



THE IT WORLD

INTRODUCTION TO IT

ASSIGNMENT 2: THE IT WORLD

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1. Team Profile

After having done tests that reflect my personality, it is ideal to have from 2 to 3 members in my future team that can share our ideas and achieve the best marks possible. For the team name, it is not going to be too personal, but as a Vietnamese who almost lives in Saigon until now, I wish that my group name would be something that is related to my beloved city. For instance, SG-OD can be a good name for me because it sounds like I am in a hip-hop band. For the next section, we will move on to my three test results and have a discussion about it.



KẾT QUẢ TEST MBTI

Chúc mừng **Nguyen Tung Nghia** đã hoàn thành bài test!!!

Bạn thuộc nhóm **ESTJ** : Hướng ngoại – Cảm giác – Lý trí – Nguyên tắc

Đây là nhóm tính cách của: **Người giám sát (Supervisor)**

Gợi ý những nghề nghiệp phù hợp nhất với ESTJ:

- Quan tòa.
- Quản lý.
- Nhân viên kế toán.
- Nhà giáo.
- Bán hàng.

MBTI TEST RESULT

What's Your Learning Style? The Results

Your Scores:

[▶ Printer Friendly Version](#)

- Auditory: 25%
- Visual: 35%
- Tactile: 40%

You are a **Tactile** learner! Check out the information below, or [view all of the learning styles](#).

Tactile

If you are a tactile learner, you learn by touching and doing. You understand and remember things through physical movement. You are a "hands-on" learner who prefers to touch, move, build, or draw what you learn, and you tend to learn better when some type of physical activity is involved. You need to be active and take frequent breaks, you often speak with your hands and with gestures, and you may have difficulty sitting still.

As a tactile learner, you like to take things apart and put things together, and you tend to find reasons to tinker or move around when you become bored. You may be very well coordinated and have good athletic ability. You can easily remember things that were done but may have difficulty remembering what you saw or heard in the process. You often communicate by touching, and you appreciate physically expressed forms of encouragement, such as a pat on the back.

Here are some things that tactile learners like you can do to learn better:

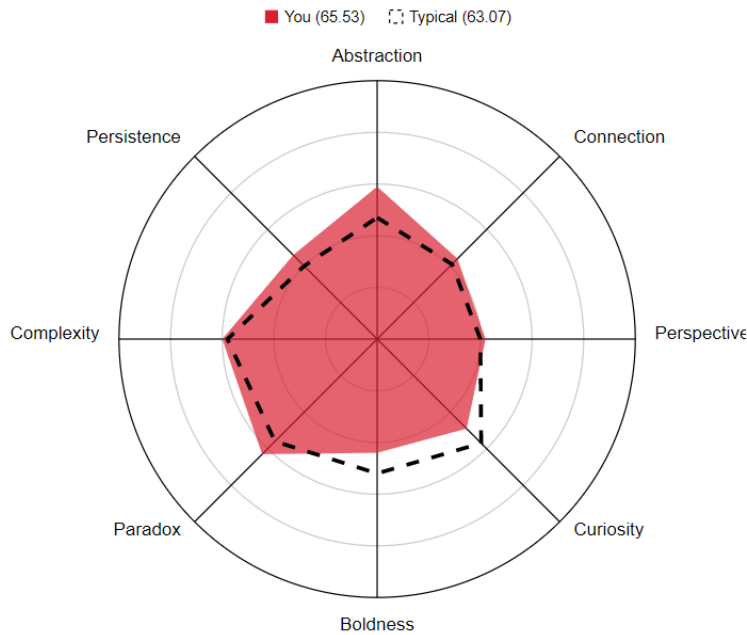
- Participate in activities that involve touching, building, moving, or drawing.
- Do lots of hands-on activities like completing art projects, taking walks, or acting out stories.
- It's OK to chew gum, walk around, or rock in a chair while reading or studying.
- Use flashcards and arrange them in groups to show relationships between ideas.
- Trace words with your finger to learn spelling (finger spelling).
- Take frequent breaks during reading or studying periods (frequent, but not long).
- It's OK to tap a pencil, shake your foot, or hold on to something while learning.
- Use a computer to reinforce learning through the sense of touch.

