CAN304 Assessment 1: Group Project

Weight:

This assignment contributes 20% to the overall assessment of CAN304.

Submission Deadlines

Presentation slides: Sunday, 30 April 2023, 23:59

Report and codes: Sunday, 7 May 2023, 23:59

Tasks:

In this group project, students are required to do a project related to computer systems security. They have to choose a topic and then study the state-of-the-art work done related to that topic. Identify the shortcoming of the existing work and propose an enhanced security solution using technologies learnt in this module. The project should be done in groups with a maximum of 6 students per group and minimum 5 students.

In particular, each group should

1. Realize a prototype and elaborate the complexity of implementation;
2. Write a report in IEEE conference paper style A4 (normally 4 to 8 pages excluding Appendices). The report is expected to include the following parts:
    a. Introduction, motivation and background
    b. Literature survey
    c. Problem identification
    d. Proposed solution and novelty
    e. Implementation and testing
    f. Conclusion
    g. Description of individual's contributions and weight
    h. Reference
3. Give an oral presentation that includes a project demonstration using picture or video components.

Submission:

Each group should

- Submit a report (PDF), presentation slides (PDF) and code with corresponding guide/tutorial (ZIP) via Learning Mall coursework link.
- Give an oral presentation (up to 7-minute presentation and 5-minute Q&A, 12 minutes in total). Detailed arrangement will be released via Learning Mall before Week 12.

Late Submission Policy: 5% of the total marks available for the assessment shall be deducted from the assessment mark for each working day after the submission date, up to a maximum of five working days.

Potential Topics

Any relevant area of computer systems security is ok. Areas include, but are not limited to, the following:

- Applications of cryptography 密码学应用
  - Analysis of deployed cryptography and cryptographic protocols
  - Cryptographic implementation analysis
  - New cryptographic protocols with real-world applications
- Network security 网络安全
  - Intrusion and anomaly detection and prevention
  - Network infrastructure security
  - Denial-of-service attacks and countermeasures
  - Wireless security
- System security 系统安全
  - Web security
  - Mobile systems security
  - Cloud computing security
- Security analysis
  - Malware analysis
  - Analysis of network and security protocols
  - Attacks with novel insights, techniques, or results
  - Automated security analysis of hardware designs and implementation
- Machine learning security and privacy 机器学习安全和隐私
- Privacy-enhancing technologies and anonymity 隐私增强技术＆匿名性

Marking scheme:

Total points: 100 (contribute 20% to the overall assessment)

Marking Criteria	**Item**
Design and implementation (40) 设计＆实现 40%	Design (20)
	Implementation (20)
Quality of report (30) 论文30%	Coverage and level of detail (5)
	Conclusion (5)
	Description of individual's contributions (5)
	References and citations (5)
	Formatting (5)
	Coherence, fluency, succinctness (5)
Presentation (30) pre 30%	Content (10)
	Presentation skills (5)
	Questions and answers (15)

The above marking scheme is for all the groups. Individuals will be marked as following:

- Each group should describe individual's contributions and weighting.
- Normally, individual contribution should be nearly equal in a group, and each member in the same group will have the same mark.

- Any contribution exception occurred should let the module leader know, and the individual mark could be adjusted in terms of the contribution, e.g., the contribution discrepancy is larger than 10%, or one group member quits during the semester.
- No one student can be given less than 0 or more than 100 points.

In the template for IEEE conference paper, there is a section "ACKNOWLEDGMENT". Change the heading into "MEMBERS CONTRIBUTIONS" and describe individual's contributions in the section.

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Marking Guideline

Total points: 100 (contribute 20% to the overall assessment)

Marking Criteria	**Item**	**Observables/ Considerations**	**Grading Reference**
Design and implementation (40)	Design (20)	The algorithm/design can address the problem.	40%~49% is pass 60%~69% is good 70%~79% is distinction 80%~100% is high distinction
	Implementation (20)	Modern tools/equipment/software are used in the implementation. It would be possible for another person to re-produce what was investigated in this study (repeatability).	
Quality of report (30)	Coverage and level of detail (5)	All necessary parts (i.e., introduction, motivation, background, literature review, problem statement, system design, implementation, and testing) are presented in detail.	
	Conclusion (5)	Conclusions are drawn about each question or hypothesis. The analysis is presented clearly, and the interpretation of results is covered in sufficient detail. The limitations on conclusions are specified. The suggested future work is justified.	
	Description of individual's contributions (5)	Individual's contribution and weight are clearly presented.	
	References and citations (5)	Use of references, citations (based on the recommended bibliographic system).	
	Formatting (5)	Use of headers.	

		The diagrams are clearly labeled and referred to in the text.	
	Coherence, fluency, succinctness (5)	Proper use of English including grammar, vocabulary, sentence structure, paragraphs and tenses	
Presentation (30)	Content (10)	Clear motivation and problem statement with a good comprehension of the work's relationship to the field of study. Good understanding and knowledge of the research, theory, concepts and opinion related to the topic. Demonstrate problem solving, analytical and critical thinking skills.	
	Presentation skills (5)	Communication is effective. It should be audible and at an appropriate pace. Visual aids are used appropriately. Any slides used have a clear layout and an appropriate use of visual effects. Figures/data are well presented. Presentation is well timed.	
	Questions and answers (15)	Demonstrates a good understanding of the questions. Appropriate timing to provide responses. Response demonstrates good understanding of the subject area. Engages well in critical discourse.	