E-commerce Application Documentation

1. Task Description

The developed application serves as an e-commerce platform for a company specializing in the retail of Laptops, TVs, Phones, Tablets, Kitchen Appliances, Consumer Electronics, and Gaming devices.

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Descriere generată automat

The application features user and admin login options.

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Descriere generată automat

Users can create accounts, providing essential details such as: name, email, phone, and address. Unique username and email are required, with alerts for duplicates or missing information. Upon successful registration, users can log in.

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Descriere generată automat

The Home Page contains a menu with the following buttons: Home Page, Products, Category, Cart, Orders, and Log Out.

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Descriere generată automat

Clicking the Home Page button directs users to the online shopping site's main page. On the left side, a search bar allows them to input keywords for finding specific products or brands.

The Category button enables users to select from a range of available shopping market sections: Laptops, TVs, Phones, Tablets, Kitchen Appliances, Consumer Electronics, and Gaming devices.

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Descriere generată automat

Selecting the Products button leads users to an alphabetical list of all items the shopping center offers. Each product features a customized panel displaying its name, image, price, and a "See more details" button. Clicking this button reveals a left-sided pane with additional product information, a brief description, and a green "Add to cart" button. Upon clicking, the item is added to the cart, and the button transforms to "Remove from Cart" for removal.

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Descriere generată automat

The Cart button directs users to a page with detailed information about the products in their cart. Here, users can adjust the quantity by using the Plus (+) or Minus (-) buttons. A "Remove" button deletes the entire quantity of a product. At the bottom right, a label displays the total amount to be paid, accompanied by a "Pay" button.

O imagine care conține text, captură de ecran, proiectare

Descriere generată automat

Pressing the "Pay" button notifies the user if there's insufficient quantity for a specific product, prompting them to adjust quantities for order finalization. If there's an adequate quantity, users proceed to a new page. Here, they enter their delivery address, select payment method (card or Cash on Delivery), and input an active voucher code for potential discounts. After choosing the payment method, a button appears in the bottom right with "Finish" for Cash on Delivery or "Pay" for card payments.

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Descriere generată automat

For card payments, users must provide valid card details (name, number, expiry date, CVV) to finalize the transaction. Upon pressing the "Processing payment" or "Finish" button (depending on the chosen method), users receive alerts notifying them of successful order placement or processing errors.

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Descriere generată automat

The Orders page offers order details like products, quantity, discounts, and status.

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Descriere generată automat

Logging out returns users to the initial page.

Admins can log in for an advanced interface with Home Page, Products, Category, Stock, Orders, Add Product, Vouchers, Manufacturers, and Log Out options.

O imagine care conține text, captură de ecran, Pagină web, Site web

Descriere generată automat

In the Products section, admins can view, update, or remove items.

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Descriere generată automat

The Stock section displays product details with update/remove options.

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Descriere generată automat

Order management involves status changes: Pending, Order Confirmed, Shipped, Out for Delivery, and Delivered.

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Descriere generată automat

"Add Product" creates new items. Admins can input details for a new product, including name, brand, manufacturer, category, description, price with exactly two decimals, available stock, and an image with recommended dimensions (height=175, width=255). Accepted file extensions are “.png,” “.jpg,” and “.jpeg.” Pressing the "Add" button creates and adds the product to the market's stock.

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Descriere generată automat

The Vouchers section reveals a table displaying voucher details: voucher code, discount percentage, utilization period, and an indicator for voucher activation. The discount applies to the total purchase amount, with a unique-use restriction for each voucher.

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Descriere generată automat

Admins can manually deactivate vouchers using the "Deactivate voucher" button. In the bottom right corner, an "Add voucher" button allows admins to create new vouchers. Correctly filled fields enable admins to press "Add voucher" and add the new voucher to the table.

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Descriere generată automat

The Manufacturers section displays manufacturing partners' details. Admins log out, returning to the initial page.

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Descriere generată automat

1. CRC Cards

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| **AlertService** | |
| Responsibilities | Collaborators |
| Display Information, Error and Warning Alerts | JavaFX Alert Class |

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| **BrandService** | |
| Responsibilities | Collaborators |
| Fetch the list of all Brands name from the Database | DatabaseConnectionService, BrandBean |

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| **CartItemService** | |
| Responsibilities | Collaborators |
| Add a product to the user's shopping cart | CartItemBean, UserBean, DatabaseConnectionService |
| Remove a product from the user’s shopping cart | CartItemBean, UserBean, DatabaseConnectionService |
| Delete the entire shopping cart for a certain user | CartItemBean, UserBean, DatabaseConnectionService |
| Check if a product is already in cart | CartItemBean, UserBean, DatabaseConnectionService |
| Provide a list of products in the user's shopping cart | CartItemBean, UserBean, DatabaseConnectionService |
| Update the quantity of a product in the user's shopping cart | CartItemBean, UserBean, DatabaseConnectionService |
| Check the available quantity of a product to ensure sufficient stock | CartItemBean, ProductBean, DatabaseConnectionService |

