

SESSION: 2023/ 24 DIET: 1st

# Web Application Development 2

M3I325640

M3I326794

Coursework Specification for the Written Report.

This coursework contributes 30% to the overall module mark.

# LEVEL: 3

# MODULE LEADER: Fiona Fairlie

## Submission date: Week 11

Web Application Development 2 is assessed by coursework. This document outlines the requirements for the written report. This coursework is worth 30% of the overall module mark.

There is also another coursework which consists of a practical, web development task and which is worth 70% of the module. Details of the requirements for that coursework are given in a separate document.

## Web Application Development 2 Report

This report is 2000 words(+/-10%) long and is split into two parts. Your answer to Part 1 should be approximately 1500 words long and Part 2 should be approximately 500 words long. This assignment may require some independent research in addition to using the lecture materials. You can use any appropriate sources. However, please note that plagiarism is not accepted within the School and so your report should include appropriate referencing and citations. You should cite all the sources of information, other than the lecture material, you have used within your report, and provide a list with full bibliographic information for each cited source. Citations and reference list should be formatted using the Harvard reference format described in the GCU Library Cite Them Right Harvard guidance available from <https://gcu.libguides.com/referencing> .

## Part 1 ~1500 words

Web application security is a very important topic for web developers. Hackers are constantly looking for ways to exploit vulnerabilities for their own gain. Web developers must therefore be aware of potential security vulnerabilities and of strategies for their prevention.

OWASP 2021 identify Broken Access Control, Cryptographic Failures and Injection as the three most critical security risks to web applications.

Consider the scenario of a website being developed to connect people who have perishable foods with people in the same area who would benefit from that food. (i.e. the website being developed for Coursework 2)

For each of the top three security risks

* define the threat
* identify elements of the site which may be vulnerable to this type of attack
* discuss steps developers can take to mitigate the threats poised.

## Part 2 ~500 words

Continuing to consider the scenario of a website being developed to connect people who have perishable foods with people in the same area who would benefit from that food. (i.e. the website being developed for Coursework 2), critically evaluate the use of the Model View Controller (MVC) architecture in the development of the application.

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|  | **1st** | | | | | **2.1** | **2.2** | | **3rd** |  | | |
|  | **Exceptional** | | | **Excellent** | | **Very Good** | **Good** | | **Satisfactory** | **Marginal Fail** | | **Clear Fail** |
|  | **90 - 100** | | **80 - 89** | **70 – 79** | | **60-69** | **50-59** | | **40-49** | **30 -39** | | **< 30** |
| **Report** | |  | | |  | | |  | | |  | |
|  | Demonstrates ***exceptional*** or ***consistently excellent*** ability, skills and behaviours across specified characteristic(s) with ***no weaknesses***. | | Demonstrates ***exceptional*** or ***consistently excellent*** ability, skills and behaviours across specified characteristic(s), with ***few weaknesses***. | Demonstrates ***mostly excellent*** ability, skills and behaviours across specified characteristics. | | Demonstrates ***overall very good*** ability, skills and behaviours across specified characteristics. | Demonstrates ***overall good*** ability, skills and behaviours across specified characteristics | | Demonstrates ***overall satisfactory*** ability, skills and behaviours across specified characteristics | Demonstrates ***overall poor*** ability, skills and behaviours across specified characteristics with ***some satisfactory*** elements | | Demonstrates ***overall poor*** ability, skills and behaviours across specified characteristics with ***no satisfactory*** elements |
|  | | | | | | | | | | | | |
| Security: Broken Access Control  25% | Excellent definition of Broken Access Control.  Outstanding survey of potential areas of vulnerability and discussion of how mitigate. Evidence of research.  Critical evaluation evident | | Excellent definition of Broken Access Control.  Comprehensive survey of potential areas of vulnerability.  Comprehensive discussion of how mitigate. Evidence of research.  Critical evaluation evident | Clear and accurate definition of Broken Access Control.  Potential vulnerabilities accurately identified.  Comprehensive discussion of how mitigate. Evidence of research.  Critical evaluation evident | | Definition of Broken Access Control provided.  Some potential vulnerabilities identified.  Some discussion of how to mitigate.  Evidence of research. Some critical evaluation evident. | Mostly accurate definition of Broken Access Control along with some suggestions of potential vulnerabilities and mitigation. | | Outline of some issues. Shows some understanding of Broken Access Control but limited discussion which misses some important issues.  Little attempt to connect discussion to specified scenario. | Minimal evidence of understanding of Broken Access Control.  Little attempt to apply knowledge to the specified scenario. | | Section missing or incomplete outline of some issues. |
| Security: Cryptographic Failures  25% | Excellent definition of cryptographic failure.  Outstanding survey of potential areas of vulnerability and discussion of how mitigate. Evidence of research.  Critical evaluation evident | | Excellent definition of cryptographic failure.  Comprehensive survey of potential areas of vulnerability.  Comprehensive discussion of how mitigate. Evidence of research.  Critical evaluation evident | Clear and accurate definition of cryptographic failure.  Potential vulnerabilities accurately identified.  Comprehensive discussion of how mitigate. Evidence of research.  Critical evaluation evident | | Definition of cryptographic failure provided.  Some potential vulnerabilities identified.  Some discussion of how to mitigate.  Evidence of research. Some critical evaluation evident. | Mostly accurate definition of cryptographic failure along with some suggestions of potential vulnerabilities and mitigation. | | Outline of some issues. Shows some understanding of cryptographic failure but limited discussion which misses some important issues. Little attempt to connect discussion to specified scenario. | Minimal evidence of understanding of cryptographic failure.  Little attempt to apply knowledge to the specified scenario. | | Section missing or incomplete outline of some issues. |
| Security: Injection  25% | Excellent definition of injection.  Outstanding survey of potential areas of vulnerability and discussion of how mitigate. Evidence of research.  Critical evaluation evident | | Excellent definition of injection.  Comprehensive survey of potential areas of vulnerability.  Comprehensive discussion of how mitigate. Evidence of research.  Critical evaluation evident | Clear and accurate definition of injection.  Potential vulnerabilities accurately identified.  Comprehensive discussion of how mitigate. Evidence of research.  Critical evaluation evident | | Definition of injection provided.  Some potential vulnerabilities identified.  Some discussion of how to mitigate.  Evidence of research. Some critical evaluation evident. | Mostly accurate definition of injection along with some suggestions of potential vulnerabilities and mitigation. | | Outline of some issues. Shows some understanding of injection but limited discussion which misses some important issues.  Little attempt to connect discussion to specified scenario. | Minimal evidence of understanding of injection.  Little attempt to apply knowledge to the specified scenario. | | Section missing or incomplete outline of some issues. |
| MVC: support for rapid and parallel development  25% | Accurate definition of MVC.  Outstanding discussion showing a detailed understanding of key issues. Evidence of research.  Critical evaluation evident. | | Accurate definition of MVC.  Excellent discussion showing a detailed understanding of key issues. Evidence of research.  Critical evaluation evident. | Accurate definition of MVC.  Comprehensive discussion showing a detailed understanding of key issues. Evidence of research.  Critical evaluation evident. | | Clear definition of MVC.  Good discussion showing reasonable depth of understanding. Evidence of research. Some critical evaluation evident. | Mostly accurate definition of MVC Reasonable discussion but misses key aspects or issues, some evidence of research | | Shows some understanding of MVC  Limited outline of some points but key aspects not considered, little evidence of research | Minimal account of how MVC can be said to be relevant in specified scenario. | | Section missing or incomplete outline of some issues. |