CS3354 Assignment 3

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Use Cases:

Five types of use cases were identified: accounting, inventory, transactions, users, and website.

Accounting Use Cases:

Add Income:

- The accounting database will record new income when a customer has paid.

Add Expense:

- The accounting database will record a new expense when input by an administrator.

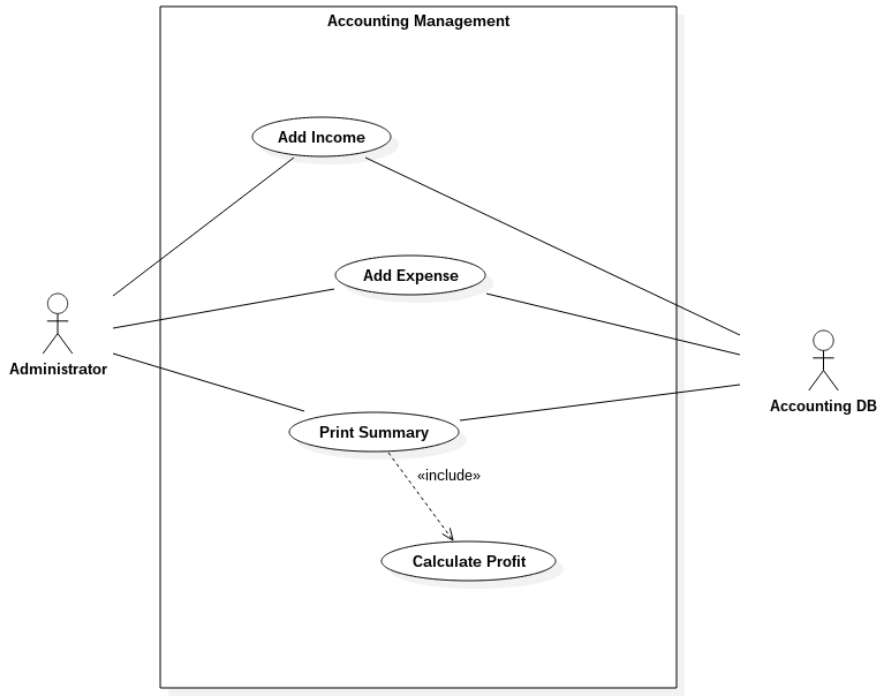
Print Summary:

- An administrator can view a summary of accounting details.

Calculate Profit:

- Finds out bottom line from info in the database.

Accounting Use Case Diagram:



Inventory Use Cases:

Add Package:

- Add a new package to the package database.

Find Package:

- Locate a package by its tracking number.

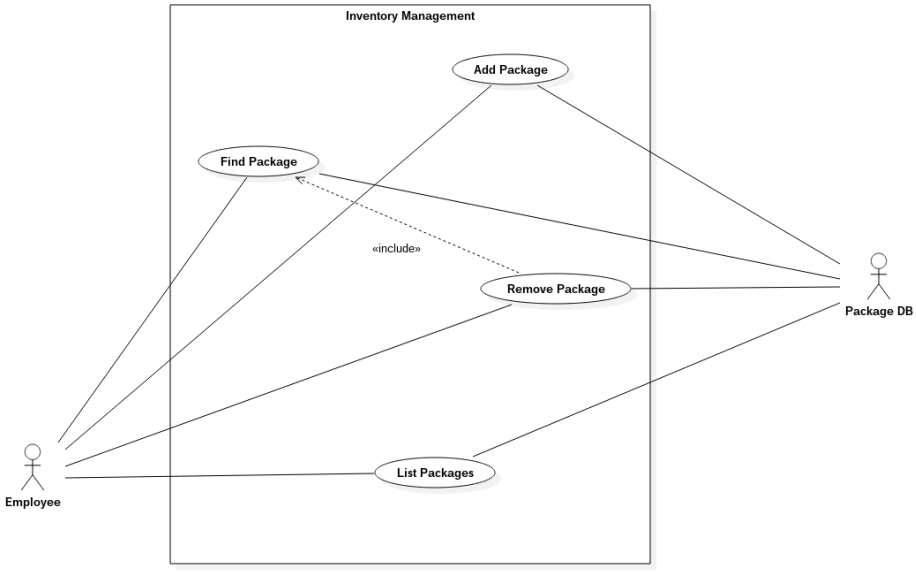
List Packages:

- List all packages in the database.

