# Assignment Title: Secure Banking Application (65%)

## Objective:

Develop a **simple** Java-based banking application that demonstrates secure programming practices. The application should handle basic functionalities like account creation, login, balance checking, money deposit, and withdrawal, while ensuring data integrity and confidentiality.

## Requirements:

1. **Secure Account Management:**
   * Implement account creation that securely stores user credentials.
   * Use strong hashing algorithms for password storage.
   * Include mechanisms to prevent SQL injection attacks when interacting with the database.
2. **User Authentication and Authorization:**
   * Implement multi-factor authentication to enhance login security.
   * Ensure that users can only access their own account details and perform transactions. (Create more than one user to test this)
3. **Secure Coding Guidelines:**
   * Use Static Analysis in the development of your project.
4. **Secure Communication:**
   * Validate all incoming data to prevent common vulnerabilities such as XSS and CSRF.
5. **Error Handling and Logging:**
   * Implement secure error handling that does not expose sensitive information.
   * Set up secure logging mechanisms to keep track of user activities and system errors.
6. **Security Testing:**
   * Write unit tests to validate the security of user authentication, input validation, and transaction processes.

## Deliverables:

1. **Source Code:**
   * Complete source code of the application including backend and any frontend components. **Your Code must be all on Git Hub and you MUST give me access to it.**
2. **Documentation:**
   * A written report detailing your design, especially around the security measures implemented.
   * Description of each security feature and its implementation.
   * Discussion on potential security vulnerabilities not covered by the implementation.
3. **Test Cases:**
   * A suite of Unit Tests that demonstrate the security of the application.
   * Include Screen shots of Test results and coverage reports in your Report
4. **Short Video Presentation:**
   * A short video (5 mins Max) explaining your code/application.
   * Screen record on your laptop, voice over to explain the important parts/features of your code/application.

## Evaluation Criteria before you submit:

* **Functionality:** Does the application perform the required tasks?
* **Security:** Are there vulnerabilities? How well does the application protect against common security threats?
* **Code Quality:** Is the code well-organized, commented, and adhering to Java best practices?
* **Documentation:** Is your report clear, does it explain how your project works? Does it detail the security considerations implemented in the code?
* **Video:** Does your video play, is the picture clear, can you hear the sound, is it 5 minutes or less?