Remember that you learn best by **doing**, not just by reading, seeing, or hearing.

LEARNING STYLE TEST RESULT



Your creativity score is **65.53**



Explanation of different metrics

Abstraction The ability to abstract concepts from ideas

Connection The ability to make connections between things that don't initially have an apparent connection

Perspective The ability to shift ones perspective on a situation - in terms of space and time, and other people

Curiosity The desire to change or improve things that everyone else accepts as the norm

Boldness The confidence to push boundaries beyond accepted conventions. Also the ability to eliminate fear of what others think of you

Paradox The ability to simultaneously accept and work with statements that are contradictory

Complexity The ability to carry large quantities of information and be able to manipulate and manage the relationships between such information

Persistence The ability to force oneself to keep trying to derive more and stronger solutions even when good ones have already been generated

CREATIVITY TEST RESULT

As a result of the MBTI test, it is believed that among 16 personality types invented by Isabel Myers and Katharine Bridges, I belong to ESTJ. So what ESTJ tells about me, we will find out. ESTJ actually stands for Extraverted, Sensing, Thinking and Judging. I usually concentrate on facts and details instead of concepts or theory. When making decisions, I will be on the side of logic thinking and reason rather than let the emotion be in charge. Thus, I like to work and arrange my amount of work organizationally, so that I will know what I am going to do next and what would I need to complete if it is an unfinished task. Next, let's follow up with my learning style test result. I will say that I am not the type of person that always believes in theories because I always think that there is another way to do it. In studying, I will be more productive if the activities contain physical interaction during the study period. I have a good sense of humor, sometimes I will "spit" some bars during classes to boost up my friends' mood. I actually can remember things really well, especially history and geography. It may help the team to write down some important

notes by keeping it in my head if we do not have a large amount of time to work together. Last but not least is the creativity test. From previous experience of performing presentations, both in Vietnam and Australia, I usually put some punchlines or small stories when I talk to avoid the boringness when I talk. Moreover, I can adapt to new concepts quickly, so it could be helpful when the group decides to change the topic. When it comes to critical thinking, I think that I am courageous enough to demonstrate my opinions clear and loud to my group mates. Also, I have a lot of ideas on how to approach the topic, it might contribute greatly to the team. Overall, the two most matched roles for me are leader and organizer.

For recruiting members to my team, the first person that I would like to work with is going to be a meticulous one. To explain this, I want a member that can write down all of the works and activities that the group has done and remind us of unfinished tasks. Furthermore, a detailed person will pay attention to smaller weak points, so that it will be optimal to have a meticulous member in my group. The next personality that I would be grateful to have on my team is a creative and playful (in a good way). Having a creative member in the team will bring to the team both advantages and disadvantages. Sometimes, that member can be very helpful and useful with their unique critical thinking skills to help the team reach another level of developing the project. But, if that member can not follow the vibe or the flow of the team on solving problems, it will be very difficult for my team to be productive because of lacking seriousness. In my opinion, it is optimal to always have a playful member in my team to help us think outside of the box, however, I will ensure that that member will be on track of how the group decided to work. For the last member, it could be a multi-task (all-around skill) member who can be responsible for many little tasks to help the team solve minor problems for reducing work time and so on, that member can help the rest of the team to improve the quality of the project. Another personality that is good for my team is someone who can perform as a specialist. With this member, the team will have more space for discussion with each other because we can partly rely on that member to do their specific tasks (most ideally is coding). Thus, we would help each other during the group project to achieve as best as we could.

2. Tools

Website link: <https://s3879966.github.io/asm2rmit/>

GitHub link: <https://github.com/s3879966/asm2rmit>

3. Project Ideas

The group will perform creating a FAQ website and implementing it as a chatterbot. This project of ours will contain tons of data, algorithms, artificial intelligence and machine learning skills. We will mainly focus on only one topic to bring out the best product as we could. Our chatterbot will answer users automatically when they input a question with other recommendations. The reason why I choose this topic is because it is really near to artificial intelligence. About my personal interest, I will do the application related to perfume. For explanation, the demand of customer service and other online queries is contributing popularly on the Internet at present, then it might be useful when it comes to finding the best perfume for my customer. The algorithms will be studied from various sources of data and find keywords from customers queries, then it will recommend the best scent or a specific perfume bottle to that person.



