

The IT World

Assignment 2

Report

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Tools

Group website: <https://don-tforget.github.io/>

Group repository: <https://github.com/don-tforget/don-tforget.github.io>

How well does our Github log activity reflect our group work? We can't answer this because we did all of our work on a shared Google Doc. This meant that once all of our writing components were completed, all we had left to do was copy the writing into the report/website. Our Github is only full of minor report changes, website changes and some misc uploads. Regarding the Google Doc, everyone put in an equal amount of work when it came to answer the questions.

Industry Data

What are the job titles for your group's ideal jobs?

Java Developer, Application Developer, Programmer, Freelancer and Unity Developer.

How do each of these rank in terms of demand from employers?

Java Developer (713 listings according to the Burning Glass data)

Application Developer (92 listings according to the Burning Glass data)

Programmer (0 listings according to the Burning Glass data)

Freelancer (0 listings according to the Burning Glass data)

Unity Developer (0 listings according to the Burning Glass data)

Some of our job listings had 0 listings only because they were generalised or because they were in a different area of IT than what the data referred to. Going off other job-hunting websites (such as seek, indeed, etc.) we found that these jobs are definitely in demand.

From your group's ideal jobs, you can identify a set of skills required for these jobs. These can be divided into general skills (communication, problem solving, etc.) and IT-specific skills (Javascript, SQL, etc.)

Java Developer	Application Developer	Programmer	Freelancer	Unity Developer
<ul style="list-style-type: none">• Experience with JAVA programming language• Experience with web-based technologies• Experience with SQL programming language• Experiencing with Spring MVC Framework• Good communication skills• Good problem-solving skills	<ul style="list-style-type: none">• Experience with advanced HTML5/JavaScript knowledge (web-based technologies)• Experience with Node JS• Mobile application development experience	<ul style="list-style-type: none">• Basic experience in various programming languages• Basic experience with web-based technologies• Experience in professional environments• Good passion for technology	<ul style="list-style-type: none">• Good experience with all types of programming languages• Experience with many web-based technologies• Good passion for technology• Good problem-solving skills	<ul style="list-style-type: none">• Knowledge of C# with strong coding capabilities• Experience with GPU programming/shader programming• Experience in cross-platform development• Understanding of game design principles and player experience

<ul style="list-style-type: none"> • Ability to work independently or as part of a team • Genuine passion for developing applications/developing • Ability to demonstrate technology to technical and non-technical audiences 	<ul style="list-style-type: none"> • Experience in professional environments • Strong passion for technology • Great communication skills • Good problem-solving skills • Ability to work independently or as part of a team • Ability to demonstrate technology to technical and non-technical audiences • Exceptional presentation and interpersonal skills 	<ul style="list-style-type: none"> • Good communication skills • Good problem-solving skills • Ability to work independently or as part of a team • Ability to demonstrate technology to technical and non-technical audiences 	<ul style="list-style-type: none"> • Ability to work independently or as part of a team • Ability to demonstrate technology to technical and non-technical audiences • Excellent communication skills • Exceptional presentation and interpersonal skills 	<ul style="list-style-type: none"> • Ability to work in a team and develop reusable commented code • Ability to demonstrate technology to mainly technical audiences • Strong communication skills • Strong presentation and interpersonal skills • Passion for focused game design/innovative ideas • Good problem-solving skills
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How do the IT-specific skills in your required skill set rank in terms of demand from employers?

Freelancer: 1st because being a freelancer requires knowledge in various types of I.T. related things. A lot of knowledge in IT will be required to be a super successful freelancer. This can range from Java to C++ to even HTML5. Technically, they will be in demand the most due to being able to work with any type of language.

Java Developer: 2nd because being a Java Developer only requires knowledge in mainly Java related things. According to the Burning Glass data, they are in high demand.

Programmer: Tied for 3rd because being an all-round Programmer requires knowledge in various programming languages such as Java, C++, etc.

Application Developer: 4th because being an all-round Application Developer requires knowledge in types of Javascript related things as well as having application development experience (possibly game engines for mobiles, etc.)

Unity Developer: Tied for 4th because being a Unity-specific Developer requires knowledge with the Unity game engine, knowledge of C# (Unity 3D) as well as experience with GPU programming/shaders and such.

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

Java Developer: Tied for 3rd because although we'll be making programs for users, there isn't much interaction between the programmer themselves and the user. It's all behind-the-scenes work and this means that generalised skills won't be required so much. Skills such as presenting, communication and presentation will be required though.