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| **CategoryService** | |
| Responsibilities | Collaborators |
| Fetch the list of all Categories from the Database | DatabaseConnectionService, CategoryBean |

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| **DatabaseConnectionService** | |
| Responsibilities | Collaborators |
| Provide connection to the Database |  |

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| **ManufacturerService** | |
| Responsibilities | Collaborators |
| Fetch the list of all Manufacturers and the corresponding information from the Database | ManufacturerBean, DatabaseConnectionService |

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| **OrderItemService** | |
| Responsibilities | Collaborators |
| Manage information regarding the items that comprise a specific order | DatabaseConnectionService, OrderItemBean |

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| **OrderService** | |
| Responsibilities | Collaborators |
| Create a new order in the Database | DatabaseConnectionService, OrderBean |
| Update the status of a specific order in the Database | DatabaseConnectionService, OrderBean |
| Add a voucher and decrease the total amount to be paid of a specific order in the Database | DatabaseConnectionService, OrderBean |
| Fetch detailed information related to all orders from the Database System | DatabaseConnectionService, OrderBean |

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| **PaymentService** | |
| Responsibilities | Collaborators |
| Add an order payment made by a user to the Database | DatabaseConnectionService, PaymentBean |

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| **PlaceOrderService** | |
| Responsibilities | Collaborators |
| Handles the placement of an order in the Database | OrderService, OrderItemService, CartItemService, ProductService, VoucherService, PaymentService |

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| **ProductService** | |
| Responsibilities | Collaborators |
| Fetch detailed information about a specific product, including its name, description, price, and available stock quantity. | ProductBean, DatabaseConnectionService |
| Allow updates to product details | ProductBean, DatabaseConnectionService |
| Decrease the quantity of a product based on its quantity after an order is placed | ProductBean, DatabaseConnectionService |
| Add a new product to the Database System | ProductBean, DatabaseConnectionService |

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| **UserService** | |
| Responsibilities | Collaborators |
| Register a new customer account to the Database | UserBean, CustomerBean, DatabaseConnectionService |
| Check if a certain customer or a certain administrator is present in the System | UserBean, CustomerBean, DatabaseConnectionService |
| Check if an email or an username is already present in the Database | UserBean, CustomerBean, DatabaseConnectionService |
| Check if the credenetials are valid and correct | UserBean, CustomerBean, DatabaseConnectionService |

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| **VoucherService** | |
| Responsibilities | Collaborators |
| Add a new voucher to the Database System | VoucherBean, DatabaseConnectionService |
| Fetch detailed information about a specific voucher | VoucherBean, DatabaseConnectionService |
| Set a voucher as inactive | VoucherBean, DatabaseConnectionService |
| Checks whether a specific voucher is active or not | VoucherBean |

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| **StringValidationService** | |
| Responsibilities | Collaborators |
| Checks if a String respects certain patterns or contains certain characters | String Class |
| Check if a date precede another date | LocalDate Class |

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| **BrandBean** | |
| Responsibilities | Collaborators |
| Provide methods to retrieve and update information about a Brand (getters and setters) |  |

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| **CartItemBean** | |
| Responsibilities | Collaborators |
| Provide methods to retrieve and update information about a specific cart from the Database |  |

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| **CategoryBean** | |
| Responsibilities | Collaborators |
| Provide methods to retrieve and update information about a category (getters and setters) |  |

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| **CustomerBean** | |
| Responsibilities | Collaborators |
| Provide methods to retrieve and update information about a customer (getters and setters) |  |

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| **ManufacturerBean** | |
| Responsibilities | Collaborators |
| Provide methods to retrieve and update information about a manufacturer (getters and setters) |  |

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| **OrderBean** | |
| Responsibilities | Collaborators |
| Provide methods to retrieve and update information about an order (getters and setters) |  |

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| **OrderItemBean** | |
| Responsibilities | Collaborators |
| Provide methods to retrieve and update information about an order item (getters and setters) |  |

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| **PaymentBean** | |
| Responsibilities | Collaborators |
| Provide methods to retrieve and update information about a payment (getters and setters) |  |

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| **ProductBean** | |
| Responsibilities | Collaborators |
| Provide methods to retrieve and update information about a product (getters and setters) |  |

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| **UserBean** | |
| Responsibilities | Collaborators |
| Provide methods to retrieve and update information about a user (getters and setters) |  |

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| **VoucherBean** | |
| Responsibilities | Collaborators |
| Provide methods to retrieve and update information about a voucher (getters and setters) |  |

