Paint Drop

Assignment 2: The IT World

RMIT University | Intro to IT | Due: 29th April 2018

Keyur Naidoo – s3659108

Monique Leong – s3722811

Phong Duong – s3544695

Karl Wegman – s3604030

Senduran Balachandran – s3604069

Table of Contents

Team Profile

Team Name

Paint Drop

The Team

Karl Wegman

s3604030@student.rmit.edu.au

https://s3-ap-southeast-2.amazonaws.com/s3604030/index.html

Personal Information

My background is Dutch/Spanish on my father's side and Malaysian on my mother's side. I was born in Auckland, New Zealand and lived there for 10 years until I moved to Sydney. I lived in Dee Why, Northern Beaches for 3 years. I have studied at 3 different primary schools and 2 different high schools as my family moved around until I graduated at McKinnon Secondary here in Melbourne. I am avid surfer, although now the beach is much harder to get to from here in Melbourne. Futsal, sailing, windsurfing, and kiteboarding are various hobbies I have undertaken in its absence. My main passion when it comes to IT is design, in concept creation, art, animation, and development. Movies, apps, programs, games, and computer use throughout my life have all fed this interest and led it to grow.

Team Profile

My personality tests are: INFP-Mediator. As a mediator I feel that I bring to the team an understanding, empathetic approach, and aim to give everyone an equal chance to contribute or bring a new idea forth. I am able to encourage conversation and feel that in the event of tension, I often have the confidence to defuse the situation. I enjoy trying to place myself in other people's shoes and attempting to understand things from their perspective. My learning styles test recognized that my learning style is visual/tactile with 40/40 for each. I feel this would help my ability to create examples to prototype, convey views of others, and understand source material. I completed a very brief open-source psychometrics test, with agreeableness and extraversion at the highest at 45 and 67

respectively. In accordance with this test I feel that this reinforces my results as a mediator with two of the most important traits of a mediator coming out on top. For the team this gives me a stronger ability to understand and listen to others.

Ideal Job

Asset design, Graphic Design. 3D/2D modelling/art.

Keyur Naidoo

s3659108@student.rmit.edu.au

https://s3-ap-southeast-2.amazonaws.com/s3659108profile/html5up-dimension/index.html

Personal Information

I was born and raised in South Africa. My family and I all follow the Hindu religion/culture. I spend most of my time playing Table-Tennis or video-games, sketching in notebooks or just reading/watching manga/anime. My interest in IT falls more toward the software side rather than the hardware. Technology as a whole has always been my greatest time-consumer whether it be tinkering with different animation and analytical programs or simply indulging in video-games. I enjoy programming as it enables me to create close to anything I can dream up. I have gone through a number of classes during my schooling career that provided me with valuable computing skills in a variety of different types of programs. As a result, I can operate all of the core Office programs i.e. PowerPoint, Word, Excel etc. I also have hands-on experience in building different systems and writing up reports on them including technical drawings. I've recently acquired a basic understanding of programming with the Java programming language. Lastly, I am competent with the design of various products using technical drawings. Above all, I'm a proud member of the Paint Drop group.

Team Profile

According to the Myers-Briggs Type Indicator test I possess the "Advocate" personality (INFJ-A). As an "Advocate", I possess a strong sense of idealism and morality. In addition, I am capable of following a set path to achieving my goals. The narrow-minded approach that comes with the "Advocate" personality will allow me to set an organized path to

success for my group and I. A strong sense of morality and the eager helpfulness would mean that I will always be open to other group members and very willing to aid them in any way possible. The results of the Learning Styles Quiz reveal that I am more of a visual learner. This means I would be very capable when dealing with written work. Also, I would be able to make use of my tidiness to promote an organized and sophisticated outcome. From the Career Personality test, I have discovered that I have a predominantly artistic, conventional and realistic personality. I am advised to follow a career in the design industry such as a Graphic Designer, Animator or 3D Modeler. I can bring my creative and hands-on personality to the table to help with most of the manual work and add innovativeness and originality to the project.

Ideal Job

My ideal job involves becoming a Game Artist/Graphic Designer which refers to those who are in a rather general role and are capable in both 2D and 3D aspects of animation.

Monique Leong

s3722811@student.rmit.edu.au

https://s3-ap-southeast-2.amazonaws.com/s3722811monique/index.html

Personal Information

I was born in Melbourne, Australia with a background of Chinese and Slovenian. I have always lived in Melbourne and studied at Shelford Girls' Grammar where I completed year 12 in 2017. In my spare time I enjoy playing netball, soccer, going to the gym, surfing, skiing and travelling. My interest in IT has been largely influenced by my parents who both work in IT, I have always been interested in new technologies and devices and enjoyed troubleshooting problems. Now my main passion and interests in IT include design, social media and digital marketing. My personality test result is ESTJ – The executive and my learning style is visual.

