

Final Assessment IC 3205

Value: 25 % (You have two options)

Return date/time: 30th November 2025, on or before 4 pm

Submissions made after the deadline will incur a **10% penalty per day** from the final mark. Additionally, if **AI-generated content or plagiarism exceeds the acceptable limit of 10%, a deduction of 50% will be applied** to the final obtained marks.

Option 01 -----

Install Damn Vulnerable Web Application (DVWA) on your own isolated/local machine, set DVWA security to **Low**, simulate **five distinct attacks**, capture screenshots / HTTP artifacts, and produce a single technical report PDF **with justifications and mitigations**.

Follow the legal/safety rules below.

- Only install and test DVWA on machines **you own** or VMs you control.
- Do **not** connect the DVWA host to the public internet. Use host-only or NAT without port forwarding.

What students must submit (single PDF)

- Filename: **DVWA_GroupX_Report.pdf**
- Max 15 pages (main content) + appendices permitted. Include an appendix with raw payloads, full-resolution screenshots, and any small scripts.

Report structure (required):

1. Title page (members, student IDs, DVWA install method, VM/Docker details).
2. Executive summary (1 paragraph).

3. Assumptions & legal compliance statement.
4. Five attack sections.
5. Mitigations & verification (short & long term).
6. Conclusions & lessons learned.
7. References.
8. Appendix: full payloads, all essential full screenshots.

Marking Criteria.

- Reproducibility & completeness: 25%
- Technical correctness: 30%
- Justification & theory linkage: 20%
- Mitigation quality: 15%
- Presentation & clarity of report: 10%

Option 02 -----

Length: minimum 5000 words

Submission method options: Via LMS

This assessment is relevant to all the topics we have covered and requires extensive research on your part as this is group work.

Selection of Research Topic

In this task, you will identify a relevant cyber security topic and write a research paper.

1. Select a topic from the topic set given below (one topic can be selected by one group, and all eleven groups must choose eleven different topics from the following pool of topics/batch representatives may help you to bid on the following topic.

Topic Set

- Ransomware and human impacts
- Malware, intrusion detection systems or intrusion prevention systems detection algorithms
- Vehicle to vehicle (v2v) and vehicle to infrastructure (v2i) security challenges
- Security and trust in ubiquitous systems
- Artificial intelligence in cybersecurity
- IoT security challenges e.g., denial of service and distributed denial of service attacks
- Social engineering techniques and mitigation mechanisms
- Investigating security of blockchain-enabled applications
- Cloud computing security
- Cyberwarfare
- LLM security

Note: If you would like to propose your own topic, please contact your lecturer within 02 days after the announcement of this.

2. Write a research paper (either a review or a novel research) of at least ; minimum of 5000 words:
 - o You have the full authority to decide what you do. Read the following research papers for further information.
 - Elhoseny, M., Thilakarathne, N. N., Alghamdi, M. I., Mahendran, R. K., Gardezi, A. A., Weerasinghe, H., & Welhenge, A. (2021). Security and Privacy Issues in Medical Internet of Things: Overview, Countermeasures, Challenges and Future Directions. *Sustainability*, 13(21), 11645. Link - <https://www.mdpi.com/2071-1050/13/21/11645/pdf>
 - Thilakarathne, N. N., & Madhuka Priyashan, W. D. (2022). An Overview of Security and Privacy in Smart Cities. IoT and IoE Driven Smart Cities, 21-44. Link - https://www.researchgate.net/profile/Navod-Thilakarathne/publication/357096503_An_Overview_of_Security_and_Privacy_in_Smart_Cities/links/61bbe70ca6251b553ac3d940/An-Overview-of-Security-and-Privacy-in-Smart-Cities.pdf
 - Thilakarathne, N. N., Weerasinghe, H. D., Welhenge, A., & Kagita, M. K. (2021, July). Privacy Dilemma in Healthcare: A Review on Privacy Preserving Medical Internet of Things. In 2021 12th International Conference on Computing Communication and Networking Technologies (ICCCNT) (pp. 1-10). IEEE. Link- https://www.researchgate.net/profile/Navod-Thilakaratahne/publication/355896980_Privacy_Dilemma_in_Healthcare_A_Review_on_Privacy_Preserving_Medical_Internet_of_Things/links/6185415a0be8ec17a974bbac/Privacy-Dilemma-in-Healthcare-A-Review-on-Privacy-Preserving-Medical-Internet-of-Things.pdf
 - Thilakrathne, N. N., Samarasinghe, R., & Priyashan, M. (2021). Evaluation of Cyber Attacks Targeting Internet Facing IoT: An Experimental Evaluation. arXiv preprint arXiv:2201.02506. Link - <https://arxiv.org/pdf/2201.02506>
 - o Experimental evaluation that incorporates novelty are always welcome!!! (but use only available resources) / analyzing datasets using machine learning and deep learning is also possible if you have the time
 - e.g.: <https://medium.com/@rockprofile/how-i-setup-my-ssh-honeypot-b34b2bd3fba9>

<https://medium.com/@rockprofile/i-opened-my-connection-to-ssh-attacks-and-these-were-the-requests-i-saw-a5999d62e511>

Tip: Your research should give an overview of the topic, analyse the latest references and identify gaps, applications and/or use cases from the research findings/ or from your own experiments (Read the above papers to have an idea and the research paper structure)

RATIONALE

MARKING CRITERIA AND STANDARDS

Criteria	High Distinction(100% - 85%)	Distinction (84% - 75%)	Credit (74% - 65%)	Pass (64% - 50%)	Fail (49% - 0%)
Ability to demonstrate research skills appropriate to the discipline area and level of study.	A well researched submission that critically analyses relevant reference articles. The submission identifies and synthesises the relevance of the articles, podcast and learning content. It communicates	A well researched submission that critically analyses relevant reference articles. The submission presents the relevance of the articles, podcast and learning content to present a logically well structured report.	A researched submission that critically analyses relevant reference articles. The submission presents some relevance of the articles, podcast and learning content to present a logically well structured report.	A submission that analyses relevant reference articles. The submission presents some relevance of the articles, podcast and learning content to present a report.	A submission that inadequately presents relevant reference articles. The submission may present some analysis in an often poorly organised submission.

Criteria	High Distinction(100% - 85%)	Distinction (84% - 75%)	Credit (74% - 65%)	Pass (64% - 50%)	Fail (49% - 0%)
	knowledge in a logically well structured report.				

REQUIREMENTS

- Your final submission should be a single, readable Word file.
- Use IEEE conference proceedings template (<https://www.ieee.org/content/dam/ieee-org/ieee/web/org/conferences/conference-template-a4.docx>)
- All references used must be properly cited in conformance with the referring style in the IEEE template.
- Any text adapted from any source must be clearly referenced. (Use the guidelines provided in the IEEE template)
- Final plagiarism and AI level should be less than 10% (if you need to check using Turnitin, let me know)