Application Developer: Tied for 2nd because we thought that Application Developers will be interacting with people more than Programmers or even a Java Developer. We thought this because mobile applications are catered wholly for people and you'd need to be on a good-basis with your users to make the most of your app.

Programmer: Tied for 3rd because although we'll be making programs for users, there isn't much interaction between the programmer themselves and the user. It's all behind-the-scenes work and this means that generalised skills won't be required so much. Skills such as presenting, communication and presentation will also be required.

Freelancer: 1st because Freelancers will be interacting with people the most and we believe that this will mean they need the most generalised skills.

Unity Developer: Tied for 2nd because much like being an Application Developer, Unity applications will be developed for people and you would need to be knowledgeable with your userbase to make the most of what you develop.

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

Java developer: Networks, negotiation and building relationships

Application developer: SAP, business management and building relationships

Programmer: SAP, business management and building relationships

Freelancer: SAP, business management and building relationships

Unity developer: SAP, business management and building relationships

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

Java developer: Time management, teamwork, willingness to learn

Application developer: Leadership, time management and mentoring

Programmer: Research

Freelancer:

Unity developer: Communication, initiative and enterprise.

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

Ryan: Even after looking at the Burning Glass data, no, my opinion of my ideal job has not changed. I would still like to work as a Javascript developer because it's an extremely ideal job for me. Also, the job listing that I found was for a position in Japan and I'd be happy with most IT jobs as long as I'm in Japan (although working in an area I have knowledge in such as Java would be preferable). It's reassuring to know that Javascript developers are pretty high in demand too.

Shieerl: No, it did not change after looking through the Burning glass data. I am still very interested in becoming an application developer and I believe that there will be more opportunities provided for an application developer in the future as more people

Nicholas: After looking at the burning glass data my opinion of my ideal job still has not changed. I would still like to be a programmer as it is what i enjoy and feel as if it would provide more creative freedom for me in my job. My opinion is supported by the statistics as the top 3 of the most in demand skills are programming based meaning i would have more opportunity if i pursue my career choice.

Peter: After careful examination of the Burning glass data for top jobs and skills, my ideal job of becoming a freelancer in the world of I.T has not changed. Judging from the statistics given, there are still a substantial quantity of jobs available for a large variety of skills that will be incorporated into my journey of being a freelancer. For example, the skills SQL and JavaScript alone in 2018 has had a combined posting of 6,516, skills that will be needed in the chosen job. As for job titles, the statistics are equally appealing with jobs such as systems engineer, java developer, network engineer and web developers all racking up a grand total of 2,546 postings available. If these statistics are anything to go by, the prospects of freelancing between these skills and jobs seems a viable future opportunity, given the right previous experiences and learnings.

Wenjie Fan: No, I still wanna be a Unity Developer after I check the Burning glass data. That is what I only want to do in the future. The games platform becomes more and more colossal and has been anticipated by most people in the world as such. Furthermore, there are some aspects in the job description which require "game" improvement rather than just a casual game, I am willing to make changes for this opportunity and am excited for the prospect of having my hobbies become my job, which to me, is a cheerful thought.

Overall, our ideal jobs are pretty well-rounded. We have mainly computer-based jobs (Java Developer, Programmer, Freelancer), a mobile-based job (Application Developer) and a computer + mobile-based job (Unity Developer). With all of this in mind, our project idea looks like a much more straightforward task as our group consists of many types of people with all types of skills. Alongside this, we can all contribute to our project idea (which is an app) because we all have an interest in an area of IT that usually works with apps anyway. It's really good that we all have a big common interest in IT itself with most of us being really interested in different types of programming languages. This means that we'll all be willing to jump into the unknown and even learn a bit of programming and other app-development related things for when it comes to making our group app.

IT Work

Name of the person we interviewed: Chan

Please tell us about your IT work. What exactly do you do?

Because it's a medium-sized law firm, the IT team is very small. I do, on a daily basis, like support stuff and also creating systems accounts, updating the website and also system admin, like user/exchange accounts. Do any troubleshooting like if emails aren't working and stuff. Also, we configure a lot of iPhones and iPads. A lot of the firms are using them now so we have to set them up as well as contact our vendors about their products or if we can't resolve a problem. We specialise using in-house software like iManage which manages anything (court cases, filing). We set up wifi stuff too.

Please tell us about the industry you work in.

It's interesting. Being a law firm, we mainly specialize with law software. Because they're all becoming paperless, it's about efficiency. Everything needs to be stored on file. I guess it's mainly law stuff focused on your clients (such as lawyers).

