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**COSC-2083 Introduction to Information Technology**

**Semester 10/2021 - 1/2022**

**Lecturer: Nguyen Minh Long**

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**Our IT project**

**Jeff the virtual assistant**

**A Report by group 6**

Table of Contents

[1. Team profile 3](#_Toc92714136)

[1.1. Team name: 3](#_Toc92714137)

[1.3. Group processes 8](#_Toc92714138)

[1.4. Career plans 8](#_Toc92714139)

[2. Tools 9](#_Toc92714140)

[3. Project Description 9](#_Toc92714141)

[3.1. Overview 9](#_Toc92714142)

[**3.1.1. Topic** 9](#_Toc92714143)

[**3.1.2. Motivation** 10](#_Toc92714144)

[**3.1.3. Landscape** 10](#_Toc92714145)

[**3.2.1. Aims** 11](#_Toc92714146)

[**3.2.1. Goals** 11](#_Toc92714147)

[3.3. Plans & progress 12](#_Toc92714148)

[**3.3.1. Initial idea** 12](#_Toc92714149)

[**3.3.2. Current idea** 12](#_Toc92714150)

[**3.3.3. Future plan** 12](#_Toc92714151)

[3.4. Roles 13](#_Toc92714152)

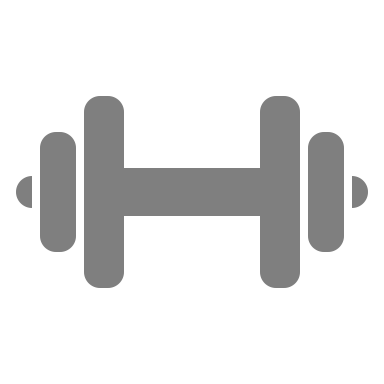
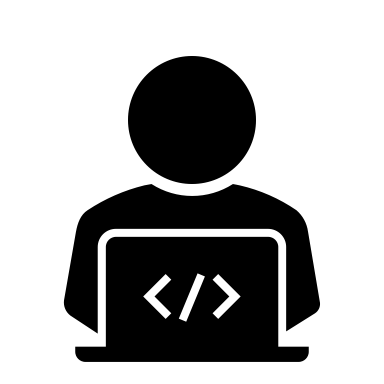
# **Team profile**

* 1. **Team name: SKYNET**

-Our team decided to go with the name Skynet. The reason behind this is because our project is to create an AI-machine learning virtual assistant. We believe that AI will be the technology that will dominate the industry in the near future. As developers, we wish to be the pioneers of this field. In pop culture, there is this popular movie where a tech company created an AI that is so smart and advance that it can calculate then travel time to terminate anything that is a threat to the future. That movie was Terminator and the name of the company is Skynet. We thought to ourselves, what better name can we choose for this group other than Skynet.

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* 1. Personal information

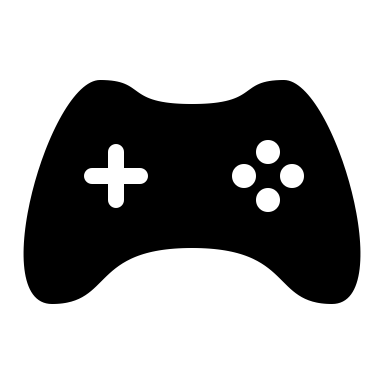
1. Student number: s3915202
2. Role: Back-end developer