Firstly, it is crucial to collect a bunch of data from various sources. It means that data will be downloaded from multiple sites on the Internet. After downloading and storing it in the computer, I will use Excel to open these .csv files for wrangling and cleaning data. In this process, I will perform browsing through all of the data to check if it is in the mutual format for the system to learn or a single datum is wrong or undefined. Now it is the time for us to work with programming languages. Our database will be mainly created and designed in PyCharm by connecting to our own data source and working with SQL. After the database is completed, our clean data will be pushed into the database to be stored. Then we will check it with some SQL queries to ensure that the expected outcome is on the track. However, creating an application is more important than the previous activity. We have to create multiple algorithms on filtering, making decisions, sorting, choosing what is the most match to the customer demand then link it to our database. Next is the

machine learning process, we will teach the system the whole process from getting data to clean data and finally output it, but most importantly is choosing the right algorithms for the machine to learn. Machine learning products will be used for the live chat feature in our website where it can learn patterns, choices, options, sort and find data in such an ideal amount of time. To design our website interface, we will need to work with HTML first to create the general template, containing a search bar, navigation bar, items inside our website and our background image. Following is the design section, in this part we will interact with CSS by choosing colors, font-family, text alignment, creating boxes and decorate whatever happens on the website. Next up, JavaScript will also be used in our website for the click button, search function, loading data from client-side to server-side and backward with outputting results to the customer. Last but not least is to maintain our application work stably by limiting the most errors that we could, also changing the design of our website to attract users to know about our application and keep up-to-date our database regularly. Also, a PHP function will be added to create a live chat box. We will perform checking algorithms more often to check if it can be used anymore or we have to replace it with another existing algorithm, along with creating a new method to process our data. Solving problems inside the application is also necessary to make sure that our system will run smoothly by debugging it everyday. The most optimal plan to ensure that everything is on the right track is to launch our application in a beta time period, which ideally takes about three to four months for us to expect and predict a common pattern of errors while launching it officially.



Creating and inserting data into the database is one of the most crucial processes. It requires me to have a laptop or a desktop computer to complete this activity. Mainly for this application, I will be using PyCharm for creating the database, writing algorithms. I will use Excel to clean and wrangle data after collecting it from various sources. For the website interface, it is ideal to use Microsoft Visual Studio Code, including coding HTML, CSS and JavaScript to design my own frequently asked question website about perfume. Finally, it is about machine learning for our system. I can use R language or Microsoft Azure, but at this time, Microsoft Azure is more familiar with me. On the other hand, having a strong desktop computer and a stable bandwidth of the Internet will help us load data on this project more smoothly.

Having discussed the software and tools that are required in this project, next we will concentrate on skills to operate. Firstly, having experience of working with SQL and databases will be a big plus when the application contains a lot of processing data methods. Secondly, capable of working on PyCharm, such as algorithms or solving problems will be importantly needed because of outputting data from filters. Thirdly, also very crucial is the ability of interacting with machine learning, deciding which algorithms are the most suitable for applying into the system.

If this project of ours succeeds in the future, it can solve many concerns on what perfume should a customer wear today in which events (casual, parties, fine-dining, sports). People can use our applications to read new blogs about recommendations on wearing fragrances, news about upcoming fragrance products and so on. But there may cause us some difficulties also. First is about the unemployment rate, if our application can recommend each specific type of perfume to our customer, what will be the purpose of fragrance salesmen in their brand booth. It may cause cutting off more employees in these situations and lead to a high rate of unemployment. Furthermore, some scents of perfume are not already popular to consumers. If we usually recommend the well-known, the popular one to our consumers, how can the distributors or specifically that brand sell their products out in the market. It will cause harmful impacts, specifically financial problems, to the global trade.