What other kinds of work do you have to do? Like non-IT work?

We also setup audio stuff for our rooftop functions, helping the electricians set up speakers. Heaps of non-IT stuff. Also, being at a law firm, there's not a lot of handy guys. We IT guys get heaps of beers and drinks whenever there's an event. That's about it.

Who are all the different people you interact with in your work? Please tell us about them. There's two sides. Legal staff (so like lawyers, solicitors and senior associates). The other side is the support staff (admin people, the accounts team, photocopy team as well as legal assistants)

Please tell us about your interactions with other IT professionals.

We talk to third-party vendors a lot. They update us on the product we use by them such as iManage. Any updates they tell us about because all our work is based around that system. You've got Outlook and iManage, that's the main two that people use everyday. The vendors are really easygoing. It's always interesting and I guess you're always continually learning about their product. They're really helpful too and if they don't know the answer then they tell us straight up and get back to us later. Very friendly.

What about your interactions with clients or investors?

I don't talk to investors a lot. But with clients, we think of our clients as our legal staff because we're providing a service to them. It's very different.. I guess my role isn't very client based.

What aspects of your work do you spend most time on? Please tell us about these. Training staff members (other IT guys as well as the support staff on simple stuff they're doing wrong). It's interesting how they have a job. There's a really big knowledge gap sometimes between the computers and the users. We find that a majority of the time it's the user that's wrong and not the system. But you can't really say it's the users fault so you have to present the issue and solution very carefully or else you'll get in trouble.

Which aspects of your work do you find most challenging?

People. People are the most challenging, yeah... It's people. The job IT itself is not that challenging. It's the people and getting them to change their habits. I reckon that's the biggest challenge and at the same time just trying to encourage them to do things in different ways. IT is easy because you can YouTube, Google anything these days. Sometimes they try but it all comes down to having a small understanding of the basics. Most of the staff is between 20 to 75.

Finally, can you share an example of the work you do that best captures the essence of the IT industry? I guess setting up phones? I don't know.. Setting up of the phone systems is very IT. People don't think it's very IT nowadays because they use the older phones. You know why that question is so hard? The law firm isn't very IT, it's more very basic day-to-day stuff.. I don't know.. IT itself is so broad and changing that I can't pinpoint a single thing. Nothing really comes to mind.

IT Technologies

Cybersecurity (Ryan)

What does it do?

Cybersecurity is the protection of internet systems such as hardware, software and data, from attacks. The attacks that are made against these systems are referred to as digital/cyberattacks. These cyber attacks usually aim at getting or even destroying information and may lead to interruption of normal business processes and major consequences. There are many elements to cybersecurity including application security, information security, network security and more.

What is the state of the art of this new technology?

One of the latest cybersecurity technologies that is also at a “state of the art” level of technology is hardware authentication. What this means is instead of using authentication such as being emailed a 6 digit code, the authentication will instead be inside of your actual physical hardware. The idea behind this is that no one will be able to login without having the same exact physical hardware that the account was created on. One of the main problems with trying to determine the exact “state of the art” regarding cybersecurity is that IT is constantly advancing. Now faster than ever. Security risks are evolving and it’s hard to judge whether you should work on protecting against the biggest known threats or the less dangerous but still damaging ones.

What can be done now?

Cybersecurity can help prevent cyberattacks, data breaches and identity theft and can also help in risk management. Jobs in cybersecurity include cryptographer, security administrator, penetration tester and more. Everyone around the world is benefited by cyberdefense programs as all types of cybersecurity threats are stopped everyday thanks to these defense programs and jobs.

What is likely to be able to do be done soon (say in the next 3 years)?

Blockchain-assisted security and AI and Machine learning-assisted security are the biggest ones. Health services are looking into using blockchain to protect patient data and share it safely between facilities among other uses and AI and Machine learning is being looked into regarding security without human input and pre-empting security threats as well as automatically adapting as needed.

What technological or other developments make this possible? Advancements in Blockchain technology and Application security are all helping cybersecurity become more widespread and commonplace than ever before. Think of Blockchain as a literal chain of blocks with each block having a special code that relies on the previous block. This means that if you were to change Block 1, then the code for Block 2 is wrong. Therefore, you’d need to change Block 2’s code but then Block 3 would be wrong too. Keep in mind that blockchains can have a tremendous amount of blocks (over 527125 for bitcoin right now).

