

Fully Developed

Assessment 2: Team Project

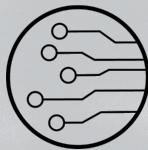
Team Members

Addie Priaulx - s3768506

Gabriel Vorster - s3795153

Isaac Newland - s3818727

Jack Millar - s3819727



TEAM PROFILE: FULLY DEVELOPED

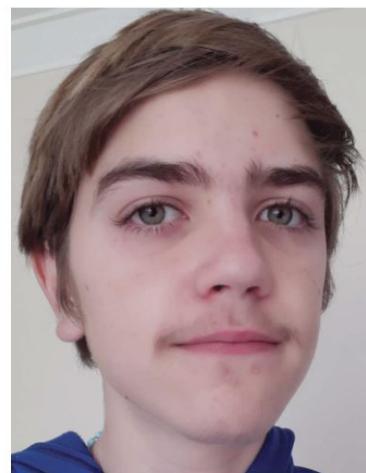


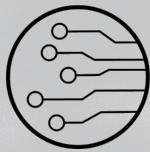
Addie:

Addie Priaulx, student number s3768506 is an English-speaking British-Australian whose interest in IT has developed strongly over the last 5 years. She started in retail operations and moved onto merchandise planning/buying. She now finds herself in a tech start-up company where she focuses on IT and business operations. Addie is on her way towards being a Data Business Analyst and she is the brains and beauty behind Fully Developed. Learn more about Addie Priaulx by viewing her profile: <http://addie.priaulx.co>

Gabriel:

Gabriel Vorster aka The Young Gun, student number s3795153 is the youngest member of Fully Developed and has had a love for IT that has been inspired by the technology that has been created. Born in Oxford, England Gabriel moved to Australia when he was 9, at the age of 16 he enrolled into RMIT, received a HD in his first subject of programming and has been working hard toward his dream of becoming a Lead Game Designer. Follow the link to Gabriel's profile to learn more: <https://gabjam1205.github.io/GABJAM1206.github.io/index.html>



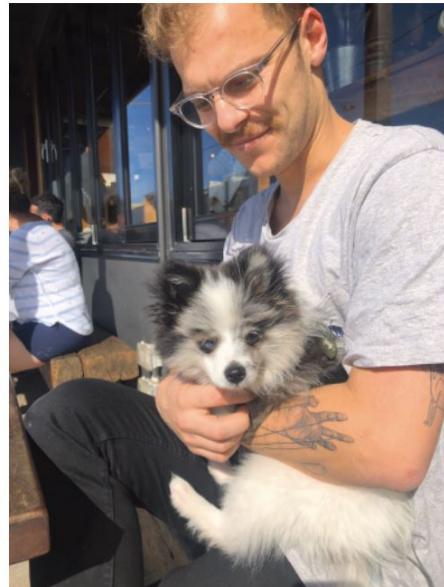


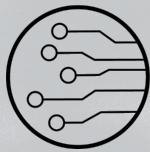
Isaac:

Isaac Newland, student number s3818727 is 31 years old, making him the eldest of the Fully Developed team. Since his mid-20's he has been working in sales and business operations. After a recent reflection of his life he has chosen to change his career from business to IT, he has always loved IT and is fascinated by what is possible and what could be possible. He is looking to pursue a career as a developer or in cybersecurity. To learn more about Isaac, check out his profile: <https://acais.github.io/Assignment-01/index.html>

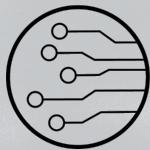
Jack:

Jack Millar, student number s3819727, is a finance specialist who is looking to further develop his skills in IT due to his understanding of the necessity for IT in this day and age. Based in Wollongong NSW, Jack brings a level of charisma to Fully Developed that is hard to replicate and has earned him the title of Heinz due to his sauciness. He is looking to incorporate his newly developed skills in IT with his current finance experience to find a career as an IT Portfolio Financial Analyst. Follow the link to his profile to learn more: <https://jackmillar.github.io/Jack-millar/>





Fully Developed Team Profiling		
Member	Test	Result
Addie	Myers-Briggs	ISFJ
	Learning Style	Auditory Learner
	Enneagram	5 'The Investigator', 4 'The Individualist', 6 'The Loyalist'
Gabriel	Myers-Briggs	ESFP
	Learning Style	Visual Learner
	Creativity Test	110 out of 200
Isaac	Myers-Briggs	ENFJ-A
	Learning Style	Visual Learner
	Creativity Test	66.09
Jack	Myers-Briggs	ENFP
	Learning Style	Tactile Learner
	DISC Test	DI



Addie's Reflection:

I have a high requirement for quality and integrity of work, which is a blessing and a curse, as I ruminate, become self reflective, overthink and want to keep the peace - which can often lead to procrastination out of fear my work won't be of an acceptable standard to myself or for those relying on me. Being more auditory based, I do often have to reread content a few times or listen to articles while I drive for the message to sink in; patience is a virtue here! I know that while an introvert, which in a group setting can appear as indifference. Fortunately, I have the insight and capability to bridge the gap that can often push others away by mistake. I have a warm personality, I am good willed and easy going which I believe compliments a team environment.

Gabriel's Reflection:

These results give me confidence in working in a team environment. The results show that I am open-minded and flexible. This enables me to adapt, be open to new ideas or change direction if needed. Knowing that I am a visual learner means I would convey my ideas visually, for example, visual content would be easier for me to create and express. In order to come up with new ideas and solutions, I will need to work on my creativity level as reflected in the test results. Overall, I think that I am able to work efficiently in a team and will endeavour to develop my skills as I develop my project experience.

Isaac's Reflection:

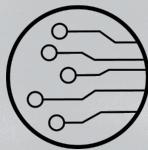
As the protagonist I do feel that I took a leadership role in the team, helping with the delegation of tasks and support to the rest of the team. With my persistence, curiosity and visual learning style, I have been able to continue through trial and error to improve aspects even if there was already a suitable outcome.

