Object Oriented Methods

Individual Project part 2

David Finger

Colorado Technical University

# Abstract

Individual Project for Object Oriented Methods. Covers content including an overall project description, use case diagrams, class diagrams, sequence and collaboration diagrams, state transition and activity diagrams, and change control documentation for an organization payment system.

# Table of Contents

Contents

[Abstract 2](#_Toc72914441)

[Individual Project for Object Oriented Methods 2](#_Toc72914442)

[Table of Contents 3](#_Toc72914443)

[Project Description: 5](#_Toc72914444)

[Use Case Diagrams with Narratives: 6](#_Toc72914445)

[Use Case Diagram: 6](#_Toc72914446)

[CreateOrder: 6](#_Toc72914447)

[PaymentEntry: 8](#_Toc72914448)

[UpdatePayment: 10](#_Toc72914449)

[ViewOrder: 12](#_Toc72914450)

[ViewPayment: 13](#_Toc72914451)

[DeleteOrder: 15](#_Toc72914452)

[DeletePayment: 17](#_Toc72914453)

[Class Diagrams: 19](#_Toc72914454)

[Sequence and Collaboration Diagrams: 20](#_Toc72914455)

[State Transition and Activity Diagrams: 21](#_Toc72914456)

[Follow Up Discussion on OO and design changes: 22](#_Toc72914457)

[Change Control Document: 23](#_Toc72914458)

[Resources: 24](#_Toc72914459)

# Project Description:

Create an ordering and payment system for a book company. Products sold will be exclusively books and the company will only accept credit card payments. All customers will be already logged into the system and have access to the accounts database where payment methods are stored. This will allow the ordering system to process the inventory already in a cart and use a saved payment method.

# Use Case Diagrams with Narratives:

## Use Case Diagram:

Diagram

Description automatically generated

## CreateOrder:

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case Specification** | **Name:** *CreateOrder* | | **Number:** *101* |
| **Summary** | Create an order | | |
| **Priority** | *4* | | |
| **Preconditions** | Account logged in, inventory in order is available, payment method saved | | |
| **Postconditions - Success** | Order placed; payment method charged | | |
| **Postconditions - Failure** | Payment method failure: order not placed | | |
| **1⁰ Actor(s)** | Customer | | |
| **2⁰ Actor(s)** | Banking system | | |
| **Trigger** | User Adds item to cart | | |
| **Main Scenario** | **Step** | **Action** | |
| 1 | *User Adds item(s) to cart* | |
| 2 | *System Asks if user is finished Shopping* | |
| 3 | *User Selects Checkout* | |
| 4 | *System asks for Payment Method* | |
| 5 | *User Selects Payment Method* | |
| 6 | *System submits payment charge to banking system* | |
| 7 | *Banking system charges payment method* | |
| 8 | *System shows successful payment and order placed screen* | |
| **Extensions** | **Step** | **Branching Action** | |
| 8.1 | *Insufficient funds on payment method* | |
| 8.2 | *System shows payment failure* | |
| 8.3 | *System returns to step 2.* | |  |
| 2.1 | *User not finished shopping* | |
| 2.2 | *System allows more items to be added* | |
| 2.3 | *System returns to step 1* | |
| **Open Issues** |  | *Add rows as needed.* | |

## PaymentEntry:

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case Specification** | **Name:** *PaymentEntry* | | **Number:** *102* |
| **Summary** | User Saves Payment Method to System | | |
| **Priority** | *4* | | |
| **Preconditions** | Account logged in | | |
| **Postconditions - Success** | Payment Method Saved | | |
| **Postconditions - Failure** | Payment method not saved: invalid information | | |
| **1⁰ Actor(s)** | Customer | | |
| **2⁰ Actor(s)** | Company Database | | |
| **Trigger** | User adds payment method | | |
| **Main Scenario** | **Step** | **Action** | |
| 1 | *User selects payment methods* | |
| 2 | *System asks for card number; System creates file for account database* | |
| 3 | *User Enters Card Number* | |
| 4 | *System saves card number to database entry; System asks for Expiration date* | |
| 5 | *User Enters Expiration date* | |
| 6 | *System saves Expiration date to database entry; System asks for CVC Number* | |
| 7 | *User Enters CVC number* | |
| 8 | *System Saves CVC number to database entry; System displays saved payment method screen* | |
| **Extensions** | **Step** | **Branching Action** | |
| 8.1 | *Invalid information on payment method* | |
| 8.2 | *System shows invalid information given* | |
| 8.3 | *System returns to step 2.* | |
| **Open Issues** | 1 | Expired Payment Method | |

## UpdatePayment:

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case Specification** | **Name:** *Update payment* | | **Number:** *103* |
| **Summary** | *Update payment saved on account* | | |
| **Priority** | *4* | | |
| **Preconditions** | Payment method saved to account | | |
| **Postconditions - Success** | Payment method updated | | |
| **Postconditions - Failure** | Payment methods update failure | | |
| **1⁰ Actor(s)** | Customer | | |
| **2⁰ Actor(s)** | Company Database | | |
| **Trigger** | Edit saved payment | | |
| **Main Scenario** | **Step** | **Action** | |
| 1 | *User selects payment method to update* | |
| 2 | *System asks for card number* | |
| 3 | *User enters card number* | |
| 4 | *System overrides saved card number within accounts database; system asks for expiration date* | |
| 5 | User enters expiration date | |
| 6 | System overrides saved expiration date within accounts database; system asks for CVC number | |
| 7 | User enters CVC number | |
| 8 | System overrides saved CVC within accounts database; system displays payment method updated. | |
| **Extensions** | **Step** | **Branching Action** | |
| 8.1 | *Invalid information on payment method* | |
| 8.2 | *System displays error for invalid information entered* | |
| 8.3 | System returns to step 2. | |
| **Open Issues** |  | *Add rows as needed.* | |