Blockchain is helping advance cybersecurity in a similar fashion by splitting up the data and sending them through different nodes throughout the system. If one piece

of data is changed then the system will exclude it as it doesn't match up. The amazing part of this is that even if 99% of the data was changed and excluded as long as there is at least one piece of data that made it through a node successfully untouched then the whole system can be restored.

Blockchain can also assist in preventing DDoS (Deliberate Denial of Service) attacks through the same idea. By sending its contents through multiple nodes, it makes it extremely hard for hackers to attack. The only people who would be allowed to access these files would be the head user (domain owner), reducing the risk of data compromise even more.

Regarding another recent technological development (mobile applications), mobile apps on devices are now more secure than ever. Back in the day, apps used to be only as secure as the device they were installed on and hackers started to abuse this idea. Since then, a lot has changed to reflect that. Security software is now a big part of application development and apps are now more secure on devices than ever before.

What is the likely impact?

From emails to financial transactions, Cybersecurity ensures that everything you do "online" and off will be safe. Its likely impact on the world has already been felt as it is keeping us secure every day and will only continue to do so.

What is the potential impact of this development?

New and constant development in cybersecurity technology will impact us by better protecting us from threats, attacks and cybercrime.

What is likely to change?

As cybersecurity advances more and more over time, we hope that in the future there will be less attacks and the internet will be a safer place for all.

Which people will be most affected and how? Theoretically, everyone will be affected. Everyday users (such as workers, parents, etc) will benefit from better cybersecurity as it will keep them more safe with whatever they do on the computer. Hackers will not benefit as all as this technology is created to keep them out and will continue to better prevent them from causing any harm to anyone.

Will this create, replace or make redundant any current jobs or technologies? It depends. If Machine and AI learning takes off then future cybersecurity position won't require a lot of user input at all meaning less jobs. However, to create all of this new software and technology, lots of user input will be required from the start. It all depends on what direction we take cybersecurity in.

How will this affect you? I can personally say that I feel safer browsing online knowing that there are cybersecurity measures in place protecting me from malicious things. For example, when doing things such as surfing Facebook, checking my bank statements or even playing a game online, it's nice to know there is a layer of protection out there that makes sure no one else will see or access my data.

In your daily life, how will this affect you?

Everything I do that's computer related will now be protected in the background. It's extremely nice to know that this type of security is in place and is protecting me.

What will be different for you?

Technically nothing much at all. I don't have to do much when it comes to cybersecurity because the technology is all handled server-side. I could assist in reducing the risk of malicious software being on my computer by installing antivirus software such as Avast which would protect me if I were to download a suspicious file or try to access a suspicious website.

How might this affect members of your family or your friends?

Much like how it wouldn't affect me, it wouldn't affect my family or friends either. They could also install antivirus software to reduce their risk of being attacked.

Autonomous vehicle (Shieerl)**What does it do?**

Autonomous vehicle and ordinary vehicle are the same thing, but autonomous vehicle is a self-driving car which can move without human control. An autonomous vehicle is capable of sensing their surrounding. It has multiple sensors to make sure that it will not harm anything. Their front radar sensor detect several hundred meters in front. Combine with ultrasonic sensor which can detect what is around the car. Their sensor also can detect the speed of the car that is currently drive in front of them, so that the autonomous car itself will not drive with the speed faster than the car in front for the safety reason. Furthermore, the system of the autonomous car will track the road so the autonomous vehicle moving in a right path.

What is the state of art of this new technology?

The very first company who invented the self-driving is Tesla. However, the latest state of art of this autonomous vehicle technology is Uber self-driving taxi which has been launched on 2016.

What can be done now?

The vehicle can drive itself but it still needs someone to sit inside to monitor and prevent accident happens. Moreover, the passenger still needs to control in some given time, so the system can check on the passenger. There were many accidents happened caused by autonomous vehicle for the past few years and that is the reason why autonomous car is not fully prepared by now. However, we believe that there will be a solution to fix this problem.

What is likely to be able to do be done soon (3 years)?

Right now, they still hired someone to sit in the front seat to monitor whether the technology is working properly. However, in the next couple of years, it is expected to drive without someone monitoring it. As for the online connectivity, it is expected to have a 5G connectivity as the standard for its technology. It is also expected to run the vehicle using electricity which can reduce air pollution as they are not using fuel anymore.

What technological or other developments make this possible?