4. Feedback

Having proposed the project ideas, it is optimal to have feedbacks from other people. Receiving feedbacks will help me to understand what is suitable for the project and what should not be included. Vu, a member in our group, agrees with the idea of applying artificial intelligence and machine learning into my FAQ website. Vu states that this idea of mine will let people choose their fragrance without going to the store, which is more convenience. However, many perfume brands are having similar scent, so it might be hard for the artificial intelligence system to recommend, said by Vu. In my opinion, I partly agree with Vu's feedback about my project. The reason why I want to do this because consumers will save much more time to know what is their favorite scent. But on the other hand, as stated in the project ideas section, the system will be learnt a big data set to output multiple results when answering to customers. Because our group just have two members, so I have to ask for help from another friend of mine from Business department to give me feedback, also in RMIT SGS Campus. Van says that my project could help girls like her to choose what perfume she should wear on any specific occasions. Furthermore, Van points out that when she goes to a perfume shop to try, it usually takes a lot of time and she has to try many different scents. This will create embarrassment in her when she asks the employee many times for her trials. The feedback from Vu and Van also help me recognizing shortcomings to improve the overall performance of my FAQ website. From this point, the artificial intelligence should be learning a lot so that it can provides correct answer to people. Besides that, it is crucial to protect customer's privacy also.

5. IT Technologies

As working on a frequently asked questions website, it can raise many concerns about cybersecurity and privacy of customers. On the other hand, artificial intelligence and machine learning are also applied into this project. It is not wrong to say that these two topics are the most popular troubles in the information technology industry when it comes to many scandals related to user's data, such as Facebook, Youtube, etc. In the current situation of technology, we can see that many impossible ideas from the past have been turned into reality. Either cybersecurity or machine learning, these two technology departments have been developed rapidly in the last ten years. Along with the development of cybersecurity and privacy, there are a lot of criminals happening towards this department of technology. According to IEEE(2013), one of the most popular cybersecurity threats is cyber theft, which hackers will directly access to your own devices without permission. Alternatively, another well-known method is the hacker will let a JavaScript alert appears on victim's desktop, says something like "Your computer has been hacked, please contact us immediately!". If the user clicks into that fake JavaScript alert, it will pop up an Internet window shows that they are from legitimate information technology company along with their phone numbers and fake address. Then these hackers will ask the user to open TeamViewer for accessing your personal device. It seems like a legitimate action from a legitimate technology company, but it is all wrong. These hackers will pretend to fix your desktop with a covered window that had been set up before, so they will steal your personal information such as credit card information and scam your money. For instance, seven years ago there was a Vietnamese hacker named Ngo Minh Hieu who was arrested by the United States of America federal police because of stealing millions of social security numbers for personal purposes. As we mentioned cybersecurity attacks, the highest level of threat is towards many big organizations, midsize companies and large enterprises such as banking, government information and healthcare. These companies can be attacked by spear phishing, advanced malware or basically the database is easy to be accessed. The consequences of being hacked are leaking customer's personal data, bank accounts information, healthcare history and many more sensitive data.



Ngo Minh Hieu a.k.a HieuPC

Hackers can use these stolen data to sell it online, or basically can use other people's credit card without asking for permission. To prevent these threatened events from being repeated, there must be some solutions to avoid hackers from stealing data. Let's move on to discuss more about some existing "state of the art cybersecurity" that has been introduced to users. Based on IEEE(2013), a scanner application called "The Gamascan's Web" is capable of protecting applications and servers from cybercriminal. The Gamascan's Web will calculate the vulnerability of a web application to check if it is easy to be attacked. For a bigger picture, an application named Imperva's Securesphere was invented to protect important information, government servers or other business database models. This application can also detect cyber threats for the user, such as SQL injection into the software, malicious bugs, phishing and cyber theft. This process is based on learning patterns or commons from other cyber attacks to prevent the system from being damaged (IEEE, 2013). These applications also apply machine learning and artificial intelligence to output more accurate results. According to Marr (2020), Marr believed that artificial intelligence would play a key role in both cyberattack and cyberdefense. Marr claims that artificial intelligence will also learning the pattern of how other systems defend, and then attempt to avoid the firewall from the defense system to attack.



