SECD2613-16 SYSTEM ANALYSIS AND DESIGN

Online Marketplace	Develop a simple online marketplace where users can buy and sell goods. Include features such as product listings, search functionality, and user profiles.

Group 12	
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Topic: **Online Market**

Develop a simple online marketplace where users can buy and sell goods.
Include features such as product listings, search functionality, and user profiles.

1. **Introduction:**

The Online Marketplace project proposes the creation of a robust web-based platform designed to facilitate seamless transactions between sellers and buyers, revolutionizing the e-commerce experience. Through this platform, we aim to provide a user-friendly interface that streamlines product showcasing, purchase processes, and seller-buyer communication, ultimately enhancing the online shopping experience. This initiative aligns with our group's dedication to fostering online trade and community connectivity.

2. **Background Study:**

Our group recognizes the need for a centralized and efficient online marketplace; we aim to create a platform that connects sellers with a wide audience of potential buyers. This Online Marketplace will serve as a dynamic hub for commerce, empowering both sellers and buyers while driving economic growth in the digital sphere.

3. **Problem statement**

The primary challenge our Online Marketplace aims to address is the lack of a unified platform where sellers and buyers can seamlessly interact, negotiate, and conduct transactions with ease. Current e-commerce platforms often suffer from poor user experience, limited seller tools, and inadequate customer support, leading to dissatisfaction among users. Additionally, issues related to trust and transparency in online transactions coupled with complex navigation and payment processes; hinder the growth of online trade. By developing a comprehensive solution, we seek to overcome these barriers and provide a reliable, efficient, and user-centric marketplace.

4. **Proposed solutions**

   1. Develop an intuitive and user-friendly interface that simplifies navigation and enhances the overall shopping experience.
   2. Implement advanced search functionality with filters and categories to help users easily find desired products.
   3. Introduce comprehensive seller profiles and product listings with high-quality images and detailed descriptions to build trust and transparency.
   4. Enable a secure and seamless payment gateway to facilitate smooth transactions between buyers and sellers.
   5. Integrate a robust review and rating system to encourage honest feedback and improve community trust.
   6. Offer personalized recommendations based on user behaviour and preferences to enhance engagement and cross-selling opportunities.
   7. Provide sellers with powerful administrative tools for managing inventory, orders, and customer interactions efficiently.
   8. Ensure data security and privacy through stringent compliance with industry standards and regulatory requirements.
   9. Conduct continuous testing and gather user feedback to iteratively improve the platform.

5. Objectives:

1. Conduct comprehensive research and data gathering to understand the needs, preferences, and pain points of both sellers and buyers within the target market.
2. Develop and refine the initial draft of the user interface, incorporating insights gleaned from research to ensure optimal usability and functionality.
3. Forge the platform enabling sellers to display their products with comprehensive profiles and captivating visuals.
4. Enact a seamless purchase process that fosters frictionless transactions, prioritizing user convenience.
5. Equip sellers with robust administrative tools to adeptly manage product listings, orders, and customer interactions, optimizing operational efficiency.
6. Elevate the user interface to cultivate heightened satisfaction and bolster customer retention.
7. Introduce personalized recommendation features to enhance user engagement and stimulate cross-selling opportunities.
8. Implement a robust review and rating system to foster trust and transparency within the marketplace community.

6. Methodology (Scope of the Project):

Our approach to achieving these objectives will involve several key phases:

- Requirement gathering and analysis: Conduct surveys and market research to understand the needs and preferences of sellers and buyers.
- Design and prototyping: Create wireframes and prototypes to visualize the user interface and functionality of the Online Marketplace.
- Development: Utilize cutting-edge web technologies to build a scalable, secure, and user-friendly platform.
- Testing and feedback: Conduct extensive testing to ensure the platform's functionality and gather feedback for further improvements.
- Deployment and training: Roll out the Online Marketplace to users and provide comprehensive training to ensure optimal utilization.