Artificial Intelligence played a big part when it comes to technologies, since they carry a lot of internal technologies that might help the autonomous vehicle to transport passengers from one location to another location safely. However, Artificial Intelligence needs internet connection as they have to retrieve the data online for decision making in real time. Thus, it required a IoT connectivity inside the autonomous vehicle. The other development to support autonomous vehicle is the cloud, it is used to support the navigation system as information about the roads and traffic will be stored in the cloud to make sure the autonomous vehicle will find a faster way to reach the destination.

What is the likely impact?

First, The autonomous vehicle would take less time to reach the destination. Second, it would reduce the air pollution as it might use electricity to power up the vehicle. Third, reduce traffic.

What is the potential impact?

Less traffic as the Artificial intelligence retrieve the information in real time and it is expected to reduce the accident that would occur which might save lives.

What is likely to change?

As the technology of autonomous vehicle improves over time. There will more cars that has Artificial Intelligence installed inside the car. More people focusing the technology installed inside the car rather than its looks, price and etc.

Which people will be most affected and how?

I would say driver would be the one who is affected the most by autonomous vehicle as they do not required a driver. Some of them might become unemployed due to the fact that the company no longer needs them. The company might thought that invest in an autonomous car would be more beneficial for them

Will this replace any current jobs or technologies?

This technology could replace any job that required driver such as bus driver, taxi driver and etc. As their technology and system improves over time, many works would be replace by machines. Many company will be more willingly to invest in an autonomous vehicle rather than paying someone to drive for them, which will cost more over a longer period.

How will this affect you?

In the real life, there are so many things (For example: do my homework, eating breakfast and etc.) that i could do when i am on my way to somewhere. However, if this technology is ready to be used by everyone who needs it, it will definitely save a lot of time.

In your daily life, how will this affect you?

In the future, when this technology takes a big part in this world. It will help me with my time management as i can do lots of things when the car is driving itself, which is something that will not happen now, since the autonomous vehicle has not been fully supported by the technologies needed.

What will be different for you?

Nothing much. As long as the technology improves over time and reduce the chances of accidents.

How might this affect members of your family and friend?

I think they will have the same opinion with me. It also will help them with their time management as they can do lots of things when the car is driving itself. It will reduce the risk of accident as the information updated in real time.

Raspberry Pi (Peter)

What does it do? (600 words) What is the state of the art of this new technology? What can be done now? What is likely to be able to do be done soon (say in the next 3 years)? What technological or other developments make this possible?

The raspberry pie, created on. February 29th, 2012, along with other similar devices such as the Arduinos and makey makey, are low cost computing devices about the size of a credit card.. These small computing devices have a large variety of possible uses and a broad range of different functions, spanning from acting as a web server to functionality in robotics. The raspberry pi itself has actually released multiple models of itself, with efficient upgrades and improved functionality, with currently 6 different models available today. Due to the devices large potential, there are many exciting projects being made currently in the world of technology and with ever evolving technological advancements in areas such as robotic and computational power in general, the possibilities for such projects is also ever growing.

Since the initial release of the first Raspberry pi, in 2012, the idea of a small computing device has developed throughout the years to become faster and more efficient, along with additional functionality. Initially, the raspberry pie was the simplest small computing device possible, however, currently with the introduction of the raspberry pi 3, there is the added functionality of Bluetooth connectivity and wifi connection available for the device. Along with these added features, the computing processes the raspberry pi three has compared to the original device is 50 percent

faster with a much larger RAM capacity. With these improvements being made, the abilities and functions the raspberry pi can do is beginning to broaden.

From the improvements to the later generations of raspberry pi, the technology can now have the added bonus of being able to compute more efficiently and connect to Bluetooth and wifi. These features have allowed the raspberry pi to be able to be incorporated into many projects with a broad range of applications. Initially however, the raspberry pi's main purpose was to help people efficiently learn a new computing code, and today that still is a large portion of what raspberry pi's are used for. Today however, these programming languages combined with the devices increased ability for real world connectivity, can actually be used as a smart home assist, increasing the home automation that is a growing trend in modern times. With the wifi connectivity, the raspberry pi can also do several jobs involving the internet, from mundane jobs, such as becoming an ad blocker, to even becoming a WI-FI router.

The simple and small computing devices of today, although initially very basic and used for little more than little programming projects with the purpose of testing and practicing programming skills, has now branched out and become a useful and sometimes integral part in many technologies today.

What is the likely impact? (300 words) What is the potential impact of this development? What is likely to change? Which people will be most affected and how? Will this create, replace or make redundant any current jobs or technologies?

A common trend for technology lately is the want for smaller, more diverse devices, as seen in the mobile phone market and the broadening functionality of such things, however, the high-end mobile phones, cost an enormous amount of money and would be impractical for at home tinkerers to play around with these devices.