Team Profile

Results from the Myers-Briggs Personality test outline that my personality type is ESTJ (The Guardian / The Executive. With strengths of this personality type including dedication,

direct and honest, reliable and organized I believe these traits would be useful to working in a team as I am able to be organized and stay on top of designated tasks and can be reliable and direct with my group. The results from the learning style test indicated that I am a visual learner and thus learn best by reading or seeing information, as this assignment is a written report I would be able to use organizational and dedication skills in this task to ensure that my part of the assignment is completed on time and to the necessary standard. From the Big 5 personality test I found that the most prominent traits include agreeableness, extroversion and conscientiousness. The traits of agreeableness would allow me to make decisions with my group members and the trait of conscientiousness would ensure that I am careful and vigilant in completing tasks.

Ideal Job

Digital manager - My ideal job would be working in digital content / digital marketing / social media.

Phong Duong

s3544695@student.rmit.edu.au

https://s3-ap-southeast-2.amazonaws.com/s3544695website/index.html

Personal Information

I was born in Victoria, Melbourne with a Vietnamese background. I spend the most time using the computer, playing video games, reading manga and stories and watching anime or videos from YouTube. My interest in IT ignited recently when I began to see that a love for gaming and stories can be translated into software, which eventually turns into a game through further development. Throughout my childhood, I've always loved video games and entertainment and I had begun to appreciate the amount of effort put into creating games of near-perfection. Therefore, for me to truly relish in video games, I had to find out the foundation of any video game, which led me to IT as an answer. IT is a new thing that I have discovered, and I may not currently have any experience, but I will relish the journey of developing video games and the hardships that come with it. My personality test result is: INFP-T and my learning style depends on the situation.

Team Profile

Results from the personality test outline my personality type as being a mediator. My full commitment, open-mindedness, passion and reliability will greatly contribute to me completing the tasks delegated to me while maintaining a high level of trust among members of the group. My learning style tends to be more situational, which may be considered a double-edged sword, but it can allow me to stay versatile at a satisfactory level. My serious and emotional nature, which might lead to me being uptight and worrisome, can be maintained well enough to properly respond to problems that may occur in the future. Although my disorganized methods may seem questionable, it is not impossible for me to set aside my methods for more efficient and optimal methods due to my open-mindedness.

Ideal Job

My ideal job would be working as a gameplay programmer with the possibility of a director for constructing of games.

Senduran Balachandran

s3604069@student.rmit.edu.au

https://s3.us-east-2.amazonaws.com/s3604069introtoit/s3604069+-+Assignment+1/index.html

Personal Information

I was born in Melbourne Australia on the 11th of April 1998 with a Sri Lankan background. I have lived in Melbourne for my entire life and graduated from Lakeview Senior College in 2015 and then transferred from the Associates Degree in IT a semester early at the end of 2017. My main hobbies are playing video games, talking to friends on Discord and exercising at the gym. My interest in IT was awakened due to the exposure of video games and software on the internet. I have recently developed a keen interest in software development and the more business side of things such as producing documentation for projects.

Team Profile

My results from the Myers Briggs test concluded that I am ENFJ-T (The protagonist) whose strengths lie in leadership, communicating with others and reliability. I believe these traits can be useful in a team because communication is a key factor to good

teamwork, reliability is always desired in any type of situation and having leadership skills doesn't hurt for those situations where the team feels lost or needs an example to follow.

My results from the online learning styles test indicated that I am 40% tactile, 40% visual and 20% auditory meaning that I am the type of person who prefers to learn things via hands on experience or watching videos as opposed to listening to someone talk about it.

From the big five personality test, my most prominent traits were neuroticism, openness and conscientiousness in that order. Neuroticism is often seen as a bad trait because it is usually associated with angry people who lose it over the smallest things and instantly come to the worst conclusions but it can also help in situations where great care is required to handle a task because a neurotic person doesn't like to leave things up to chance. Openness refers to being an open minded person who isn't afraid to listen to new ideas and perspectives and also someone who is curious and imaginative.

Ideal Job

My ideal job is to be a Software Engineer. More specifically, a Business Analyst in the Software Development sector.

Ideal Jobs

The ideal jobs of all members of the Paint Drop group lean toward the technological aspect of the working sector. The IT industry is a heavy influencer on today's working world so the demand for workers in this sector is rather high. There are 4 differences in the ideal positions of the group. The Graphic Designer position focuses more on the aesthetics of digital products while the Gameplay Programmer works mainly on the inner workings of digital games. Also, the Digital Manager is more of a managerial role that focuses on digital content, digital marketing and social media whereas a Software Engineer, specifically a Business Analyst in the software development sector, reaches out to clients and project leaders in order to identify and evaluate user and business requirements.

Tools

Website: https://s3-ap-southeast-2.amazonaws.com/paintdrop/TeamProfile/index.html

On the website we have put up all of the information regarding each member of the team including the team name and each member's name, student email address, personal information, personality test results, ideal jobs as well as a link to each individual's personal website.