Jack's Reflection:

As I found was reflected in the personality types, I am quite a conversational and outgoing individual. I believe this will help when working within a group as it makes communication between members easy and succinct. As I am a tactile learner, I find these types of assignments great for my personal development, as often you are 'thrown in the deep end' in order to confirm our group will create the best possible work we can. I would hate to be the individual that let the group down!

Group Reflection:

With a mixed bag of protagonists, entertainers, defenders and campaigners we cover all the bases. We have clear leadership, critical thinking, people skills & enthusiasm which allows us to complete all tasks in front of us in a timely manner and with customer satisfaction.



IDEAL JOBS

We at Fully Developed, not only have a large variety of backgrounds and skills, but also share a strong array of job aspirations that we currently aspire towards in our future career endeavours.

Isaac: Cyber Security Manager

Developing and maintaining cyber security that allows him to not only work with skilled peers, but help people maintain their personal cyber security.

Addie: Data Business Analyst

Deriving data in order to present ideas to both management and stakeholders of a company, in order to maximise business productivity and efficiency.

Gabriel: Lead Game Designer

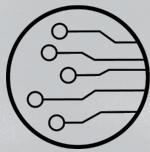
Using creativity and complex game design knowledge to create, world-class entertainment for the enjoyment of millions of users

Jack: IT Portfolio Financial Analyst

Deriving market data from a variety of sources to spot trends and opportunities in financial markets that could maximise investor wealth and financial security.

With all of these diverse career paths, Fully developed brings together a team that similarly wants to pursue paths in the IT industry, although across a variety of fields. It is interesting to see how our team, although at similar stages of our learning, have many similarities amongst the group. Both Addie and Jack's career choices draw inspiration from the analysis of data for business functions, when Isaac and Gabriel's choices show their desire

to pursue development and creation of IT services.

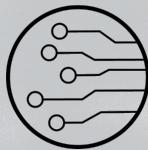


TOOLS

Website Link: <https://acais.github.io/Fully-Developed-A2/index.html>

Repository Link: <https://github.com/Acais/Fully-Developed-A2>

The audit trail does not reflect our group work very well as the website development had been assigned to a single member of Fully Developed. But if you look at the documents we have uploaded then it clearly shows how well the group has worked and how the workload has been shared.



INDUSTRY DATA

Addie Priaulx:

- Job – Data Business Analyst
- Increase in 34% 2014 – 2024 Data analyst

Gabriel Vorster:

- Job – Lead Game Designer
- Increase in 8% 2016 – 2026 Game designer

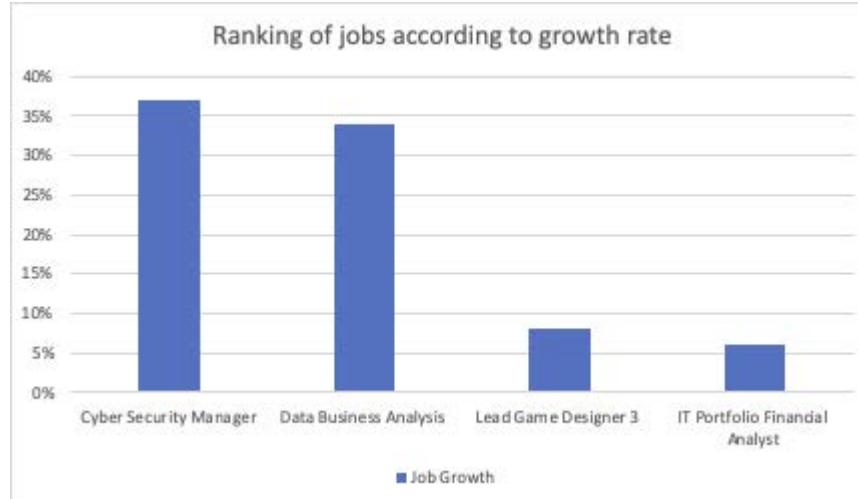
Isaac Newland:

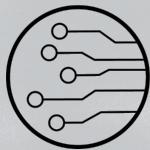
- Job – Cyber Security Manager
- Increase in 37% 2012 – 2022 Information security

Jack Millar:

- Job – IT Portfolio Financial Analyst
- Increase in 6% 2018 – 2028 Financial analyst

Ranking was achieved by determining job growth and therefore demand over the periods specified below each job title.





SKILLS REQUIRED

Data Business Analyst:

General skills required:

- o Business consulting
- o Interpersonal skills
- o Communication skills
- o Ability to work in a team
- o Prioritisation skills
- o Composure skills
- o Business analyst experience
- o Writing

IT skills required:

- o Articulate data.
- o Programming skills; SQL / Oracle / Python
- o Microsoft Windows
- o Data Visualization

Lead Game Designer

General skills required:

- o Critical thinking skills
- o Leadership skills.
- o Communication skills
- o Analytic skills
- o Ability to work in a team
- o Creativity skills
- o Writing

IT skills required:

- o Experience in game design
- o Fluent in game systems and mechanics
- o Experience in unreal
- o Programming skills

Cyber Security Manager

General skills required:

- o Design skills
- o Architectural skills
- o Management skills
- o Reporting skills
- o Communication skills
- o Presentation skills
- o Writing

IT skills required:

- o Security analysis
- o Intrusion detection
- o General computer skills
- o Programming skills

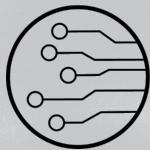
IT Portfolio Financial Analyst

General skills required:

- o Analytic skills
- o Communication skills
- o Decision making skills
- o Detail oriented skills
- o Math skills
- o Reporting skills
- o Writing

IT skills required:

- o General computer skills
- o Microsoft Windows
- o Technical designing skills



General group skills ranked in terms of demand from employers (all team members skills):

1. Communication skills
2. Prioritisation skills
3. Writing
4. Ability to work in a team
5. Critical thinking skills
6. Design skills
7. Architectural skills
8. Decision making skills
9. Detail oriented skills
10. Creativity skills
11. Reporting skills
12. Leadership skills
13. Business consulting
14. Presentation skills
15. Analytic skills
16. Management skills
17. Interpersonal skills
18. Composure skills
19. Math skills

General skills that are not in our skill set:

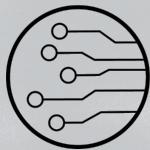
1. Troubleshooting
2. Mentoring
3. Quality Assurance and Control

IT skills ranked in terms of demand from employers (all team members skills):

1. SQL (Programming skills)
2. Java (Programming skills)
3. Articulate data
4. Microsoft Windows
5. General computer skills
6. Business analysis
7. Experience in game design
8. Data Visualization
9. Technical designing skills
10. Security analysis
11. Intrusion detection
12. Oracle (Programming skills)
13. Python (Programming skills)
14. Fluent in game systems and mechanics
15. Experience in unreal

IT skills that are not in our skill set:

1. Building relationships
2. Technical support
3. Website production



Addie Priaulx:

After considering the data from Burning Glass, I am still convinced that a Data Analysis/Business Analyst career is the right path for me. While this specific role isn't listed in the Top Titles data set, I am much more comfortable to pursue a career I'm passionate about and have the awareness to know that my interests may change, the more I learn about the industry. I am also aware that it is highly unlikely that my generate will remain in the same role, in the same industry for the remainder of their lives. Change is good!

Isaac Newland:

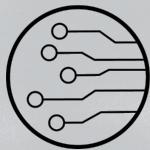
I would not change my ideal job as not only is it at the top of our list but it is also a job in high demand. It will allow me to utilise my IT in a way that I am very interested in.

Jack Millar:

I would not change my ideal job based around the data from Burning Glass. I feel that my passion for what I wish to achieve outweighs the data provided.

Gabriel Vorster:

My ideal job is not at the top of the list of IT jobs, but I still feel passionate about the role and would like to work in an area that involves IT, creativity and design.



IT WORK

Interview an IT professional

Name: Daniel Manning

Current Role: Software Engineer

Education: Bachelor in Software Engineering, RMIT, graduated 2016.

Interview Date: Friday 11th October 2019

Attendees: Daniel Manning, Addie Priaulx, Issac, Gabriel.

Method: Discord voice call.

Question asked: Can you tell us a little about yourself?

Daniel is in his mid to late 20s, and a professional Full Stack Software Engineer.

His role involves both front end and back end work; front-end being whatever the user can see and back-end being whatever the user doesn't see, behind the scenes.

Daniel is familiar with a wide range of programming languages, but predominantly uses Javascript and Typescript, and goes on to explain how Javascript is in high demand at the moment and this is mainly due to how omniscient the language is, being in servers, front end, etc. and how it's an easier language to pick up.

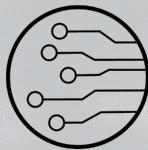
Daniel also kindly explains how Typescript is more specifically what he works with, as Javascript is an untyped language.

As for professional history, Daniel completed his Bachelor of Software Engineering at RMIT in 2016. While interning at ReadCloud, they offered him continued employment - clearly recognising his fit to their culture and varied skill set.

After a number of years, Daniel left ReadCloud for a Junior Software Engineer role at Airwallex, who is a large fintech company; in financial trading.

He explains how good this experience was with distributor systems and distributed computing, which involved learning to scale horizontally instead of vertically; involving adding more machines instead of making one stronger.

Daniel has since returned back to ReadCloud as a Software Engineer, which he has found offered a lot more design work and has been far more practical, as opposed to theoretical in nature.



What kind of work is done by the IT professional?

Question asked: Talk us through your current role and what it involves?

Day to day, it's agreeing on a project, then breaking that project down into smaller manageable tasks. He uses an example from work where ReadCloud required a PDF reader adding to the application:

To complete the sub projects and overall project, this had taken from 6months to a year to complete. Daniel explains the sub projects are necessary to maintain goal oriented and keep the business running smoothly while they work on improvements.

Some days the team talk, some days they don't. Some days it's a full office, some days it's just him there. Other days it's putting everything on hold to put out fires. He explained, relieved, that ReadCloud haven't had any outages, but explains it can happen.

He explains that the benefit of such a small team is that there are hardly any production issues.

What kinds of people does the IT professional interact with? Are they other IT professionals?

Question asked: Talk us through who it is you're working with on a day to day basis, are they mostly people like yourself (i.e. other IT professionals) or clients or the general public?

Daniel's role predominantly involves a close relationship with the CTO, who is in charge of business and technology, and the direction of the development team, and the other developers in his team; which has grown quite recently.

Working closely with the CTO to ensure the development team get a sense of what work needs to happen that's a priority for the business and the overall vision.

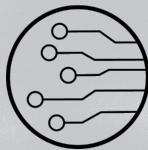
This particular role isn't face to face with clients or the general public, but does involve working with the wider team, i.e. sales and operations, to support in-house needs.

Where does the IT professional spend most of their time?

Question asked: Where do you spend most of your time and is the nature of your role flexible for work/life balance?

Daniel: "Software engineers are so privileged - when I talk to other people in other industries I feel lucky".

Daniel expresses sincere respect for nature of his role and how it can be intense and very involved at times, but that the role and most employers remain flexible to work life balance. Onsite and offsite work is widely accepted, and the need to move work around to make an appointment is of little inconvenience.



Daniel explains that while all workplaces aren't like this, referring back to his time with Airwallex where it was mostly 9am to 6pm, and no less, he goes on to reassure that not all workplaces are like this and there's no need to feel like you have to work somewhere like this and they're all the same. Each different workplace offers a unique opportunity to learn and it's about finding where you fit in the equation.

Daniel: "I read that the productive day of a software engineer is 90min a day" Daniel continues that its unfeasible to stare at a screen for 8hours or more a day and be completely productive, this doesn't make you a 'good developer'. A 'good developer' is passionate about what they do, they don't have to be the smartest, but be friendly and be social.

What aspect of their position is most challenging?

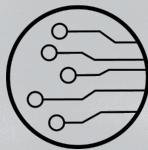
Question asked: What have you found most challenging, like changes and differences from what you faced in your first job to what you're experiencing now?

