MONASH University
Information Technology

ASSESSMENT COVER SHEET

Student ID number	32068611
Given Name	Xie
Family name	Lianzheng

Unit Name and Code:	FIT5032 Internet applications development
Campus:	Clayton
Assignment Title:	A2 - Basic Web App
Name of Lecturer:	Jinx Huang
Name of Tutor:	Gonzalo Hernandez
Tutorial Day and Time:	Wed 08:00 CL_Chn-20.Menzies_S107
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Email Address:	lxie0014@student.monash.edu

Has any part of this assignment been previously submitted as part of another unit/course? ☐ Yes ☐ No

Due Date:	30/08/2024	Date Submitted:	01/09/2024

All work must be submitted by the due date. If an extension of work is granted this must be specified with the signature of the lecturer/tutor.

Extension granted until (date)_____ Signature of lecturer/tutor _____

Please note that it is your responsibility to retain copies of your assessments.

Intentional plagiarism or collusion amounts to cheating under Part 7 of the Monash University (Council) Regulations

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Collusion: Collusion means unauthorised collaboration with another person on assessable written, oral or practical work and includes paying another person to complete all or part of the work.

Where there are reasonable grounds for believing that intentional plagiarism or collusion has occurred, this will be reported to the Associate Dean (Education) or delegate, who may disallow the work concerned by prohibiting assessment or refer the matter to the Faculty Discipline Panel for a hearing.

Student Statement:

- I have read the university's Student Academic Integrity Policy and Procedures.
- I understand the consequences of engaging in plagiarism and collusion as described in Part 7 of the Monash University (Council) Regulations http://adm.monash.edu/legal/legislation/statutes
- have taken proper care to safeguard this work and made all reasonable efforts to ensure it could not be copied.
- No part of this assignment has been previously submitted as part of another unit/course.
- I acknowledge and agree that the assessor of this assignment may for the purposes of assessment, reproduce the assignment and:
  - i. provide to another member of faculty and any external marker; and/or
  - ii. submit it to a text matching software; and/or
  - iii. submit it to a text matching software which may then retain a copy of the assignment on its database for the purpose of future plagiarism checking.
- I certify that I have not plagiarised the work of others or participated in unauthorised collaboration when preparing this assignment.

Signature .....Lianzheng Xie..... Date…01/09/2024……

* delete (iii) if not applicable

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Lianzheng Xie
32068611

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1. Declaration

I, Lianzheng Xie, declare that this assignment, titled A2: Basic Web App Report, is my own original work and has not been copied from any other source except where explicitly acknowledged. I have not engaged in plagiarism, collusion, or any other form of academic misconduct in the preparation and submission of this assignment. All sources of information and data used in this assignment have been properly cited and referenced in accordance with the prescribed guidelines. I have not used unauthorized assistance in the preparation of this assignment and have not allowed any other student to copy my work. I am aware that any breach of academic integrity may result in disciplinary action as per the policies of Monash University, which may include failing this assignment or the course, and further academic penalties.

Signature: LianzhengXie Date: 25/08/2024

2. Github Check

Enter your Github details here.

Github Username *Enter your username here*	LianzhengXie
A2 Shared? *Have you started and shared your assignment repository with your tutor yet?*	*https://github.com/LianzhengXie/fit5032.git*

3. Self-Evaluation

Rate your performance for each criteria. Put a ✅(tick) in the box where you think your work belongs.

Criteria	Exceeds Expectations	Meets Expectations	Needs Improvement	Fail to meet expectations

BR (A.1): Development Stack and Coding	✅			
BR (A.2): Responsiveness	✅			
BR (B.1): Validations	✅			
BR (B.2): Dynamic Data & Data Structure	✅			
BR (C.1): Authentication	✅			
BR (C.2): Role-based authentication	✅			
BR (C.3): Rating	✅			
BR (C.4): Security		✅		

4. Screen Recording of BRs

Create a 3 minute video showing your basic web application in action! Upload this video to your Google Drive and put the link here (ensuring that you have updated the access list so its not private).

https://drive.google.com/file/d/1PfNBxoHCm3McocBc9wxG5TW_TeW2yEYO/view?usp=sharing

5. Reflections: Implementation of C.4 Security

If you have implemented BR C.4, in less than 200 words describe the approach that you have taken to implementing Security in your application. What security flaws were you trying to prevent and what security measures have you implemented to fix those flaws? How do you know that these measures will help prevent those issues from happening? Optionally you can cite external sources to provide evidence for your claim.

When implementing BR C.4 security, my main focus was on preventing cross-site scripting (XSS) attacks and ensuring best practices for data handling.XSS attacks pose a significant threat because they allow attackers to inject malicious script into web pages viewed by other users. To mitigate this risk, I ensure that all user input is properly escaped using Vue.js' built-in data binding, which automatically escapes HTML to prevent malicious code execution.

Additionally, to avoid exposing sensitive information such as API keys, I followed the best practice of not storing them in client-side code. Instead, sensitive operations and data are managed on the server side, ensuring that critical information is protected from unauthorised access.

Additionally, data validation is implemented on both the client and server side to ensure input meets required standards and to prevent the processing of invalid or malicious data. Together, these measures help protect applications from common security vulnerabilities and ensure a secure user experience.

These security measures are widely recommended and have proven effective in preventing XSS and other attacks, as described in various security guidelines and literature.

https://www.cloudflare.com/zh-cn/learning/security/how-to-prevent-xss-attacks/

6. Reflections: Challenges

What has been the most challenging part of this assignment for you? How has this stretched you as a programmer?

The most challenging parts of this assignment for me were **C.1 Authentication** and **C.4 Security**. Unlike other parts of the assignment, which were covered in the studio sessions, these two aspects required a deeper understanding and more complex implementation.

C.1 Authentication involved creating a system where user accounts could be stored securely and then validated during login. This was challenging because I needed to ensure that the authentication process was not only functional but also secure. It required me to learn about handling user sessions, securely storing passwords, and managing user roles, which stretched my understanding of secure user management.

C.4 Security was particularly difficult because I hadn't previously focused on security practices, and I was unfamiliar with the methods and concepts required. To address this, I conducted extensive research and practice to understand how to protect against common security vulnerabilities like Cross-Site Scripting (XSS). I learned how to implement proper data validation and secure handling of sensitive information, which greatly enhanced my knowledge and skills in this area.

This experience has taught me the importance of security in web development and has stretched me as a programmer by pushing me to learn and apply new concepts beyond what was covered in the classroom. It has also reinforced the importance of writing secure, robust code to protect users and their data.

7. Declaration: Additional Help

Any tools that you used (including Gen AI or existing code reuse) must be declared here.

Note: GenAI is not allowed for coding purposes in any assignment,

However, you may use GenAI for brainstorming and problem solving. You need to declare all such uses here. One row per help used.

Name	Description
Example: ChatGPT for brainstorming ideas	*I used ChatGPT to brainstorm how to do X because I was feeling stuck with Y problem.*

8. Reference

Cloudflare. (n.d.). *How to prevent XSS attacks*. Cloudflare. Retrieved August 27, 2024, from https://www.cloudflare.com/zh-cn/learning/security/how-to-prevent-xss-attacks/