## ViewOrder:

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case Specification** | **Name:** *view order* | | **Number:** *104* |
| **Summary** | *Users and employees will be able to view the order* | | |
| **Priority** | *3* | | |
| **Preconditions** | Order placed, user account signed in, | | |
| **Postconditions - Success** | Order viewed | | |
| **Postconditions - Failure** | Order deleted | | |
| **1⁰ Actor(s)** | Customer, Clerk, Manager | | |
| **2⁰ Actor(s)** | Company Database | | |
| **Trigger** | View order history requested | | |
| **Main Scenario** | **Step** | **Action** | |
| 1 | *User requests order history* | |
| 2 | System displays selectable list of orders from company database | |
| 3 | User selects order to view | |
| 4 | System displays order information | |
| **Extensions** | **Step** | **Branching Action** | |
| 1.1 | *Clerk’s requests order status using order number* | |
| 1.2 | *System displays order status* | |
| 1.3 | System returns to step 1 | |
| 4.1 | Order selected deleted | |
| 4.2 | System displays order removed screen | |
| 4.3 | System returns to step 2 | |
| **Open Issues** |  | *Add rows as needed.* | |

## ViewPayment:

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case Specification** | **Name:** *view Payments* | | **Number:** *105* |
| **Summary** | *View saved payment methods* | | |
| **Priority** | *3* | | |
| **Preconditions** | Account signed in; payment method saved | | |
| **Postconditions - Success** | Payment methods viewed | | |
| **Postconditions - Failure** | Payment methods missing | | |
| **1⁰ Actor(s)** | Customer, Manager, Clerk | | |
| **2⁰ Actor(s)** | Company Database | | |
| **Trigger** | View Payment method view | | |
| **Main Scenario** | **Step** | **Action** | |
| 1 | *Customer requests payment method list* | |
| 2 | *System displays payment method list from company database* | |
| 3 | User selects payment method from list | |
| 4 | System displays payment method information | |
| **Extensions** | **Step** | **Branching Action** | |
| 1.1 | Manger requests payment information from list | |
| 1.2 | *System displays card number and expiration; CVC number viewable only to customers* | |
| 1.3 | *System returns to step 1* | |
| 4.1 | *Payment method selected missing from database* | |
| 4.2 | *System displays payment method missing* | |
| 4.3 | System returns to step 1 | |
| **Open Issues** |  | *Add rows as needed.* | |

## DeleteOrder:

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case Specification** | **Name:** *Delete order* | | **Number:** *106* |
| **Summary** | Users will be able to delete orders from order history | | |
| **Priority** | *1* | | |
| **Preconditions** | Account signed in | | |
| **Postconditions - Success** | Order removed from history | | |
| **Postconditions - Failure** | Order removal failed | | |
| **1⁰ Actor(s)** | Customer, Manager | | |
| **2⁰ Actor(s)** | Company Database | | |
| **Trigger** | View Order history request | | |
| **Main Scenario** | **Step** | **Action** | |
| 1 | *User requests order history* | |
| 2 | *System displays order history list from company database* | |
| 3 | *User selects order to view* | |
| 4 | *System displays order details* | |
| 5 | *User requests order to be removed* | |
| 6 | *System removes order from history; system returns to order history list* | |
| **Extensions** | **Step** | **Branching Action** | |
| 6.1 | *Order removal failure: still in progress* | |
| 6.2 | *System displays order removal failure: order still in progress* | |
| 6.3 | System returns to step 2 | |
| **Open Issues** |  | *Add rows as needed.* | |

## DeletePayment:

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case Specification** | **Name:** *Delete Payment* | | **Number:** *107* |
| **Summary** | User can remove payment methods | | |
| **Priority** | *2* | | |
| **Preconditions** | Account signed in, payment methods saved to account | | |
| **Postconditions - Success** | Payment method removed | | |
| **Postconditions - Failure** | Payment removal failure | | |
| **1⁰ Actor(s)** | Customer, Manager | | |
| **2⁰ Actor(s)** | Company Database | | |
| **Trigger** | View Payment method request | | |
| **Main Scenario** | **Step** | **Action** | |
| 1 | *User requests payment methods* | |
| 2 | *System displays payment method list from company database* | |
| 3 | *User selects payment method* | |
| 4 | *System displays payment method information* | |
| 5 | *User requests payment method removal* | |
| 6 | System removes payment method; system returns to payment method list display | |
| **Extensions** | **Step** | **Branching Action** | |
| 6.1 | *Payment method removal failure* | |
| 6.2 | *System displays payment method removal failure: active payment processing* | |
| 6.3 | System returns to step 2 | |
| **Open Issues** |  | *Add rows as needed.* | |

# Class Diagrams:

Diagram

Description automatically generated

# Sequence and Collaboration Diagrams:

TBD

# State Transition and Activity Diagrams:

TBD

# Follow Up Discussion on OO and design changes:

TBD

# Change Control Document:

TBD

# Resources: