Default Question Block

Q1.

This information constitutes the "consent information" for the survey:

Dear Students,

We would like to invite you to participate in a survey. This survey is about the Cybersecurity concepts that were covered in class during the "Heap Spraying" Assignment in CS 2506. 5% of the Heap Spraying Assignment will be assigned to the participation in this survey.

This survey is a part of Cybersecurity Education research study funded by the National Science Foundation at VT. Our goal is to assess the effectiveness of the Cybersecurity learning modules implemented in your course this semester and improve these learning modules based on your valuable feedback. The findings will also be published in journal and conference papers/posters for sharing our experiences to educators interested in Cybersecurity education.

Although the survey is voluntary and confidential, we would very much appreciate your participation. Consent is implied with the submission of the survey. The survey includes 41 multiple choice questions and it will take a maximum of 15 minutes for completing the survey. Please note that the survey that is a part of the course assignment will also be used for the research study. Thereby no additional time will be required on your part.

Important Note: Kindly note if you are a minor (under the age of 18), you are requested not to participate in this survey. For questions about your human subject protections, email The Virginia Tech Institutional Review Board at irb@vt.edu.

Thanks,
Vinod Lohani,
Cybersecurity Education Team

◯ I consent to participate in the research study, in addition to taking this survey as part of Course CS2506

◯ I do not consent to participate in the research study. Please only use my survey as part of Course CS2506

Q2. For which course are you given this survey?

- ◯ ECE 2500
- ◯ CS 2506

Q3. From where are you taking the course?

- ◯ On-campus
- ◯ Online

Q4. What is your discipline?

- ◯ Computer Science
- ◯ Computer Engineering
- ◯ Electrical Engineering
- ◯ General Engineering
- ◯ CMDA
- ◯ Others

Q5. What is your academic level?

- ◯ freshman
- ◯ sophomore
- ◯ junior
- ◯ senior

Q6. What is your gender?

- ◯ Male
- ◯ Female
- ◯ Others

Q7. What is your ethnicity?

- ◯ White/Caucasian
- ◯ Black or African American
- ◯ American Indian or Alaska Native
- ◯ Asian
- ◯ Native Hawaiian or Pacific Islander
- ◯ Hispanic or Latino
- ◯ Other

Q8. Did you take CS1114 or ECE 1574 in **Fall 2016 or Spring 2017 or Fall 2017**?

- ◯ Yes
- ◯ No

Q9. Did you take CS2114 or ECE 2574 in **Spring 2017 or Fall 2017** ?

- ◯ Yes
- ◯ No

Q10. I can define the cybersecurity principle of data integrity

- ◯ Strongly agree
- ◯ Agree
- ◯ Somewhat agree
- ◯ Somewhat disagree
- ◯ Disagree
- ◯ Strongly disagree

Q11. I can define the cybersecurity principle of data authenticity

- ◯ Strongly agree
- ◯ Agree
- ◯ Somewhat agree
- ◯ Somewhat disagree
- ◯ Disagree
- ◯ Strongly disagree

Q12. I can define the cybersecurity principle of data availability

- ◯ Strongly agree
- ◯ Agree
- ◯ Somewhat agree
- ◯ Somewhat disagree
- ◯ Disagree
- ◯ Strongly disagree

Q13. I can define the cybersecurity principle of resource integrity

- ◯ Strongly agree
- ◯ Agree
- ◯ Somewhat agree
- ◯ Somewhat disagree
- ◯ Disagree
- ◯ Strongly disagree

Q14. I can define the cybersecurity principle of system integrity

- ◯ Strongly agree
- ◯ Agree
- ◯ Somewhat agree
- ◯ Somewhat disagree
- ◯ Disagree
- ◯ Strongly disagree

Q15. I can define the cybersecurity principle of confidentiality

- ◯ Strongly agree
- ◯ Agree
- ◯ Somewhat agree
- ◯ Somewhat disagree
- ◯ Disagree
- ◯ Strongly disagree

Q16. I can describe potential security threats to system integrity

- ◯ Strongly agree
- ◯ Agree
- ◯ Somewhat agree
- ◯ Somewhat disagree
- ◯ Disagree
- ◯ Strongly disagree

Q17. I can understand attack vectors related to unsafe use of memory in lower level languages

- ◯ Strongly agree
- ◯ Agree
- ◯ Somewhat agree
- ◯ Somewhat disagree
- ◯ Disagree
- ◯ Strongly disagree

Q18. I can design exploits that can compromise system integrity

- ◯ Strongly agree
- ◯ Agree
- ◯ Somewhat agree
- ◯ Somewhat disagree
- ◯ Disagree
- ◯ Strongly disagree

Q19. I can understand the relationship between system integrity and confidentiality

- ◯ Strongly agree
- ◯ Agree
- ◯ Somewhat agree
- ◯ Somewhat disagree
- ◯ Disagree
- ◯ Strongly disagree

Q20. Data integrity can be described as:

- ◯ The ability of a system to recover data from backup after it has been deleted.
- ◯ The ability of a system to ensure the absence of tampering by unauthorized parties
- ◯ The ability of a system to determine whether data has been modified since its creation
- ◯ The ability of a system to ensure data can be accessed only by authorized users

Q21. Data authenticity means:

- ◯ The ability of a system to ensure that data is modified only by authorized parties
- ◯ The ability of a system to validate users' passwords before granting access
- ◯ The ability of a system to ensure the accuracy and precision of the data
- ◯ The ability of a system to ensure that data originates from a given source, i.e., has not been fabricated

Q22.