Git Repository: https://github.com/lmoniquel/PaintDrop.git

Using GitHub, the team has committed and exchanged multiple documents, which include each member's contribution to their designated sections in order to be pulled, evaluated and edited if need be. It was used as a hub to collate all work into one place.

Audit Trail on GitHub

The audit trail on GitHub shows the core essence of each section of the report that was to be completed. However, more finer details were worked on separately using a different collaboration software for ease of use. In other words, the audit trail is a poor representation of the sequential progress the team made during the course of the assignment but still forms the basis for evaluation and exchange in terms of individual documents.

Industry Data

What are the Job Titles for your group's ideal jobs? How do each of these rank in terms of demand from employers?

Keyur - Game Artist/Graphic Designer. The position of Graphic Designer ranks second from the top of Burning Glass Technologies' 'Top Titles' list as of March 2018.

Monique - Digital Manager / digital marketing and social media

Karl - Visual & User Experience Designer. The position is not ranked

Senduran – Software Engineer. The 'Software Engineer' positions is ranked 11th from the top of the Burning Glass Technologies' 'Top Titles' List as of March 2018. It has also gone down in rank from 4th in May 2017 to 10th in February 2018.

Phong - Gameplay programmer. The position of Gameplay programmer's ranking is unknown due to it being an underrated job.

From your group's ideal jobs, you can identify a set of skills required for these jobs (we will refer to this as your group's required skill set). These can be divided into general skills (communication, problem solving, writing etc.) and IT-specific skills (JavaScript, SQL etc.).

General Skill	IT-Specific Skills
Communication skills	Microsoft Windows
Organizational skills	Project management
Teamwork/collaboration	Graphic design
Creativity	Programming
Time management	Building relationships
Presentation skills	Git
Detail-oriented skills	3D math skills
Problem-solving	Deep understanding of game development
Management skills	In-depth working knowledge of C++
Planning	

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

   According to Burning Glass Technologies' 'Skills in Greatest Demand (Specialized Skills)' list, the skill to be able to use Microsoft Windows is ranked very high (4th with 2699 postings) while Project management falls one rank below that with 2252 postings. Graphic design falls more toward the mid-section but does not have that much less postings than Project management with 2068. Programming is an all-round essential skill in the IT industry however, some coding languages are more sought after than others such as how JavaScript is in very high demand with 2946 postings while Python is in relatively rare demand with only 1150 postings. Also, building relationships plays an important role in the IT field as most projects are built in teams. Therefore, the demand for this skill is quite high with 2115 postings. In relation to the cooperation aspect of the IT industry, Git is a valuable skill that enables multiple people to work on a single project however it has very low demand from employers as it is ranked very low with only 1230 postings.

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

   General skills listed in out required skill set in greatest demand according to Burning Glass 'Skills in Greatest Demand (Baseline Skills)' ranked in March 2018 include communication skills ranking the highest with 44,367 postings, problem solving with 16,445 postings, organizational skills with 15,844 postings, teamwork, troubleshooting, planning. A highly ranked skill in the Burning Glass data that was not included in the listed skill set included writing with 15,590 posting. From the data it is made apparent that communication skills are in highest demand by employers. Other general skills highlighted in the required skill set including management, creativity, presentation and time management are also covered in the Burning Glass data, however show a lesser demand from employers in comparison to other skills.

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

   SQL, JavaScript, JAVA

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

   Writing, Troubleshooting, Research

Having looked at the Burning Glass data, has your opinion of your ideal job changed? Why or why not?

Keyur - No, this is due to the fact that most of the required skills for my ideal job and my ideal job itself are ranked pretty high in terms of demand according to the Burning Glass data.

Monique – No, with businesses becoming online and digital, I believe there will still be a demand for employees in the fields of digital content, digital marketing and social media.

Karl – No, as media becomes more and more digitized, areas such as entertainment and news will consistently grow, allowing for a continued high demand for animators, and graphic designers.

Phong – No, despite gameplay programmer being one of the more unconventional positions with some unique skill sets, they still include the baseline skills required for the job. With this in mind, the person with unique ambitions in the gaming industry chooses the job itself.

Senduran – No, despite software engineering and business analysis not being one of the top three required skill sets in the IT industry, they are still highly ranked and employers are in demand for people with those types of skills.

IT Work

Interview with Operations and Logistics Expert.

Ronan agreed to this interview on the basis that the location of his work remains unrevealed.

Ronan works in an office/warehouse space ensuring that physical quantities match systematic database quantities. Various items are passed through the SAP system and validated on a daily basis. This is linked to retail, loss prevention and accuracy.