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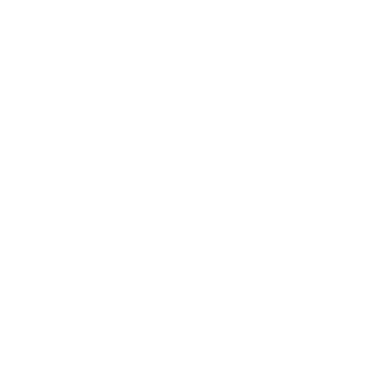
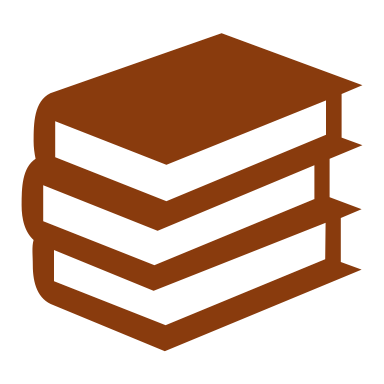
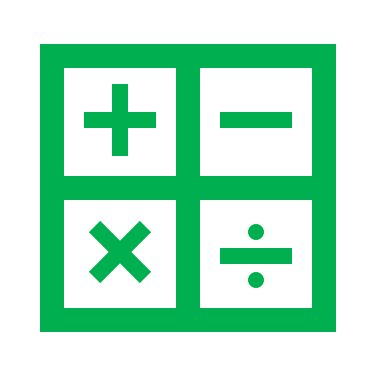
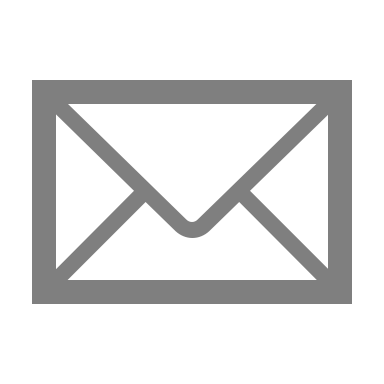
Contact

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“I was born and raised in Hanoi. Ever since I was a child, I have been remarked to be extremely curious. I often hide adults from taking apart electronics in the house to find out how they work inside and then putting them back together. When I was a little older, I was exposed to a computer and was immediately captivated by what it could do especially with video games where I could interact with non-player characters. One day, I was watching a robot cartoon called Wall-E, once again my passion for technology was aroused, at that time I wished when I grew up, I could create a robot with a conscious and perception as a human being. After 2 years of studying, I realized that was not really the major I wanted to pursue. I suddenly realized that what I want to create is not a robot, but the brain of that robot. In order to achieve that goal of mine, I decided to study information technology to learn how humans can teach computers and how computers interact with humans.”

*Trinh Viet Quy*



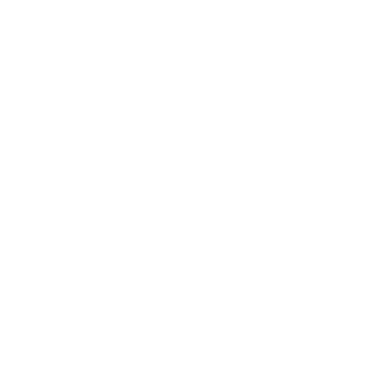
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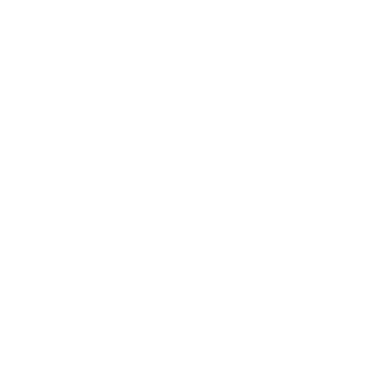
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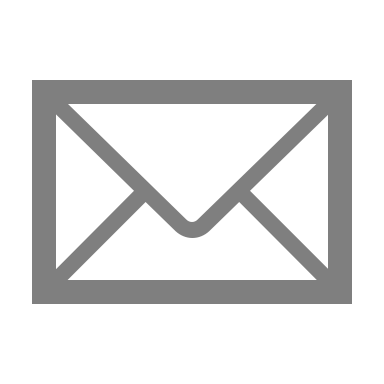
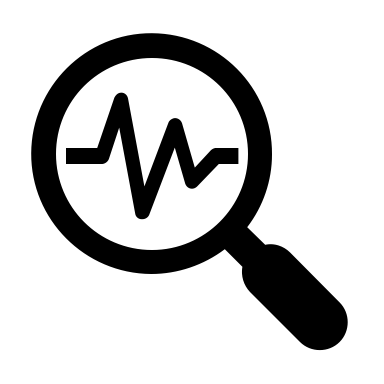
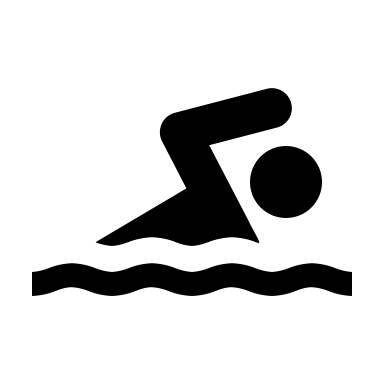
“I was born and grown up in Ho Chi Minh City. During my time in Secondary Highschool, I had a chance to experience Pascal Programming. From there, I realize that information technology is a powerful tool that can solve many math problems with just some simple lines of code. Ever since I know about gaming and web surfing, I have always wondered how they are programmed.  I wanted to program games, application as well as websites for myself so I decided to study IT. Personally, I have taken a Front-end course therefore I have some experience in Java Script and CSS to create basic websites base on my knowledge of designing and programming. However, my back-end development skill is still not sharpened so I have a lot to learn. Additionally, I am taking a French course which I think might be useful for my future career. Beside from that, playing guitar for me is an excellent way to relief the stress after a long period of studying and cooking for the family is another passion of mine. Moreover, in order to achieve my goal of being a professional game/web developer, I have a habit of reading books about life and developing skills as a way of self-development”.