Data availability can be described as:

- ◯ The ability of a system to ensure that data originates from a given source, i.e., has not been fabricated
- ◯ The ability of a system to ensure the absence of tampering by unauthorized parties
- ◯ The ability of a system to achieve a reasonable level of service even under a cyber attack
- ◯ The ability of the system to encrypt/secure personal data

Q23. Resource integrity can be described as:

- ◯ The ability of a system to integrate all its assets for a shared purpose
- ◯ The ability of a system to ensure accuracy and precision of its assets
- ◯ The ability of a system to protect against the depletion of its assets (e.g. running out of memory or network bandwidth)
- ◯ The ability of a system assets to validate client data

Q24. System integrity can be described as:

- ◯ The ability of a system to detect and respond to attempts at intrusion
- ◯ The absence of memory safety related vulnerabilities because a type-safe language such as Java is being used
- ◯ The state of an information processing system where it performs its intended function unimpaired and is free from inadvertent, unauthorized or deliberate manipulation of the system
- ◯ The state of a networked system of computers wherein all traffic is being monitored

Q25. Confidentiality can be described as:

- ◯ Ensuring that only the person whose personal information is kept can access it
- ◯ Ensuring that encryption is used at all times
- ◯ Ensuring that personal information is deleted after an appropriate period of time has passed
- ◯ Ensuring that sensitive information is disclosed only to authorized users

Q26. Which of the following would NOT commonly be considered a threat to system integrity?

- ◯ A integer overflow vulnerability
- ◯ A lack of data input validation in an input routine
- ◯ A buffer overflow vulnerability
- ◯ A limit on the number of users/requests a system supports per minute

Q27. Heap spraying is a technique to

- ◯ Place many copies of exploit code into the victim's memory in order to prime it for an exploit so as to increase its chance of success
- ◯ Taint heap-allocated memory objects by the attacker to corrupt the memory allocator
- ◯ Write certain byte patterns (e.g., 0x55AA55AA) into memory
- ◯ Increase the memory pressure on the garbage collector of a JavaScript virtual machine by forcing frequent garbage collections of the heap

Q28. A buffer overflow vulnerability that exists in a program or a system implemented in the C language is best described as:

- ◯ an off-by-one error when writing to an array
- ◯ an exhaustion of stack space that occurs due to unlimited recursion
- ◯ the ability of an attacker to provide data to a vulnerable program that overwrites memory outside of the allocated space, followed by a subsequent diversion of control flow according to the attacker's intent
- ◯ the property of a system where an attacker can place an unlimited amount of data into a buffer, causing the buffer to overflow and the system to crash because it runs out of memory

Q29. Which of the following statements about system integrity and confidentiality are FALSE?

- ◯ Systems that support all-powerful so-called "super users" lack integrity
- ◯ System integrity is typically a precondition for maintaining confidentiality
- ◯ Maintaining confidentiality may involve the use of encryption
- ◯ System integrity can be compromised through exploits targeted at system vulnerabilities

Q30. For questions 31 to 41, note that the word “coursework/course” refers to anything that you will do in your course related to **cybersecurity**, including assignments, activities (Lab/s) readings, lectures etc.

Q31. The coursework holds my attention

- ◯ Strongly agree
- ◯ Agree
- ◯ Somewhat agree
- ◯ Somewhat disagree
- ◯ Disagree
- ◯ Strongly disagree

Q32. In general, the coursework is useful to me

- ◯ Strongly agree
- ◯ Agree
- ◯ Somewhat agree
- ◯ Somewhat disagree
- ◯ Disagree
- ◯ Strongly disagree

Q33. The coursework is beneficial to me

- ◯ Strongly agree
- ◯ Agree
- ◯ Somewhat agree
- ◯ Somewhat disagree
- ◯ Disagree
- ◯ Strongly disagree

Q34. The instructional methods used in the course hold my attention

- ◯ Strongly agree
- ◯ Agree
- ◯ Somewhat agree
- ◯ Somewhat disagree
- ◯ Disagree
- ◯ Strongly disagree

Q35. I enjoy the instructional methods used in this course

- ◯ Strongly agree
- ◯ Agree
- ◯ Somewhat agree
- ◯ Somewhat disagree
- ◯ Disagree
- ◯ Strongly disagree

Q36. The instructional methods engage me in the course

- ◯ Strongly agree
- ◯ Agree
- ◯ Somewhat agree
- ◯ Somewhat disagree
- ◯ Disagree
- ◯ Strongly disagree

Q37. I enjoy completing the coursework

- ◯ Strongly agree
- ◯ Agree
- ◯ Somewhat agree
- ◯ Somewhat disagree
- ◯ Disagree
- ◯ Strongly disagree

Q38. I find the coursework to be relevant to my future

- ◯ Strongly agree
- ◯ Agree
- ◯ Somewhat agree
- ◯ Somewhat disagree
- ◯ Disagree
- ◯ Strongly disagree

Q39. The coursework is interesting to me

- ◯ Strongly agree
- ◯ Agree
- ◯ Somewhat agree
- ◯ Somewhat disagree
- ◯ Disagree
- ◯ Strongly disagree

Q40. I will be able to use the knowledge I gained in this course

- ◯ Strongly agree
- ◯ Agree
- ◯ Somewhat agree
- ◯ Somewhat disagree
- ◯ Disagree
- ◯ Strongly disagree

Q41. The knowledge I gained in this course is important for my future

- ◯ Strongly agree
- ◯ Agree
- ◯ Somewhat agree
- ◯ Somewhat disagree
- ◯ Disagree
- ◯ Strongly disagree