7. Project Planning:

7.1. Human Resource:

i.   Project Manager
ii.   Web developers
iii. UI/UX designer
iv.   Database administrator
v.   Server infrastructure
vi.   Training materials and documentation

7.2. Work Breakdown Structure (WBS):

Project Initialization: (1 week)

- Project planning and kick-off meeting
- Define project scope and objectives
- Assign roles and responsibilities

Conduct Research and Data Gathering: (2 weeks)

- Conduct surveys and interviews with potential users
- Gather market data and analyse competitors
- Document functional and non-functional requirements

Design and Refine the Initial Prototype: (3 weeks)

- Create wireframes and mock-ups
- Develop UI/UX design
- Review and refine design based on feedback

Forge the Platform: (4 weeks)

- Set up development environment
- Implement core features (product listings, search functionality, user profiles)
- Integrate payment gateway
- Develop review and rating system
- Conduct unit testing and code reviews

Elevate the User Interface: (2 weeks)

- Perform system testing and bug fixes
- Conduct user acceptance testing (UAT)
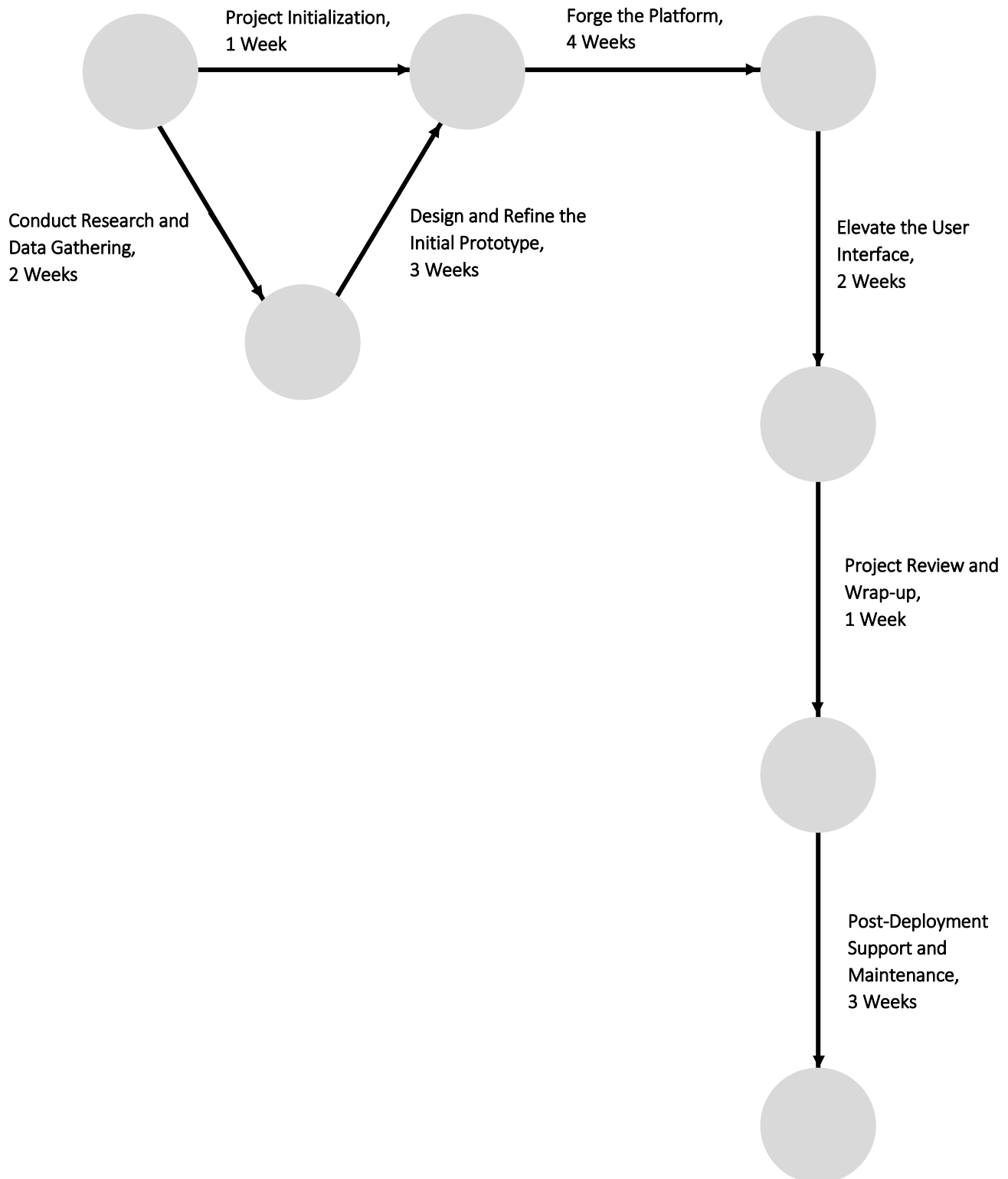- Collect and analyse user feedback
- Implement necessary improvements

