

**Software Application Development**

**Project Documentation**

**POS System**

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| Name | Nethula Rankidu Munasinghe |
| NIC | 811171638V |
| Batch | Cobra |

# Menu

1. Use Case Diagram 03 - 03
2. Graphical User Interfaces 04 - 14
3. Business Reports (KPIs) 15 - 16

# Use Case Diagrams

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| Use Case Diagrams  H7E1 04/EX/03  Form No: H7E1 04/EX/03/FRM-03 | |
| 1. Candidate Name: Nethula Rankidu | 2. Use Case No: 01 |
| 4. Title of the Use Case: Admin Use Case Diagram | |
| 5. Use Case: Admin | |
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| **Description:**  This Use Case Diagram illustrates the key functions available to an Admin in a Billing and Inventory Management System. The Admin can manage categories, products, stock, and customer details, as well as process billing, generate reports, and view dashboards. The system supports core inventory and sales operations, assuming a single authenticated Admin user performs all tasks through a graphical user interface. | |
| **Assumptions:**  1. Single User Role (Admin): Only the Admin interacts with the system in this scenario.  2. Authentication: It is assumed that Admin has already logged into the system.  3. UI-Driven Operations: All use cases are triggered through a graphical user interface.  4. Data Consistency: Any addition or update operations immediately reflect in related reports.  5. Role Exclusivity: No other roles (e.g., cashier or viewer) are modeled in this diagram. | |

# GUI Reports

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| Graphical User Interface  H7E1 04/EX/03  Form No: H7E1 04/EX/03/FRM-01 | |
| Candidate Name: Nethula Rankidu | GUI No: 1 |
| Name of relevant use case: View Dashboard | |
| Title of the GUI: Dashboard | |
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| Brief description of the UI:  This is the main screen that is shown when starting. These are the clickable items that are in the GUI and the functions that they do.   * Quit – Exits the Application * Combo Box with “Today” as a string – When clicked, shows entries “Today”, “This Week”, “This Month”, “This Year” and “Lifetime”. Clicking them will update the “Items Sold”, “Revenue (Rs.)” and “Profit (Rs.)” with the selected time frame. * Billing Button – Redirects to billing UI, Closing dashboard * + Add Products – Redirects to adding product UI, Closing dashboard * + Add Category – Redirects to adding category UI, closing dashboard * + Add Customer – Redirects to adding customer UI, closing dashboard * + Add Stock – Redirects to adding stock UI, closing dashboard * Update Products – Redirects to updating products UI, closing dashboard * Update Category – Redirects to updating category UI, closing dashboard * Update Customer – Redirects to updating customer UI, closing dashboard * Bills – Redirects to Bill Report UI, closing dashboard * All bought by a customer – Redirects to items bought by customer UI, closing dashboard | |

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| Graphical User Interface  H7E1 04/EX/03  Graphical User Interface H7E1 04/EX/03 Form No: H7E1 04/EX/03/FRM-01 | |
| Candidate Name: Nethula Rankidu | GUI No: 2 |
| Name of relevant use case: Process Billing | |
| Title of the GUI: Billing System | |
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| Brief description of the UI:  This is the billing screen that is shown when clicked “billing” button on the “Insert” section of the dashboard.  These are the clickable items that are in the GUI and the functions that they do.   * Back – Goes back to the dashboard * Combo Box with “Select Customer” as a string – When clicked, shows customers registered on the database. It is used to select the customer to include in the bill. * Product Barcode Input – Used to hold the barcode of the product * Update Details (below barcode input) – Validates the given barcode of the product * Stock ComboBox – Shows the available stocks to the given product, choosing you to select a stock with a specific expiry date(because that’s what shown in the products) * Qty Input – Gives you choice to choose a number * Update Details (below qty input) – Updates the details and shows them in the below four labels * Add Entry – Adds the entry of given details to the table. * Given Money Input – Used to hold the data of money given. Used later to calculate the money needed to give. (Also supports decimals) * Calculate – Calculate the money needed to give. * Print – Shows the invoice and gives option to print. | |

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| Graphical User Interface  H7E1 04/EX/03  Graphical User Interface H7E1 04/EX/03 Form No: H7E1 04/EX/03/FRM-01 | |
| Candidate Name: Nethula Rankidu | GUI No: 3 |
| Name of relevant use case: Add Product | |
| Title of the GUI: Add Product | |
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| Brief description of the UI:  This is the Add Product screen that is shown when starting. It is used for adding products to the database. You can add the product name, barcode, category of the product using this GUI  These are the clickable items that are in the GUI and the functions that they do.   * Back – Goes back to the dashboard. * Product Name input – Used to hold product name of the new item. * Barcode input – Used to hold the barcode of the new item. * Category ComboBox – Used to select the category of the new item. * Add Product – Inserts the product to the database. | |