Next is about machine learning and artificial intelligence, the two technology fields that have attracted billions of dollar from investors and have been developed dramatically in these last few years. This kind of technology can analyze a bunch of complex data sets and still deliver quicker, more accurate results. Moreover, recently IBM has applied machine learning to output better healthcare reports by testing it in several hospitals and medical centers. On the other hand, Tesla Motors also has developed their AI's vehicle system for many years and already applied it for automatic parking feature or returning to the current location of its owner. Artificial intelligence technology first globally known in 2017 at the seventh Dota 2 event called "The International", which take place annually in August. At this event, the man who is considered to be one of the greatest technology developer of the world, an IT professional in numerous IT departments, Elon Musk, has introduced OpenAI. Elon Musk let his OpenAI technology play a Dota2 solo match with one of the greatest Dota2 player of all time, Dendi. The result of this match was a victory to OpenAI. In addition, a more simple model of artificial intelligence is the "AI Ruined Chess" game application.

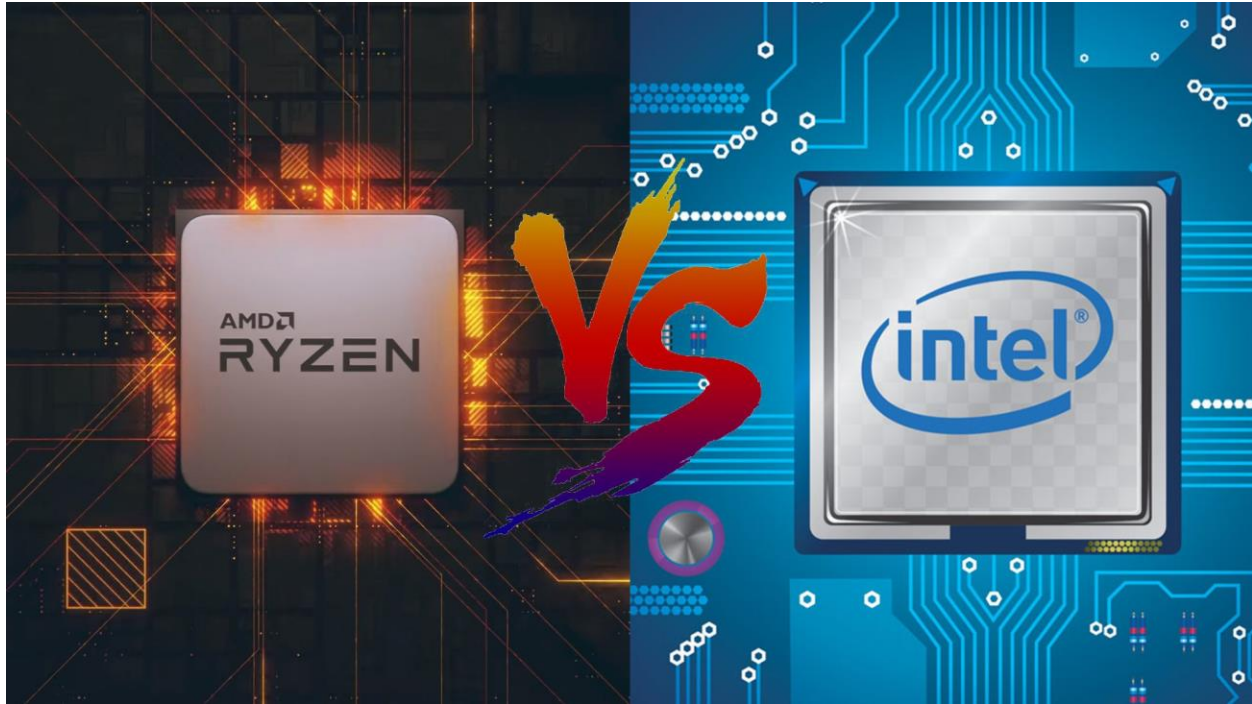


In the period of recent ten years, artificial intelligence combine with machine learning has been considered as a duo system that behaves like a human-being. This latest technology of critical thinking is contributing a fundamental part to our life. AI can work as a digital assistant and control smart vehicles by itself. Additionally, in manufacturing industry, AI and machine learning have become robotic factory staff in our modern decade. IT professionals who work in artificial intelligence and machine learning field can earn much more money than other occupations at the moment. But in contrast, these two specific fields require employee who is highly-educated in computer science. However, the biggest disadvantage that AI will bring to our Earth is a high unemployment rate when itself can solve many hard problems just in a small amount of time.