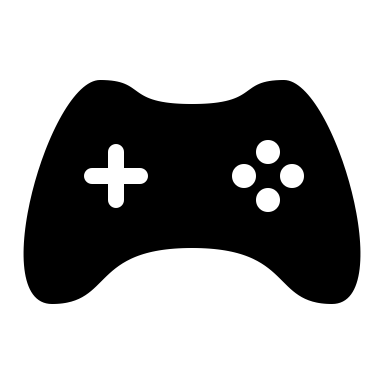


1. Student number: s3914108
2. Role: Front-end developer

*Nguyen Thi Ha Giang*



1. Student number: s3907087
2. Role: Reporter/Editor



“Similar to our front-end developer, am also born and raised in Ho Chi Minh city, Vietnam. However, I come from a mixed culture family because my ancestors were from China. Being born in a strict Chinese family, I have developed a sense of responsibility and hard-working attitude toward my goals. But I love playing games, it just every boys passion. Back in the days, my cousin, who has been a specialist in IT for several years now, usually came to my house and showed me some hacking tricks for the game, he even helped me cracked the wifi passwords of local neighbors, which was very cool. I then thought to myself, IT was so astonishing and have so many potentials in the future, so I developed the passion ever since. I still have long way to go since I just finished learning about the basic concepts in IT, but I am eager to learn more. During school times, I am focused and determined but in my free time, I enjoy doing various sport activities as way to keep my head cool and my body strong. I also enjoy reading new research papers to update my knowledge on things happening around the world and what new technology that should be minded in order to keep up the trend.”

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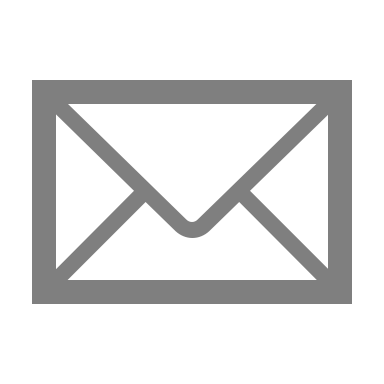
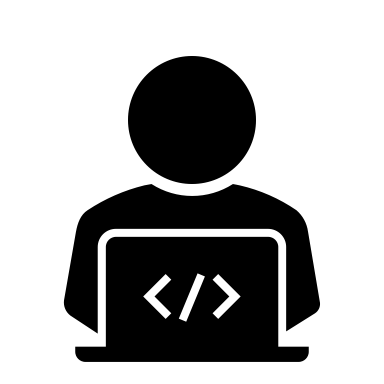
Contact

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*Tran Khanh Duc*

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“I was born in a small village in Hai Duong, Vietnam.  After graduation in high school, I went to Ho Chi Minh City for studying in the university. In IT field, I am really interested in programming which is about building games. When I was in Highschool, I used to change values in games data so that the money would increase, which were really fun experiences for me so I developed an interest for IT since. I have had basic knowledge about Python and had tried creating my own games, but they are still under development and I still have a long way to go. In my free time, I often do part-time jobs, social activities and enjoy my time at the Taekwondo club as well as playing the guitar to relief school stress. For example, I took part in an outside bonding with my club which is Taekwondo. One time, we even went climbing with the whole club. It was a memorable day for me because we try so hard. In the end, we managed to get to the top. The feeling was very proud and relief because I had finally achieved the goal of that day. One day, I will reach the peak of my dream and become a great game developer.”

