**Activity Space (Explaining tech concepts to non-tech audiences)**

**Recap:**

What do you recall from the previous session on demo and pitches?

**Watch this video:**

How to give a kick-a\*\* demo

<https://www.youtube.com/watch?v=Cxl_3ANnE0A>

**Activity 1**

1. What’s the difference between RAM and hard disk space?
2. What does bandwidth mean? Why should I get more of it?
3. What’s a network address? Why is it important?

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| Room 1 (haziq, shyun) | Room 2 (Musfirah, Edward) |
| 1. Suppose you have a water bottle and a water cooler. Your RAM is like your water bottle, if you need it now you can get it faster and has small storage. The hard drive is like the water cooler as it takes longer to get the drink but it has a much larger storage of water.  2. Bandwidth is like the size of the hole of a hose. Imagine the water coming out from the hose as computer data. If the size of the hole is small (lower bandwidth), less water can be produced in a period. In the same period, a larger hole (higher bandwidth) will allow for a larger amount of water to be produced.  Let's say if you needed to put a fire out with the hose. It would be more effective if you had a larger hose hole as you would be able to put out the fire almost immediately. Thus, having a higher bandwidth means having a faster rate of data transfer which allows for greater efficiency.  3. Network address is like your NRIC. Network addressing is done by uniquely identifying a particular machine in its network using some unique identifiers. Similarly, an NRIC is to uniquely identify a person within a country with its own set of identifiers. It is important in the case where each machine has some similarities and needs to be differed from each other. | 1. Volatility. Imagine you are an individual. Just think of it as RAM is your short term memory (Easy to store but volatile). Hard disk is your long term memory (Hard to store but can keep for long). So example you saw someone in the bus and you forget all about them – thats your short term memory. Then your long term memory is like your childhood memory you remember for so long.  2. It’s like a water hose pipe. The size/diameter of the water hose pipe determines how much water comes out at once. So the larger the diameter, aka the larger the bandwidth, the faster and more water you get.  3. It’s like a fingerprint. Like how everyone has a unique fingerprint, each device also has its own unique fingerprint to identify itself on the network. |
| Room 3 (Haofeng, Jun Lim) | Room 4 (Sharif, Emily) |
| 1. Suppose you are learning the multiplication table. You calculate problems on a piece of paper, and since you have only one paper, you decide to use a pencil. So, you work out the problem, learn the answer, and erase your calculations to free space for the next problem. The piece of paper is RAM. What you remember would then be ROM, a permanent storage in your head. 2. Suppose you want to fill a bucket with water. Having larger bandwidth means that the pipe/hose from which water is flowing out off is wider, and thus more water can flow out in the same amount of time. Similarly, higher bandwidth means you can download/upload files/videos within a shorter time frame. 3. It is like a unique identifier that can only be used by the owner. And the owner uses it to identify and interact with others. | 1. Think of your computer as your office. Your RAM is your desk, the larger your desk the more stuff you can have "open" at once. Your hard drive is your filing cabinet, you need it, but it's slow to get stuff from it.  2. Bandwidth is like the expressway; a congested expressway will lead to cars travelling slowly. Meanwhile a wider expressway or an expressway less travelled will have car travelling at a greater speed. Therefore, by having more bandwidth, more cars can pass through, and this means that more data can be transferred or be downloaded.  3. Internet is like a post office and each computer is like a home and they each have a network address [like home address] and when people send stuff to you they deliver to your home address, similarly on the Internet, when people want to exchange information, they will send it to your network address. It is important because each computer will have their own network address and for others to communicate with you, you need a network address so that messages can be send to you. |
| Room 5 (Tuan, Yu Zhong) | Room 6 (isaac, braden) |
| 1. Suppose i have infinite amount of Ram, i can open 1000 tabs of google chrome without crashing my laptop. But if i have low Ram, I will crash my laptop if I open 1000 tabs of google chrome. Hard disk is like how much document can I save in my computer. If i have have 1 TB of hard disk, I can have 1 million document, photo and video in my computer. But if i have 1 MB of hard disk. I can save have 1 document in my computer before I can save anymore. 2. Bandwidth is how much data you can sent over in a period of time. More Bandwith higher data usage | 1. RAM – Faster than a normal hard disk, mainly for when applications(processes) are running. Hard disk space - To store files RAM is like your wallet while hard disk is like your bank account (i.e. you can quickly pay for a meal by grabbing cash from your wallet. The majority of your savings are stored in the bank and cannot be accessed easily). 2. Amount of internet data you are able to transmit in a period of time. Higher bandwidth means more data can be transferred in the same time. Some applications require certain amount of bandwidth to be effective/smooth (e.g. streaming a movie). It is like a pipe with water flowing through it (i.e. for bigger families, we need a ‘bigger pipe’ for everyone) 3. Network address is an address that allows a device to be identified on a network (e.g. internet). Similar to real life addresses, mails need physical addresses in order to be delivered. Networks need network addresses in order to know where to deliver the data. |
| Room 7 (Daryl, Tai) | Room 8 (Alan and Wraine) |
| 1. RAM – supercar (small capacity but fast), Hard drive – bus (high capacity but slower). Hard drive is to store your usual files, and RAM is a temporary storage for the apps you are running (you cannot see the files) If you have more space on hard drive you can store more files, more space on RAM = can have more files open 2. Bandwidth is like the number of lanes on a road. With more lanes, more cars can be on the road at the same time. Meaning more cars can reach the destination at the same time, which means faster transfer rate through the internet. (your youtube video loads faster) 3. Mailbox / Home address. You need to tell the postman where to send your mail to. (You need to tell your browser where to retrieve data from/ send data to). It’s important to know the destination/source. | 1. RAM is like our brain. It can remember some things but not everything. A hard drive is like a notebook, we can write all sorts of notes for us to refer to if our brain can’t remember it, but it may take some time for us to find what we are looking for in the notebook. 2. Bandwidth is like thinking about the road vs a highway. Data is like the cars moving in it. For roads, the width is smaller so a smaller number of cars can move through it at the same time, thus a lower bandwidth. It would be the opposite for highways, a larger number of cars can move through it at the same time, thus a larger bandwidth. 3. Network addresses are analogous to postal addresses. They help to identify where a packet (mail) should be delivered to. |
| Room 9 (Jun Leong and Anvitha) | Room 10 (Wei Li, Aileen) |
| Ram is temporary while storage is permanent  Just like u need to revise to rmb short term memory u need electricity to power the ram while the storage only needs some charge once in a while like ur long term memory  --> Think of ur brain  Train station in Japan  --> to increase bandwidth can either increase data transferred or the rate at which its transferred  Concurrent--> Tokyo station--> running in parallel so it would increase the rate at which its transferring  Also have the single line station --> transfer data  Network address: Address book with yellow pages | Ram is temporary and faster and hard disk is permanent. The things you store in RAM is like your memory of trivial daily events but the things you store in hard disk are the most significant events in your life that you remember.  Bandwidth is like the ability to focus in class. When you are tired you cannot absorb as much information.  Another analogy of bandwidth is the highway. More lanes in the highway means more bandwidth.  Bandwidth is like the diameter of water pipe.  Network address is like home address. Many people live somewhere near you in town. You need a standardized way to find where you live. |

