ITCS389-01

Software Engineering

Department of Computer Science

University of Bahrain

Online Shopping System (Phase 2):

System Analysis Documentation

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**2.1 Requirements Collection:** (Saud)

**2.1.1 Methods:**

A mix of the following two methods were used to gather the new system requirements:

* Interviews: One on one interviews were conducted with key stakeholders to gather details of their expectation and requirements for the new online shopping system. Also, JAD was used as a contemporary method to get more information from others about the system.
* Document Analysis: Review of existing business documents enabled us to discover problems with existing systems, opportunities to meet new needs, reasons for current system design, and rules for processing data were found.

**2.1.2 Stakeholder Involvement:**

Stakeholders played a vital role throughout all processes in the Software Development Life Cycle, especially in the Requirement gathering process. They were included in regular meetings to gain feedback and discuss progress.

**2.1.3 Requirement Prioritization:**

Requirements were prioritized based on the following criteria:

* Importance: The impact of the requirements on core business functions and user experience.
* Feasibility: Time and technical achievability of requirements within project constraints.

**2.2** **Functional Requirements:** (Saud)

1. **User Authentication:** the system should authenticate new users before they can add item to shopping cart and order.
   * Input: personal info(username, password, email/phone number)
   * Output: User profile information
   * Process: Verify credentials against database for access
   * Priority: High
2. **Shopping Cart:** users should be able to add/remove items that they desire to order into a shopping cart
   * Input: add/remove items, quantity
   * Output: Total price
   * Process: Maintain cart state, calculate cart total
   * Priority: High
3. **Wishlist:** allow users(even unregistered users) to add/remove item from their wishlist
   * Input: add/remove item from wishlist
   * Output: display wishlist items
   * Process: Allow customers to add, remove, and view items in their wishlist
   * Priority: low
4. **Order Processing:** the system should process orders automatically after the user place an order.
   * Input: customer details, delivery location, payment information
   * Output: order confirmation, invoice
   * Process: validate order details, process payment, send order details to supplier, update inventory
   * Priority: High
5. **Search functionality:** users should be able to search for items.
   * Input: keywords, filters
   * Output: Relevant product listing
   * Process: Search products based on keywords and filters
   * Priority: High
6. **Order Tracking:** the system should allow users to track their shipment
   * Input: Order ID, tracking number
   * Output: Shipment status, tracking information
   * Process: show real time tracking information for orders
   * Priority: medium
7. **Product catalog management:** allow suppliers to edit product details, price, quantity, and availability
   * Input: Product details, images, pricing or add/remove product
   * Output: Display product listings
   * Process: CRUD (Create, Read, Update, and Delete) operations for product management
   * priority: High
8. **Reviews and Ratings:** allow customers to rate products AFTER buying the item, allow other customers to view ratings.
   * Input: for submitting a review: order info, review, customer info. For viewing: product info
   * Output: Display ratings/reviews
   * Process: for submitting a review: verify that customer had ordered the product, then allow customer to submit the review
   * Priority: medium
9. **Generate Supplier Report:** Generate sales report for suppliers.
   * Input: sales data, inventory status
   * Output: supplier report
   * Process: Generate report detailing sales performance and inventory status
   * Priority: medium
10. **Payment processing for suppliers:** pay suppliers for the items they sold each month
    * Input: sales data, payment details
    * Output: payment confirmation
    * Process: Calculate and process payment to suppliers for items sold
    * Priority: high
11. **Orders notifications:** send notification to supplier whenever a customer order their product detailing order information.
    * Input: customer order information
    * Output: order notifications to supplier
    * Process: Send order details to suppliers when customers place orders for their products.
    * Priority: High
12. **Payment processing for delivery services:** Pay delivery companies for their delivery services
    * Input: delivery data, payment information
    * Output: payment confirmation
    * Process: calculate and process payments to the delivery companies
    * Priority: High
13. **Delivery notification:** send notifications to the delivery company detailing delivery information after the order is processed by the supplier.
    * Input: delivery details (item pick up/drop location, customer/supplier information)
    * Output: Delivery notifications to the delivery company
    * Process: Automatically send notifications to the delivery company detailing delivery information after the order is processed by the supplier
    * Priority: High

**2.3 Non-Functional Requirements:** (Saud)

1. **Performance:** 
   * Response Time: the system should load the page in less than 5 seconds.
   * Throughput: The system should be able to handle one thousand simultaneous active users
   * Scalability: Support traffic growth in the future
2. **Security:** 
   * Use SSL/TTL to encrypt data for secure transactions, and apply secure Firewalls to protect against external attacks
3. **Usability:**
   * The system should have an intuitive user interface and be easy to use. Moreover, it should be accessible to users with disabilities by applying for instance WCAG
4. **Reliability:** 
   * Availability: 99.9% uptime
   * Fault Tolerance: apply Backup and Recovery mechanisms
   * Maintainability: the system should be easy to update and maintain without having to temporarily shut down the website
5. **Compatibility:** 
   * The website should run in all major Browsers such as Chrome, Safari, Firefox, and Edge
   * The website should be responsive for all screen sizes (mobile, desktop, and tablet)