The department of machine learning at the moment has been divided into three important fields, which are “Task Oriented Studies”, “Cognitive Simulation” and “Theoretical Analysis”. To achieve right outcomes, a learning method called “Reinforcement machine learning algorithms” let the system interact with some environments of data to create requested operation, discover bugs and errors. Meanwhile, artificial intelligence has 4 popular types called Reactive Machines, Limited Memory, Theory of Mind and Self Aware. A well-known example for using artificial intelligence wrongly is Volkswagen, which is a German car brand, they use AI to learn and then

The image features a central robot with a glowing orange eye and a gold watch, set against a dark blue background filled with various mathematical and scientific elements. On the left, there are geometric diagrams including a coordinate system with lines n_1 and n_2 , and a Venn diagram with two overlapping circles labeled A and B. Below these are several logarithmic identities: $\log_b b^x = x$, $\log_b x = \frac{\log_a x}{\log_a b}$, $\log_b(x^r) = r \log_b x$, $\log_b(xy) = \log_b x + \log_b y$, and $\log_b(\frac{x}{y}) = \log_b x - \log_b y$. In the center, a 3D cube is shown with dimensions 20, 6, and X. To its right is a molecular structure diagram. The top of the image contains a set of set theory formulas: $\frac{(\frac{b}{c})}{(\frac{a}{b})} = \frac{bc}{ac}$, $\frac{a}{(\frac{b}{c})} = \frac{ac}{b}$, $\frac{a}{b} + \frac{c}{d} = \frac{ad+bc}{bd}$, $n(B \cap C) = 22$, $n(B) = 68$, $n(C) = 84$, and $n(B \cup C) = n(B) + n(C) - n(B \cap C)$. The right side of the image is filled with chemical equations such as $\text{CH}_4 + \text{Cl}_2 \rightarrow \text{CH}_3\text{Cl} + \text{HCl}$, $\text{Zn} + \text{H}_2\text{SO}_4 \rightarrow \text{ZnSO}_4 + \text{H}_2$, and $\text{H}_2 + \text{O}_2 \rightarrow \text{H}_2\text{O}$, along with a right-angled triangle with vertices A, B, and C. At the bottom, there are more formulas including $126 = 6xy$, $2x + 2y = 20$, and a diagram of a cylinder with height h and radius r. The background is a dense collage of these and other mathematical symbols, creating a complex and intellectual visual field.

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For me, I think artificial intelligence can really impact my life positively. I can install SmartHome technology in my future apartment, maybe, to control everything that is capable of connecting to the SmartHome. For example, if I want to turn off the light in my apartment, I just need to speak out the commands and then the system will automatically detect my voice to perform my requirements. At the moment, a large percentage of consumers in the United States choose Google virtual assistant Alexa to be installed in their house to reduce the occurrence of minor activities. Apart from this, artificial intelligence household products are very helpful for elderlies since it costs less effort to manage everything in the house than normal. It could be a vacuum robot which can study the house path to avoid crashing into walls or corners, cleaning the house for elderlies instead of them manually doing the chores (which has been wisely used in recent years). For example, Siri in iOS operating system and Cortana in Microsoft Windows is also a product of machine learning and artificial intelligence. These digital assistants can record your voice, then explain it and perform the task that you told them.



It seems that machine learning and artificial intelligence are bringing desirable impacts to human life, but building a system can cause many problems and a lot of money. However, the more technology has been developed, the more concerns it will raise also. Because of collecting data from plenty of sources, it may contain personal, sensitive data inside the database for machine learning purposes and the leakage of information may occur due to cyber attacks. Authorities should enact more laws about storing and using data to protect users from being stolen personal information. Artificial intelligence and machine learning are really useful for human-being, but optimally is to use it in a proper way. In contrast, cybersecurity should be focused more by the authorities to avoid cyber attacks from hackers.



