21%)
2. Software & Application Programmers (17%)
2. Multimedia Specialists and Web Developers (17%)

Seek Data



Job Growth Climate (5 years)

1. Software Engineer (30%)
1. Front End Web Developer (30%)
2. IT Project Manager (8.30%)

National Skills Commission Skills Priority List (SPL) 2021 Data:

	SPL categories		Count of occupations	
	Current Labour Market Assessment	Future Demand Indicator		
1	Shortage	Strong future demand	57	153
2	Shortage	Moderate future demand	87	
3	Shortage	Soft future demand	9	
4	No Shortage	Strong future demand	208	646
5	No Shortage	Moderate future demand	394	
6	No Shortage	Soft future demand	44	

Position Title	AUS	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Future Demand
135112 ICT Project Manager	S	S	S	S	S	S	S	S	S	Strong
261313 Software Engineer	S	S	S	S	S	S	S	S	S	Strong
261212 Web Developer	NS	S	NS	NS	NS	NS	NS	NS	NS	Strong

SPL Future Demand Ranking

1. ICT Project Manager
1. Software Engineer
2. Web Developer

Skills required:

General Skills

- Adaptability
- Analytical
- Articulate
- Building Effective Relationships
- Communication
- Creativity
- Decision Making
- Detail Orientated
- Domain Knowledge
- English
- Leadership
- Management
- Meeting Deadlines
- Mentoring
- Multi-Tasking
- Organization
- Planning
- Presentation
- Prioritizing
- Problem Solving
- Quality Assurance & Control
- Researching
- Self-Driven
- Team Building
- Teamwork
- Thirst for Learning
- Time Management
- Troubleshooting
- Writing

IT Industry Skills

- .NET Programming
- Automation Scripting
- Building Relationships
- Business Analysis
- Business Process
- C+, C++
- Computability & Complexity
- CSS
- Customer Service
- Data Science
- Git
- Graphic Design
- HTML
- ITIL
- JAVA
- JavaScript
- Linux
- Machine Learning
- Microsoft C#
- Microsoft Office
- Microsoft Windows
- Networking
- Oracle
- PERL
- PHP
- Project Management
- Python
- Ruby
- SCRUM
- SDLC Methodologies
- SEO & WPO
- Software Engineering
- SQL
- Systems Engineering
- Technical Support
- Unix
- UX
- Website Production

How do the IT-specific skills in your required skill set rank in terms of demand from employers?

Our group IT-Specific Skills that were listed in the Burning Glass Data Skills in Greatest Demand (Specialized Skills) rank as follows out of the 27,435 postings applied:

1. SQL (3,570)
2. JavaScript (2,946)
3. JAVA (2,860)
4. Microsoft Windows (2,699)
5. Project Management (2,252)
1. Building Relationships (2,119)
2. Business Analysis (2,096)
3. Graphic Design (2,068)
4. Technical Support (1,830)
5. Microsoft C# (1,643)
6. LINUX (1,632)
7. Customer Service (1,411)
8. Software Engineering (1,372)
9. .NET Programming (1,370)
10. Website Production (1,366)
11. Microsoft Office (1,341)
20. ITIL (1,257)
22. Python (1,150)
24. Business Process (1,033)

Many of our other combined skills were not listed in the Burning Glass Data, including automation scripting, computability & complexity, data science, C+ & C++, CSS, HTML, PHP, Perl, machine learning, SDLC Methodologies, Ruby, SEO & WPO, UX, and Unix. Even though this is the case these are all valuable skills that enable each group member to excel in their chosen Job Title position.

How do the general skills in your required skill set rank in terms of demand from employers?

Our group General Skills that were listed in the Burning Glass Data Skills in Greatest Demand (Baseline Skills) rank as follows out of the 121,99 postings applied:

1. Communication Skills (44,367)
2. Problem Solving (16,445)
3. Organisational Skills (15,844)
4. Writing (15,590)
5. Teamwork/ Collaboration (14,364)
6. Troubleshooting (11,471)
7. Planning (11,315)
8. Detail-Orientated (8,298)
9. Creativity (7,475)
10. Research (7,227)
11. Leadership (5,144)
12. Time Management (5,059)
13. Mentoring (4,538)
14. Quality Assurance and Control (4,444)
15. Presentation Skills (3,716)
16. Meeting Deadlines (3,346)
17. Analytical (2,997)
18. Team Building (2,985)
19. Management (2,906)
20. Multi-Tasking (2,640)
21. English (2,604)
22. Building Effective Relationships (2,473)
23. Articulate (2,171)
24. Self-Starter (1,984)
25. Decision Making (1,850)

Only a few of our combined general skills were not listed as those in greatest demand, including; adaptability, domain knowledge, prioritizing, and a thirst for learning. These skills may not have been listed as they are more implied skills to specific fields that those specified, or they are implied to be a skill in combination with one of the general skills listed. However, they are still important skills to develop oneself and succeed in a working environment.

What are the three highest-ranked IT-specific skills which are not in your required skill set?

The following two skills were the only not listed as a part of our combined IT skills set, including their relative position in ranking:

1. SAP (2,189)
2. Business Management (2,141)

SAP (System Applications and Products in Data Processing) was not listed as one of our combined IT skills as it is a very specific software practice used in businesses to combine all operations and processes for successful exchanges of data and information within the business. Knowledge and use of this system falls under Business Management type roles that involve supervision and management of business within a company that includes operations, employee management, and assets, which none of our group members were striving for and thus explains why Business Management was also not a skill in our skill set.

What are the three highest-ranked general skills which are not in your required skill set?

None of the stated general skills listed in the Burning Glass data were missing from the general skill set of our group. This is due to the fact that the abilities displayed in each of our job titles are distinct enough to when combined, nearly completely reflect the skills data from Burning Glass Baseline.

Burning Glass Data:

Scott Percival:

In short no. The data only confirmed what I had already observed myself. If anything, it has only reinforced my desire to continue following the path I'm on. There appears to be a lot of opportunity down this path for an individual with the right skills and knowledge. To be a good project manager you need to have terrific team and collaboration skills, you also need to be a creative problem solver with outstanding communications skills as-well as being knowledgeable in not just IT Technology but the business and industry you're working with. Not only are these skills and knowledge I already have to some degree. They are also listed in the data as generally desirable skills across a range of roles. I also found the data insightful to my current position. I am already a system administrator; I was surprised to see the strong demand for this going into the future but a lack of shortages besides NSW.

Meg Maroni:

Since looking at the information analysed above, my ideal position as a machine learning researcher has not altered. This is because the data offered and suggested for the research does not accurately reflect the job title and the required skill sets which it involves, such as a combination of other roles including software engineering, data science and analytics, mathematics, statistics, and of course machine learning. It is also an area in which I feel passionately interested in pursuing as researching for potential advancements in our machine learning technologies can improve every area of our economy and human life.

Last but not least, my choice has not changed because it is consistent with my estimate of where future technical improvements will occur based on my own investigation of the area and industry, including papers and articles such as from the CSIRO (CSIRO, 2022), the Australian (Powell, 2022), the Brilliant (Carter, 2021), and of course, the DIUS National Pulse Report (DIUS, 2021). All these articles support Machine Learning and its boundless possibilities and I would really like to be a part of that.

Bronagh Falloon:

The burning glass data has changed my opinion of what type of job I want to pursue. I was not deeply attached to idea of being a web developer, but I believed it could have made more use of my existing skill set, like an understanding of how to make things visual appealing and eye catching. Which I learned through learning to paint though I'm not sure how well those skills would translate. I would prefer to pursue a job with a higher demand and future growth. As you can see in the SPL 2021 data web developer there is not a shortage in that job market, though web developer still has a strong future demand.

I think I would prefer to purse software engineer as it is in shortage and has strong future demand. While studying I am finding that I enjoy programming and learning new programming languages. Software engineering has a broad range of applications which means I have more option in terms of future employment. Though this change does mean I am pursuing a field in which I have no prior experience.