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| Graphical User Interface  H7E1 04/EX/03  Graphical User Interface H7E1 04/EX/03 Form No: H7E1 04/EX/03/FRM-01 | |
| Candidate Name: Nethula Rankidu | GUI No: 4 |
| Name of relevant use case: Add Category | |
| Title of the GUI: Add Category | |
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| Brief description of the UI:  This is the “Add Category” screen that is shown when clicked “Add Category” on the “Dashboard” UI.  These are the interactive elements that are in the GUI and the functions that they do.   * Back – Goes back to the dashboard. * Category Name Input – Used to input the Category Name of the new category. * Add Category – Used to add the category to the database. | |

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| Graphical User Interface  H7E1 04/EX/03  Graphical User Interface H7E1 04/EX/03 Form No: H7E1 04/EX/03/FRM-01 | |
| Candidate Name: Nethula Rankidu | GUI No: 5 |
| Name of relevant use case: Add Customer | |
| Title of the GUI: Add Customer | |
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| Brief description of the UI:  This is the “Add Customer” screen that is shown when clicked “Add Customer” on the “Dashboard” UI.  These are the buttons that are in the GUI and the functions that they do.   * Back – Goes back to the dashboard. * Category Name Input – Used to input the Category Name of the new customer. * Phone Number Input – Used to input the Category Name of the new customer. * Email Input – Used to input the Email of the new customer. * Birth Year Input – Used to input the birth year of the new customer. * Gender ComboBox – Used to input the gender of the new customer. * Add Customer – Used to add the customer to the database. | |

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| Graphical User Interface  H7E1 04/EX/03  Graphical User Interface H7E1 04/EX/03 Form No: H7E1 04/EX/03/FRM-01 | |
| Candidate Name: Nethula Rankidu | GUI No: 6 |
| Name of relevant use case: Add Stock | |
| Title of the GUI: Add Stocks | |
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| Brief description of the UI:  This is the “Add Stock” screen that is shown when clicked “Add Stocks” on the “Dashboard” UI.  These are the buttons that are in the GUI and the functions that they do.   * Back – Goes back to the dashboard. * Product Name ComboBox – Used to select the product name from a list * Quantity JSpinner – Used to input the quantity of items of the adding stock * Received Date – Used to input the received date of the stock * Expiry Date – Used to input the expiry date of the stock * Product Price JSpinner – Used to input the product price of the stock (price/each) * Product Cost JSpinner – Used to input the product cost of the stock (price/each) * Add Stock – Used to add the stock to the database. | |

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| Graphical User Interface  H7E1 04/EX/03  Graphical User Interface H7E1 04/EX/03 Form No: H7E1 04/EX/03/FRM-01 | |
| Candidate Name: Nethula Rankidu | GUI No: 7 |
| Name of relevant use case: View Dashboard | |
| Title of the GUI: Dashboard | |
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| Brief description of the UI:  This is the update product details screen that is shown when clicked “Update Product” on the “Dashboard” UI.  These are the clickable objects that are in the GUI and the functions that they do.   * Back – Takes you to “Dashboard” * Select Product ComboBox – When clicked, shows “Select Product” and the products in the database. Clicking them will update the “Product Name”, “Barcode” and “Category” according to the Product ID. * Product Name Input – Used to store the new name for the product. * Barcode – Used to store the new barcode for the product. * Category – Redirects to adding category UI, closing dashboard * Update Products – Used to update the stock on the database. | |

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| Graphical User Interface  H7E1 04/EX/03  Graphical User Interface H7E1 04/EX/03 Form No: H7E1 04/EX/03/FRM-01 | |
| Candidate Name: Nethula Rankidu | GUI No: 8 |
| Name of relevant use case: Update Category | |
| Title of the GUI: Update Category Details | |
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| Brief description of the UI:  This is the update category details screen that is shown when clicked “Update Category” on the “Dashboard” UI.  These are the clickable objects that are in the GUI and the functions that they do.   * Back – Takes you to “Dashboard” * Select Category ComboBox – When clicked, shows “Select Category” and the products in the database. Clicking them will update the “Category Name” according to the Product ID. * Update Category – Used to update the category on the database. | |