Daniel explains that while he's not responsible for recruiting, it's tough to find the right fit for dev teams. He discusses that while contractors are an option, who receive a spec and return a result, it's generally a maintenance nightmare - therefore avoided where possible.

He disclosed that a lot of contract code is often rewritten or scrapped completely because it's too messy or simply isn't scalable. There's this common mentality of get it done and get it done quickly that undermines the entire process.

Daniel, "You want code that scales across, not just performance. Unless you're working on something where its nano second optimised; you need it to make sense to other people".

On the back of this, we felt to ask Daniel what makes someone a desirable candidate, to which he explained 'culture fit'; how they work with other people. He gives the example of a company analysis to optimize workflow and how to optimise output, advising that the easiest thing to optimise is people; everything is people-centric. While he admits it's not as black and white as that, it's a big contributor.



IT TECHNOLOGIES

CYBERSECURITIES:



What is cybersecurity? What does it do? What does the future of cybersecurity look like?

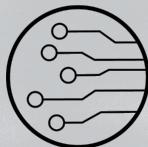
Cybersecurity is the practice of defending systems, networks and programs from malicious attacks that compromise the confidentiality, integrity and/or accessibility of information.

Technology surrounds us, from unlocking our front doors and restocking our fridge to the core departments that underpin the social fabric of our society, i.e. government, finance, health, emergency, transport services. The depth at which people rely on technology, in both corporate and domestic settings, is only going to increase, and while we'll see rapid advancements from the present technological landscape, we'll also witness rapid advancements in the sophistication and volume of cybercrime; "Cisco reporting that in 2018, they blocked seven trillion threats on behalf of their customers", (Louis Columbus' Forbes article on 'Why AI is the Future of cybersecurity').

With respect to corporate environments and consideration of the feedback from a Capgemini Research Institute survey 61% of enterprises say they cannot detect breach attempts [today] without the use of AI technologies", and "48% say their budgets for AI in cybersecurity will increase by an average of 29% in Fiscal Year 2020", (Louis Columbus' Forbes article on 'Why AI is the Future of cybersecurity').

When a business cannot secure data, every day citizens are at risk, not just big business.

If Tesla cannot defend their self-driving cars, we are at risk. If hospitals cannot secure our health records, we are at risk. If military devices cannot be secured, civilians are at risk. The possibilities of cyber security threats are extensive and inundating. Therefore, rendering cybersecurity as an essential element of day to day life, in perpetuity.



The different types of threats are segmented into a few main categories: ransomware, malware, social engineering and phishing.

Ransomware: Malicious software to deny access to content until a ransom is paid.

Malware: Malicious software for the purposes of unauthorized access and/or causing damage to a computer.

Social Engineering: Manipulating people into revealing confidential information, i.e. passwords, credit card numbers, PINs, etc. to cause damage or exploit the property and/or service of the authorised user.

Phishing: Fraudulent emails that indeed appear genuine, tricking the recipient into a call for action with the unintended consequences of granting unauthorised access to another user to cause damage or exploit the property and/or service of the authorised user.

Innovations in cybersecurity include, but are not limited to: Biometrics, Multi-Factor authentication, AI and machine learning, blockchain, IoT technology, cloud technology.

Biometrics: verifying someone's identity by the measurements of their unique physical characteristics, such as fingerprints and iris scans.

Multi-factor authentication: A multi step authentication process that includes two or more of the following..

- Something the user knows (For example: a PIN or answering personal questions like 'What is your mother's maiden name?')

- Something the user has (For example: an SMS one-time PIN, smartcard, reference number)

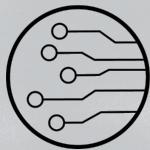
- Something about the user (For example: biometrics)

AI and Machine Learning: Artificial Intelligence is program created to function like the human brain, which is faster, more accurate, more objective, with lower energy expenditure. Machine learning is a subset of AI, which is a program that is designed to learn from the information it's processed, to become more accurate, more objective and faster in achieving outcomes.

In the area of cybersecurity, AI and machine learning offers the most comprehensive way to detect and respond immediately once a threat has occurred, and learn from that breach for next time.

How and what cybersecurity is used would depend upon a threat model bespoke to the circumstances, i.e. what do you need to protect and where are your vulnerabilities?

As a more general conclusion, however, AI and machine learning is where the investment and growth is apparent within the cybersecurity landscape, with major developments likely on the horizon as those already in place ascend themselves.



What is the likely impact of cybersecurity? Who's affected and will this create, replace or make redundant any current jobs or technologies?

The need for and development in cybersecurity will significantly impact businesses, whether public or private, as corporate structures are redefined and boundaries once separating departments blur, for example having a separate risk team and cybersecurity team may be considered superfluous. The pursuit of technological progression to make businesses more agile and secure will come to the foreground as stakeholders recognise the urgency to protect and secure data, digital assets, business integrity and consumer trust (think areas such as healthcare and finance).

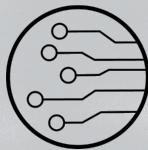
Setting aside the arbitrary relationship of credibility between a business and their clientele, and the research that demonstrates the financial implications of attacks is amounting to the tune of \$26 billion (and growing) to companies worldwide, the upsurge in cybercrime will have direct effect on stock prices, serving as another huge incentive to invest in measures to prevent, detect and respond to cyber-attacks.

Companies are moving beyond Person Identification Number (PINs) to Biometrics and Multi Factor Authentication (MFA) as their primary defense measures, however, the concern surrounding the authenticity of Russian application FaceApp and a recent article, 'FBI Issues Surprise New Cyber Attack Warning: Multi-Factor Authentication Is Being Defeated' (Zak Doffman, Forbes, 2019) has given rise to anxiety that, while uncommon, both Biometrics and MFA can be maliciously circumvented. Whereas Artificial Intelligence and Machine learning is agile enough to lead overall security.