Malachi Cleland:

Having reviewed the Burning Glass data, I am not worried about my future job prospects. In fact I see it as encouragement and affirmation. My current dream job of software engineer is highly sought after by a large margin and is predicted to only keep on growing. When looking at the IT-specific skills I can only smile as I plan on utilising SQL, Java, and JavaScript heavily in the future. Looking at the general skills I see plenty of room to improve: I like to think I have good communication skills however they decline quite sharply when not in face-to-face situations; my problem solving skills have been tried and tested many times in the past and they've rarely let me down, while my current organisation skills can certainly do with some improvement: like any person, with the right motivation and inspiration I can achieve anything, however in their absence I find myself drifting towards procrastination perhaps more readily than others. In summary my present goals for future employment remain the same or within the same field, while I have also illuminated areas for personal growth.

Patrick Reyes:

After looking at the burning glass data above, my opinion of my ideal job as a software engineer has not changed. The data provided aligns with my already existing perceptions of the role. Based on my previous work experiences with supporting businesses and their staff with the range of software applications that they would use to perform their duties, I have an understanding that modern businesses rely on multiple applications to operate successfully and that there would be a requirement for people with the skillsets to support, maintain, integrate, or extend those applications. With the ever-continuing innovation of technologies and the adoption of these innovative technologies in businesses, the demand for software programmers would continue to increase. The big difference in the number of occupations in the Software Developer/Engineer category compared to the rest of the categories in the Top Burning Glass Occupations graph indicates to me that it is a role that has a high demand.

At first, I was surprised that the Database, Systems Administrators, and ICT Security Category in the Labour Market Insights Data graph had a higher future-growth projection compared to Software and Applications Programmers but after thinking this through, it made a bit more sense to me. The rate at which society is capturing and storing data continues to grow exponentially as technology innovation continues. The increased number of data points captured, increased usage of IoT technologies, and the development of Machine Learning and the use of large data sets to train ML models are a few examples I can think of that leads me to understand why that category would have a higher future growth projection where the skillsets to administer the systems and databases is required. After thinking this through, I determined that it is another role that I would consider pursuing if I decided to change my mind about pursuing software engineering.

IT Work:

Interviewee Details:

Name: David Rowley

Company: Leapfrog Buisness Solutions

Position: ICT Consultant/Buisness Owner & Partner

Overview & History:

IT Professional

Leapfrog Business Solutions is operated by three partners David Rowley who takes care of the IT aspect and provisions of Leapfrog, Sandra Rowley his wife who has taken on the role of accounting and financial manager, and Krishna Menon, who manages the communications services of the business. The business was established in Albany in early 2006 after David migrated from the UK (United Kingdom). David's IT career has spanned more than twenty years and his first big break was with Sage in the UK doing telephone support for their payroll products. Whilst performing this role he had a real keenness towards technologies and programmed I the background which led him to the research & development department of Sage, which was developing Telemagic, a CRM (Cause Related Marketing) branch scripting database of sales leads using Visual Fox pro.

This product got moved onto another company which led David to follow and work with the new department doing further GUI (Graphical User Interface) development and server wrapping for accounting products. David kept working for many independent IT Consultancy companies in the UK, offering a range of services from programming to offering training in software. Eventually, David started his own consulting company with numerous long-term contracts, including offering development and business analysis services to Citibank in Sunderland, UK. Eventually David and his family decided they wanted to live in Australia after visiting the country in 2003 and in 2006 made their arrival to Albany, WA. (LeapFrog Solutions, n.d.) (ZoomInfo, n.d.)

Company

Leapfrog Business Solutions are a professional technology company based in Albany, Western Australia that has been in business since 2006. They provide a wide range of services to support local businesses with the resources and knowledge to achieve their goals while navigating through the constantly shifting technologies and opportunities of the modern world. Such services they provide are Website development, Software development, database design, ICT Strategic Planning, Service Legal Agreements, Systems Integration, Systems Audits, and Web hosting. (LeapFrog Solutions, n.d.) (ZoomInfo, n.d.)

Interview Summary:

What kind of work is done by the IT professional?

David Rowley is one of three Directors of Leapfrog Business Solutions, where he oversees one of its two main divisions which entails network infrastructure, firewall security, website development, and some custom software designing. He also provides service engineering and IT support services for local businesses including typical fault finding, looking after computers, network infrastructures and consulting with clients to help them understand the newer technologies and about implementation of IT technologies withing their business infrastructure to improve processes and data storage as he has been in the process of decommissioning server environments around Albany and pushing them to the cloud, including their own on-premises Microsoft Exchange servers.

What kinds of people does the IT professional interact with?

David is involved in interacting with many different clients, businesses and other IT professionals around Albany, as being a consultant requires client, both individual and business, interactions and he holds a very open-door policy when it comes to other businesses, competitors or freelancers to collaborate with the company on projects and tasks that may arise within his business and one of the current employees, Aaron, was working at the Community Living Association (CLA) as IT support and then he was hired as a contractor for Leapfrog Business Solutions. He originally started working in Albany at a company called Grace Removals as a software developer where he met and formed many friendships with other professionals including Ramin Majidi, who was the lead software developer for this project at the time. As he is currently working with a large disabilities service provider in Albany, he also mentioned a highlight of his role is the interactions he gets with his clients on the day-to-day who have high-functioning disabilities, so there is a real diversity in the environment and people David interacts with.

Where does the IT professional spend most of their time?

For the past 9 months David has been spending most of his time, 3 days a week, at the Community Living Association (CLA), a large disabilities support provider in Albany, as their sole IT support as they are one of their important clients and unfortunately lost their own IT department. The company has about 130 staff, 30 in office and the rest in face-to-face support working roles. The work requires him to do a lot of hands-on tasks including mobile device management (MDM) with Microsoft MDM components, including the Microsoft 365 suite, deploying android tablets for the support workers to run their proprietary software called Flow Logic, a NDIS (National Disability Insurance Scheme) compliant software made by an East coast data company called Data Nova.

What aspect of their position is the most challenging?

It was mentioned that one of the harders tasks is keeping abreast of current technologies or the current trends within IT as the same time as making a living in order to help the businesses clients with the best possible current solutions that have future support and standing, which is why is has been encouraging and slowly moving the companies' clients that use their servers to the cloud. David also has taken a TAFE student on board recently and states that he was given some great new ideas and taught about things in the technology sphere he wasn't even aware of, so it been beneficial to have a new set of eyes. He also noted demand is another thing that caused some difficulties as they are quite a small company (5 employees) and offer a broad range of services, so they do not advertise or promote their services publicly and rely on word of mouth to steadily continue their work to suit their staff arrangements and not flounder themselves which was why they hired Aaron as a casual contractor but would like to fully employ him as the demand is increasing for work and opportunities.

Interview Links

Attendance
https://rmiteduau.sharepoint.com/:x:/s/Team390/EcJSBQu_eWZPjuxa9FZecw8BEpbs1d8f9MO8A_wnC1zNMA?e=lXGSzZ

Video Recording:
https://rmiteduau.sharepoint.com/:v:/s/Team390/EUF0CfmJzIRCrhjfdyE_5qcBO6XweJm8s4Uph1a48hkSPg?e=HR6LAT

RAW Transcript – .docx & .vtt
https://rmiteduau.sharepoint.com/:w:/s/Team390/EUyZcrkFRoFLv_dWEH0RdGcBNW45fp10usKgNbwvlgkagQ?e=lhbtay

https://rmiteduau.sharepoint.com/:u:/s/Team390/Ee4CRDflbU5MrkvwZ_Lg-2cBS29uSLlYlg22C83Eh_FY0A?e=JRGmTa

IT Technologies:

Blockchain and Cryptocurrencies:

What does it do?

At its core blockchain is a distributed, immutable, and decentralized way to store and manage data (Rosencrance, 2021). Blockchain refers to a collection of data stored in a peer-to-peer network as a list, with each collection of data (or a block) linked together so that the list can only be added and previous blocks on the chain cannot be altered. Blockchain does not refer to single entity or one mega chain but only the technology or system used to create lists of collection of data (Hayes, 2022). Blockchain can be thought of as a public ledger where users who hold blocks can buy, sell, or simply show the information stored in the block by adding to the ledger (IBM, 2022) (Likens, 2017).

Keeping an accurate record of the Blockchain is achieved in two ways, firstly when a new block is added to the chain it holds a number generated based on the previous block (3Blue1Brown, 2022). If a user did try and edit a block the number generated on the next block will no longer be valid, to successfully fool the system, the user would need enough computing power to regenerate a new number and edit every single block in the chain following the block edited. This system comes from cryptography and is called SHA256 which is a hash function where if one part is edited the number associated with the block changes completed (Scott, 2013), SHA256 refers to 256 bytes of data. The hash function also increases the amount of work need to produce a block.

Now let's say this user did edit every following block how a user would tell that this is the falsified ledger or any blockchains with any conflicting record. Blockchains use a system called proof of work (PoW) where the accurate or correct blockchain is the one that is longest or the one with the most work is the accurate blockchain. This is where the use of a hash function is important, because the hash functions requires a computer simple guess the combination of SHA256 need to satisfy the has function it greatly increases the amount of computer power need to falsify the blockchain (3Blue1Brown, 2017).

This method works because the combined computing power of the users updating the blockchain is far more than anyone person or group could feasibly maintain for long enough for it to actually fool anyone (Frankenfield, 2022; 3Blue1Brown, 2022). Though if you had a blockchain with only a few users the cost of falsifying the blockchain is much less (Frankenfield, 2022).

Users are verified using a system of private and public keys (3Blue1Brown, 2022; CONSENSYS, 2022), user who created the digital identity knows the private key while the public key, which is linked to

the private key, is used to sign when the user adds to the blockchain. This signature depends on both the message and the private key which produces a different signature every time. The public key is only used to verify that the private key associated with the public key produced the signature (CONSENSYS, 2022). A hash function is used to combine the message and the private key to produce a random combination of 256 bytes of data (1's and 0's) this is called SHA256. Therefore, if a part of the signature or message is edited the SHA256 would be a completed different combination of 256 bytes requiring the computer to simply run through every possible combination of 256 bytes until they reach the number which satisfies the hash function (3Blue1Brown, 2017) (Scott, 2013).

What blockchain does is provide a decentralized system to track and transfer information.

What is the likely impact?

Blockchain has a broad range of applications and has the potential to impact a large range of industries. One area we have already see blockchain make an impact is cryptocurrency, blockchain is the technology behind cryptocurrencies, the blocks are able to be leveraged as currency and adding to the chain is used to transfer the currency between people. This application allows people to trade currency without the involvement of governments or banks. Meaning people using cryptocurrencies can avoid tariffs, bans or regulations imposed by government or banks. Because of this cryptocurrency lend themselves to use by anyone hoping to avoid their governments attention or who think a bank may freeze their assets, think of activist groups, protesters, rebels, dissidents, far-right extremist, and criminals (Nelson, 2022). Governments will of course be looking for ways to track and analysis cryptocurrencies.) (IBM , 2022)

Blockchain has the potential to securely store medical records. With the increasing digitalization of medical records, the health-care industry is facing a great challenge trying to store medical records securely while still having access to it. At times doctors need immediate access to medical records especially in case of life-threatening emergencies (Neimerg, 2021).

Because blockchain is fundamentally a giant ledger, when adding a block these blocks could easily be used to hold medical information. The same technology used to ensure the security of blockchain would ensure the security of the medical records, meaning immutable (which medical records need to be) and doctors would all be able to see the same information once they have access. (Likens, 2017) (Neimerg, 2021)

Briefly let's discuss the use of blockchain to provide proof to consumers that their food is being safely handled and transported. By tracking the produce through its journey from farm to customer publicly companies can provide real evidence to back up their claims (IBM, 2022).

How will this affect you?

Firstly, Secure medical records are one of the applications of blockchain that most interests me and I know would have great impact on my friends and family that work in healthcare and me as a patient.

If patients trusted that their health information was kept secure and couldn't be hacked (Jercich, 2021) or accessed by an unauthorized person patients could confidently share sensitive information with their healthcare providers. Healthcare workers wouldn't have access limited by medical records not being transferred between doctor's surgeries (it can cost a $100 per person to transfer records between surgeries), files lost between hospitals, losing data to buggy or outdate electronic health records (Neimerg, 2021).

Secondly, I think that blockchain if applied to managing the massive amount of data and large networks used for the internet of things (IoT) (Rosencrance, 2021) would help me and other users feel more secure in using home devices that are connected to the IoT because the data would be stored securely and is harder to hack (Rosencrance, 2021). One of the reason I attempt to avoid IoT devices is because I don't know where or how the data collected is being used, blockchain could provide the solution as potential the owner of the device could access the data their own device produces and have control over who access it or even just that the company that builds the devices is more likely to be able to keep the data secure (Office of the Victorian Information Commissioner, 2022).

If this technology became widely used it would impact my daily life. The ability to identify how and where food is produced and to know that the information you are seeing is actual accurate is something I would use when choosing which foods to purchase particularly things like meat and seafood where unsafe handling means a higher risk of illness.

Machine Learning:

What does it do?

Machine learning is a rapidly developing technological field that builds its structure on human deduction skills to produce a branch of artificial intelligence capable of making predictions with the highest degree of accuracy, using patterns and historical data provided to it. This technology has been developed and used in a variety of fields, including manufacturing, natural language processing, medical science, graphing and timelines, games, social media, and more. Google, one of the top manufacturers of cutting-edge technologies, has recently introduced a few tools for public testing this year that implement the newest of machine learning algorithms, including the LaMDA 2 and The AI Test Kitchen.

In order to give the Google Assistant more natural conversation techniques using generative language models, Google release its Language Model for Dialog Applications (LaMDA) in 2021 (Collins & Ghahramani, 2021). This algorithm has since been enhanced with the release of LaMDA 2 at the 2022 Google I/O conference (Cnet Highlights, 2022). Before the technology is ready for the Google Assistant as envisioned, they have developed the AI Test Kitchen, an application that will introduce the new functionalities of LaMDA 2 and will collect user feedback about their experiences to debug and finalize the model. It is divided into three demos:

- **Image It**: a model that asks users to input an idea as a conversation topic and the model will respond with "imaginative and relevant descriptions",
- **List It:** a model which allows users to input a topic and the model will break this down into related subtasks to make multitasking easier and prompt the user with subtopics they may not have thought of.

- **Think About It:** an open-ended chat the user can interact with to test if the model will stay on-topic (the topic is currently dogs).

Google announced in the conference it is also releasing multiple other developments in machine learning to enhance its user's experience in other applications. Included in this is:

- **the Pathways Language Model (PaLM):** Googles most recent model for processing language, which was trained using 540 billion parameters. It was created to develop an artificial intelligence system that could manage millions of different activities in addition to difficult learning and reasoning tasks, and it is seen as a peak in the future of all language models.
- **Multisearch on Lens:** The ability to search with images and text at the same time, for better refining and customization to tailor to a user's online shopping experiences.
- **Immersive view in Maps:** A computer generated system of images combining satellite street view images to create an in-person experience of destinations with depth.
- **Zero-Shot Machine Translation:** Introduced support for 24 new languages in Google Translate using their 'Zero-Shot Machine Translation' model which is a combination of NPL and ML to have the capabilities to translate text into another language without ever seeing an example, although it is still under improvement.

The future endeavours of machine learning are vast, but a few developments seem feasible within the next few years including a surge in Quantum Computing and Automated Machine Learning (AutoML). Integrating Machine Learning into Quantum computing offers huge advancements to the analysis of data with a theoretical increase in data processing capabilities utilizing its quibits and superior processing power. This technology does already exist but there is no commercially available model and much of it is still all theoretical, requiring further funding and development. Automated Machine Learning is the other future development that looks promising which involves creating automated systems for time-consuming, repetitive tasks within machine learning model development. This means that former tasks that initially required human maintenance and knowledge of machine learning can be fully automated to allow non-experts to utilize machine learning models and technologies within their businesses and produce faster solutions. (Google, 2022) (Barik, 2022)

What is the likely impact?

The idea that any modern organisation would benefit from the usage of machine learning is simply prompted by the fact that it can work around-the-clock, quickly summarise vast volumes of data, improves over time as it continues to work, and is incredibly versatile within any industry. The current benefits and machine learning adoption within businesses is already being analysed across Australia including The DiUS National Pulse Report of 2021 (DIUS, 2021), which outlines key trends of machine learning clearly increasing in appeal among businesses, with 21% at the time using ML already in production processes and 82% of organizations interested in its usage within their business, combined with 86% of the data sample seeing ML as a key technology for the future.

This capability is daunting for some as it can seamlessly replace human-orientated tasks that are repetitive, time-consuming, dangerous, or prone to human error. A specific study (Farrel &

Giannoutsos, 2022) that examined the benefit of using machine learning technologies over human labour was that by Christopher-John L. Farrell and John Gianoutsos which explored machine learning models that identified wrong blood in tube (WBIT) errors that affected a laboratories complete blood count (CBC) results and found that the machine learning models exceeded the accuracy of manual review identification. Now, this is an extremely specific case applied to a small field, but it demonstrates how Machine learning can be applied to remove the human element for a more proficient performance to benefit humankind, thus provoking the thought will this also eventually remove humans from the work processes altogether or just workforce positions dangerous or boring for humans? Another concern with ML is how it may eventually make a decision that may impact the public when it will be used for more prominent technologies or global studies such as how to combat global warming or a pandemic. (NASDAQ, 2022)

How will this affect you?

Machine Learning is already integrated into most elements involved in my everyday life, including in my smart home (IoT), digital media and streaming services, banking, health care, transportation, and more. As backend machine learning modules use my cache history across platforms to personally tailor my experience, I constantly notice that the topics in my social media feeds are becoming increasingly specific about things I am interested in or may have searched recently, and this has been of benefit to me by sometimes offering suggestions or observations that help me to enjoy the experience more or find the things I want. I anticipate that the tools I use will continue to capture my personal preferences to the point where any online activity I engage in will be observed and used as input for an algorithm. It's always featured in Sci-Fi movies that robots will know everything we do and plot to terminate the human race, but we have already arrived at this stage of 'privacy invasion' using ML and I feel as a society eventually we will adapt to function similar to open source with all our data open to anyone to view.

Machine learning in health care is another critically important addition to help myself, friends and family, and society through the struggles of serious disease detection and early diagnosis with efficiency and precision. My sister recently went through a series of tests and surgeries following an early diagnosis of stage 3 cervical cancer. Without the technologies implemented to help detect the tumours she had; we would be looking at the prospect of a terminal condition. Machine learning is advancing the detection of such tumours using combined methods of image processing and abnormality detection. A recent report about predictions of cervical cancer identification by photonic method combined with machine learning is just one such example to further advance our diagnostic detection methods using ML to save human life. (Kruczkowski, et al., 2022)

Natural Language Processing and Chatterbots:

What does it do?

Natural Language Processing (NPL) and Chatterbots are a blend of machine learning, deep learning and computational linguistics models that focus primarily on simulating and comprehending human written and spoken words, with the goal of humans being able to interact with computers such as they would with each other. Examples of this that exist in current processes today include applications that translate text between languages, devices that can respond to spoken commands (Amazon Alexa, Siri, Google Assistant), and those that can quickly summarise large quantities of text input such as online paraphrasing tools (Quillbot, Grammarly). The use of NPL varies among its user base as the general public are more used to voice-activated convenience devices like GPS or home

assistants, but in business and enterprise operations NPL technologies are implemented to make processes operate smoother, boost productivity among the workforce, and provide a seamless procession of high priority business procedures. (IBM, 2022)

In many modern everyday applications and devices, machine intelligence is the main powerhouse behind these devices that makes them so attractive and convenient, which is ultimately powered by natural language processing and chatterbots. A few examples are as follows:

- **Email Phishing Detection:** Current email spam detection tools analyse the written text with NPL to detect trends that frequently occur in spam or phishing. This can include identifying significant poor grammar or spelling, intimidating or threatening language, or the overuse of financial vocabulary
- **Text summarization tools:** This application breaks down long and lengthy amounts of text into smaller relevant conclusions and summaries which simplifies the process to read and comprehend large documentations such as research articles or reports.
- **Multilingual neural machine translation services:** Google Translate the predominant service implemented for decreasing the language barrier between individuals across the globe. What makes it so effective is that more than just swapping out words from one language to another, it has evolved to capture the context of the source language, so translations come across accurately in both tone and meaning.
- **Social Media analysis:** A critical tool in use with NPL technologies and businesses is the ability to analyse language within reviews, comments, postings on social media and extracts the emotion and attitude of customers towards their products, promotions, and upcoming events.
- **Virtual agents/assistants:** Virtual assistants like Apple's Siri and Amazon's Alexa identify patterns in voice commands using speech recognition, and then answer with the necessary action or helpful comments. This applies to chatbots as well, but with text-based input instead of voice.

IBM is one of the leading pioneers in NPL technologies, providing many tools focused towards businesses with the goal of streamlining the automation process of complex procedures, while also acquiring critical observations of business operations. These include (IBM, 2022):

- **IBM Watson Discovery** – An intelligent (AI-powered) search tool that utilizes text analysis to find business knowledge buried within vast amounts of enterprise data and dismantles information silo's as they cause more harm than good within an organization.
- **IBM Watson Natural Language Understanding (NLU)** – The module is used to glean meaning and metadata from unstructured text input by utilizing text analytics to uncover the underlying information within a business's data, including categories, classification, entities, keywords, sentiment, emotion, relations, and syntax.
- **IBM Watson Assistant** - Enterprise-level software developers can integrate an artificial intelligence (AI) virtual assistant (VA) into the programme they are creating and brand the assistant as their own using IBM Watson Assistant, a white label cloud service.
- **IBM Watson Annotator for Clinical Data –** This tool extracts key clinical concepts, such as conditions, medications, allergies, and procedures, from important clinical notes taken

including discharge summaries, literature, clinical trial protocols and more to provide more meaningful data relevant for further insights into patients and the clinical business.

What is the likely impact?

Most areas mentioned above are going to improve as the technology advances over time including improved speech interpretation leading to more accurate responses , 'smart' devices will be able to execute their tasks to a higher degree, more conversational and understanding chatterbots will be able to handle 24/7 customer service and support with better suggestions and mostly handing customer requests on their own.

As the Coronavirus pandemic highlighted a critical need for social interaction for health and wellbeing, there was a boom in the chatterbot industry with many sectors taking advantage of the need for social stimulation such as simulated customer support (Badiyani, 2021), including prominent organisations such as the World Health Organisation deploying a Covid information chatbot (WHO, 2020) and the development of a niche market of companionship applications such as Replika (Replika, 2022) that targeted this need for substitution of human interaction for artificial interaction, with the creation of idealised personalities in companion apps and devices. Chatterbots can also make inroads into the mental health community, acting as emotional support devices. Medical professionals can make more accurate diagnoses or substitute diagnoses in lieu of a face-to-face appointment (Wolters Kluwer, 2020), as well as having programs that act as healthcare assistants that acquire information and prioritise illnesses (Poh, 2020).

Within businesses NPL also offers the prospect to help professionals make better informed judgments when making client effecting decisions based upon social media analysis tools when implementing new products or procedures, or using text summarization tools to accurately analyse a patient's data from doctor reports and test results within a quicker period of time. The myth that this technology will evolve to replace humans is untrue, but NPL technologies will definitely compel businesses to alter the way they conduct themselves to reach a more productive and greater quality environment.

How will this affect you?

On a personal level I will remain unaffected by these changes as I do not actively use smart devices or technologies that take advantage of Natural Language Processing. I may gain some utility out of 24-hour customer support in my future prospects as I am inevitably a consumer at the whim of cooperation products and processes within the modern world, such as navigating difficult to understand instructions from purchased products or software from companies after typical office hours. The advancements in smart devices may well be the jump-off point for some of my friends into buying smart home devices as the ease of access and accessibility aspects they offer to daily tasks at the mere asking of a question could definitely improve the average humans daily experience and overall happiness.