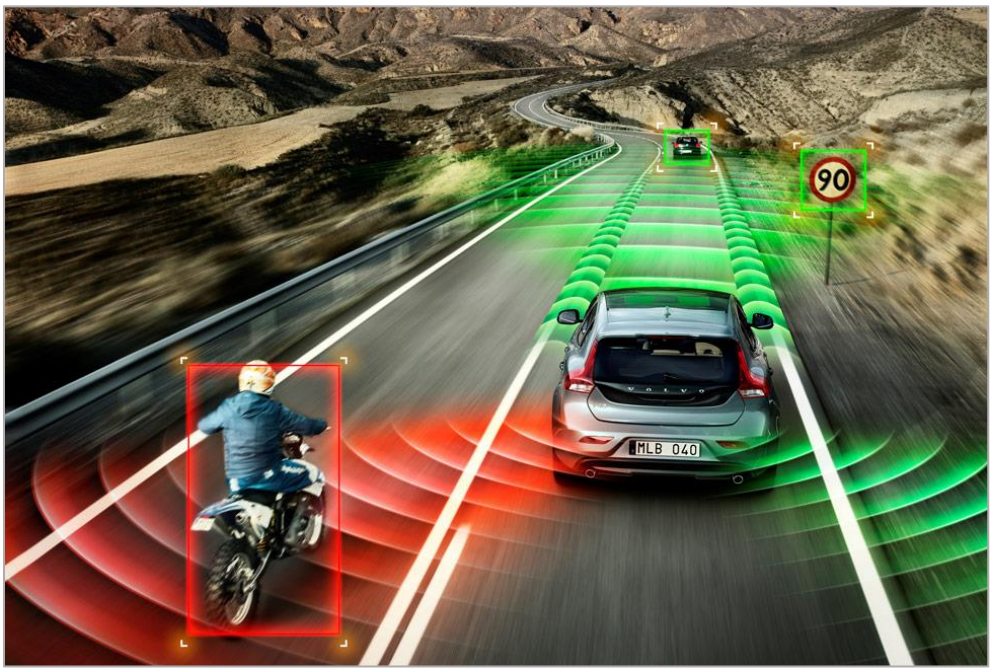
1. On a daily basis he heavily utilizes macros, excel, databases such as SAP, and works with computer hardware setting up networks, printers and other various devices. He regularly ensures that company devices are updated to latest firmware and troubleshoots any that are malfunctioning. He audits and ensures that trails are concise and have followed the correct path through each of our databases and systems, identifying issues and fixing or escalating them based on severity.
2. Ronan interacts with a multitude of other IT professionals from technical support to retail and repair experts. He maintains a strong level of contact with each of these areas throughout his day. Additionally he also interacts with the public on occasion when contacted about repairs or shipments. Interaction with clients and investors is quite limited as the company is very large, and there are stringent policies regarding who can and can't see various aspects of the job.
3. He spends most of his time at his desk in his office largely ensuring that he and the rest of his team are continuously ensuring that physical quantities of inventory match the systematic quantities, in every area from repairs to retail and troubleshooting malfunctioning devices. This can be challenging, requiring lengthy macros and chasing down transaction histories to identify movement types and codes representing where the item/s have moved.
4. The most challenging aspect of his job is consistency and system downtime. When the team's numbers are in their hundreds, notifying the team of a change or a new way to correctly proceed with a task they are used to is difficult and can have consequences for both sides, themselves and Ronan. Additionally once a week the company has system downtime which prevents all interaction with integral assets such as SAP. This according to Ronan this prevents him from completing regular tasks that are required to be finalized by the end of the shift. This leads to backlogging of the tasks and the next day the team has to complete the work that was meant to be finished the night before on top of their morning tasks.

The essence of working in IT according to Ronan is captured by the team working together to achieve full parity between our systematic database and physical inventory.

IT Technologies

Autonomous Vehicles

Autonomous vehicles are vehicles capable of sensing its environment and navigating throughout the journey without any human interference. Autonomous cars use a variety of tools such as GPS, radar, laser light, odometry and computer vision in order to fulfil its purpose. They must also include a control system that analyses sensory data in order to not only distinguish between different cars on the road and potential obstacles, but also,



make the most optimal decision during operation. Potentially, autonomous vehicles can cut mobility and infrastructure costs, increase safety, mobility, traffic flow and customer satisfaction, and reduce traffic-related crimes; specifically, for traffic-related crimes, reducing demand for insurance, costs and injuries/fatalities. Currently, major companies such as General Motors, Ford, Mercedes Benz, BMW and others have taken an interest in self-driving technologies and have begun their own projects of developing autonomous vehicles. Nissan announced that they will commit to a release of several autonomous vehicles by 2020. In 2018, Nvidia has unveiled their new self-driving chip called Xavier that will incorporate artificial intelligence capabilities in order to better improve the self-driving vehicles' decision-making. This recent development of an AI chip stemmed from the fatality that occurred in Florida with a Tesla Model S's self-driving mode failing to brake in time after an 18-wheel tractor-trailer turned in front of it. This caused a setback in the credibility of using self-driving vehicles due to the technical issues displayed and the ethical issues surrounding the use of autonomous vehicles. Decisions such as an AI chip have allowed the project of autonomous vehicles to continue and possibly, additional features will be implemented to better the self-driving vehicles' decision-making

capabilities. Currently, features such as measuring speeds of other vehicles, predicting sudden changes in environment and predicting other vehicles' intentional path can greatly improve the autonomous vehicles' response and reduce the risk of fatalities and/or accidents. These features will take form as automobile companies take time to include them in during the development of these vehicles. An AI chip can make these features plausible as long as artificial intelligence has advanced enough to match human intelligence.

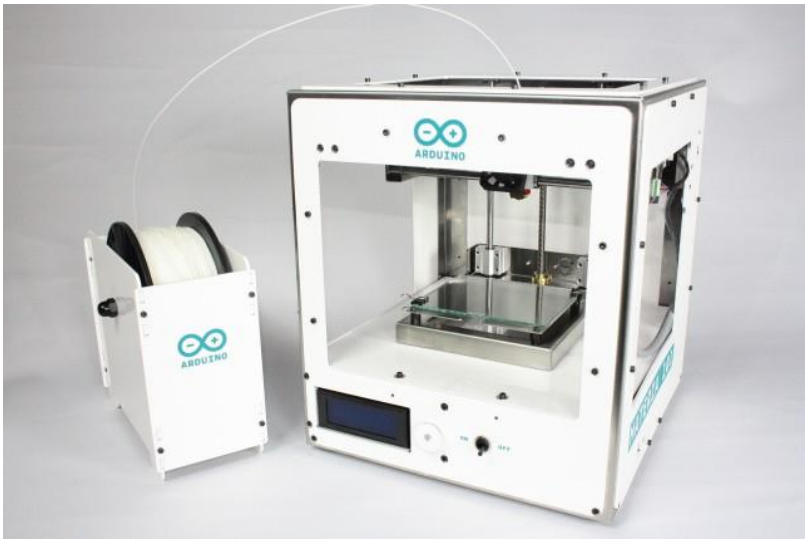
The development of autonomous vehicles can allow less stress for traversing on the road and may potentially change the norm of driving. Autonomous traversing may expand into trains, flying vehicles and boats if the decision-making capabilities of autonomous traversing are perfected. Most likely, people with disabilities inhibiting their ability to drive will be able to independently traverse without the need for human interference. In the future, traversing without outside interference can render the need for driving redundant, eventually leaving truck drivers, taxi drivers etc. redundant. However, the idea of autonomous driving being the norm of society can lead to the weakening of self-reliance as it can potentially lead to laziness of humans and should be dealt with appropriately.

Throughout the daily life, it would greatly reduce the stress of driving, and it is considered to be very convenient and intriguing. However, it would not be influential enough to completely abandon manual driving as with all thing that exist, nothing is perfect. A perfect balance between manual driving and automatic driving can allow self-reliance to coexist with advancement of automobile technology. Family members and friends will be enticed by autonomous vehicle but may not change their values related to driving safely instantly as they are much interested in the status quo of driving. Fundamentally, traffic and vehicle safety will always be their top priority.

Raspberry Pis, Arduinos, Makey Makeys etc.

Raspberry Pis, Arduinos and other small computing devices are miniscule electronic boards like the ones commonly found in laptops or PCs. They are little computers which can be used in electronics projects and enable people of all ages to explore computing. At a basic level, these small computers simply read inputs, such as light on a sensor or a finger on a button, and produces an output, for example activating a motor or turning on an LED. This process can be controlled by (Arduino, n.d.) sending instructions to the microcontroller on the board using the specified programming language. Microcomputers can be used for a vast amount of varied projects from everyday objects to complex scientific instruments.

On a basic level, these miniaturized computing devices perform many different tasks as programmed by the user. It interacts with the physical plane via electronic sensors, lights and motors. In other words, it makes it possible for anyone to make their electronic project ideas a reality. So many incredible projects have come to fruition using these small computing devices that were revolutionary inventions in their own times. A few examples of such would include such high-maintenance devices as the 3D Printer all the



way to fighting robot dragons (Bruce 2011). Pretty much anything a creator can think of is fair game when using small computing devices like the Arduino or Raspberry Pi. Essentially, what this platform has managed to accomplish is lower the cost significantly of what was once a very expensive and inaccessible market for robotics and microprocessors. It also reduces the cost for companies to develop prototypes more quickly.

For the time being, a lot of businesses have not even heard of Arduinos or Raspberry Pis. This, however, is very likely to change in the coming years as businesses decide to hire more people who are familiar with a range of small computing devices. As stated before, they will reduce the cost of prototyping, meaning companies can iterate more during development which leads to more functional products. Businesses may also develop products that are easily upgradeable. For example, a microwave's interface may be changed or even the way it cooks food may be changed to the user's desires. The major thing Arduinos and the like will accomplish is they will provide developing countries the means to do things they couldn't in the past (Feldman 2014). These small computing devices are going to open many doors toward advancements to medicine and manufacturing in places that may not be able to afford them at present. The people most affected by this technological wonder include the more casual yet enthusiastic consumers who have a strong interest in systems and technology but do not have the money to afford tinkering with more expensive/expansive devices/machinations. Arduinos and the like provide a very strong yet affordable replacement. The use of such devices may also replace everyday technologies due to their high reliability but small size.

During daily life the Arduino/Raspberry Pi technologies will change the efficiency of most computing devices used every day as companies would have gained the opportunity to create more refined prototypes at a lower cost. For the same reason, many of these devices may be reduced in price as both the prototypes and final products would incorporate small computing devices that are quite cost-effective. At the same time, products will become smaller but more effective due to miniaturization. This would provide more space and faster completion times for tasks that are assigned. It would affect most of the people around me in the same way as, nowadays, almost all daily functions rely somewhat on technology and, if it can be made faster and more effective, people's lives become easier. Although for those who are enthusiastic about tinkering with technology, the small computing devices are a godsend that bridges the gap between functionality and affordability when exploring new projects.

Clouds, services, servers

A server is a program or device that provides functionality, processes requests and delivers data to other programs or devices, servers accept and respond to requests made by another program. Cloud servers are servers that are built, hosted and delivered through a cloud computing platform over the internet and have similar functionality to

normal servers however are remotely accessed from a cloud provider. Servers are engineered to provide services such as manage, send, store and process data and tend to be more reliable offering more features and hardware that are typically not available on a desktop computer. Cloud servers allow users access to functions such as storage, remotely over the internet, thus allowing data to be accessed by the user from any location provided they have internet. Types of servers include web servers, email servers, File transfer protocol servers, identify servers and network servers. Users are able to run local servers at home accessible to only devices on the network, allowing for shared access to files and data. It is estimated that all no-cloud companies will start using cloud services in their businesses, due to clouds establishing a workplace where an entire team can interact using the internet, and due to clouds being cost effective, saving businesses from investing in hardware and software, but rather outsourcing computing services.

Benefits of cloud servers include that they provide remote access, a simplified IT infrastructure and management and are cost effective, however cloud services can be limited by the speed and reliability of the internet connection. Cloud servers can either be public or private, public clouds don't require the user to be responsible for any of the management of the hosting solution as the user's data is stored in the providers data center which is managed and maintained by the provider. Private clouds are internal clouds where data is protected behind the user's firewall and requires the user to maintain, manage and update their data center which can be expensive. It is likely that within the next few years there will be an increase in users who store data in public clouds, as these are inexpensive and require minimum maintenance.

Cloud technologies will impact businesses with most operating primarily from the cloud, to enable more flexible, remote and productive work. The increase in cloud services will result in more jobs, many of which being IT, including cloud developers, software creators and developers and integration specialists. It is also estimated new jobs that currently do not exist will be created as result of cloud innovation and due to companies increasingly

becoming cloud providers themselves. An impact of cloud servers taking over however could result in security still being an issue, and even more so with more devices connected and hacker attacks becoming more sophisticated. As result of this possibility more jobs will be created in security to ensure that cloud services are protected against complex data breaches.

The future of cloud technologies will impact everyday life as it will not only change how businesses function but will also change how everyday people store their information, increasing the usage of public clouds for personal data and business data. Using clouds in everyday life as a student can enhance productivity as clouds allow accessibility to data from any location as long as you are connected to the internet. Cloud technologies will result in individuals being able to work from any location both in and out of the office and thus could result in businesses saving money through not having to cater for as many staff, an example of this is demonstrated through hotdesking, where employees are not allocated desks and can work at a desk or in any location as they can remotely do their work through cloud services.

Cybersecurity

What does it do? Cybersecurity is the practice of protecting systems, networks, and programs from digital attacks. These attacks are usually aimed at accessing, changing, or destroying sensitive information; extorting money from users; or interrupting normal business processes.

A prime example of a cyber-attack that recently took place is the WannaCry ransomware attack in 2017. It was a virus that targeted computers running Microsoft Windows, encrypting user data and demanding ransom in the form of cryptocurrency. However, WannaCry was only able to attack windows systems that hadn't installed a patch for the

SMB vulnerability that the virus exploits which was ironically released 2 months before the attacks began.

Cybersecurity only keeps evolving throughout the years and it shows no signs of slowing down in the distant future. For example, logging into your email account back in the day was just a simple 'enter your email and password' but now there are much more security procedures in place to protect a user's email account. Such procedures include; entering a random code to prove you are a human, linking your phone number to your email so that a verification code can be texted to you, linking an alternate email account to your current account as another verification step are just a few examples of ways you can now protect your email account. More procedures are likely to be added in the future.

