

# System Design Document

for Click Cart E-Commerce Site

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**Prepared by:**

Zuhaib Khan

Helena Kamali

Nargis Rafie

Ajwad Saghir

Karim He

**Lassonde School of Engineering**

**York University**

4700 Keele Street, Toronto

ON Canada

M3J 1P3

[\(416\) 736-2100](tel:4167362100)

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| <b>Class Name:</b> Customer  |  |
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| <b>Responsibilities:</b> <ul style="list-style-type: none"> <li>• Manage user registration and login.</li> <li>• Store user data (name, email, password, etc.).</li> <li>• Authenticate users for secure access.</li> <li>• Handle password reset requests.</li> </ul> | <b>Collaborators:</b> <ul style="list-style-type: none"> <li>• Database: Stores user information.</li> <li>• SessionManager: Manages user sessions.</li> <li>• EmailService: Sends confirmation and reset emails.</li> </ul> |

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| <b>Class Name:</b> Product   |  |
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| <b>Responsibilities:</b> <ul style="list-style-type: none"> <li>• Store and manage product information (name, description, price, stock).</li> <li>• Retrieve product details for display to users.</li> <li>• Handle product availability (stock status).</li> <li>• Filter and sort products based on user queries (e.g., price, category).</li> </ul> | <b>Collaborators:</b> <ul style="list-style-type: none"> <li>• Database: Stores product information.</li> <li>• Cart: Interacts when users add products to their cart.</li> <li>• Category: Classifies products under different categories.</li> </ul> |

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| <b>Class Name:</b> Cart  |   |
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| <b>Responsibilities:</b> <ul style="list-style-type: none"> <li>• Store selected products for each user.</li> <li>• Manage quantity and pricing of items in the cart.</li> <li>• Provide a summary of items in the cart (total price, tax, etc.).</li> <li>• Handle checkout actions.</li> </ul> | <b>Collaborators:</b> <ul style="list-style-type: none"> <li>• Product: Retrieves product details and ensures availability.</li> <li>• User: Associates the cart with a specific user.</li> </ul> |

| Class Name: SessionManager  |  |
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| <b>Responsibilities:</b> <ul style="list-style-type: none"> <li>• Manage user sessions after login.</li> <li>• Track active sessions and timeout.</li> <li>• Handle logout functionality.</li> <li>• Provide session tokens for secure user actions.</li> </ul> | <b>Collaborators:</b> <ul style="list-style-type: none"> <li>• User: Validates and creates sessions for logged-in users.</li> <li>• Database: Stores session-related information.</li> </ul> |

| Class Name: Order   |   |
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| <b>Responsibilities:</b> <ul style="list-style-type: none"> <li>• Generate order details upon checkout.</li> <li>• Track order status (pending, shipped, delivered).</li> <li>• Store payment and shipping information.</li> <li>• Retrieve order history for users.</li> </ul> | <b>Collaborators:</b> <ul style="list-style-type: none"> <li>• User: Tied to a specific user's order.</li> <li>• Cart: Converts cart items into an order.</li> <li>• PaymentGateway: Manages payment processing.</li> <li>• ShippingService: Tracks and updates shipping status.</li> </ul> |

| Class Name: Database  |  |
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| <b>Responsibilities:</b> <ul style="list-style-type: none"> <li>• Store all data related to users, products, orders, and sessions.</li> <li>• Provide CRUD operations (Create, Read, Update, Delete).</li> <li>• Ensure data integrity and relationships (e.g., users with orders, products in carts).</li> </ul> | <b>Collaborators:</b> <ul style="list-style-type: none"> <li>• User, Product, Order, SessionManager: Uses this to store and retrieve relevant data.</li> </ul> |