Furthermore I definitely see a benefit to these technologies benefitting the elderly and disabilities communities as a personal assistant could regularly remind elderly citizens of tasks and appointments they must attend, plus potentially adding in a companion into their lives where it may be difficult to seek out physically. For the disability community I am aware it is benefitting many people with technologies such as TalkItt, as application that can speak for users with speech impairments by speaking sentences for the user based upon their vocal cues that they train the model to recognise. This is just one of many AAC (augmentative and alternative communication) applications powered by NPL that's advancing ease of access and communication for those with disabilities to be able to talk and communicate with others, boosting their independence and

happiness. NPL will integrate more with my life as I navigate into the future, and I am excited to see it's potential to help myself and those around me.

Cloud, services, servers:

What does it do?

What are cloud services & servers? Cloud services is a broad term that refers to a wide range of services available on demand to companies and customers over the internet. The services can provide access to computing, storage, and other applications and resources without the need for on-premises infrastructure or hardware (uniserveit, 2021). They're designed to provide easy access and potentially cost-effective alternatives to physical servers.
Cloud services are usually offered and sometimes managed by cloud computing vendors and service providers. They're made available to customers from a pool of cloud servers available (virtual servers) from the provider's datacenters so there's no need for a company to host applications on its own on-premises servers (Google Cloud, 2022). What is a cloud server? A cloud server is a virtual server (rather than a physical server) usually hosted in a datacenter by a cloud provided and delivered over a network (typically the internet) and can be accessed on demand by multiple users. Cloud servers have all the same capabilities as a physical server delivering processing, storage, and application solutions.
There are 3 core types of cloud services

Infrastructure as a Service (IaaS) provides customers with virtualized resources of servers, operating systems, storage capacity and networking resources (Perry, 2020). Such providers include Cherry servers which focus on server infrastructure, Microsoft Azure which focus on providing business with IT solutions, and google cloud infrastructure which prioritise speed and security many others in the market. IaaS only provides the hardware, network, servers, and a virtual machine for the customer to run (Bernazzani, 2022). Customer is still responsible for what operating system they want to use, the middleware, how they manage runtime, managing data, and building the application. While this means more work for the company or customer it allows for much greater control (IBM Cloud Education, 2021).

Platform as a Service (PaaS) provides customers with everything that IaaS offers in addition to managing the operating system, middleware, and runtime. Leaving the customer free to focus on managing the data and applications (IBM Technology, 2019). PaaS is usually used by a developer looking to quickly build an application or website without needing to work the infrastructure, operating system, middleware, and runtime. It allows developers to quickly create and delete applications, and scale based on demand (Bernazzani, 2022). Generally, when using PaaS it's hard to migrate an application to a different vendor so once an application is built on PaaS it is hard to move it off the cloud or to a new vendor (IBM Technology, 2019).

SaaS the third-party company now is responsibility for everything; with customer simply making an account and using their product (IBM Cloud Education, 2021). SaaS means the infrastructure, platform, and software are all provide to the customer by the company (Bernazzani, 2022). This is the most known and used type of cloud service. It is a broad grouping that encompasses a variety of services such as productivity suite (Office 365), file storage and backup (One drive), web emails (Gmail), CRM(Salesforces), and project management tools (Trello). When using this type of cloud service it means that the company is responsible for all parts of storing the data, they are in control of data security and how the data is managed (Raza, 2019).

What is the likely impact?

Cloud Technology greatly impacts Australian businesses in today Modern always on the move interconnected world; Cloud services are utilized from Sole trader to the largest of corporation across all industries. It was estimated that 42% of businesses are paying for cloud services contrast to just 31% in 2015-16. In the 5 years leading up to 2019 it estimated that Australian businesses have spent $9.4 Billion. (Deloitte, 2019). What are driving Australian businesses to move their systems and services to the cloud? Deloitte conducted research and found the following

- 34% of business listed improving customer service as a driver
- 38% of Australian business adopted cloud services to try to keep up with their competition
- In contrast 34% of Australian business actively sorted cloud technology to be innovative

It is estimated that 78% of staff in businesses who have adopted cloud service have reported improvements in productivity. Since cloud adoption business have reported an increase in 48% of IT staff and non-IT staff. (Deliotte , 2019)

It's not just Australian business that adopting and spending on cloud technologies. Businesses the world over, are spending more than ever on cloud services. It is estimated that 494.7 billion (USD) will be spent on public cloud services in 2022, it also projected spending will reach $600 billion (USD) in 2023. The fastest growing public cloud services in 2022 are IaaS (Infrastructure-as-a-service) at a growth of 30.6%, DaaS(Desktop-as-a-service) at 26.6% and PaaS(Platform-as-a-service) at 26.6%. This is due to the new reality of a post pandemic world where businesses are adopting hybrid work environments, prompting to adopt flexible and mobile cloud technologies like DaaS opposed to traditional technologies like physical desktops and other on-premises hardware (Gartner, 2022)

Cloud technologies are not just impacting businesses but consumers as-well. Cloud gaming a relatively new cloud service reached a market value globally of $865.8 million in 2021. It estimated by some that market value will increase 48.3 between 2022-2027 to each an estimated $9.4 Billion (USD) by 2027. (IMARC Group, 2022)

How will this affect you?

Cloud technologies affect me both professionally and personally. I utilize cloud technologies every day of my life already and my reliance on them will only increase. I am utilizing it right now to write this essay, using Spotify to stream music to my computer as I write to help me focus, to utilizing Word which is automatically saving my document as I type this, keeping it save.

Professionally, the company I work for in the past few has gone through a digital technology transformation and continues to do so. I played an integral part in rolling out 365 across the entire business in 2020. We migrated our mail server to it (exchange online), Our file servers (sharepoint/one drive) and even our management of authenticating users and managing devices (Azure Active directory and Intune). Since the adoption of Microsoft 365 alone, Cloud technologies have become the lifeblood of the company as our company relies heavily on our email system.

The emergence and adoption of cloud technologies in today's world just isn't affecting me, it is affecting those in my life who are far from tech savvy, and one might even say technophobes. In the past few years, I've painstakingly introduced my mother, her husband and even my grandfather to adopting cloud technology. I've got all my family using services like Netflix and Amazon over bloated, costly inefficient traditional paid TV like Foxtel. I haven't just helped them personally but their business as-well. I help them implement QuickBooks a cloud accounting software and Microsoft 365

through using exchange online for emails, office 365 for their productivity, they now also use the cloud every single day.

In summary cloud technology affects every facet of the lives of those around me, from the way we do groceries, to the way we interact with our friends & family, to how we produce work or collaborate with co-workers, to how our businesses interact with one and other and operate their day-to-day operations. This is only going to continue to change further as cloud technology evolves.

Project Ideas:

Overview

Name of idea:

Bang for buck (working title)

What is it?

A price comparison community & Site

What is a Price comparison Site?

A price comparison site, sometimes called “price analysis tool, comparison shopping agent, shop Bot, aggregator, comparison shopping agent” provides a central location for consumers to filter and compare products based on price, features, reviews, and other criteria (Wikipedia, n.d.). Enabling consumers to compare products across different stores and brands. It is estimated that more than 10 million adults used price comparison websites before playing an order online. (Israr, 2021) Price comparison sites and tools can also be used to help retailers to observe the competition and offer the best price to budget-conscious consumers. (Israr, 2021)

How do price comparison sites work?

Price Comparison sites use various technologies to compile data on potentially 1000’s of products from dozen or even 100’s retailers. The most common 3 are

- Collecting data from Merchants – Retailers who then want to use the website, supply their own list of products and prices which is matched against the merchant database utilizing a mixture of information extraction, fuzzy logic, and human labour. (Wikipedia, n.d.)
- Data feeds – Price comparison site partner Merchant and/or retailers to retrieve a data feed file, a format is set and agreed upon and then imported into their website or they can provide their own API to the comparison site to add their product and pricing data direct to the site. (Wikipedia, n.d.)
- Data scrapping/Crawling – This method has price comparison site utilize technology to scan retailer web pages to retrieve pricing and product information. (Wikipedia, n.d.)
- Crowdsourcing – This allows price comparison sites to collect from any source such as visitors and those in their forum community, site usually use this method and come bine data with relative inputs and add it to their main database through collaborating filtering, artificial intelligence, or human labour. (Wikipedia, n.d.)