What helps cybersecurity grow is the emerging trends of new technologies being introduced which also means the introduction of new threats to these technologies so an everlasting arms race between cyber threats and cyber security occurs as each side tries to get one up on the other. Every time a new exploit is found and someone creates malicious software to target users and organizations using the targeted devices, the company who made those devices are working on updates and patches to make sure the exploits can't be used to harm users anymore.

Right now, machine learning is the state of the art when it comes to cybersecurity. With it, IT professionals can process threat data more efficiently, and more accurately predict criminal activity. The downside to machine learning however, is that it's reliability and efficiency is proportional to the amount of data it receives and processes so an security system that has processed only a little bit of data over a few weeks would not be very strong whereas a security system that processed a lot of data over several years would be much more powerful and effective at perceiving security threats and putting a stop to them.

In the future, it is expected that as the internet of things becomes bigger and starts encompassing more devices such as cars, refrigerators etc. that Denial of Service (DOS) attacks will become more commonplace and so, it would be expected that new security measures will be put in place to protect devices that start to become connected to the internet from being vulnerable and exploited by people with less than noble intentions. Cognitive security is the application of AI technologies patterned on human thought processes to detect threats and protect physical and digital systems and is heavily reliant on self-learning via data mining, pattern recognition and natural language processing to simulate a human brain albeit in a high-powered computer model to help eliminate the need for human resources.

What is the likely impact? With the introduction of cognitive security in the future, people can be a lot less worried about cyber threats being used to exploit any hardware they may own and be a at peace knowing that the likelihood of someone hacking into their car's computer system and holding it for ransom will be an occurrence that may never happen in their lives. Cognitive security also aims to deal with any malware that aims to manipulate human perception such as the "you won a free laptop" scams that can pop up while browsing the internet which can trick the less informed people into genuinely thinking they won a free laptop and then trick them into entering their phone number and address so they can bombard your phone with SMS messages that you "subscribed" for meaning that you will be forced into paying for those subscriptions. Another advantage of cognitive security is that most antivirus companies would already be using machine learning and user submitted reports to help with identifying what malware can look like, so this would mean an added benefit of cybersecurity companies already being several steps ahead in the constant arms race between cyber threats and cyber security. Cognitive cybersecurity systems don't just impact individual users however. It can also have a benefit on large enterprises and organizations like a hospital. Nothing could be worse than a cyber-attack like WannaCry affecting hospital equipment like life support systems or heartbeat monitors putting many lives and risk and causing a huge crisis in the healthcare sector. With improved cybersecurity, the risk of that happening can be narrowed down to almost zero and provide a safer environment in which hospital equipment can work freely without interference from malicious cyber-attacks.

How will this affect you? Personally, I don't feel like it would have too much of an impact on me when browsing the web but when I am trying to make purchases online, I might feel a little bit safer than I do now. I can also assume that it would be safe to say that email providers like google and yahoo will have some new systems in place that can detect obvious scams like the "Nigerian Prince" scam and delete them straight away or just block the IP address from sending me emails instead of just relegating them to the spam section. In the near future when I have my own car or household appliances connected to the internet, I will feel a bit safer knowing that there are security measures in place to prevent me from being put at risk by hackers infiltrating my household appliances and

forcing them to shut down or perhaps self-destruct with the intention of causing me harm. As for my family, I think it might be easier for my parents and grandparents to stay away from scams that can appear through emails or text messages that may look convincing which also reduces the need for me to have to help them in identifying any troublesome scams that they could fall for due to possible lack of knowledge about newer technologies. If there are any downsides to the future of cybersecurity I can think of, it's that with more and more devices and appliances getting connected to the internet, more and more updates need to be installed to protect these devices and appliances from security threats. It also means that the only way to really keep your appliances safe from cyber-attacks would be to not connect them to the internet at all.

Project Ideas

As a group of IT enthusiasts, we have come up with a relatively simple yet very appealing suggestion for an IT project and have taken to naming the group after it. Paint Drop, as the name so implies, is a game. A somewhat simple Java-based, down-scrolling platformer that can be remodeled multiple times over so that it remains fresh. The reason it is described as a 'somewhat simple' game is because all members of the group are 'somewhat' familiar with the coding language JavaScript, either through another course or some other avenue, meaning that we may all be capable of creating something such as Java-based game. We chose to undertake this project not only because it would be a lot less difficult than some of the other project ideas in terms of resources, time, and required skills but because we felt that in this day and age, a game would prove to be much more popular and appealing to a wider audience.