Despite the current skills shortage, employment opportunities in cybersecurity will be on the rise, so too will the demand for candidates who demonstrate competency in the field of IT more generally, as businesses look to streamline. Streamlining will cause a natural decrease in opportunities and a spike in redundancies affecting roles that once underpinned departments that are disbanding. Likewise, employees who are unable or unwilling to embrace the necessary changes required of them are at risk of being perceived as a liability; in the same Forbes article, the FBI urges employers to "increase [the] level of user training", as research indicates "99% of cyber-attacks now rely on a person taking action – clicking a link, opening an attachment, falling for a scam" (Zak Doffman, Forbes, 2019).

At a domestic level, applications, software, devices, etc. that are used in our day to day functions to set our calendars, pay our bills, secure our houses, restock our fridges, will all be working behind the scenes to offer customers a seamless experience; like a frog in a slowly boiling pot of water, the impact of advancements in cybersecurity will largely go unnoticed by the regular person going about their business.

Where people are paying fees to access a service, it would be natural to see these inflate when a company has made an investment with the interest of their consumers in mind.



The benefit of services such as Biometrics and MFA for the average person throughout their daily routine is readily available, but (as discussed) they come with their own inherent risks, i.e. once your biometrics have been breached you can't simply grow a new set of fingerprints.

How will cybersecurity affect me, my friends and my family?

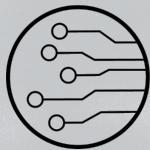
Ways in which the developments of cybersecurity affect me in my own life is multifaceted.

My career path is centered around technology, where I'm partly or wholly responsible for the information of other people, therefore threat developments are something I need to be aware of to maintain a sense of trust between the business and our users. Likewise, the security of my own information is becoming more vulnerable, particularly concerning social media services. Giving information to services is something I'm doing frequently, for example government/health or financial services, often assuming a sense of security without scrutiny, especially with respect to banking.

The threat of vulnerability also exists with the ever increasing opportunity for identity theft. As biometrics becomes more omnipresent and trusted, it poses a very expansive and serious threat if compromised; what if my whole identity becomes completely digital in the future such as my passport, certificates, licenses, voting/enrollment etc. and someone could impersonate me digitally?

Furthermore, while seemingly unlikely, there's the possibility that fraudulent information could cause government services to perceive something highly illegal about me (<https://www.pcworld.com/article/138591/article.html>).

As mentioned previously, exploits are often executed by means of the victim taking action themselves, which poses as a serious risk to friends and family members, especially those who are less capable and unfamiliar with technology. Peers could be seen as an easy exploit, since it would only take some social engineering, by a hacker to bait those I know.



REFERENCES:

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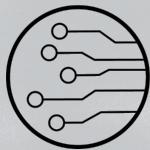
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Blockchain & Cryptocurrencies:

The Technology

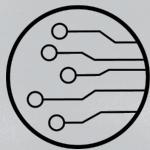


Block Chain

Block chain is a technology that was initially developed for the use of the online cryptocurrency Bitcoin. Essentially block chain acts as a timestamp of a transaction in which one (the block), that is attached to an online general ledger (the chain). This chain of information is stored amongst a variety of computers and networks that can be millions of individuals large. The ledger that is the block chain can be readily accessed by anyone within the network. To make the information within the 'blocks' private, the chain uses cryptographic data, that links the data to the chain as well as hiding it. Essentially the owner of the data within the block, belongs to the individual that has placed the block within the chain. As this information is network distributed, and every user on the chain must have accepted change before it is completed, it makes the data near impossible to be altered in any way without changing every block. To simplify, this technology has allowed

Cryptocurrency

Cryptocurrencies were initially developed by the unidentified individual/group known as Satoshi Nakamoto. This individual or group of individuals (Unknown), developed the now ever popular Bitcoin. Cryptocurrencies use the Block chain technology to create an instantaneous transfer of funds, whatever unit they might be, and transfer directly from one individual to another. The main use for this was to eliminate the middleman that most modern day companies use in order to transfer funds. Take internet banking for example, when transferring from one person to another, you must use the banks singular main server, and transfer from there creating not only time lag, but in the cases of EFTPOS transfers a fee also. Using block chain allows for individuals to immediately transfer the fund information from one user to another, regardless of how the rest of the chain is operating.



Other current Uses:

The innovation of smart contracts, is a growing another application for block chain. The idea allows for individuals to once again skip out all of the intermediaries that often slow down, clutter, and make transactional contracts a hassle. The application of smart contracts would allow for 2 parties to agree on an item, ie a property & price, and the block chain creates all necessary individual contracts, depending on location, price, the individual etc. This technology would not only simplify, the contract process, but also make the budgeting for new property attainable.

Potential Uses:

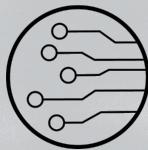
- Insurance claim processing
- Healthcare systems
- Music sharing systems
- Asset management and trading
- Etc.

The Future:

There is currently lots of study ongoing for the block chain technology, and where it could take different markets, such as the finance industry. Using this industry as an example, block chain would eliminate issues such as embezzlement or fraud, as the trail of funds transferred cannot be altered, and would be clearly identified within the chain. This technology could also be used to eradicate the need for banks to store funds online, and allow for seamless and costless transactions between individuals. Issues could arise with the regulation of such an application, although this is where the area needs further development. Other area's which could benefit from the use of block chain include renting, ticketing systems, or ongoing client management systems (CRM).

Major Impacts:

As Block chain technology can be used across so many diverse industries, it is hard to pinpoint the exact impact it could have. But broadly it would create simplification and efficiency across many industries. Due to the 'smart' nature of the technology, it would also create streamlining of resourcing across individual companies. Specifically looking at Cryptocurrency and the financial industry impacts, block chain could eliminate so many negative 'grey' areas that create mistrust towards the industry. It would also create a financial industry where the need for diverting through to a provider to make monetary or asset based transactions would be eliminated. With the reduction in the need for intermediaries, customer experience will also be greatly improved in these areas as they will have full transactional access.