Motivation:

With inflation rising. (Hutchens, 2022)Now more than ever Australian consumers need a convenient way to make better purchasing decisions to ultimately save money. At Bang for buck we believe There is a demand in the Australian market for consumers to be able to reliable secure good quality products at bang for buck prices and we believe we can help that. Take a site called Oz bargain for example. An Australian forum/community dedicated to finding and sharing bargains/coupons/sales on all kind of products and services. It gets over a million Visitors A month (Ozbargain, 2022). It goes beyond just Australian consumer too; in the US it is believed that Price comparison websites take more than $800 million in commission each year. (Israr, 2021).

The initial inspiration for Bang for buck is because these days we at team TBD, do what we can to try and save money while also ensuring what we purchase is at-least half decent quality. As a result, we as consumers have spent hours researching a product before purchasing or hours finding the best price for it. Only to at the end of the effort we found ourselves asking was the time spent worth the

money saved? Or worth the product I got over the product I would have just picked if we didn't? As consumer we in the past have tried the other comparison sites and found them wanting lacking in either reliability, functionality, or both, some were clearly just marketing channel designer for retailers and not the Australian consumer. It is a controversial market in some filled with misleading, fake, or straight up fraudulent sites designed to take advantage of Australian consumers and not help them. (Australian Competition & Consumer Commission, 2014).Due to that, we at Team TBD were inspired to try and create Bang for buck. Our goals?

- A reputable and transparent platform that Australian consumers can trust
- A platform that only lists products from reputable retailers that constantly reviews the products within database to avoid fake or poor-quality products.
- A price comparison Site that had user centric features that help the consumer not just the retailer market their product.
- An App that allows consumers to find good deals even when on the move and in store.
- To give back to budget-conscious consumer community and all Australia consumers and help drive change to the Australia retail market

Description:

So, what is Bang for Buck?

It is a price comparison Community & site for the Australian market. Initially it will target the electronic product market, primarily focusing laptops, phones, and tablets. Our goal will be engaging with University Students and other budget conscious tech savvy consumers to create a price savvy community and deliver to accurate, cost-effective pricing and product data on a range of electronic enabling them to get the best products for the best price (Bang for buck). This will be achieved by focusing on useful features such as price history, robust review system that will utilize multiple review sources, intuitive and in-depth Product search, and Categorization feature to allow users to identify the best or alternative products and later down the track leveraging mobile apps to allow consumer to search for product utilizing OCR and QR/Barcode technology to they can compare on the move(for a full list of feature please see our similar sites/planned feature section) Once we have refined our functions and features with comprehensive feedback but from community, we'd expand bang for buck to all Australian retail markets.

How will Bang for buck work?

Bang for buck will utilized a combination of 3 methods to deliver our user and community accurate and detailed pricing and product data utilizing the below free method

- Data feed - Partnering with retailer we retrieve data via Data feed files & API
- Crawling – Using Data scrapping bots and platform to pull data directly from the website
- Crowdsourcing – we engage our community to report changes on prices or sales for review to assist our crawling

Why should we care about Bang for buck?

Well for starters as the little guy and as budget conscious consumers ourselves we have vested interest in creating a user centric price comparison experience, driven by the community, for the community by focusing on delivering feature, function, and value to the consumer rather than the

retailer. While we hope to create a profitable business model, the goal will be to source that profit from the community and put it back into the community by expanding the site to provide even more value. This is not a get rich site, this is something to give to the community and hopefully drive change that will benefit everyone involved.

Similar Sites & Planned Features

Summary:

There are already plenty of price comparison sites and tools already available some even for the Australian market. (Ozbargain, 2022). (Hayes, 2022) A couple of which are either operated or backed by huge corporation with plenty of money such as Google shopping owned by google and little bird who is backed by the CBA (Statista, 2022) (Weber, 2021). Why would team TBD endeavour to build a price comparison site? How does Bang for buck planned to be innovative? Different? Dare we say better?

We're doing this because we truly believe none of them do it well. Many sites lack what we would consider valuable functionality, like price history, list of actual price comparisons (many just list a singular price and expect the user to trust it's the lowest). There are plenty out there that are not reputable or reliable, or even, misleading or straight up fake & fraudulent existing to deliver no real value to the consumer and even taking advantage of them (Wikipedia, n.d.) (Australian Competition & Consumer Commission, 2014). Many seem to be entirely focused on their retail partners. where we will be focused on creating value for our community.

We believe we have identified 4 similar sites that would be potential competitors to Bang for buck offering if/when we are to go to market. These are

1. Google Shopping (https://shopping.google.com.au)
2. Get price Australian (https://www.getprice.com.au)
3. Little Birdie (https://littlebirdie.com.au)
4. Price Me (https://priceme.com.au)

The criteria for which we chose them 4 above site as our similar sites/competitors is as follow

- Must have X amount of similar features/functionality to Bang for buck
- Must offer pricing and product data on electronics
- Must get over 5000 visitors a month
- Primary features and functions must be available as website
- Must offer a variety pricing/product data from various retailers not just 1 or 2.

Planned Features/Comparison Table:

This table not only lists the planned features and functions of Bang for buck but compares to those similar sites/competitors mentioned. We believe this effectively highlights as-well as how plan to be different.

Legend

Key	Description
y	Has feature/function

p Partial, has similar but not the same

n does not have feature

Planned Features and Comparison Table						
Feature	**Description**	**Bang for buck**	**Google Shopping**	**Little Birdie**	**Get Price**	**Price Me**
User Portal	A portal for users to participate in forums, rate & review products, keep track of price alerts etc.)	y	n	y	n	y
Price Comparison list	Allow users to see list of prices from different vendors with Sort function that defaults to cheapest first	y	y	y	y	y
Price history	Show the price history of the product	y	n#	y	n	y
Product Availability	Allow users to see online or local stock using device location	y	p	y	n	p
Price Alert	Set Price alerts on products so that it notifies users when price changes	y	n#	y	n	y
Product Categorisation	Sort product in categorifies and sub categories allowing users not to just find specific product but search for range of product tied in with similar products & search function)	y	p	y	y	y
Product search function	Enable users to not just search for specific products but product types and categorises, as-well for some product range utilizing a range of criteria or even being able to	y	y	y	y	y

	search by brand or store. Available on both the website and app					
Ratings and Review	A robust rating and review system that will allow for users to review and rate products, it will feature reviews from the Bang for buck team for certain products, as-well as offer reviews source from reputable third-party rating and review site and give an over-all rating analysing the 3 as-well	y	p	p	p	p
Store Directory	List all stores that either partner with or scrap data in an easy to view page for users to know. This page would also be interactive allowing the users to search for produced based on the store selected	y	n	n	n	n
Forum(Website only)	A forum to allow the community to engage with one and other and with the site	y	n	p	n	n
A shopping list	Ability for users to select multiple products from multiple categories and it populate the list with product from the category based on defined (cheapest available stock, closest, best rated etc)	y	n	n	n	n
Also an APP	Available on IOS and android	y	n	n	n	n#

Barcode/QR search function(App only)	Allow users to scan a product QR/Barcode and match it against the sites Database)	y	n	n	n	n
OCR Search Funciont(App only)	Using an OCR live translation via device camera to identify a product name and match it against the site product Database)	y	n	n	n	n
Customize User/Home Feed and Similar product	Allow users to customise their home feed to identify product or product categories of interest to them allowing the site to than highlight and suggest similar products they may be interested in	y	n	y	n	n

feature is not available in Australia

How will Bang for buck come to be?

There are a lot of planned features and functionality for Bang for buck, we're also resource light in terms of budget and team resources. As a result, we're loosely using a lean methodology and have split the product development into 5 phases. (Meshchankina, 2022) With the aim to initially provide an MVP targeted at university student and Budget conscious techy savvy individual with the current cheapest price on an electronic product that also shows the price history of the product and the convenience of being able to send stock availability even online or close by. Before eventually expanding outside of the electronic market across all Australian Retailer markets trying to encourage all Australian consumer to utilize our platform. Those 5 phases are.