Raspberry pi, and other such devices, with its release, made a boom in sales due to its cheap cost and high functionality. This boom impacted the world in this way, not in a direct way, but more of an indirect way. The device that is so cost effective you can buy one for around ten dollars, has given rise to many at home projects, home start up technologies, and has attracted the attention of potential engineers. All of these combined caused a catalyse for the development of new technologies, and testing the limits of older known technologies and their capabilities. Due to the raspberry pi's affordability, the devices most evidently impacted the people who could otherwise not afford to tinker on expensive computers. Additionally, as of yet, the raspberry pi has not made any jobs redundant, however, it is nearly impossible to say for certain that there won't be an invention or initiative that will make certain jobs become redundant in the as a side effect of a new creation that was involved in one way or another, the raspberry pi or other such devices.

How will this affect you? (300 words) In your daily life, how will this affect you? What will be different for you? How might this affect members of your family or your friends?

The raspberry pi, and similar devices, will affect me, a university student in the technology area, in subtle ways that if not paying attention to, may be missed completely. Since its release, the Raspberry pi has had many impacts on the world. Most notably, the raspberry pi has had its greatest impact on the educational system, being incorporated into places such as schools, hackerspaces, research libraries, areas of the industrial environment and even libraries to increase and further the understanding of computers. Because of its inexpensive design, these have become a staple for aspiring engineers and tinkers in general to better their knowledge and in essence, help give rise to new and improved developments. Although the affect the raspberry pi has had is large, it is not all encompassing, with its impact, still hardly noticed by people who are not familiar with the device, however, with the rise of engineers and educated people using raspberry pi, it will only be a matter of time before the raspberry pi will be incorporated into more and more commercialized products, eventually affecting most people in one way or another with the goal of making the technologies we use today more efficient and flexible. This can be done through simple things such as smart media boxes that can connect to TV's, or even smart home automation devices. Things such as these will be the most likely impact the technology will have on people in general however the future for raspberry pi's are still very uncertain as to what direction the technology will influence people.

Machine Learning (Wenjie)

What does it do?

Machine learning is a branch of artificial intelligence, it follows a way that starts from "reasoning" to "knowledge" and finally back to "study". The complications of artificial intelligence will be solved by machine learning such as Biometric identification, Detect credit card fraud, Searing engine and Data mining. There are lots of theories been included to run, like Probability theory, Approximation theory and Convex analysis. Machine learning has already been widely used in diverse areas contains Speaking and handwriting recognition, Strategic game and robot.

What is the state of the art of this new technology?

Machine learning is not a single technology, it is an area of computational science, combines a lot of technologies to create a system that can learn from the data of environment and then do the predict while the new situation comes. nowadays, it used to run some mathematical algorithms and software such as Decision making and control, Sensory information storage and data compression, Repeatable pattern detection and classification, Regression analysis of noisy pattern sequences to find new, hidden patterns in complex data. Machine learning contains a lot of theories based on modern mathematics. Thus, the technology of machine learning can be defined that it always stays at the newest "state of the art".

What can be done now?

There are 9 examples of machine learning that is widely known by us: Virtual Personal Assistant, like Siri, Alexa and Google Now; Prediction of commuting hours to Help prevent traffic and analyze congestion by GPS; Video surveillance; Social media services; E-mail spam and malware filtering; Online Customer Support such as "Chat Robot"; Search engine results refinement; Product recommendation; Online Fraud Detection. These are the normally things run by machine learning.

What is likely to be able to do be done soon (say in the next 3 years)?

In the future, the works that were done manually will be completed by machines such as Wide Scale use of autonomous vehicles, A more efficient healthcare network, Embedded retail-management systems, Improved moderating of content and Advanced cybersecurity. Machine learning is a competitive advantage to any company no matter a top MNC or a startup.

What technological or other developments make this possible?

With the improvement of autopilot Technology, it as a part of DataRobot machine learning can achieve the auto-driving of automobiles. It means that individuals do not need to cost time on driving and worry about traffic problems. In the future, there will be fewer traffic accidents happens, early reports of traffic accidents show that autopilot can reduce traffic-related deaths by as much as 90%.