Remove Package:

- Remove a package from inventory.

Inventory Use Case Diagram:



Transaction Use Cases:

Create Transaction:

- Add a new transaction to the transaction database.
- The state will be set to pending.

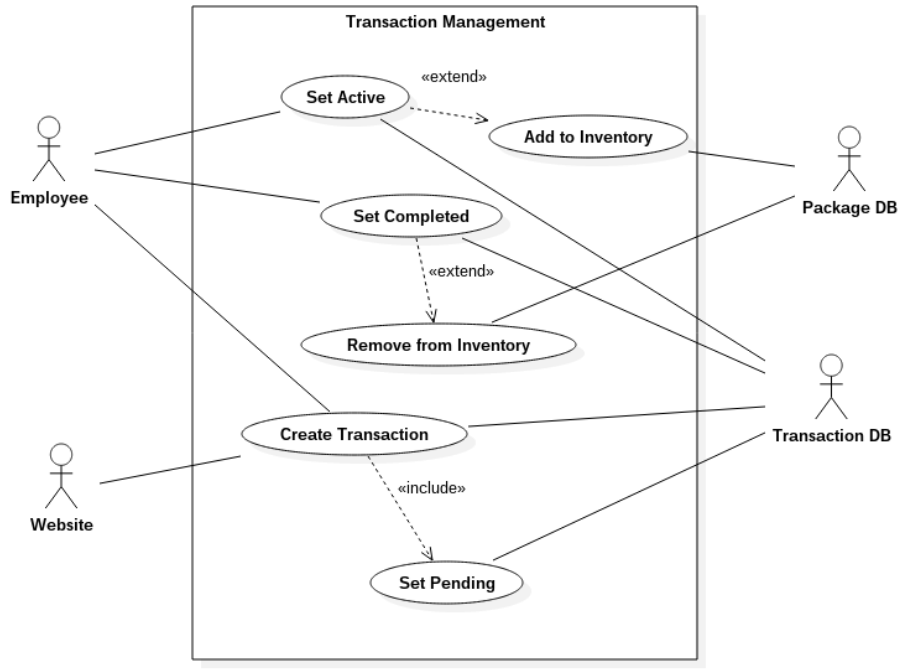
Set Active:

- When package is received at the store, state is set to active.
- A package is added to inventory.

Set Completed:

- When package is delivered to destination, state is set to complete.
- The package is removed from inventory.

Transaction Use Case Diagram:



User Use Cases:

Add Customer:

- Add a new customer to the user database.

Edit Customer:

- Edit the customer data.

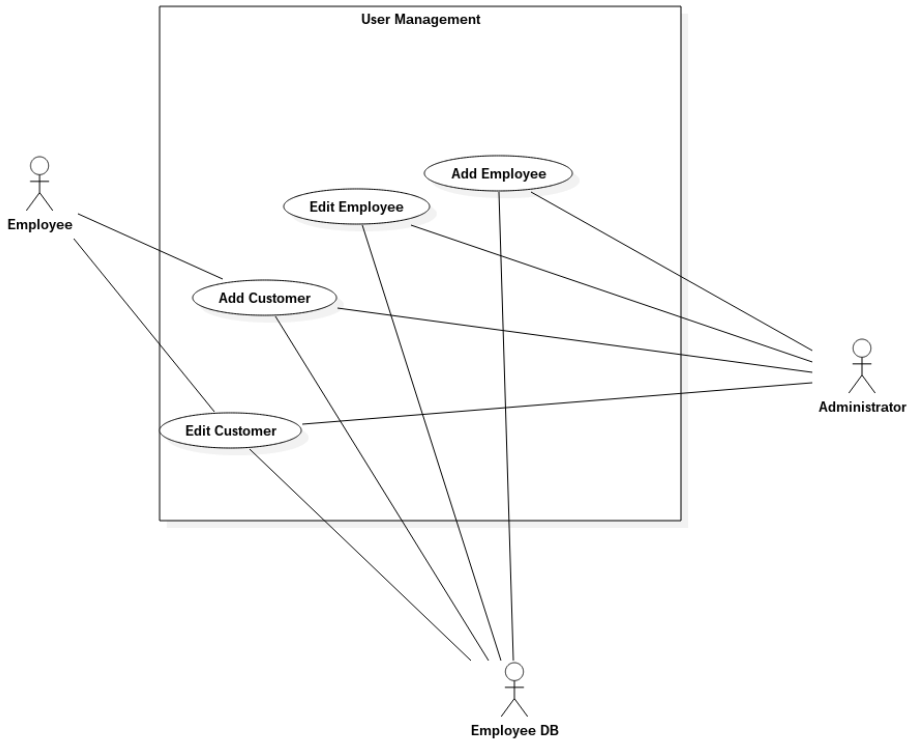
Add Employee:

- Add a new employee to the user database.
- Only administrators can do this.

Edit Employee:

- Edit the employee data.
- Only administrators can do this.

User Use Case Diagram:



Website Use Cases:

Custome Login:

- Customer must login to be able to access functionality of other options.

Create Account:

- Make account for new customer.

Edit Account:

- Customer can change their details.
- Must be logged into the system.

Create Transaction:

- Customer can make a new order.
- Must be logged into the system.

Track Package:

- Customer can track an order.
- Must be logged into the system.

Print Receipt:

- User can print a transaction receipt.
- Customer must be logged into the system.

Print Label:

- User can print a shipping label.
- Customer must be logged into the system.

Contact Store:

- Customer can send an email message to the store.
- Must be logged into the system.
- The message will be added to a message que.

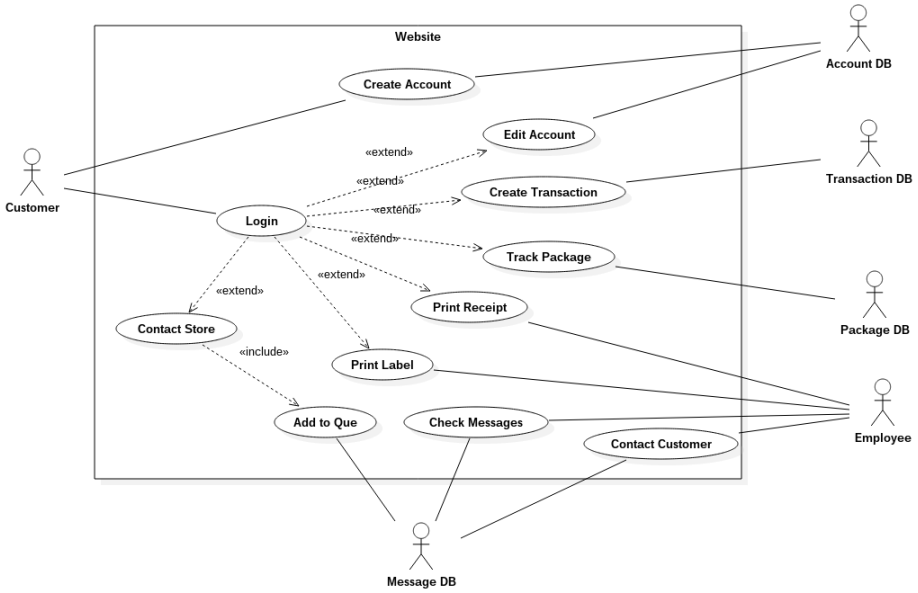
Contact Customer:

- Employee can send a message to a customer.