Project Review and Wrap-Up: (1 week)

- Prepare deployment plan and schedule
- Set up server infrastructure and deploy the platform
- Conduct training sessions for users and administrators
- Launch the platform to the public
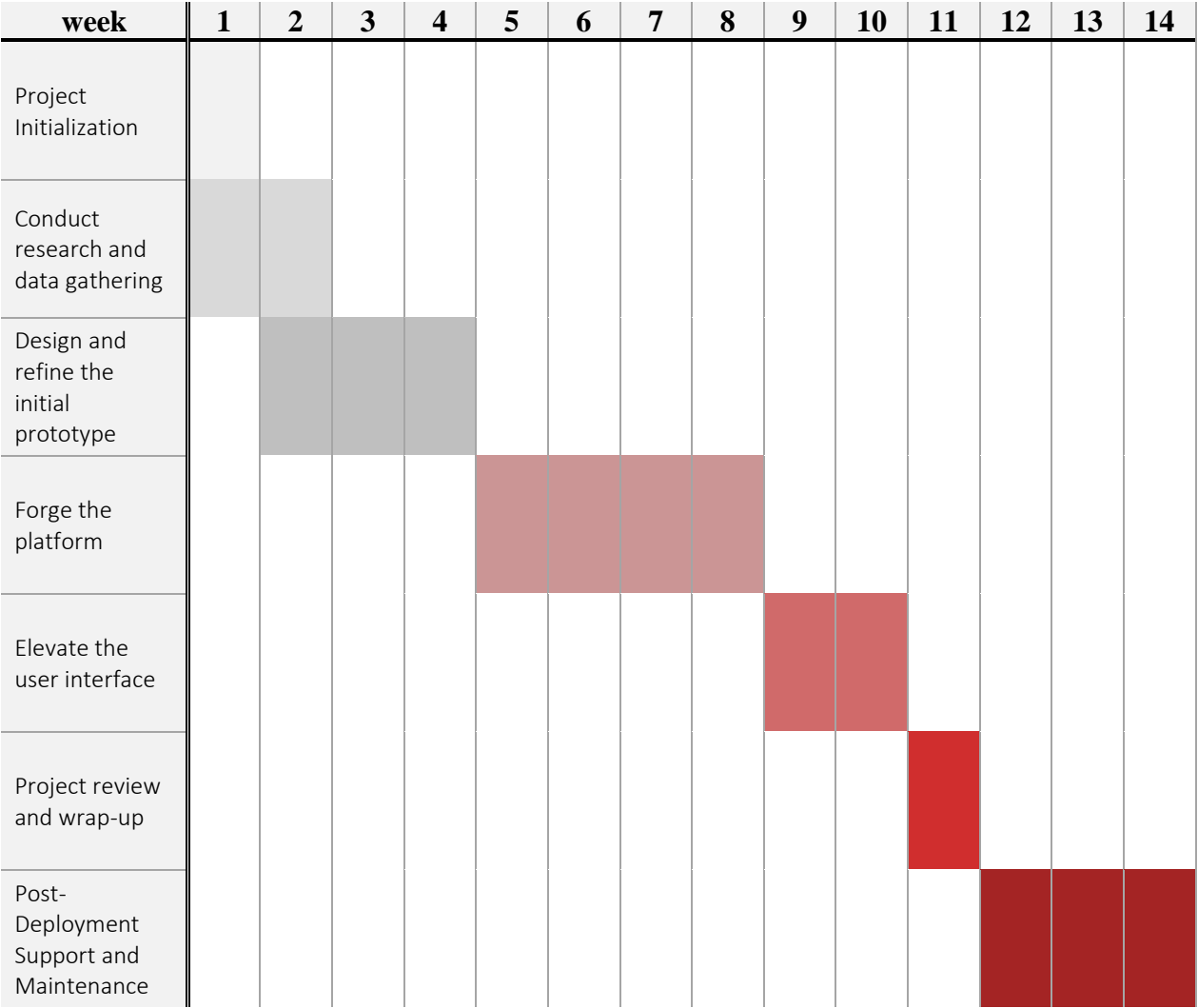
Post-Deployment Support and Maintenance: (3 weeks)