Phase 1: Planning & Testing & Prototype

Overview

Arguably the most important phase. This is where will be plan, prototype, and test our project idea. Bang for buck. At a whole level before moving onto the MVP to see if there is a desire for Bang for buck and it features, we will need to ensure we can build this. At a high level in this phase, we're going to need to develop a project plan, test our ability to scrap web data so we can provide data to our user's base and begin implementing the infrastructure and services we'll need to develop and deploy this bang for buck. Such as the AWS servers.

Implemented Features & Functionality:

- Price Comparison list
- Product Categorization
- Product search function

Outcome/Deliverables:

- WireFrame
- Mockup of APP UX
- Site map
- Product roadmap
- Landing page
- Various cloud service implementation
- Landing page to advertise and register interest
- Domain Name
- Github Repoistory for Web application
- Initial infrastructure and cloud services (AWS RDS, Amplify tool chain, Amplify hosting)

Budgets:

This phase has no known costs besides potential cost for the domain name which is about $20

Phase 2: MVP (Minimum viable product)

Overview:

Initially we are limiting ourselves to a subset of the Australian Retailer market and targeting a small subset of consumer. We believe this will be important to our product development as we think it the best way to achieve a robust and reliable price comparison tool by testing our extensive features and functions with a user base who can provide invaluable insight to what work, and what won't work. We believe we can achieve by targeting a such a niche market. Allowing us to get all our function and feature right before opening to the average consumer. During this phase we be heavily liaising and interacting with all of user base to get feedback on both our existing features we developed in in prototyping while implementing and receiving feedback on our next set of features, implementing our forum will be invaluable in helping us facilitate this. (Meshchankina, 2022)

Implemented Features & Functionality:

- Price history
- Price Alert
- Forums (Website only)
- Store Directory

Known Deliverables:

- Implementation of above feature
- Web Application and go live of front end for customers to sign up and begin using and testing

Budget:

This phase may have costs in association with AWS service such as cloud front

Phase 3: MMP (Minimum Marketable Product)

Overview:

Based on the results and feedback of the MVP, we will do a full product release that delivers the minimum amount of functionality we believe needed to deliver value back to our users and business. This will be first stage of bang for buck being a "real product" while we're already have done market research, cost analysis and speculate on our business model. This is where we will begin focusing on working on partnership with consumers. (Meshchankina, 2022)

Features & Functionality:

- Product Availability
- Ratings & Review
- Customize User/Home Feed and Similar product

Known Deliverables:

- Implementation of above feature

Budget:

N/A

Phase 4: MMF (Minimum marketable feature)

Overview:

At this point hopefully been for bang for buck will have positively received and our user base expanding with at-least a couple of partners. This is where we will start implementing features that will really set us apart from our competition such as the shopping list and release of our application to their respective App stores. The goal is to release feature that enhance user loyalty and encourage our users to use the platform, as-well as help us begin generating some revenue. (Meshchankina, 2022)

Features & Functionality:

- App Release
- Shopping list
- Barcode/QR search function (App only)

Known Deliverables:

- Implementation of above features

Budget:

N/A

Phase 5: MLP (Minimum Lovable Product)

Overview:

If you're still reading this congratulation. At this stage We're just going to be honest with you this phase isn't going to get much attention. This project at-least for the purpose of this course (members of the team may work on out outside of university purposes) ended at the MVP except for MMF phase where we may pull components of that into the MVP (Mobile apps release). This section merely exists as a framework to the A3. This would be the stage where we really started to enter the market where we'd expand our retailers to across all Australian Retail market and implement feature that would truly make Bang for Buck innovative compared to their competitors. Probably also the hardest stage for us as university student so likely won't be done. (Meshchankina, 2022)

Features & Functionality:

- OCR Search Function (App only)

Known Deliverables:

- Implementation of above feature

Budget:

N/A

Tools and technology:

Below is a list of tools and technologies we'll likely used through the bang-for-buck project. This is non exhaustive list, there likely be lots of others. This just highlights what we believe to be the most heavily used or the primary tools and technologies

- A database server to store the huge amount of data our Web/Phone applications will process, likely stored via cloud providers AWS/Azure. Utilizing MySQL an open-source relational database management system. This will be used throughout the project. We likely used Amazon RDS for prototyping and RDP as it available in their free tier (Link to MYSQL wiki and Amazon RDS)
- Web/Application Front end hosting such as the AWS or Azure. We'd likely utilize AWS free tier and use Amplify hosting for the front end and deployment
- A PAAS or BAAS from cloud service like Amazon AWS or Microsoft Azure, such as AWS elastic Beanstalk or AWS Amplify CLI. We will utilize the Amplify toolchain from AWS to deploy prototype and potentially even MVP due to it easy integration with flutter. (Amazon, 2022)
- Web scrapping/Crawling bot. Designed to quickly scrap data off websites. We're going to investigate using scrapy, a data scraping framework library or similar, it is built in python. This will be used throughout the project but will begin in the prototyping stage. (Analytics Vidhya, 2017)
- Anaconda- is an open source-source python distribution platform, we'll be using this to program a web scrapping bot, likely using the scrapy library mentioned above. This will be used throughout the project but will begin in the prototyping stage we begin bringing our first chunk of product data by scraping from predefined list of electronic retailers. (Wikipedia, 2022)
- Text Editor for the code like Atom or notepad ++, visual studio code. This will also be used throughout our project an important tool for any website or app development. Each member with their own preference, however we may utilize Visual studio code due to its plugin for flutter. (Flutter, n.d.)
- Front end development, HTML, CSS, Javascript, DART platform. This will be used throughout the project- initially to develop a clean and concise landing page to promote the project as-well to register interest from perspective uses during the prototype phase as try to get a test user based for well testing. (GeeksforGeeks, 2022) (Wikipedia, n.d.)
- Back End. PHP, asp or asp.net, java, ruby on rails, python. We likely use several of these throughout the project. Python will be used in the developing of the web scrapy data. (Analytics Vidhya, 2017) (GeeksforGeeks, 2022)
- Git for development and version history control to enable our team to effectively build the applications together. This will be instrumental throughout the project for quickly developing, testing, deploying, and re-testing and deploying through the quick. GIT will be the heart of our project, as it connects to flutter, Team member local repositories and our services. Using github to push and pull changes to develop our project quickly.
- Communication and collaboration tools such as Microsoft Team will be integral throughout the project. This will be used through all phases of the projects. The team is already using it, utilizing it various feature beyond such as Lists, Wiki, planner/tasks using it in a Kanban style board. As the project goes the team will likely more heavily rely on it.
- Data feed files and API – These technologies will be used to manage our partnerships with various retailers, enabling to either extract data from their e-commerce platform to push into our database or to push data from their systems straight into our database. (Wikipedia, n.d.)
- CDN – Known as Content delivery network- It essentially cache our website content making it available through multiple exchange point enabling our users and partners to access our

content quickly from anywhere in Australia. CDN primary benefits are improving website load times, reducing bandwidth costs, increasing content availability and redundancy, and improving website security. This will be important for the project as our user and retailer pass grow. We'd likely used aws CloudFront for our CDN provider as a part of the amplify tool chain. They offer a free tier, perfect for us to trial learning during our prototyping phase. (Akami, 2022) (Amazon, n.d.)

- Flutter – Is an open-source framework by google. It is a UI software multi-platform development kit. Allowing you to quickly develop natively compiled applications from a single codebase across multiple platforms. We will use Flutter to help us develop our application across multiple application this will be heavily used throughout the project starting in the Prototyping phase to develop a clean and simply front end for our web application. (Thomas, 2019)
- Xcode – Is Apple IDE (integrated Development environment), it used develop IOS,IPADPS apps. This is required to provide the framework for us developing our App that will be available on IOS/Andriod (Flutter, n.d.) (Apple, n.d.)
- Andriod Studio is Andriod/Googles IDE (integrated development), it used to develop android apps, this will be required to provide the framework for us developing our app that will be available on IOS/APP). This will be utilized in our MMF and MLP project phases. (TechTarget, n.d.)

Skills

Below is a list of skills we'll likely require throughout he bang-for-buck project. This is non exhaustive list, there likely be lots of others. This just highlights what we believe to be the most relevant.