*Reflections:*

* How did you explain those technical concepts to non-tech audiences?

**Activity 2**

* What makes a good analogy?

**Activity 3**

* **Challenge 1:**

Pick a technical concept to explain to your tutor. Remember, your tutor is from a non-tech background.

* **Challenge 2:**

People who do not have a programming background often do not understand the complexity of building an app.

**Roleplay this meeting between an app developer and a client:** Client wants what he/she deems as “minor” changes to be made to an app overnight, but the developer tries to make the client *understand* that the work is more complex than the client thinks and will require more time.

Please let me know if you have chosen challenge 1 or challenge 2.

**(You will be SHARING with the class at 1.13 (seems like some need more time))**

Room 1 (Daryl, Sharif, Yu Zhong) - Challenge (1)

Room 2 (Alan, Wraine, Jun Lim) - Challenge 1

Room 3 (Tuan, Haofeng, Jun Leong) - Challenge (1)

Room 4 (Wei Li, Haziq, Aileen) - Challenge 1

Room 5 (Musfirah, Emily, Isaac) - Challenge 1

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| -Explaining Port Scanning  - What is a port?: 1 HDB with many units. Each mailbox is a port.  -What is port scanning?: We identify the mailbox in each unit. Those units who have their mailbox open, would usually capture the attention of people. So, people will probably try to insert objects (advertisements) in it.  So in a computer (HDB), we have multiple ports (unit mailboxes). If a port is open, chances of people able to inject vulnerabilities into it is higher. |

Room 6 (Anvitha, Edward, Tai) - Challenge (1)

Password length requirements – why do some websites need it to have a min length and/or special characters?

* Longer pw means larger entropy (randomness) longer time to brute force (for hackers)
* Brute force means try one by one (12345, 12346, 12347...) , it's like you forgot ur pinlock combination then u have to try one by one

Room 7 (Braden, Shyun) - Challenge (2)

**OP2 Consultation Slots**

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| **Lesson** | **Time** | **Group Number & Group name *(As in your software name- if you have one)*** |
| Week 9 Session 2 | 12.00 - 12.45 | 2 - (WerkIt) |
| 12.45 - 13.30 | 1 - (Sherpass) |
| Week 10 Session 1 | 12.00 - 12.45 ok! Temp name is okay | 3 (Hospital Management Software) -- temp name |
| 12.45 - 13.30 | 4 |

Please come prepared for the consultation with a detailed outline and questions.

There are no lessons on these two dates, so please come only for your allocated slot.

In Week 10 Session 2, you will be doing in-class peer review of a User guide and Developer’s guide. Please come with a draft of your User guide and Developer’s guide.