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1. Student number: s3877039
2. Role: UI/UX designer

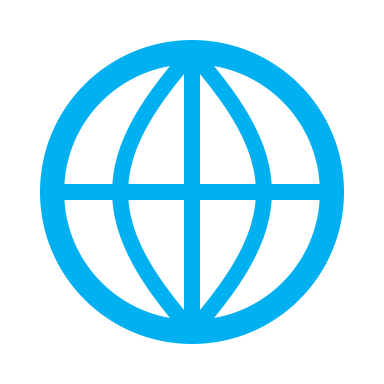
*Nguyen Tuan Thang*

## **Group processes**

-Overall, the team works well together. Each of the members is very responsible and reliable. We always try our best to finish our tasks before deadlines so that we have more time to review our work. Moreover, everyone is very supportive toward each other. If one member finishes his/her task, he/she would voluntarily help other members who are still working on their tasks. Because of this, we work very effective and fast. However, the members still have differentiations so sometimes, we have disagreement during our work. Despite that, we are very thoughtful toward each other and try our best to take into consideration the proposals of other members and create the final products that we all feel satisfied about. In the context of the project being extended and we are invested to create the saleable product, the team would have to find a way to communicate more and set up offline meetings so that features could be planned thoroughly.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Quy | Giang | Thang | Duc |
| Ideal job |  |  |  |  |
| Workplace |  |  |  |  |
| Working hours |  |  |  |  |
| People |  |  |  |  |

## **Career plans**

1. ******Tools**

<https://vnesetalkingbush.github.io/github_asm_2/>

<https://github.com/VNeseTalkingBush/github_asm_2>

# **Project Description**

## **3.1. Overview**

### **3.1.1. Topic**

For some people, time is as value as gold. There is too much work to do while time is limited. Hiring an assistant seems to be an amazing way to share the workload and boosts productivity. However, it is not easy for an employer to find the perfect assistant who can keep up with the workflow while at the same time, understanding the employer’s need and still able to maintain productivity. Not to mention, hiring an assistant also means the employer has to pay them salary like any other employees. In today world, when technology gradually replace human in many fields, virtual assistant is a new way for the busy businessmen to keep track on their work as well as function like any other real assistant. Despite that, virtual assistant seems to be a new and strange concept for the people of Vietnam, many claims that they are not familiar with the technology and does not know the supported language to interact with the assistant. Understanding these difficulties, in this project our team challenged ourselves to create a virtual assistant that can solve these issues.

Most available assistant today, such as Cortana or Siri operates on a very high level of technology, too advanced that many users cannot understand the concept and the functions of it. What we did with Jeff was removing all the unfriendly functions of other virtual assistant and give him basic functions and commands so that newbies to technology would understand and can use Jeff as their first step to get familiar with the concept of virtual assistant. Jeff is capable of basic tasks such as searching with voice input, schedule and remind the users for the meetings, calls as well as texting, creates timers, etc. All of these functions can be operated by voice command and the supported language will be Vietnamese. We hope that Jeff can be the first step for Vietnamese people to get familiar with applying technology to their daily life. After getting familiar with Jeff, the users would have knowledge to upgrade his/her assistant to a more advance system according to their needs. Of course, there are still many rooms for Jeff to get improved and enhanced. However, the nature of Jeff will still remain a basic virtual assistant that functions fundamentally and act as the first steps to get into the vast world of technology.