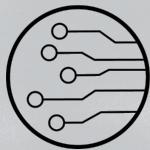
If block chain was to expand into other industries, it would also greatly affect globalisation. Take traveling for example, currently we have companies such as Airbnb who link the host direct to the consumer, but they are limited to the Airbnb server. Block chain, once established, would allow for a much larger option base, and would eliminate the need for the limiting Airbnb servers to cooperate. This in turn reducing costs once again for the consumer. The interesting development of block chain could revolutionise the way that we are able to access international and domestic information, services or consumables.

As with any upgrade in technology that streamlines efficiency, there will also be a loss of jobs within certain areas. As mentioned above, the eradication of the intermediary, although beneficial for the consumer, would also lead to a loss of employment for the individuals working within those industries. It could bring further job opportunities to the block chain management, although more than likely this would be a different field entirely for those that could be made redundant.

Block Chain and me?

Although the world of block chain and cryptocurrencies is currently reserved for those wanting to take on high risk investments, or other functions currently in Beta phase testing, the real world applications for block chain are somewhat limited. That being said they fundamental principles, if introduced into modern day environments, would allow for such a large change in lifestyle and accessibility for many industries. If intermediary costs go down, there would be greater ease for individuals wanting to purchase commodities, without having to go through the barriers and costs of multiple handling. Personally I find the financial aspect very intriguing, as there are so many detrimental factors in today's oligopolistic set up of financial services. With large banks holding majority of global funds, and the financial market being impossibly difficult for smaller new firms to enter, block chain would break down these barriers, whilst also allowing for regulation to be placed around the new operation as of how easy it is to view illegal behaviour. I know personally when taking into account my close friends and family, the process of transferring money would be simplistic and streamlined, as you don't have to wait for the banks processing wait times, or their transfer fees. Instead it would be instantaneous and free.

I think the future of Block Chain will lead to some very interesting developments in the IT world in the coming years. With so much interest in the area, and constant development by companies/organisations such as Ethereum, a tech based entity that specialises in real world internet Block Chain applications, the de-centralised possibilities could be endless.



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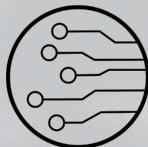
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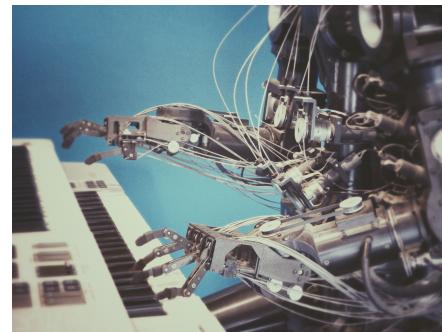
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MACHINE LEARNING:

What does it do?

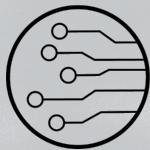


Machine Learning is exactly what it sounds like. This consists of computers learning how to perform tasks based on past experiences, rather than being given a set of instructions. The computer recognises patterns and learns how to assign variables that are the same and how to differentiate variables that are not the same.

Machine Learning emerged in 1950 when Alan Turing came up with the concept (Wikipedia Contributors (2019b)). Alan Turing is recognised as one of the first inventors of the computer, he spoke of a machine that did not need human intervention to function, a system that could think independently (Press, G. (2017)). We see that later on; Arthur Samuel would create the first Machine Learning programs in 1959 (Wikipedia Contributors (2019b)).

Machine Learning enables the computer to comprehend when something is effective and when something is not, this relates to Artificial Intelligence (AI). The core of Machine Learning is based on multiple learning-algorithm types including the following;

- Supervised Learning: enables computers to receive inputs and then assign those inputs to a category based on the type of input. Essentially it can determine the difference between inputs because it has been taught the differences.
- Unsupervised Learning: This type of Machine Learning is different from supervised learning as the computer can differentiate inputs without being taught what makes the inputs different. The computer is given inputs and differentiates them based on their data structure, the computer identifies the features of the inputs, and orders the data into groups based on their similarities.
- Reinforcement Learning: This is when the computer is given an input but can only define it based on the knowledge it already knows; for an example let's say the computer only knows the difference between blonde and black hair, so if it was presented with brown hair it would have to determine whether it is closest to blonde or black. The computer concludes that the hair is black, the programmer will then correct the computer so that when the computer sees brown hair again then it will classify it as brown hair.



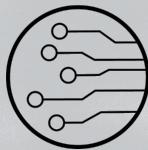
Those are all the types of Machine Learning that will be discussed today. A modern-day example of Machine Learning is facial recognition software. This is an effective security system that has been made possible by Machine Learning. This software uses a camera to recognise the details and structure of a human face. Machine Learning is used all over the world; from robotic toys that learn commands, to medical sensors that read the status of internal organs. Many software developing companies like Google think that Machine Learning is an essential and key part in future technological advancements. On May 7th, 2019 Google displayed new voice assistant software. This included a demonstration of someone asking the voice assistant to send an email and then recite the contents of the email. The voice assistant recognised what the email was about and was able to set the correct subject of the email and send it using only voice commands (Lee, T.B. (2019)).

Machine Learning is often confused with Artificial Intelligence (AI) but they are not entirely the same thing. AI enables computers to think and learn similarly to how humans do. Machine Learning is actually a branch of AI when a computer receives inputs and tries to think for itself on how to achieve a goal or task. Without the initial establishment of Artificial Intelligence, Machine Learning would not have been created.

What is the likely impact?

This area of technology will have a great impact on our future and has already had a massive impact on our lives. Here are some of the improvements that Machine Learning will bring to our lives;

- **Health:** The healthcare industry is being dramatically changed by Machine Learning. These systems are now able to assist professional doctors by analysing symptoms of patients in an effective and reliable way. Studies have shown that machines can carry out a variety of medical tasks such as predicting allergic reactions, design new drugs and formulas, and decrease the chance of incorrect diagnosis.
- **Environment:** Thanks to Machine Learning we are able to help our environment dynamically. We have the technology to detect pollution and identify its source or to analyse potential environmental threats / scenarios.
- **Gaming:** Machine Learning will enhance gaming in extraordinary ways, it has already had an impact on the gaming industry such as a computer learning how to play against a human in chess.
- **Security:** Home security can now, with the help of Machine Learning technology, be significantly improved to make your home even safer and more secure. We already have items such as; cameras and alarm systems, machines can now personalise systems in order to provide; voice, facial and fingerprint recognition to analyse visitors. This goes even further, in that recognition software can also notify homeowners whether a family member or friend has arrived at their house and who it is.



