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**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>

**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** |
| * 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 * 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 |  Experience with advanced HTML5/JavaScript knowledge (web-based technologies)   Experience with Node JS   Mobile application development experience   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 |  Basic experience in various programming languages   Basic experience with web-based technologies   Experience in professional environments   Good passion for technology   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 |  Good experience with all types of programming languages   Experience with many web-based technologies   Good passion for technology   Good problem-solving skills   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 |  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   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 |

**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

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.

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 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:** 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 in 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 compromisation 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 measure 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 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.

**Project ideas**

**Feedback**

**Group Reflection**