CC0002 LAMs Questions - Navigating a Digital World

Ethics and civic (Nanyang Technological University)

1. * From the previous video, we learn that the acronym PASS can help us to remember how we can practise good cyber hygiene. What does it stand for?

Choose one of the following answers.

- Password, Auto sign-in, Spot signs of phishing, Security
- ✔ Password, Antivirus, Spot signs of phishing, Software application
- Protect devices, Antivirus, Synchronize data, Software application
- Protect devices, Auto sign-in, Synchronize data, Security

PASS stands for **P**assword, **A**ntivirus, **S**pot signs of phishing, and **S**oftware application. This serves as a reminder and provides practical tips for us to stay cyber safe.

1. * Which of the following is used in the process of computational thinking?

Choose one of the following answers.

- Algorithm
- Decomposition
- Abstraction
- Pattern recognition
- ✔ All of the above

That is correct! Algorithm, decomposition, abstraction and pattern recognition are all computational thinking competencies.

1. * In which of the following disciplines can you see computational thinking application?

Choose one of the following answers.

- Biology
- Economics
- Arts
- Engineering
- ✔ All of the above

Computational thinking can be applied across all these disciplines and more.

1. * What is abstraction in computational thinking concept? Check all that apply.

Choose at least one answer.

- ✔ ☑ Filtering out irrelevant detail
- ✔ ☑ Pointing out necessary information
- ✔ ☑ Simplifying the complexity

All the options are descriptions of what abstraction is as a computational thinking competency.

1. * Which of the computational thinking competency allows you to break down a complex phenomenon into smaller chunks to solve a problem?

Choose one of the following answers.

- Abstraction
- Algorithms
- ✔ Decomposition
- Pattern Recognition
- None of the above

Decomposition helps us to break down a problem into smaller chunks so that we can divide and conquer complexity.

1. * Which of the following example(s) illustrates pattern recognition? Check all that apply.

Choose at least one answer.

- [ ] Grouping students randomly
- [x] Having students to learn colors and shapes by clustering them
- [x] Asking students to evaluate the locations of volcanoes and earthquakes across the globe
- [ ] Ascending the numbers

Ascending the numbers is about algorithms and not pattern recognition.
Grouping students randomly does not have a clear set of grouping and thus has no pattern.

1. * How does computational thinking benefit us the most?

Choose one of the following answers.

- To learn computer programing
- To think like a machine or computer
- ✔ To solve complex problems by using specific techniques
- None of the above

While computational thinking may support us in learning computer programing or to think like a machine or computer, it is most helpful in providing us with specific techniques to solve complex problems found in various aspects of our lives.

1. * A MRT map is a good example of...

Choose one of the following answers.

- Decomposition
- ✔ Abstraction
- Pattern recognition
- Algorithms

Abstraction allows us to simplify the complexity and bring up relevant necessary information.

2. * Breaking down choreographic forms of dance into smaller acts (e.g., narrative, canon, retrograde) is an example of...

Choose one of the following answers.

- Abstraction
- Algorithms
- ✔ Decomposition
- Pattern recognition

Decomposition is a breaking down process while solving a problem.

3. * Pairing up your socks back together is an example of...

Choose one of the following answers.

- Abstraction
- ✔ Pattern recognition
- Decomposition
- Algorithms

Pattern recognition helps us to match up the right sock pairs.

4. * Baking a cake by following its step-by-step instructions is a good example of...

Choose one of the following answers.

- Pattern recognition
- ✔ Algorithms
- Abstraction
- Decomposition

Algorithm is a step-by-step process while solving a problem.

1. * Grouping given items according to their colors and shapes is a good example of…

Choose one of the following answers.

- Algorithms
- ✖ Decomposition
- Abstraction
- Pattern recognition

Pattern recognition helps us to group items in the same category.

2. * Evaluating the locations of volcanoes and earthquakes across the globe to find out similarities is a good example of…

Choose one of the following answers.

- Abstraction
- Decomposition
- ✔ Pattern recognition
- Algorithms

Pattern recognition helps us to find the similarities across locations.

1. * Computational thinking applications are more applicable in the computer science field.

Answer:

- ○ True
- ✔ ◉ False

Computational thinking applications are applicable in any discipline.

2. * Computational thinking requires knowing technical skills.

Answer:

- ○ True
- ✔ ◉ False

You do not have to have any technical skills to understand computational thinking.

1. * What are the benefits of computational thinking competencies?

Choose one of the following answers.

- It enables us to know how to use the computer.
- ✔ It enables us to understand how to solve complex problems.
- It enables us to understand how programming works.
- It enables us to know how computer parts work.

Computational thinking competencies allow us to solve complex real-world issues.

2. * Computational thinking application can facilitate improving our...
(Check all that apply)

Choose at least one answer.

- ✔ Thinking skills
- ✔ Problem-based learning skills
- ✔ Interdisciplinary connections

Computational thinking competencies allow us to improve not only our interdisciplinary connections, but also our problem-based learning and thinking skills.

3. * Computational thinking competencies allow us to....
(Check all that apply)

Choose at least one answer.

- ✔ Analyze what the problem is
- ✔ Identify a complex problem
- ✔ Construct possible solutions

Computational thinking competencies allow us to identify complex problems, detect the type of problem, and develop potential solutions to solve the problem.

1. * Which of the following real-life questions can be considered as quantitative reasoning problems?

Choose at least one answer.

- ✔ ☑ Should I buy health insurance at my current age, or wait?
- ✔ ☑ Which canteen stall to queue up for lunch if I am in a hurry?
- ✔ ☑ When should I start from home to reach school on time?

Every problem mentioned in the question requires you to think quantitatively. In case of health insurance, you need to estimate the risk and gain based on probabilities. In case of time estimates, you need to know about routes and traffic flows. In case of canteen queues, you need to know about the processing time for the food as well as service time depending on the rush and manpower.

1. * Arrange the following steps in order, as they are considered while solving a quantitative reasoning problem.

Sort answers in the right order (click on the answers to drag-and-drop in order).

- ✔ Framing concrete numerical questions
- ✔ Identifying tools and data for analysis
- ✔ Building models to analyse the data
- ✔ Analysing the results you obtained

1. * Suppose you find that the mean time for headache subsiding in case of drug trials is just 2 minutes and the mean for headache subsiding in case of placebo is 20 minutes. Which of the following is true in this case?

Choose one of the following answers.

- Taking the drug results in a lower time for subsiding the headache most of the time.
- Taking the drug will never result in subsiding the headache in time lower than placebo.
- Taking the drug will always result in a lower time for the headache to subside.
- ✔ Taking the drug results in a lower time for subsiding the headache on an average.

Only lower on an average. We can't claim any of the other three cases without further information.

1. * What does Mean of a distribution signify?

Choose one of the following answers.

- ✔ The behaviour of data points “on an average”.
- The “deviation” of data points from the average.
- The behaviour of each individual data point.
- The extreme behaviour of the data points.

Mean is quite literally the “average” behavior of the data points, and is computed as “average” as well.

2. * What does Standard Deviation of a distribution signify?

Choose one of the following answers.

- The behaviour of each individual data point.
- The behaviour of data points “on an average”.
- ✔ The “deviation” of data points from the average.
- The extreme behaviour of the data points.

Standard Deviation is the average deviation of a data point from the Mean of the distribution, computed as follows.
SD = square-root(sum(square(data point - mean)))

1. * What do you think is the probability (chance) of a data point being 7 Standard Deviations away from the Mean? Take a guess or search online for a technically correct estimate.

Choose one of the following answers.

- Probability 1/10, that is, chance of 1 in 10.
- Probability 1/100, that is, chance of 1 in 100.
- Probability 1/1000000, that is, 1 in a Million.
- ✔ Probability 1/1000000000, that is, 1 in a Billion.

Shocked? It is actually even less! Go through the remaining portion of the lesson to see how we use this.

1. * We found that the drug is not identical to the placebo in case of our headache trials. This means the drug actually works in case of headaches better (faster) that placebo. Will you now take the drug for headache?

Choose at least one answer.

- [ ] Yes, of course. The drug will surely work for me in case of headaches.
- [x] Not sure yet. The drug works better in general, but will it work for me?
- [x] Not sure yet. The drug reduces the time only by 4 minutes on an average.
- [x] Not sure yet. Need to perform a cost-benefit analysis if I know the price.

The trials and statistics only provides you with numeric analysis of the problem. But decision making is a bigger challenge, and often your individual preference.

1. * We found that the drug is not identical to the placebo in case of our headache trials. This means the drug actually works in case of headaches better (faster) that placebo. Will you now take the drug for headache?

Choose at least one answer.

- ✔ ☑ Not sure yet. The drug reduces the time only by 4 minutes on an average.
- ✔ ☑ Not sure yet. The drug works better in general, but will it work for me?
- ☐ Yes, of course. The drug will surely work for me in case of headaches.
- ✔ ☑ Not sure yet. Need to perform a cost-benefit analysis if I know the price.