Other changes will be made to society, some people predict that in the future, people will either develop and direct machines or machines will direct you. This 'future' may result in people losing jobs, studies have shown that Machine Learning will provide efficient and fast solutions to many problems in our daily lives and can improve many areas of work and industry.

How will this affect you?

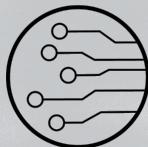
Machine Learning will have a positive and beneficial effect on my day to day life. Let's say in the near future, I experience a medical emergency. Due to the technological advancements in diagnostics by machines, the medical team together with the computer processors/analyses will be able to make a swift and accurate decision on how best to treat my condition.

Gaming is a huge industry today, as a gamer myself, I am excited about the progress being made as machine 'thought' processes become more agile and complex, our experience of gaming will be enriched with more challenging, realistic and individual specific content. Games will cross the divide between pure 'play' and learning/education. People will be able to develop skills, learn on the job safety, engage in training, etc. in order to prepare themselves for specific activities (building a bridge) and with their careers (pilots).

Machine Learning has now at its fingertips, equipment to gather information on pollution, water levels, soil fertility, rain patterns, etc. This data can be analysed and used to develop plans and strategies to prevent ecosystem collapse or major disasters. These systems will make man aware of dangers in environmental conditions so that we can live safely with less concern about unexpected wild weather, problem pollution and farm in areas more suited to long term sustainability.

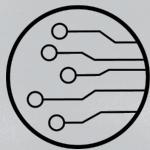
Just over a decade ago, security on mobile devices was limited to a simple password or pin, however due to the astonishing development in Machine Learning I am now ensured of a safer and more protected experience; I can activate my mobile using the biometrics of my face, I can use my fingerprint when accessing important information or components on my laptop because the computer has learnt the genetic pattern of my fingertip.

Thanks to these technological developments our daily lives will be dramatically improved. This technology can assist with our worldwide safety, health, environmental stability, global economics, law and many other aspects of both life and industry. There are endless possibilities with Machine Learning, and I believe it will be the solution to many problems in society and will enable us to create a brighter future.



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AUTONOMOUS VEHICLES:

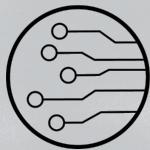
What does it do?

There are currently no companies that offer a fully autonomous vehicle in which no human interaction is required, but autonomy in vehicles is something that has been around to some extent for some time now and each and every year more and more features are becoming autonomous.



Vehicle autonomy is broken down into levels;

1. Level 1 was first reached in the 50's and incorporates active cruise control, electronic stability control & ABS. That's right, you might not be aware but these are some basic functions of partially autonomous vehicles.
2. Lane-keeping autonomous steering in combination with active cruise control & automatic emergency braking. These first levels are still hands-on-the-wheel functions.
3. Level 3 is when there is full automation of all systems, without driver control, in certain situations. This technology is only allowed to be used on freeways and still often requires driver intervention. (Currently available to the public).
4. Full automation is also part of level 4 but still only in certain situations, it will work almost entirely without driver interaction. (This is where the companies are up to and are testing).
5. Level 5 is where carmakers of autonomous vehicles are working towards. When this is reached the driver will never need to take over control.
There are a few different technologies that allow autonomy to happen in vehicles, apart from a whole suite of software and an array of sensors they will generally use one or a mix of the following technologies;
 - LiDAR: Light Detection and Ranging - This is a remote sensing method which uses light in the form of a pulsed laser to measure variable distances.
 - RADAR: Radio Detection and Ranging - The method works very similar to Lidar but uses radio waves instead of light waves.
 - Cameras: This is the most accurate way to create a visual representation of the world around a self-driving car. Although they have their limitations, as different conditions come into play (rain, fog or nighttime) it starts to become a little more difficult for the cameras to detect objects.
 - Ultrasonic (SONAR): Sound Navigation and Ranging - These sensors emit short ultrasonic impulses which are reflected by obstacles. These are currently being used in parking sensors and nearby obstacle detection.



Over the next 3 years, almost all companies in the race to full autonomy will be able to show off their cars that are able to navigate city streets at normal speeds.

Waymo is currently the leader when it comes to the race to level 5, fully autonomous vehicles whose nearest competitor is General Motors. Waymo has partnered with Jaguar to develop the world's first fully self-driving car named Jaguar I-PACE. They started their testing in 2018. Waymo Driver is also working on learning to drive heavy vehicles such as trucks and semis.

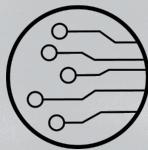
With that being said, there is still an argument going around that Tesla is in fact the industry leader when it comes to autonomous vehicles as they are the most advanced manufacturers that use cameras instead of LiDAR. Cameras are debatably the most accurate sensor to use in autonomous vehicles as it is similar to the human eye.

What is the likely impact?

There are many benefits to driverless vehicles or fully autonomous vehicles, some of which are;

- Less traffic - Driverless vehicles communicate with their surroundings, that means with each other too. By communicating with each other they are able to identify the optimal route and help spread demand for scarce road space.
- Increase in safety - 1.2 million people are killed each and every year in traffic incidents all over the world. In the US alone there is an expectation that a widespread embrace of fully autonomous vehicles could eliminate 90% of all auto accidents. Not only saving thousands of lives it will also prevent up to \$190 billion in damages and health costs annually.
- More free time - There was a recent study done in the US and it has shown that the average American spends 101 minutes per day driving. That's around 37,935 hours driving over our lifetimes. Imagine what you could get done in that time if your car could drive entirely by itself.
- Reduced emissions - CO₂ emissions from transport have grown 45% globally between 1990 to 2007. Using electric autonomous taxis alone could have a reduction in greenhouse gas emissions of 87 to 94% per mile by 2030.