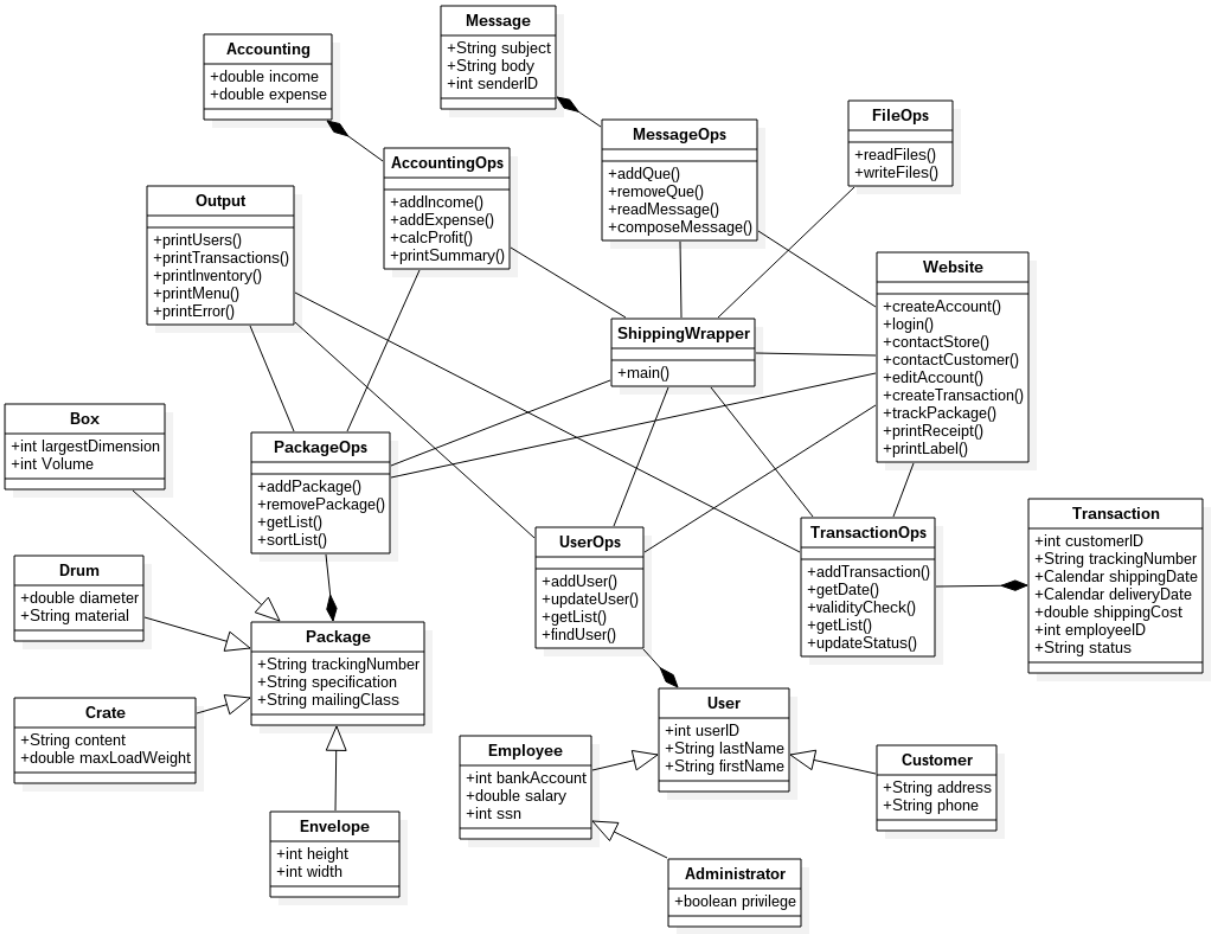
Check Messages:

- Employee can see messages in the que.

Website Use Case Diagram:



Class Diagram:



Classes:

First was to discover types of objects which would be operated on. Next, classes which would operate on those objects were identified. Then, various helper classes were created. Lastly, the classes were structured in a sensible way.