1. UML Diagram

[UML Diagram Link](https://www.planttext.com/api/plantuml/png/hLfPRziu47xthn3wbEtQnUwhiGYQ4p3GDEucQPyLYOw5sg8hIac3HV_xaXIFEIZPIGeKHKBE3EVuPZWSvQDgywRjjfl9fDZaIcMdJLwNfoAli_ycMJRBxitlYtAULNKR5pxdMp7FRjgcgX_qwf_PWsXFUygZFpnjN3NaPXqmgCW0Zz14Zx8g4OdbPiT2obRsQ-2CNzwWixmL3x9v1ZOLRWcQvTTIbfq5UcBS6M3YzW4sSYAn4eb9ANAehTTDAHfWg3I_GoixXN_Fox8HIW7D7TEvrcAUVP95lZ4_serT_hmLTNibshKi4Oi6KTjXAQriyyt9LdPrEyzAsTrl15q_5IlPYFDA5OogJ2q-ogvOYoOLeUlUK1AUEvLOFEbD9k7oCeonPWjQRdUNq7ZEV6CzmDTlexbcCrX3Dx4lEEdmpjVe5Gv1xnS8108-voI034BW7KQmGgYYzrBu8SJOcKbS4GxdNmmqGWDzdO3VC3Ln_bw84ac1aQAMqC589R1yQ98xvu4qTmw4YSqoF-UfwDXUbkgjhiCgBzfArekIedtf5I4vbqxFeRHOHhrUaugtK4EU4b57xBOKdiSpn-cVZw4CsfBszvjJ0zkRZCz-Q7qKTMcwW8-q7pZJlovQiRLm4pzRJQSXsCYoAom4_OtQj6FtpAvdW4i_khnkg_OP4bM52628Tsp30PMix4j_25d_uavYvFeuWZuLpWCMlRHWHZsmsOGig8KymMGP9P5dNjGCx0yTgnG7nKfrzxPCid2bK_s5eRbnqdbq3aZBt-d-e0Yrz_2Cce2SSYdLgLPkNQFcus9G5OD2ysTLDQebZSyiqzBuejZcrGQjxDQonZIqxTlR6rqOeNpvqgl5jpxbGpjBemvVvYbzSE_HQuSC9nHHKUP9GXdqfiwbABDM8DU-g4uaGHCmGo5pbTVTIbVrha7z_HOiGxZ0TGQGLCzVoBhLz1SCEsvZoI3q9EvLrGe6eIka4idhAw8NHy4W0i-0XeEx0z3wrklAUm6YRCAT9ARCW25Flwg7HZQcGfAcxwrEHOhGUp-Gs1qCIufANxEoTD4olzSKVJlD-AIhDmDEyag_So8ILSJ9uK7TUpy7eLH1regv8wZEhtOOk7nzwyulMxV4yfPDOb9ZZ5Aeegbsflr3pDKsVn1t3KxkeVA16x7-WI-BxrzG5x3lQbz6CtZqqhEYmJdBURIAoreuq_ZEQ2rAjN_s8Gyi9RVHWPq5j3mHpDI8QtmATl0W2VefWGH27Hn7mJ5Iz0wgadkQLaMzpD7r-flIFR91YhcdzfaiSJxvr_fID8L-OsaNWFRM2EqVQk5Dh4yaAvKwqG-jHxrqB-L6dnYIuciyayFod1sSWg5Jm6p1n-z5hmLQzdgOHQy9dZbOHHAE69Xa0CrINXe8gTUOE8ysQyu0v4vwNVRcvDYxUq1XbhjTgQNrmwBJN8doklRUigo_HjfocuWteddKiBNGYPNAzYEVAjN-4yRZnoDbth-PiJ1zzzzAitLKk0V073q5fhxop-4zGK9QYereXPM2BpX8j19jiJOqHkLBsVXJ1Wxsji6d_h43bbdpcNdog5kHN4T-KTly7T6WKeloKiE6NiE4fdwhEngnbO_Yif5Rwf9fnceqPEo1uYqEbMX85TqjRUTe5ZBDwBiHYaUFMADLHRIgWbOWx-d06316mZ7OzNS3mx3Rg4J4CVmgSZoG5ect1nCDDwDq-bmn9x2n19PLD4Ah53PL_yAlKi4pTxuXkLxTx4HHhQh2ib4EgmaQWXoJuGZBJrSjRoKG6F2KBfymwhqDdyLJOWW2x4EAJZC43_v0W0Teop-BdtuONdHDeqlo3Ps9WtgeS-oypqCoCE6vq7kabqo8dS0utucH3b-SZk5sZ8pfjGcEAHyTRBEekFKn4wATRAWRo3HLhHNn4rPFEOS3TK0VrThaXKZZvTPKmt_bao9G6Gjf0D90Z7VXk6zLkvPTqFVt2NshnEYQlfYbCbbdGV9bqE-whQE3RZp3eiIfx1xMlhTMk8740EFt9JbkvDRqyisLeZk7_5wV7)