### **3.1.2. Motivation**

We noticed a fact that when people around the world are adapting to the rapid change of the technology world, the Vietnamese still struggle to get familiar with 4.0 technologies. Voice assistant is not a new concept, in fact, the first virtual assistant was introduced in the early 90s by IBM and it was called “Simon”. It was not until October 2011 that Apple commercialize Sire – the first advanced and commercially used virtual assistant. Since then, people around the world have been adapting with this technology and apply it to better their daily life. Despite there are many advanced voice assistants available with AI and self-learning technology, most Vietnamese people forget that they exist on their smart devices. This is because these assistants are not capable of Vietnamese language and is not fully optimized for local information and localization.

Understand these issues and wish to create a product that is “by Vietnamese and for Vietnamese”, we have this idea of creating Jeff – a Vietnamese friendly virtual assistant to solve these issues. We create Jeff with the purpose of creating a convenient, smart and friendly way for users to interact with their device. Not only that, we build Jeff as basic and easy to use as possible because we want Jeff to be peoples’ first virtual assistant and Jeff would act as a means for them to get familiar with the concept of virtual assistant before the move on to more advance system. Especially, when the pandemic is happening and people have to work from home, Jeff can be a good way for people to boost their productivity and enhance their work from home experience.

### **3.1.3. Landscape**

In fact, we are not the first group of people to think of this idea. There are a few honorable names that is worth mentioning but the biggest competitors are the virtual assistant called KiKi developed by VNG and Viettel Cyberbot developed by Viettel. Both of these companies are big giants when it comes to the technology field in Vietnam. However, what make Jeff distinguished from these 2 is the fact that Jeff was built for basics usage. Which means that Jeff will so easy to use since he only has the basic functions such as searching, planning schedule, set timer, etc. These functions will be activated with basic command lines that will be short and easy to learn. Jeff is different from the rest because he is not meant to be advance and capable of intelligent tasks, Jeff is meant to be basic and easy to use so that users get familiar with the technology and can move on to higher system when they feel they are ready.

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**3.2. Detailed description**

### **3.2.1. Aims**

As citizens of Vietnam, we understand that our country is still under developing and have to go through various difficulties in order to integrate with the world. Still, we believe that because we are small and young, our country has great opportunities to grow stronger and more advance. Vietnam is on our way to acquire the essence of technology. However, we still lack tools to make this process easier and more efficient. That is the reason why our team decided to create Jeff as a tool, a starter kit for people to get involve into the technology of virtual assistant, letting them experience the convenience of having a system supporting their business and daily life. As a starter kit, Jeff is meant to be the first virtual assistant that people from all ages can use. With simple lines of command and basic functionalities, Jeff will teach the people fundamental concept of virtual assistant and how to interact with them. After the users are familiar enough with Jeff, they would have enough knowledge and experience to move to a higher system to enhance their work even more.

In the near future, everything will be command by voices and the tasks will be carried out by the robots and AI, it is important that Vietnamese people get involve in this technology from the beginning. We hope that with our humble creation, we would solve the language barrier and closer the technology gap so that Vietnamese citizen can get familiar and enjoy the convenience of a smart system being applied to their daily life and/or business.

### **3.2.1. Goals**

**1. User friendly UI/UX**

Our goal with Jeff is to make it easy to use and users friendly, so we would design it as simple as possible. The user interface will be minimal with only Jeff avatar, chat box between users and Jeff, and a button to input voice command. Jeff’s will appear on the small corner when he is activated. When not in used, Jeff will enter sleep mode, which means it would still be working under the background and will response immediately upon calling. The users experience would also be a crucial goal for us when developing Jeff. We tried our best to create Jeff simple from inside to outside. Jeff’s source code was written very simple so that he has faster response time but still guarantee the accuracy of the result. We believe this would give the users great users experience.

**2. Basic command lines**

To keep the program simple and users friendly, the teams has put a lot of work in thinking about command lines. We had to think of the variety of commands that users would use since different tasks means different commands, while at the same time, commands format has to be uniformity so that Jeff can recognize the commands and carry out the tasks. In the end, our team has planned, unified and developed a unique set of commands that is both easy for the users to learn and remember as well as having a solid format so that the system can recognize them.