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| Graphical User Interface  H7E1 04/EX/03  Graphical User Interface H7E1 04/EX/03 Form No: H7E1 04/EX/03/FRM-01 | |
| Candidate Name: Nethula Rankidu | GUI No: 9 |
| Name of relevant use case: Update Customer | |
| Title of the GUI: Change Customer Details | |
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| Brief description of the UI:  This is the change customer details screen that is shown when clicked “Update Customer” on the “Dashboard” UI.  These are the clickable objects that are in the GUI and the functions that they do.   * Back – Takes you to “Dashboard” * Select Customer ComboBox – When clicked, shows “Select Customer” and the customers in the database. Clicking them will update the “Customer Name”, “Phone Number”, “Email”, “Birth Year” and “Gender” according to the Customer ID. * Customer Name Input – Used to store the new name of the customer. * Phone Number Input – Used to store the new phone number of the customer. * Email Input – Used to store the new email of the customer. * Birth year Input – Used to store the birth year of the customer. * Gender ComboBox – Used to store the gender of the customer. * Update Customer – Used to update the category on the database. | |

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| Graphical User Interface  H7E1 04/EX/03  Graphical User Interface H7E1 04/EX/03 Form No: H7E1 04/EX/03/FRM-01 | |
| Candidate Name: Nethula Rankidu | GUI No: 10 |
| Name of relevant use case: Generate Billing Report | |
| Title of the GUI: View Billing Reports | |
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| Brief description of the UI:  This is the view billing reports screen that is shown when clicked “Bills” on the “Dashboard” UI.  These are the interactive objects that are in the GUI and the functions that they do.   * Back – Goes back to Dashboard * Combo Box with “Billing ID” as a string – When clicked, shows entries “Select Box” and the issued bills. * Check Bill – When clicked, shows the report in a JasperViewer. | |

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| Graphical User Interface  H7E1 04/EX/03  Graphical User Interface H7E1 04/EX/03 Form No: H7E1 04/EX/03/FRM-01 | |
| Candidate Name: Nethula Rankidu | GUI No: 11 |
| Name of relevant use case: View Items Bought By Customer (Report) | |
| Title of the GUI: View all items bought by a customer | |
|  | |
| Brief description of the UI:  This is the view all items bought by a customer screen that is shown when clicked “All bought by a customer” on the “Dashboard” UI.  These are the interactive objects that are in the GUI and the functions that they do.   * Back – Goes back to Dashboard * Combo Box with “Select Customer” as a string – When clicked, shows entries “Select Customer” and the issued bills. * Check Report – When clicked, shows the report in a JasperViewer. | |

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| Business Reports  H7E1 04/EX/03  Form No: H7E1 04/EX/03/KPI-01 | |
| Candidate Name: Nethula Rankidu | Report No: 1 |
| Title of the report: Invoice | |
| KPI Name: Individual Bill Value per Transaction | |
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| **Description of the KPI:**  This KPI measures the total monetary value of a customer's transaction per bill. It helps businesses analyze purchasing trends, customer spending capacity, and the effectiveness of product bundling. Monitoring bill values aids in pricing strategies and evaluating cashier performance or promotional impacts. | |
| **Description of the Report:** This report is an invoice generated for Customer "Sahan" under Bill ID 6, recorded on July 6, 2025, and generated by cashier Nethula Rankidu. It details a purchase of “Uswatte Real Cream Cracker” in three entries, totaling 6 units at a price of Rs. 400.00 each. The total transaction amount is Rs. 2,400.00. This invoice report offers a clear snapshot of the transaction breakdown and is essential for both accounting and customer service. It provides accountability, transparency, and serves as a financial record for both the store and the customer. | |

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| Business Reports  H7E1 04/EX/03  Form No: H7E1 04/EX/03/KPI-02 | |
| Candidate Name: Nethula Rankidu | Report No: 2 |
| Title of the report: Customer Purchase Summary Report | |
| KPI Name: Total Quantity and Value of Items Purchased | |
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| **Description of the KPI:**  This KPI tracks the total number of items a customer purchases and the corresponding total amount spent. It helps evaluate customer buying behavior, product popularity, and sales performance over time, enabling businesses to tailor inventory and marketing strategies to individual purchasing patterns. | |
| **Description of the Report:** This report provides a detailed summary of all items purchased by Customer ID 3 (Sahan) on July 6, 2025. It lists each transaction chronologically, including the product name, unit price, quantity purchased, and total amount for each line item. The report reveals that the customer exclusively purchased “Uswatte Real Cream Cracker 490g” in varying quantities during multiple transactions throughout the day. This insight is valuable for tracking repeat purchases and high-demand products. The report assists in understanding customer loyalty, product preferences, and sales volume, which are crucial for inventory planning, promotions, and customer relationship management. | |