6. IT Work

1. Data Scientist

This video is uploaded by a YouTuber creator named Kaya, who is a data scientist currently working in Japan. She spends most of her time at the office working. From my point of views, Kaya performs checking algorithms, fixing bugs and errors daily at her office. After that, she has a meeting with other IT professionals from different departments to discuss the new logic of algorithms, and report technical issues to the software engineer. As a data scientist, Kaya especially cares about customer feedback as she wants to know more about the user's experience. Then she will report what she had collected from previous activity to the team leader to improve the quality of their products. The most challenging aspect of being a data scientist is to solve tons of algorithm and logic problems in a day, as well as combining learning to understand the current trend from consumers for providing great customer service.

URL: <https://www.youtube.com/watch?v=BLojcXHQtWc>

2. Software Engineer

In this video, a senior software engineer at Microsoft had recorded a day of his life to share with the world. He both works from home and at the office, but he spends most of the time at the office. Some of his tasks are testing code, redefining and rewriting the code if it is necessary. Furthermore, a software engineer is required to understand the user's requirements, analyze it and identify which areas are needed for modification to develop their current software programs. As a senior software engineer like him, the most difficult part is checking other codes and finding errors daily to ensure programs run smoothly.

URL: <https://www.youtube.com/watch?v=lcw-MkO38sA>

3. Data Analyst

The next video is from the United States of America, who is a data analyst. He spends his time at the office to work on reports and process data. His overall task is to collect and interpret data, then analyze it to output results. Finally, he is going to send it to the financial and business department. Additionally, data visualization and writing comprehensive reports are must to data analysts. The two most important tasks for a data analyst are analytical skills and inclination for problem-solving. Inaccessible and poor-quality data is a challenge for any data analyst when it was collected from multiple sources.

URL: <https://www.youtube.com/watch?v=qzZU6LAtlig>

4. Network Engineer

A network engineer who named Chris Mendez had shared a day of work through YouTube and Instagram. His work time is from 9AM to 5PM. His daily routine is to check the main database room to see if there are any technical issues or errors. Then he set up some new switches for the network database room. Network engineer required employee to be responsible for maintainance network environment, web system such as VoIP, QoS, etc. Moreover, Chris also collaborates with cybersecurity department for administrating firewall environments, then design new system configuration to increase the quality of current network environment. Besides of cyber threats, network engineers often get mad at low network speed since this IT role needs a connection that is fast and stable for them to wrok.

URL: <https://www.youtube.com/watch?v=K9RPLkz3Te0>

5. Artificial Intelligence Researcher

Our last video will demonstrate a day in life of an artificial intelligence researcher. His name is Oleksii Sidorov. He is currently working for Facebook at Silicon Valley, the United States of America. According to his YouTube video, he spends most of his time inside Facebook Headquarters, from 9AM to evening. He first works on researching artificial intelligence by using Python language to code on. After that, he had a meeting with different IT professionals in

Facebook. Artificial intelligence researchers need to be strong at analytical thinking skill, which is the key to build an AI system. Other than that, the system will need to output results correctly when a user ask questions. This method is called innate inquisitiveness. The difficult aspect of this IT role is artificial intelligence still a new technology, it does not have too much fundamentals or basic structures for engineers, developers to be rely on.

Remaining 5 sources:

- A day in the life of Silicon Valley engineers – JomaTech:
<https://www.youtube.com/watch?v=hWFDujYzvbl>
- A day in the life of a software systems engineer – Zeta Zephyr:
<https://www.youtube.com/watch?v=f2xYu5-Sp20>
- A day in the life of a DevOps engineer – PushToProd:
<https://www.youtube.com/watch?v=lt2cWkCBfNI>
- A day in the life of a business analyst – Rich Milennial Mindset:
<https://www.youtube.com/watch?v=EtN4fT5hZEM>
- A day in the life of a cybersecurity engineer – NexGenT:
<https://www.youtube.com/watch?v=t7alwWiUb50>

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