

## C372 Graded Assignment

E-commerce continues to expand rapidly, with global sales expected to surpass \$6 trillion this year. This growth is fueled by mobile-first platforms, AI-driven personalization, and increasing demand for cross-border shopping. Fintech has emerged as a key enabler, offering digital wallets, embedded finance, and payment orchestration tools that streamline transactions and improve access to financial services. ([Emerging Risks In E-Commerce And Payments: Trends To Watch In 2025](#))

However, this innovation comes with heightened regulatory scrutiny. In Singapore, the Payment Services Act mandates robust cybersecurity, Anti-Money Laundering (AML), and customer fund safeguarding protocols for licensed entities.

Globally, fintech startups face challenges navigating licensing frameworks, cross-jurisdictional compliance, and evolving standards around digital assets, data protection, and third-party risk. Regulatory sandboxes and RegTech tools offer some relief, but companies must remain vigilant to avoid fines, reputational damage, and operational delays.



How might you design and develop a secure and efficient e-commerce platform that supports full CRUD (Create, Read, Update, Delete) functionality for managing products or services, integrates a built-in digital wallet, and connects to multiple payment APIs to enable seamless cross-border transactions and promote financial inclusion for underserved markets—while ensuring compliance with evolving regulatory frameworks across jurisdictions?

## Project Requirements

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- a) This is a team-based assignment. Teams are expected to collaborate effectively to:
  - Identify a product or service that addresses a market gap.
  - Define the target audience and underserved groups.
  - Assign roles, coordinate tasks, and manage deliverables.
- b) Complete Part 1: Weeks 1–7 — Research & CRUD Development Phase
- c) Complete Part 2: Weeks 8–12 — Orders, Payments Integration & Reporting Phase
- d) Enhancements
  - Implement fraud prevention and anti-money laundering (AML) features where applicable.
  - Include any other relevant enhancements that add value or improve the overall quality of the project.

 Enhancements and improvements beyond the stated requirements are not required to pass the assignment, but teams that implement meaningful enhancements may be recognized with bonus marks for innovation and overall quality.

### Part 1: Weeks 1–7 — Research & CRUD Development Phase

#### Milestone 1: Problem/Gaps Analysis & Prototype (Weeks 1–3)

##### Tasks:

- Analyze market gaps for a product/service and propose a viable solution.
- Identify relevant regulatory requirements (e.g., PCI DSS, AML/KYC, MAS guidelines).
- Prepare presentation slides and a code-free prototype using PowerPoint, Canva, or Figma.

##### Demonstrate:

- Navigation and product/service browsing.
- Payment barriers and solutions for underserved groups.
- Integration of secure, accessible payment methods.
- Security features such as encryption, fraud detection, and authentication.
- Digital wallet functionality: top-up, balance display, and transactions.

 Cite sources and include clear diagrams where appropriate.

#### Milestone 2: Web Application Development (Weeks 4–7)

##### Functional Requirements (FR):

- Visitors can browse products/services.
- Customers can sign up/log in, add/remove items to cart, update quantities, and retain cart contents after logout.
- Administrators can manage product/service details.
- Front-end and back-end validations are implemented.

**Non-Functional Requirements (NFR):**

- Prevent unauthorized access.
- Reject invalid inputs.
- Ensure ease of navigation, responsive layout, and pleasant UI design.

**Part 2: Weeks 8–12 — Orders, Payments Integration & Reporting Phase**

**Milestone 3: Orders, Payment & Reporting Features Development (Weeks 8–12)**

**Functional Requirements (FR):**

- Customers can pay using various digital payment methods.
- Customers can view purchase history.
- Administrators can view non-sensitive customer details and purchase records.
- Administrators can generate sales performance reports.
- Front-end and back-end validations are applied.

**Non-Functional Requirements (NFR):**

- Support for multiple digital payment options.
- Compliance with regulatory guidelines (MAS, PCI DSS, AML/KYC, TRM, etc.).
- Secure and validated payment transactions.
- Automatic invoice generation, stock updates, and cart clearing after payment.
- Reports must be well-formatted and complete.
- Consistent, responsive, and user-friendly interface.

**Version Control and Deployment**

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Version control helps teams stay organized, track progress, and collaborate effectively without losing work.

- Create a GitHub repository for your project.
- Commit and push your code regularly to show progress.
- Deploy your project on a hosting platform (e.g. Render).
- Ensure the deployed site is publicly accessible.
- Include both the repository link and the live deployment link in your submission.

 Regular commits and a working deployment will be part of your assessment for process and technical competency.

**Final Deliverables**

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- Project slides and prototype
- Source code files (JS, EJS, CSS, images, libraries, etc)
- SQL scripts (create/insert statements)
- Graded Assignment Project Report (Includes Team Contribution Planner)
- Individual AI Interaction Journal
- Individual Declaration of compliance

## Assessment Criteria

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In this module, the Final Assessment(Graded Assignment) contributes 55% to the overall module grade. The breakdown of the assessment criteria and their respective weightings is as follows:

Criteria	Weight(%)
Methods and Procedures	10%
Communication Skills	15%
Quality of Final Deliverables	20%
Student Role and Responsibility	10%
Total	55%

## Project Rules & Guidelines

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a) To ensure fairness, authenticity, and technical rigor, teams must adhere to the following rules:

- All members must code — no one should handle only documentation or styling.
- Code must be original and based on concepts taught in class.
- Be creative but keep the project achievable within the timeframe.
- Do not use pre-built or full website templates; marks will be deducted if found.
- Hardcoded features or data will not earn marks.

b) Use of AI Tools

Students are permitted to use AI tools (e.g., ChatGPT, GitHub Copilot) to support their work for this assessment. However, any use of AI-generated content must be **clearly acknowledged during the project presentation.**

Students must indicate:

- The AI tool(s) used
- The input prompts provided
- Which parts of the code or content were generated or assisted by AI
- How the generated responses were adapted or integrated into the work

Failure to provide acknowledgement of the use of the AI tool(s) is tantamount to plagiarism and should be dealt with in accordance to RP's Rules and Regulations pertaining to academic integrity.

c) Submission Instructions

- a. Part 1 Milestone 1 - Week 4, submit in **POLITEMALL and SA3 system**
- b. Part 1 Milestone 2 - Week 7, submit in **POLITEMALL and SA3 system**
- c. Final submission (Part 1 and 2), submit in **POLITEMALL and SA3 system** by **Friday, 6 February 2025, 11:59 PM (2359H)**

Before you submit, check that you have compressed all required files into a single ZIP file.

Your ZIP file should follow the naming convention:

`<student_class_code>_Team<team_number>.zip`

E.g. C372-003\_Team5.zip

- d) Make sure to back up your project files to avoid any loss of data or project work.
- e) Avoid submitting your work at the last minute. Submit early—you can always make changes and resubmit before the deadline.

Penalty for late submissions:

Time after submission deadline, t	$0 < t \leq 24$ hours	$24 < t \leq 48$ hours	$48 < t \leq 72$ hours	$t > 72$ hours
<b>Downgrading applied to submitted work</b>	10% of the maximum score for the submitted work	20% of the maximum score for the submitted work	30% of the maximum score for the submitted work	100% of the maximum score for the submitted work, i.e., award zero marks