The main mechanics of the game include a single player-controlled model constantly moving downwards. While the player-model does this, a variety of obstacles will begin to enter the screen from below, threatening the player-model. The player is to navigate their player-model around the screen (using the WASD keys on the PC) in order to avoid said obstacles whilst collecting coins that will be scattered throughout the stage. If the player is struck by an obstacle, the game ends. However, should the player manage to reach the end of the stage and achieve victory, the number of coins they collected will be translated

into a score so that a level of competitiveness is added into the mix. On top of this, a variety of settings, character models, backdrops and obstacles can easily be created as the game will return to the retro 8-bit visuals seen in classic platforming games such as Nintendo's Mario or SEGA's Sonic The Hedgehog. This will be accomplished simply by using Microsoft's free software program Paint, hence the name Paint Drop. Other than Paint, the only other resource we require to bring this idea to life would be Java so that the models created in paint can be programmed to have specific functions when interacting with each

other and the player.

Some ideas for the settings of the game we've discussed include skydiving, scuba-diving and falling through space. With regard to these, the player-models we came up with consist of a bird, a skydiver, an alien/spaceship, a soldier, a scuba-diver while the backdrops could include day, night, war, space, deep-sea etc. The main challenge of the game will come from the obstacles which we've discussed should match the backdrop and player-model to give the game a bit of consistency. They will be made up of gunshots, helicopters and bombs for the war backdrop, flying saucers, asteroids and lasers for the space backdrop, birds, planes and balloons for the skydiving backdrop and treasure chests, sharks and other marine wildlife for the deep-sea backdrop.

Overall, this project seems to require a very well-rounded set of skills which makes for good team-building experience and may see each team member reprise a roll that handles similar responsibilities as someone in their ideal position would have in a real-world project. Also, it would encourage far more cooperation as the project would require a culmination of each team member's differentiated skill set.

Group Reflection

Keyur

I believe that during the course of the assignment, our group discussed and noted down ideas and contributions very well. We also communicated quite a bit outside of classes in order to gather each member's materials. One thing that could have been improved is that we could have met up a bit more to have more direct discussions. One thing that surprised me was that what once seemed like a whole lot of work was completely watered down when divvied amongst a group of people. I've learned that a group can get a heap of work done a lot quicker if it is split evenly.

Phong

Every single person in the group cooperated and communicated perfectly with little to no issues. Each person was able to complete the task delegated to them with absolutely no complaints even with outside activities interfering with their progress. The work put into the project was extremely organized and coordinated. Although there is nothing notable that needs improvement, communication can be improved to a newer level so that, completion of work can be smooth, quick and thorough. Other than that, there's nothing noteworthy that needs improvement. The most surprising thing notable is how everyone is able to cooperate and share ideas freely without any problems, which is considered extremely important in the industry. This quality of teamwork and trust is what every group needs in any kind of project. One thing learnt from groups is that it is useless to be afraid of being assertive and open to teammates. This experience has helped boost my confidence in being open and expressive with my opinions, ideas and standpoints. It would be a pleasure to use this experience as a foundation to maintain my ambitions.

Senduran

I think everyone in the group was co-operative and worked well together. All the members pulled their own weight and contributed to the team despite having other commitments getting in the way at time. During this assignment I learned that it is ok to try and push your ideas even if you think no one else might agree with them because that way you at least have a chance to explain to them why it might be a good idea. I think this experience helped me with improving my confidence in working with a team and I will endeavor to use this experience as a starting point to become a much better team member in future projects.

Monique

Overall, I believe our group worked well together, we were able to divide tasks and all group members were able to complete their designated workload. There were no issues within our group and everyone's ideas were considered and contributed when

establishing a project idea. An improvement that could have been made was the communication within our group, although this was not an issue more communication out of classes may have allowed us to complete the assignment earlier. I was surprised how easily it was for our group to delegate tasks and collaborate our work using Google Docs, I don't believe our GitHub log reflects the activity of our groups work as we found it easier to collaborate using Google Docs.

Karl

I feel our group had good cohesion and we definitely overcame any difficulties we had very quickly. We each knew what we had to do and everyone assumed leadership at some point, equally pulling their weight and ensuring that the rest of the team knew what was expected of them. The amount of time we got to know each other and our strong suits/ personality types was fairly limited so I feel that could be improved. I was pleasantly surprised at how easy it was to maintain communication and collaborate through google docs. Our use of Google Docs far surpassed GitHub and im sure that is one area that could be improved in the future.

References

Arduino 2018, *What is Arduino?* n.d. Arduino, viewed 22 April 2018, <https://www.arduino.cc/en/Guide/Introduction> .

Bruce, J 2011, 'What Is Arduino & What Can You Do With It?', *MakeUseOf*, 25 September, viewed 22 April 2018, <https://www.makeuseof.com/tag/arduino-technology-explained/>.

Feldman, B 2014, 'Where is Arduino now and where is it going in the future?', *Quora*, blog post, 14 Oct, viewed 23 April 2018, <https://www.quora.com/What-is-the-future-of-Arduino>.