Machine learning is the future of Marketing. It eliminates the biggest enemy of business marketing, reduces marketing inaccuracy, the marketer can use the data produced by machine learning to find their audiences and make them be their customers. It opens the door to marketing predictions, the customers can get more specific data about the thing that they want rather than just blind suggestions from marketers. Machine learning can analyze the customers' emotion by Emotional Analysis Method, and then provide a better way for a marketer to communicate with the customer. Furthermore, it reduces marketing costs and the cost of communication while it can adapt to some of the toughest marketing challenges. There will be passed \$6 trillion annually damage costs from cybercrime by 2021. According to experts' prediction that the company will cost over \$1 trillion in cybersecurity services from 2017 to 2021 to counter this growing threat. Therefore, cybersecurity will continue to be a priority problem for startups and large enterprises. The machine learning model can be used cleverly to detect fraud, prevent phishing and defend against cyber attacks. Defense-mechanism systems are being trained, using the history data to quickly find and prevent suspicious activity.

What is the likely impact?

Machine learning could be widely used on Intelligent Gaming, Self-Driving Cars and Automated Transportation, Cyborg Technology, Taking Over Dangerous Jobs such as bomb disposal, Environmental Protection, Digital Empathy, and Robots as Friends, Improved Elder Care, Enhanced Health Care, Innovations in Banking, Personalized Digital Media such as Netflix, Amazon Prime, Spotify and Google Play. Thus, it is impacting our daily life in a variety of ways.

What is the potential impact of this development?

As time goes on, there will be more probability that machine learning could run through our whole life, maybe we will not do anything, machine learning will help or replace us do everything.

What is likely to change?

With the improvement of machine learning technology, we shall have a more effective and healthy life, our world will get improved and we have more time to do what we want to do.

Which people will be most affected and how?

The businessman will be affected by a large degree because of machine learning is widely used for marketing. Machine learning can eliminate business marketing's greatest enemy, it opens the door to marketing prophecy, helps structure marketing content, reduces costs.

Will this create, replace or make redundant any current jobs or technologies?

Because the machine learning contains lots of theories so it also been regarded as a kind of theory, it will keep renewing its contents and been used by other technology so it will not replace other current jobs, but it can create some new jobs.

How will this affect you?

Personally, I would prefer machine learning full penetration in my life. When I have my own car, the autopilot can help me a lot with saving time to find a parking space and no need to worry about fatigue driving or drunk driving, my life could be safer. When I got sick, I could know which hospital is suitable for me or I even can know what pharmacy I should purchase. On the other hand, it also could help me on the study. Based on these, machine learning can improve the quality of my life.

In your daily life, how will this affect you?

When I upload a picture with a friend on Facebook, it will automatically suggest you tag that friend. Another most common example is Virtual Personal Assistant, like Siri or Alexa. Sometimes I will use it to check some pieces of information or help me do something on my phone.

What will be different for you?

No need to do anything on technology, I just use it as a common user.

How might this affect members of your family or your friends?

Machine learning affects my family or my friends in the same way which affects me, make our life more effective and comfortable, they also make good use of the technology to enjoy their life.

Project ideas

Idea: Subscription manager app

The app “Don’t Forget” will aim to aid users in keeping track of what they are subscribed to and help eliminate charges on services they don’t use. In the new digital age many services have been created to help entertain and educate such as netflix and lynda, however with the growing amount of services transitioning to the subscription model it is difficult for users to keep track of what they’re subscribed too and thus resulting in the loss of hundreds of dollars to unused subscription services.

The way the app would work is once it has detected that the user has signed up for a subscription (just like when google asks to save a password) the app would display a popup asking if the user would want to track the subscription and if clicked yes it would add it to the app and track the cost, time recurring (monthly, yearly), and if is a free trial when will the trial end and charge you. Once the app detects that it will be 2-3 days before the service charges a recurring fee it will send you a notification reminding you whether you still use the app or not, giving you time to end or continue the service. The app would have both a PC (desktop and chrome extension app) and mobile version which will be linked through the cloud, we would have a chrome extension app to allow for the popups as previously mentioned to actually to work and make it faster for users to add their subscriptions to the app and the desktop and mobile apps will display all of the information and allow for manual adding of any other recurring bills.

To determine whether the app is viable or not we did some research on how many people actually face the problem, the moneywise article suggests that forgetting subscriptions is an extremely common and expensive problem with reports that £553 million is spent every month on services consumers either don’t use or have forgotten about, and further commenting that 40% of consumers are continuing to pay for services they no longer use, confirming that the idea of our app is viable and could save millions a year. Another article from marketwatch reported on a survey conducted on 2,500 Americans which asked how much they have spent on recurring subscriptions and on averaged guessed they spent \$79.44 per month however when actually adding them all up spent an average of \$111.61 40% more than what was guessed, thus adding value to the idea of our app as if used will automatically add up all costs to give users the exact amount they are spending on the recurring bills.

