Faculty of engineering, Environment and Computing

Module: 6005-CEM Security

Assignment Brief

Module Title: Security	Group / Indivudual Individual	Cohort Sep-Dec	Module Code 6005-CEM
Coursework Title CW1: Security Audit			Handout Date Sepember 2022
Lecturer Dan Goldsmith			Due Date and Time 1st December 2022
Estimated Time (hrs) 20 Hours	Coursework Type Report		% of Module Mark 50%

Submission Arrangements

Via: Aula / Turnitin

Marks release expected: None

Feedback Method: Written Feedback via LMS

Word limit: 1500

Module Learning Outcomes Assessed

- 1. Critically evaluate a range of encryption and authentication methods for a given set of requirements.
- 4. Critically evaluate the security of an IT ecosystem.

Task and Mark Distribution

In this coursework you are required to perform a security audit of a computer system and write a report on the results of the audit.

You will have access to a copy of the system, and the source code, you can find details on the learning platform.

Machine / Source Code Release

The VM and source code will be released in **week 6** of the module.

The Audit

You will need to perform an audit to find potential flaws in the system. You are free to choose appropriate method(s) for the audit process. This can include (and is not limited to):

- Code Review
- Use of Automated tools
    - Fuzzing
    - Automated Code Review

While you are free to use any appropriate method for the audit. You will be expected to justify the decision. Why are the approaches chosen appropriate for the audit process, what are the benefits and drawbacks of the audit methods chosen.

The Report.

You are expected to write a report *suitable for a technical audience*.

The report should describe the process used to Audit the system, and discuss any security issues found.

It is expected that the report will contain.

- A description of the Audit method(s) used.
    - Methods used, and Justification.
- Brief Description of any issues found, and an assessment of their seriousness
    - Overview and description of **ALL** vulnerabilities found in the system.
    - Use an appropriate risk rating system for the issues found to categorise them, an show severity.
- Detailed description of **ONE** issue.
    - What is the problem
    - How Severe is the problem
    - Any Suggestions for mitigation.
- It is expected you make use of the supporting literature, and relevant citations, to support your findings.

Report Structure

A suggested structure for the report would be:

- Introduction
- Audit Method(s)
    - Description and justification for the Audit methods chosen.
- Audit Results
    - Summary of results from code audit.
    - Summary of security vulnerabilities discovered.
- Discussion of chosen vulnerability
    - Detailed description of a single vulnerably
- Conclusions

Submission Instructions

Please submit your final report in **PDF**, or **WORD** format, via the submission link.

Marking Scheme

Component	Marks
Introduction and Conclusions	10
Audit Methods	20
Audit Results	30
Discussion of Vulnerability	30
Report Structure	10

Marking Matrix

The Table below gives the minimums required to meet a grade boundary.

Introduction and Conclusions

Should contextualise the report, providing background to the topic, discussing the content of the report in the context of security and highlighting the key findings.

Grade	Mark	Comments
Fail	< 40	Component Missing or Incomplete
Pass	40-50	Introduction summarises coursework brief, with little context provided
Good Pass	50-70	Introduction presents scope for the report, context for the report, and highlights key findings
Outstanding	> 70	Comprehensive introduction that sets out aims of report, and how it fits in the wider context. Key topics for the report discussed

Grade	Mark	Comments
Fail	< 40	Component missing or Incomplete
Pass	40-50	Conclusions gives brief summary of report contents
Good Pass	50-70	Conclusions brings together key findings of report
Outstanding	> 70	Comprehensive summary of report content, key findings from report summarised, discussion of finding in the winder security context

Audit Methods

This section should describe the audit methods you have chosen to use, and justify your choices.

Grade	Mark	Comments
Fail	0-30	Component Missing or Incomplete
Pass	40-50	Brief description of audit method chosen
Good Pass	50-70	Discussion of one or more audit methods chosen, and why they are appropriate for the audit
Outstanding	70+	Comprehensive discussion of multiple audit methods, and justification for use. Appropriate tools are identified. Comparison of strengths and weaknesses of audit methods.

Audit Results

Describe the results of the code audit, and discuss any problems found

Important: In this section the number of issues found is less important than the discussion. There is no "target" number of issues to find.

Grade	Mark	Comments
Fail	0-30	Component Missing or Incomplete
Pass	40-50	Brief overview of issues found
Good Pass	50-70	Description of issues found with discussion of risk, appropriate risk rating used. Summary for all issues found presented
Outstanding	70+	Comprehensive discussion of issues found, along with appropriate risk rating. Suggestions for mitigation provided, suggestions of priority for fix given

Discussion of Issue

Select one of the issues found. Give a detailed discussion of the issue and its potential impact on the application.

Grade	Mark	Comments
Fail	0-30	Component Missing or Incomplete
Pass	40-50	Brief Discussion of chosen vulnerability, builds slightly on course notes.
Good Pass	50-70	Chosen vulnerability and its impact discussed. Demonstration of flaw in the application given.
Outstanding	70+	Comprehensive discussion chosen vulnerability, how it occurs and its impact. Discussion supported with relevant example from the wider literature.

Report Structure

Grade	Mark	Comments
Fail	0-30	Component Missing or Incomplete
Pass	40-50	Use of appropriate referencing
Good Pass	50-70	Well structured report, with appropriate referencing
Outstanding	70+	Outstanding report, Well structured with use of section headings to match elements to the requirements, appropriate diagrams and tables, and referencing.

Notes:

1. 1. You are expected to use the Coventry University APA style for referencing For support and advice on this students can contact Centre for Academic Writing (CAW).
2. Please notify your registry course support team and module leader for disability support.
3. Any student requiring an extension or deferral should follow the university process as outlined here.
4. The University cannot take responsibility for any coursework lost or corrupted on disks, laptops or personal computer. Students should therefore regularly back-up any work and are advised to save it on the University system.
5. If there are technical or performance issues that prevent students submitting coursework through the online coursework submission system on the day of a coursework deadline, an appropriate extension to the coursework submission deadline will be agreed. This extension will normally be 24 hours or the next working day if the deadline falls on a Friday or over the weekend period. This will be communicated via your Module Leader.
6. You are encouraged to check the origianlty of your work by using the draft Turnitin links on Aula
7. Collusion between students (where sections of your work are similar to the work submitted by other students in this or previous module cohorts) is taken extremely seriously and will be reported to the academic conduct panel. This applies to both courseworks and exam answers.
8. A marked difference between your writing style, knowledge and skill level demonstrated in class discussion, any test conditions and that demonstrated in a coursework assignment may result in you having to undertake a Viva Voce in order to prove the coursework assignment is entirely your own work.
9. If you make use of the services of a proof reader in your work you must keep your original version and make it available as a demonstration of your written efforts. Also, please read the univeristy Proof reading policy
10. You must not submit work for assessment that you have already submitted (partially or in full), either for your current course or for another qualification of this university, unless this is specifically provided for in your assignment brief or specific course or module information. Where earlier work by you is citable, ie. it has already been published/submitted, you must reference it clearly. **Identical pieces of work submitted concurrently will also be considered to be self-plagiarism.**