- Project management skills. Knowledge and experience with Lean, Agile, Kanban and other project methodologies would be invaluable through this project. Being our first product development project we'll likely haphazardly utilize and go through several project methodologies throughout the project even in this documentation we're borrowing from Lean processes. As-well as using a Kanban board to managing work for A2. This tied into our skills as we have member with basic project experience and skills who wishes to develop those as his ideal job to one day be a Senior Project Manager. (Meshchankina, 2022) (Agile Alliance, n.d.)
- Front End development. Knowledge and skills with HTML, CSS and JAVA will be invaluable through this project, from prototyping phase to the final phase. Such as the landing page in prototyping and testing. All of Team TBD have been exposed to these skills front end languages but this will be an opportunity to expand on them as they're a useful skill. (GeeksforGeeks, 2022)
- Back-end Development skills. Knowledge and skills with backend languages like python are going to be critical to this project especially into the prototyping and MVP phases, as we require the ability to develop our own web scrapping bot, to initially begin collecting Product data. We have two members on this team who wish to be software engineer, this will be good opportunity for them to utilize practice and hone some of their skills. We have one already has some skills and experience with backend languages having worked as an application support specialist. (GeeksforGeeks, 2022)
- Application Development skills IOS/Andriod. We will be utilizing Flutter to help us with this process, but it will require some knowledge and skills with Andriod studio and studio code, utilizing java and xswift languages. (Google, 2021) (DevMountain, 2022)
- Cloud Deployment and Implementation skills- During this project we will be heavily utilizes cloud service like the AWS environment due to their three tier, we will need skills to deploy,

maintain our web application and database. Several members we likely be undertaking the freely available AWS courses in relation to this, as simultaneously learn and utilize these skills throughout the Lifecyle of the project. (Amazon, 2017)

Outcome:

If this project was completed and successful, then we would have been successful in achieving the following

- A reputable and transparent platform that Australian consumers can trust
- A platform that only lists products from reputable retailers that constantly reviews the products within database to avoid fake or poor-quality products.
- A price comparison Site that had user centric features that help the consumer not just the retailer market their product.
- An App that allows consumers to find good deals even when on the move and in store.
- To give back to budget-conscious consumer community and all Australia consumers and help drive change to the Australia retail market

Which is our motivation for creating this project in the first place. Utilizing our project phases in particular our MVP, we believe we can truly work with our consumers to create a product that can trust and provide their relevant and using product and pricing data. Ideally one day Bang for buck would be picked up by 100's of thousand if not millions of Australian to make better and more informed purchasing decision which has the potential to how the current Australian retail market functions.

Group Reflection:

Bronagh Falloon:

What went well

I think the group communicated effectively because we had regular meetings and used them to update each other on our progress on the assignment, if we need help, and when we were going to work on the assignment. At the beginning we clearly assigned roles and tasks, which allowed us to work effectively as a team and prevent tasks from being forgotten. Because of regularly updates on our progress and schedules we were able to help each other when needed.

What could be improved

At one time I worked on the same part of the assignment as Scott, so we had doubled up the work. In this case it wasn't a problem because I had needed to rewrite what I had done so Scott's work was helpful.

At least one thing that was surprising

It surprised my how motivating it was to work in group, general I get all my work done at the last minute but knowing that other people were relying on me helped to get my work done in a timely fashion.

At least one thing that you have learned about groups

I learned that in groups you need to communicate what your working and how much you have done so that other members can appropriately plan their work load and help out when needed.

Malachi Cleland:

What went well

In spite of the occasional communication failure, I thought it was pretty good being able to quickly and easily call a meeting that we all - or those invited - found suitable, be it for an informal chat or an ad hoc meeting.

What could be improved

Daily updates. Both for myself personally and in future to incorporate into group teachings, the benefit of daily updates to see how everyone is going, even if it is just to say 'I haven't done anything' - no matter how hard it may be - to give all other teams members an accurate portrait of where a person is at.

At least one thing that was surprising

Not getting my work done. Once the initial terror resides I've no issues with group work and have participated in group projects for years, however this is my third online group assignment and it was distinctly uncomfortable to be a 'weak link'. It's one thing to let yourself down, but something else entirely letting other people down.

At least one thing that you have learned about groups

The importance of communication, in particular the effectiveness of instant communication. Having been through similar circumstances before I was unperturbed to respond via text while others used video and audio. However, once I attained the ability to communicate with parity, I experienced a new level of engagement with the team.

Meg Maroni:

What went well

The group had excellent communication and idea-sharing skills, and it offered a friendly environment where any member could voice their worries and request support. This, in my opinion, was due to the team members' wide range of backgrounds, skills, ages, and experiences, which contributed to the team's good atmosphere.

What could be improved

It would be beneficial to communicate current capability and completed components more accurately. At first, everyone was content with their parts and what was expected of them, but as communications broke down or were fabricated, the group ended up in a deficit because the task that the group was led to believe was in stages of completion, in reality was not even begun or left to the unknown and cased quite an amount of unjust stress on the rest of the team.

What was surprising

That it took some time before it felt like a "group" until it was truly needed, and that I felt the few individuals that blossomed together during a period of stress will work wonderfully in the future.

What I have learned about groups

Because every team member has different circumstances that could affect their performance at any time, it is vitally necessary to be ready for anything. It is crucial to be adaptable and able to provide assistance and support in those circumstances.

Patrick Reyes:

Patrick unfortunately has been missing and was unable to complete this section himself.

Scott Percival:

What went well:

Team member who contributed had excellent and open communication. We struggled at the start but found our stride towards the end with completing tasks and communicating progress.

What could be improved:

Increased communication that we found towards the end could have greatly improved the start. As-well as more heavily relying on and utilizing the Kanban style planner we had initially setup or a similar method for improving how our tasks, goals and deadlines are revised and communicated.

At least one thing that was surprising

My fellow group member great ideas and delivery of excellent content. There always doubt in a new group. I also found surprising how far constant informal communication even with something as a “hey, how are thing goings” can go in helping a group be more effective.

At least one thing that you have learned about groups

Not everyone is as organized or as self-driven as others. Other may struggle with accountability. Some require more direction than others. Everyone experiences procrastination from time to time as-well. It’s the nature of group work and explain why project managers are so fundamentally required role in a project. Despite any difference in attitude, persona or capabilities in a group, a

group still need to be function and be effective. I am learning have visual, concise tasks, goals and deadline that regularly revised and communicated helps.

Group:

What went well

We were all on the same page about what went well. Despite a breakdown of communication effectiveness during the middle. We all felt communication throughout the project was good, especially towards the end as we adapted our strategies to address the issues. We believe we also created a positive environment for the group to be able to be themselves. Finally, we felt there was clear overview of who needed to complete what.

What could be improved

We were in sync with one and other regarding the areas we believed could be improved. Such as implementing a solution of ensuring that any content being worked by an individual so that it available to the group allowing all see the progress, to gain perspective of their own progress in contract and more easily assist others who may need help and to allow for continuation of work in-case unknown variables prevented the original contributor to continue that task. Despite agreeing we had good communication we feel even more communication going forward could such as daily informal check-in to see how the team is feeling as-well as seeing how they're coming along with work, if there are any blockers or concerns etc would help. We also felt we could have benefits from a better way to track and organize task progress and roles.

What was surprising

What we all found surprising was the Team feeling we had towards the end. At the start we were strangers, we all had our concerns about working with strangers and at the beginning it felt that way. It made it hard to communicate effectively and lead to a breakdown of communication external issues came along. Everyone during this assessment had a significant issue outside of Uni to deal with. However, though determination we worked through it and adapted. Bring us all much closer.

What we have learned about groups

The importance of not just communication but regular communication is critical to effectively working as a team and fostering a team vibe. Even something as simple as a daily "Hey, how you are going" really helped everyone feel in the loop and part of the process. We also learned how important it is to be adaptable to ever evolving situations. Often there are life events that not necessarily affect you by someone else in the team which ultimately impacts everyone. Despite whatever is going on, work must continue so being ready to change priorities on task or change roles within the team is important. Finally, we learned difference between people and how they function can be difficult to navigate at first but as a team you learn to turn those differences into strengths.

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