References:

1. Moneywise. (2019). Brits waste over £250 a year on unused subscriptions. [online] Available at: <https://www.moneywise.co.uk/news/2018-04-28/brits-waste-over-250-year-unused-subscriptions> [Accessed 29 Apr. 2019].
2. Pesce, N. (2019). You’re spending more on your subscription services than you think. [online] MarketWatch. Available at: <https://www.marketwatch.com/story/youre-spending-more-on-your-subscription-services-than-you-think-2018-07-25> [Accessed 29 Mar. 2019].

Group Reflection

Name: Ryan

What went well?

Pretty much everything went well. We were track with our work and nothing was really left to the last minute.

What could be improved?

I think our communication could have been improved. We were constantly in-touch (through a group chat) but it would have been nice if we could of met up more often to discuss more.

At least one thing that was surprising.

One thing that really surprised me is that we had someone join our group after we had already started our work. This didn't affect us too much, but it was very surprising to one day turn up to class and find this out. Thankfully, we didn't have to change too much of our work since we had only just started the "Personal Profile" section of our assignment at the time. This allowed us to assign work to our new member evenly without disrupting our work flow.

At least one thing that you have learned about groups.

You never know what's going to happen. But being able to adapt to change is a key part of teamwork in general so it's nice to understand it and have experienced it. As long as you're in contact frequently and keeping lots of tabs then everything is fine.

Name: Nicholas

What went well?

What went well in our group is that we had great communication as we have created a messenger group chat and a shared google docs making it easier to send messages to each other and see how we're all progressing.

What could be improved?

What could be improved is having meetup sessions outside of our tutorials, even though this isn't necessary as we have multiple means of communication making it extremely easy to do our work together a meetup session outside the tutorials would be a good way to get work done without any distractions/procrastination.

At least one thing that was surprising?

One thing i found surprising working on this project as a group is how well we all get along, our group developed strong chemistry in a short period of time allowing all of us to feel comfortable in doing our work.

At least one thing that you have learned about groups.

One thing i learnt about groups is that it isn't as hard/stressful as i thought as long as you're all organised through spreading out the tasks and staying regularly in contact.

Name: Shieerl

What went well

Everything went well. We created a group chat so we can communicate easily with each other and it is really good to see that we are able to catch up with our work ontime.

What could be improved

Since we all have different schedules, it would be nice if we can arrange a time to meet up and do our work together, but overall it is all good as we have set up a group chat.

At least one thing that was surprising

Everyone in this group are all friendly and willing to help when we have a problem.

At least one thing that you have learned about groups

I used to hate group works since i always got teammates who are irresponsible, but this time we all done our works on time and it was not as hard as i thought it would be.

Name: Wenjie Fan

What went well

All good with our work, we finish every part as well as we can and we can submit our report on time without doubt.

What could be improved

I think there should be more communication for me, I am a little fear of talking with my teammates because of my English is not good, sometimes I even cannot understand, most time I just guess half and understand half, so more improvements on me. By the way, our group did a great job, the best team I had ever meet, nothing should improve.

At least one thing that was surprising

I was surprised that our team's ability of division of labor and cooperation, I joined this group a bit late, they had done most things and left the part of mine, they even help me correct my part as well so this is a relax and joyful assignment for me.

At least one thing that you have learned about groups

The ability of division of labor and cooperation is so important to a group, it will help the team have a clear mind to finish a clean and tidy and effective job.

Name: Peter Zambellakis

What went well?

Our team, help, was surprisingly efficient and complemented each other's work styles and personalities exceptionally well, as shown in the personality test results, there were not two personality types that clashed against each other. This created a smooth work environment where everyone knew what they needed to do with no conflict as to who does what.

What could be improved?

Although the group worked very efficiently together, one aspect the group could have improved to some degree was meeting up in person to work on the project together. We did manage, through online communication and efficient organisation and with every member know who is doing what, to overcome this obstacle with some degree of ease.

At least one thing that was surprising?

An obvious surprise that came to the whole groups was the introduction of a new member to our group after we had already finalised the group members. This was not a hinderance at the time due to the fact that we had only finished the personal profiles at that point.

At least one thing that you have learned about groups?

The thing I learned to understand most about group work is the importance of efficient communication and organisation of group members roles in the groups so that every member knows exactly what he or she need to complete.