The trials and statistics only provides you with numeric analysis of the problem. But decision making is a bigger challenge, and often your individual preference.

1. * Suppose you find that the mean marks obtained by students in your class is 75, while the standard deviation is 5. If there are 500 students in your class, then roughly how many of them scored between 70 to 80, if you assume a bell curve?

Choose one of the following answers.

- ✔ Must be close to 68% for Mean +/- SD, that is, 340.
- No one scored within that range, as it is too narrow.
- Maximum students score within that range, so 450.
- My guess will be about half of the class, that is, 250.

If you assume a distribution is like a bell-curve, that is, if you have a Normal/Gaussian distribution, then the number of data points within the band of Mean – SD to Mean + SD is expected to be 68% of the total data points. This is a property of Normal/Gaussian distributions.

1. * Area has a correlation of 0.76 with Price, while Quality has a correlation of 0.81 with Price. Area has a prediction error (standard error) of 51503 for Price. What do you think will be the error in case of predicting Price using Quality?

Choose one of the following answers.

- ✔ Must be less than 51503, but not sure how much.
- Errors are not at all related to the correlations.
- Error should be about half, that is, around 25000.
- Error can be same as the standard error for Area.

Correlation does matter in case of standard error for prediction, and the higher the correlation, the lower the standard error. So, it will surely be lower.

1. * Suppose you model you score for a course as follows.
Score = 5 x ClassTime/Week + 3 x RevisionTime/Week + 50

If the classes run for 3 hours a week, how much revision time would you need per week to score above 80?

Choose one of the following answers.

- For Score > 80, we need RevisionTime/Week < 5 h.
- ✔ For Score > 80, we need RevisionTime/Week > 5 h.
- The relationship is not provided in the given model.

The model gives you an estimate of score based on the features ClassTime and RevisionTime per week. Thus, we can calculate the features required to obtain a specific value (or range) of the response.

1. * Cyber security refers to _____ implemented by an organisation to protect its cyber assets from damage, malicious attack and unauthorised access. Select all that apply.

Choose at least one answer.

- ✔ ☑ processes
- ✔ ☑ technologies
- ✔ ☑ practices

Cyber security refers to the technologies, processes and practices that are put in place to protect data, devices, programs or networks from damage, malicious attack and unauthorised access.

1. * Please identify the strongest password combination from the following.

Choose one of the following answers.

- password
- S1ng@Pore
- ✔ c3V@6t!G
- P@ssw0rd

It is recommended to use passwords with unique combinations (letters, numbers, mixed case, special characters) that will enable your account to withstand relentless attacks by hackers.

1. * Data is only available in digital format.

Answer:

- ○ True
- ✔ ◉ False

Data refers to information processed by a computer. Information can be in physical (e.g., text documents, images) or digital (e.g. audio clips, software programs) format.

2. * Data is classified into four levels of security. What are the four levels?

Choose one of the following answers.

- ✔ ◉ Open, Restricted, Confidential, Classified
- ○ Open, Restricted, Confidential, Secret
- ○ Open, Internal, In-confidence, Highly Confidential
- ○ Public, Internal, Sensitive, Top Secret

For a recap of the four levels of data classification, please watch the video on Data Security again.

1. * What is the key purpose of Blind Carbon Copy (BCC)?

Choose one of the following answers.

- Meant for recipients who are required to take action in response to your email
- To keep someone in the loop even if a message does not directly concern them
- ✔ To keep the identities of the recipients confidential

The use of BCC can be applied when sending impersonal emails, such as announcements, to a large list of people who may not know one another. This is a polite gesture that respects the privacy of the receivers – protecting their identities while avoiding chain email communications that may be irrelevant to them.

2. * Which of the following statement best describes how we can reduce the risk of being hacked when connected to a public Wi-Fi network?

Choose one of the following answers.

- Always use trusted public Wi-Fi networks
- Avoid doing any sensitive transactions e.g. internet banking
- Ensure that your device has an up-to-date antivirus software
- ✔ All of the given options

For a recap of the best practices when connecting to a public Wi-Fi network, please watch the video on Acceptable IT Usage again.

1. * What are the main objectives of the NTU Cybersecurity team? Select all that apply.

Choose at least one answer.

- ✔ ☑ Confidentiality
- ☐ Accountability
- ✔ ☑ Integrity
- ✔ ☑ Availability

The NTU Cybersecurity team aims to achieve:

1. Confidentiality - Ensure data or information cannot be read by unauthorized personnel.
2. Integrity - Data or information held by NTU remains accurate and unmodified by unauthorized personnel.
3. Availability - Data or service remains usable with sufficient capability to deliver our educational services.