Operable Type Object Classes:

- **Package (has four sub-classes)**
  - **Box**
  - **Crate**
  - **Drum**
  - **Envelope**
- **User (has two sub-classes)**
  - **Customer**
  - **Employee (has one sub-class)**
    - **Manager**
- **Transaction**
- **Message**
- **Accounting**

Operator Classes:

- **PackageOps**
- **UserOps**
- **TransactionOps**
- **MessageOps**
- **AccountingOps**

Helper Classes:

- **Website**
- **FileOps**
- **Output**
- **ShippingWrapper**

Package	
Manage information common to all package types	

Box	
Manage box information	

Crate	
Manage crate information	

Drum	
Manage drum information	

Envelope	
Manage envelope information	

User	
Manage information common to all user types	

Customer	
Manage customer information	

Employee	
Manage information common to employees and administrators	

Administrator	
Manage administrator information	

Transaction	
Manage transaction information	

Message	
Manage message information	

Accounting	
Manage accounting information	

PackageOps	
• Add package • Remove package • Get list • Sort list	Package

UserOps	
• Add user • Update user • Get list • Find user	User

MessageOps	
• Add to que • Remove from que • Read message • Compose message	Message

TransactionOps	
• Add transaction • Update state	Transaction

AccountingOps	
• Add income • Add expense • Calculate profit • Print summary	Accounting

Website	
• Create account • Login • Contact store • Contact customer • Edit account • Create transaction • Track package • Print receipt • Print label	• PackageOps • UserOps • TransactionOps • MessageOps

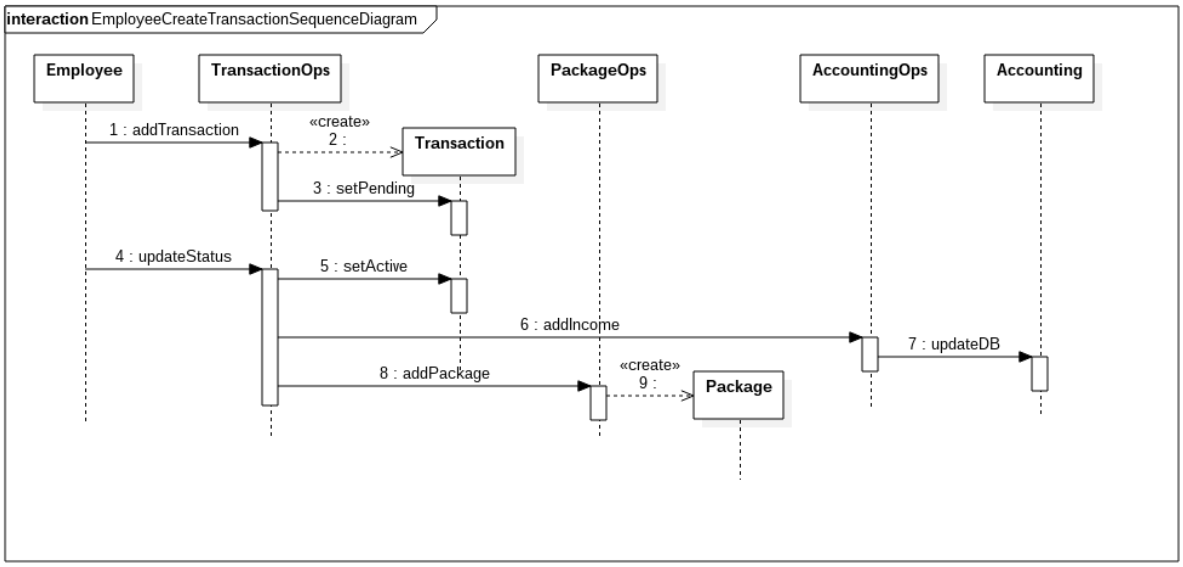
Output	
• Print users • Print transactions • Print inventory • Print main menu • Print error message	• PackageOps • UserOps • TransactionOps

FileOps	
Reads the data from the various files into ArrayLists of the proper type. Also writes files from updated arraylists.	

ShippingWrapper	
The main method is here. This is the wrapper for the entire software.	• PackageOps • UserOps • TransactionsOps • Website • MessageOps • AccountingOps • FileOps

Sequence Diagram:

This is a sequence diagram which represents operations taking place when an employee creates a new shipping transaction and receives a package.



State Machine Diagram:

This represents shipping transactions. The default state is pending. Once it is received at the store, it becomes active. Finally, once it is delivered to its destination, it is completed.