This next part is a double edged sword, jobs. Jobs will be lost and jobs will be gained. Driverless cars will leave a huge amount of people jobless, delivery services, taxis, truck drivers, more than 400,000 jobs are estimated to be impacted in Australia due to self-driving technology. On the other hand it will create hundreds of thousands of jobs globally in the field of IT, software developers, hi-tech machine experts & wireless network engineers just to name a few.



How will this affect you?

I currently use public transport as my main method of transport on a day-to-day basis (to and from work). So for me the benefit would be evening/weekend drives where I drive up to 3 hours at a time (visiting friends and family). I would be able to study while on the way to visiting my mother or take a video conference on my way to work (If I had driven to work that day). I think every person in the world will be able to become more productive, if it isn't similar to what I have just mentioned, studying or working while driving, it could be catching up on some much needed rest allowing you to be refreshed and get more done throughout the day.

As more autonomy is implemented we will soon reach level 5, fully autonomous vehicles and that will also increase the popularity of car pooling/sharing. Which will lead to fewer cars on the road, less traffic and less stress.

The biggest thing for me is the benefit to our earth by using electric autonomous cars. By reducing the amount of CO2 emissions will greatly improve the state of our world.

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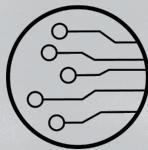
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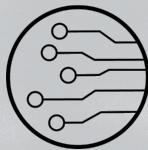
GROUP REFLECTION

How the group performed - Gabriel:

The Fully Developed team members have done an excellent job with this assessment. The most active and hard-working members included; Isaac Newland, me (Gabriel Vorster), Addie Priaulx and Jack Millar. I believe that we communicated to each other well and swiftly responded to the needs of the rest of the group. One thing that I think could be improved on was when we actually started working, unfortunately we collectively as a group began working quite late but all was completed within the deadline. Hopefully in the future we can work earlier in order to get on top of our tasks. The most surprising thing that I found was that even though we did not have a lot of time, we were able to create such a great team-website with stunning visuals and great content. This was my first time working in a group and it was great to see what it was like. I learned that team communication is key and if we don't talk to each other then we will be unable to effectively reach our goal. Fully Developed has done very well and it's team members are focused and engaged in our work.

How the group performed - Isaac:

In my opinion Fully Developed worked very well as a team, there has been great communication between the active members and all were open to suggestions and performed our roles to the best of our ability. The main thing that could be improved was a bit of prior preparation. Fully developed started their assignment a little late due to trying to get all members involved, but by ticking off some of the more simple tasks early could have saved a bit of extra work when towards the end, two of our members were non contributors. This also goes to show the dedication between the group in being able to get such a great job done with the lower end of group members and time constraints. This is the first time I have worked in a group where we are all in different locations and all communication is via email, chat and video and I was pleasantly surprised at how well it worked. From this group exercise I have learned that clear communication, direction and openness is essential for successful collaboration, even if you are behind schedule, many hands make light work and one single person cannot possibly achieve what a harmonious group can.



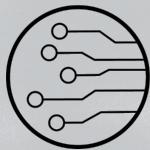
How the group performed - Addie:

The Fully developed team have been incredibly cooperative. We were slow off the mark, at the beginning, and had two members that were unable to contribute to the project. However, once active members introduced themselves we were quickly able to establish roles and responsibilities. Each active member has been warm, enthusiastic, supportive and dedicated. This is the first time I've completed a group project, where there's no face to face liaison; which is a learning curve for me. I think each member has complimented the other, which added a great amount of depth to our team dynamic. I was surprised by how comfortable I felt, despite the fact that I don't have a great deal of experience in IT compared to others in our unit, so I appreciated the support - thanks team!

We've been able to share content and connect the moving parts of the project using Google Sheets and Google Docs and by moving our main communication channel to Discord, from WhatsApp, made a world of difference in how we could communicate. In my opinion, Discord was far easier to read, follow and reference back to throughout our assignment. Opportunity to improve is early communication, i.e who's there and participating. Despite the late start, I commend how well we rallied, communicated and supported each other throughout.

How the group performed - Jack:

The Fully developed team has a great array of individuals. Personally, having never completed an online course before, was amazed to see how seamlessly we were able to come together to complete the task. With the major help of Isaac who dedicated tasks for us, the work-load was evenly distributed, and we were able to easily get our tasks done. Improvement could have come from us starting the tasks slightly earlier, although we definitely left ourselves more than enough time to complete. What really surprised me was the amount of IT knowledge already available within our team, as I personally don't have a strong IT background, it was great to bounce ideas off the team and get a great understanding of the field. It also allowed me to focus on my strengths compiling the information and deep diving the block chain & cryptocurrency field to learn as much as I could. It's safe to say the greatest learn in regards to groups was how easily it is to team up and work on a project, without even having met someone before. I was apprehensive to begin as I had never been a part of this kind of gathering, but feel it was a great experience. As a group we utilised the chat platform DISCORD, along with online document program Google docs & Sheets to compile all of our work and ideas.



How the group performed - Group:

As a group fully developed all was very happy with the contributing members. We as a team came together with a variety of different personality traits and learning styles. Combined we all felt like our greatest strength was how easily we were able to assign workloads across the group, and trust that the work would be completed. All active members in our team were easy to collaborate with, and we believe that this created a strong framework for the work we have submitted. We share a general group decision that we could have started on the workload slightly earlier, but due to some team members dropping out in the early stages, this pushed back our start time as some tasks had to be reassigned. Moving forwards we believe that with our current group dynamic and conversational framework, we have worked together successfully to complete this assignment. Being all of our first experiences in working with an online group, we were stunned at how streamlined the process was using the online communication app DISCORD, and the project sheet applications such as Google Docs & Sheets. All of the Fully developed team are more than happy with the work we have produced and look forward to continue working together for future projects!

***'Together, we can shape
the future'***

- Fully Developed

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