**3. Accurate results**

Accuracy is also a very important aspects of a virtual assistant. Understanding this, our team put more attention this part of code. We have programmed Jeff in a way that he would only do basic tasks such as searching with internet, playing music and other fundamental tasks and because of this reason, Jeff does not have to process a lot, all it has to do is browsing through the data source and find the most relevant results. We will also set Jeff’s default browser as google.com so that the accuracy of the results will be guaranteed.

#### **4. Variety of data sources**

Even Jeff is designed to be a basic helper, we still want him to have wide range of knowledge. We will link Jeff with many data sources such as spotify, Wikipedia, youtube, etc. In the future, Jeff’s data sources will be updated and added more so that he would have more knowledge and users can interact more with him.

## **3.3. Plans & progress**

### **3.3.1. Initial idea**

At the beginning of the project, each member of the team had different project ideas because assignment 1 was individual. However, assignment 2 required us to create a team and work together on a project so the team had to choose out 1 idea among the member. At the time, each of us had ideas but it was very unclear. Among all, Quy’s idea proposal was very outstanding. He had a very clear thought about creating AI and how to build it. So, at first, our goal was to create an AI virtual assistant which is capable machine learning. In order to do that, we had to find the relevant source code for the AI part of the assistant and another source code for machine learning. After that, we had to think of a way to inject these two into the system combining so that they work fine together. That was a fairly challenging tasks that we managed to do. However, the biggest and most challenging problem arise when we almost done with building a workable code was that in order for the AI and machine learning systems to work properly, we need huge amount of users data so that the machine have some sort of data that it can learn at the beginning. This made us realize how small and unskilled we are and the fact that we are just freshmen in the IT fields, this project seems to be way to overwhelmed for us to carry out.

### **3.3.2. Current idea**

As the project keep on going, we had to think of new idea that we can actually carry out because we believe that is the real reason behind this project. It is not important how complicated the project is, it is how we think and create the project. So, after a few meetings, we decided to simplify our initial goal. Although our plan still remains creating a virtual assistant that is meant for Vietnamese people, the path we choose is very much different from the beginning. We began to think of how users in Vietnam use virtual assistant that is include on their smart device and we realized that, most of the users, including us does not find the virtual assistant feature helpful. It is not because these virtual assistants are useless or failures, but we just don’t have the need for using it. Rather than speaking in English and waiting for the system to response according to the internet speed, sometimes the results are not even close, we can just search manually by typing a scrolling. With this concept in mind, we believe it is crucial to have a system that is both easy to use, friendly with Vietnamese people and can act as a way for people to get familiar with the technology. That is when our idea of Jeff started to actualize.

### **3.3.3. Future plan**

In order to keep Jeff simple and easy to use as well as users friendly, we had to remove a lot of advance feature that is normally considered valuable on others virtual assistant. For example, we had to remove AI and machine learning features to simplify Jeff developing phase and we had to limit Jeff’s functions so that it remains users friendly and easy to use. If Jeff is approved and invested in the future when we graduated and become professional IT, we could create an upgrade version of Jeff, maybe we will call it “Jeff+” or “Jeff pro max” which we will add these features and upgrade Jeff’s overall UI/UX as well as the back-end code for a smoother experience. But at the time, our goal with Jeff is still simple and will follow the current plan.

## **3.4. Roles**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Team members** | | | |
| Quy | Giang | Thang | Duc |
| Role | Back-end developer, team leader | Webpage developer | UI/UX designer | Reporter |
| Description | In this project, Quy is the leader of the team, Quy main job is to give and manage the tasks to other teammates. Quy’s was also given the task to collaborate with Thang to create the product. Since the product is fairly simple so Quy is responsible for the whole back-end coding. He is also in charge of debugging the product. | As the webpage developer of the team, Giang’s main job is to collaborate with Duc to create the content for the report. Giang is in charge of designing and adding the content from the main report to the website and make it more appealing to the readers. | Thang is in charge of developing the overall appearance for the project. He also required to collaborate with Quy, the back-end developer to create the user experience for Jeff. He would also need to update Jeff if Quy found a bug and debugged it. | Working as a reporter, Duc’s job is to plan out the content, do research and write the report for the whole project. He would need to paln out the idea with Giang, the web developer to create such content that would fit both formats. |