- Monitor platform performance
- Provide ongoing technical support
- Implement updates and enhancements based on user feedback
- Ensure compliance with data protection regulations

7.3. PERT Chart:

Project Initialization,
1 Week

Forge the Platform,
4 Weeks

Conduct Research and
Data Gathering,
2 Weeks

Design and Refine the
Initial Prototype,
3 Weeks

Elevate the User
Interface,
2 Weeks

Project Review and
Wrap-up,
1 Week

Post-Deployment
Support and
Maintenance,
3 Weeks

7.4. Gantt Chart:

week	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Project Initialization	█													
Conduct research and data gathering	█	█												
Design and refine the initial prototype		█	█	█										
Forge the platform					█	█	█	█						
Elevate the user interface									█	█				
Project review and wrap-up											█			
Post-Deployment Support and Maintenance												█	█	█

We will utilize a Gantt chart to monitor project milestones and deadlines. Bi-weekly progress reports will be provided, outlining completed tasks, upcoming milestones, and any challenges encountered. Regular stakeholder meetings will be held to review progress and address feedback.

7.5. Budget:

The budget breakdown is as follows:

a) Personnel costs
    i. Project management: Rm 5,000 per month
    ii. Web developers (3 developers):   Rm 2,000 per developer per month
    iii. Graphic designer: Rm 2,000 per month

b) Software and licenses
    i. Development tools: Rm 5,000 per year
    ii. Hosting services: Rm 500 per month
    iii. Security software: Rm 7,000 per year

c) Infrastructure and hosting
    i. Server infrastructure: Rm 30,000
    ii. Domain registration: Rm 100 per year
    iii. SSL certificate: Rm 800 per year

d) Miscellaneous expenses
    i. Material and documentation: Rm 2,000
    ii. Contingency fund: (10% of total budget)

Total budget:

Sum of all the above costs:

Monthly in a year (*12):

a) Personnel costs: Rm 156,000
b) Software and licenses: Rm 6,000

Yearly:

b) Software and licenses: Rm 12,000
c) Infrastructure and hosting: Rm 900

Total per year:	Rm 174,900

One-time payments:

c) Infrastructure and hosting: Rm 30,000
d) Miscellaneous expenses: Rm 2,000 + (10%)

Total first year:	Rm 227,590

8. Benefit and Overall Summary of Proposed System:

The proposed Online Marketplace will significantly enhance the online shopping experience by providing a centralized platform that fosters seamless interactions between sellers and buyers. Key benefits include:

- Improved User Experience: A user-friendly interface and advanced search functionality will make it easier for users to navigate and find products.
- Enhanced Trust and Transparency: Comprehensive seller profiles, high-quality product listings, and a robust review system will build trust among users.
- Efficient Transactions: A secure payment gateway and streamlined purchase process will facilitate smooth transactions.
- Increased Engagement: Personalized recommendations and user-centric features will boost user engagement and satisfaction.
- Operational Efficiency: Sellers will benefit from powerful administrative tools, improving their ability to manage inventory and orders effectively.
- Economic Growth: By connecting sellers with a wider audience, the platform will drive economic growth in the digital marketplace.

The Online Marketplace project aligns with our commitment to fostering online trade and community connectivity, ultimately revolutionizing the e-commerce landscape.

9. Risks:
- Technical challenges arising during the development phase, potentially leading to delays or setbacks in platform deployment.
- Limited engagement of the platform by sellers and buyers, hindering its effectiveness as a marketplace.
- Concerns regarding data security and privacy, posing risks of data breaches or regulatory non-compliance.
- Intense competition from established online marketplaces, potentially impeding market penetration and user acquisition efforts.
- Uncertainty regarding scalability and performance under high user loads, potentially affecting user experience and platform reliability.
- Regulatory changes or legal issues affecting the operation of the online marketplace, necessitating agile adaptation and compliance measures.

Mitigation strategies encompass rigorous testing protocols, proactive stakeholder engagement, and strict adherence to industry standards and regulatory requirements for data protection and privacy.