These objectives are highly applicable across society and are the key considerations for many other organizations when managing cybersecurity.

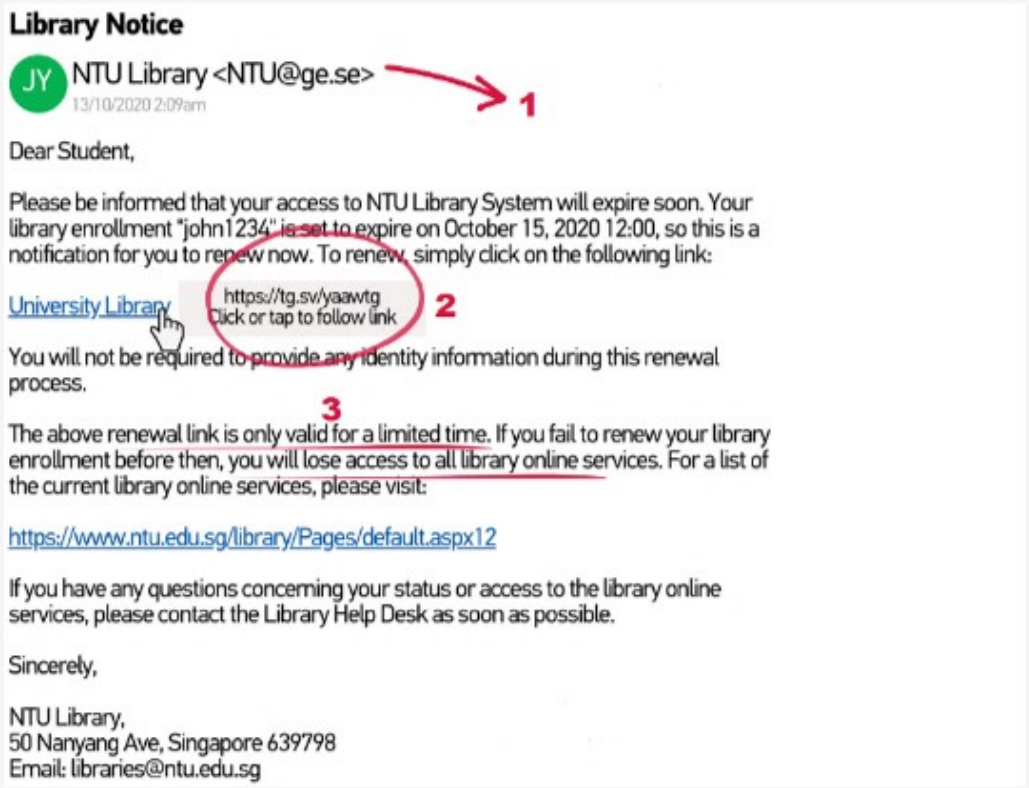
1. * Which of the following actions aligns with the Acceptable IT Usage Policy (AIUP)? Select all that apply.

Choose at least one answer.

- ✔ ☑ Do not forward any university document to your personal email address
- ☐ Share your passwords with close friends only
- ✔ ☑ Use Blind Carbon Copy (BCC) when sending mass emails

It is a violation to the AIUP to share your password with **anyone**.

1. * What are the steps to check if we have received a phishing email such as the following? Match the steps labelled in the image with the correct description.



Library Notice

JY NTU Library <NTU@ge.se> 1
13/10/2020 2:09am

Dear Student,

Please be informed that your access to NTU Library System will expire soon. Your library enrollment "john1234" is set to expire on October 15, 2020 12:00, so this is a notification for you to renew now. To renew, simply click on the following link:

University Library https://tg.sv/yaawtg 2
Click or tap to follow link

You will not be required to provide any identity information during this renewal process.

3

The above renewal link is only valid for a limited time. If you fail to renew your library enrollment before then, you will lose access to all library online services. For a list of the current library online services, please visit:

https://www.ntu.edu.sg/library/Pages/default.aspx12

If you have any questions concerning your status or access to the library online services, please contact the Library Help Desk as soon as possible.

Sincerely,

NTU Library,
50 Nanyang Ave, Singapore 639798
Email: libraries@ntu.edu.sg

Pick up the corresponding answers

✔ Step 1	Step 1	Check the sender's email address
✖ Step 2	Step 3	Look out for urgent threatening language
✖ Step 3	Step 2	Verify the legitimacy of the link before clicking