Runtime Terror - Nozama

Project Vision / Abstract:

This software will benefit the user because it will allow for easy management of an online store's inventory, allowing the store to add/remove items, keep track of the total inventory, keep track of orders. The system will manage the store's inventory allowing the employees to focus on other tasks. The main stakeholders for this project are the customers of the store and the store's employees. The customers will only be able to purchase the items if they are in stock, and the employees will need to know if stock is getting low so that they can order more. The system will have a GUI that allows for the user to look up an item by an ID number and see its stock, a general description, and make a purchase. The software will also need to keep track of the items that the customer has added to their cart, to enable the purchase of multiple items.

Website Links:

Website - https://runtimeterrorbu.github.io/Nozama/

GitHub - https://github.com/RuntimeTerrorBU/Nozama

GitHub Issue Tracking - https://github.com/RuntimeTerrorBU/Nozama/issues

Group Members w/ Timecard:

Ashley Bickham:

- 51 hours worked
- 57 total commits

Joshua Hunter (Project Leader):

- 55 hours worked
- 58 total commits

Austin Lehman:

- 57 hours worked
- 61 total commits (plus 49 for the uncooperative website setup)

Tyler Ross:

- 44 hours worked
- 30 total commits

Total Commits: 255

**All commits at: https://github.com/RuntimeTerrorBU/Nozama/commits/gh-pages*

Code documentation (JavaDoc)

All JavaDoc documentation is found within the Nozama JavaDoc folder found on the GitHub website.

Runnable as JAR

The JAR file can be found on the Nozama Website as a download.

Background Story for Introduction

In the beginning of this project, we wanted to create a product site similar to that of Amazon or Etsy, with the outcome being that of an online inventory store. Rather than focus on one section of shopping, like clothes, food, or electronics, we wanted to create a store that allows for the user to search any type of item on our interface. We were faced with questions when trying to create this project, such as “What should the final result look like?” and “How do we go from a simple, drawn design to a more complex, fully functioning program?”

One of our biggest challenges we were hit with was the ignorance when it came to the amount of work we would have as we worked to complete each iteration. Each part in itself seems very simple and manageable, but with the growing code-line total, the complexity can quickly ramp up.

Toward the end of this project, we learned to work off of the work of each other more efficiently than when we began working together. We were successfully able to create a (very bare boned) store site in order to hold, sell, and restock the items held in our store.

Requirements

	REQ 1	REQ 2	REQ 3	REQ 4	REQ 5	REQ 6	REQ 7	REQ 8	REQ 9	REQ 10	REQ 11	REQ 12	REQ 13	REQ 14	REQ 15	REQ 16	REQ 17
UC - 1 Make Purchase	✓		✓			✓	✓			✓							
UC - 2 Add Item to Cart	✓		✓	✓	✓		✓			✓				✓		✓	
UC - 3 Add Item to Wishlist	✓		✓	✓			✓			✓				✓	✓	✓	✓
UC - 4 Restock Item	✓		✓	✓			✓		✓								
UC - 5 Return Item	✓		✓			✓	✓				✓	✓	✓				
UC - 6 Make Account								✓									
UC - 7 Ship/Send Item	✓		✓				✓			✓	✓						
UC - 8 Add New Product	✓	✓	✓							✓							
UC - 9 Delete Product	✓	✓	✓														
UC - 10 View Product Avalibility	✓		✓	✓					✓	✓	✓			✓		✓	✓
UC - 11 Generate Report						✓	✓		✓							✓	
UC - 12 Remove Item from Cart	✓		✓		✓		✓										

R1: The system will keep a set of items that are sold by the store
R2: The store will be able to add and remove from the set of items
R3: Items will be associated with a unique ID to allow for easy lookup and management
R4: The system will keep track of the amount of each item that is available for sale
R5: Customers will be able to add and remove items they wish to purchase into a cart
R6: The system will be able to keep track of each order by its unique ID
R7: Each order will be stored in a database to allow for easy lookup
R8: Customers must be able to make accounts easily
R9: When stock is low, the system must notify an employee or manager
R10: Customers can rent items that allow it.
R11: Customers can return items that have been rented.
R12: If a customer's rental is late a fee should be sent to them.
R13: The customer should be able to return an item within 30 days.
R14: The customer should be able to search for items.
R15: The customer should be able to add items to a wishlist.
R16: The system should notify the customer when an item in their wishlist is in stock.
R17: The system should notify the customer when an item in their wishlist is on sale.

Analysis

This software that we are creating will be beneficial to those who use it because it allows for easy management of an online store's inventory, permits the store to add or remove items, keep track of the total inventory that the store has, as well as monitor orders placed through the store. The system we create will supervise the store's inventory, which will make it easier for employees to focus on other tasks in order to make the company as efficient as possible, since one of the main stakeholders of this project is the company, as well as its customers. The software should permit the customers to purchase items that are in stock, keep track of these items, and for the employees to restock items. The GUI included in the system lets a customer look up an item on the store by its ID number and will provide in return the stock of the item, a general description of the item, and the option for the user to purchase the item. This iteration of the project, we focused more on code and program development, as well as monitoring these changes through GitHub and documentation of our work. Through GitHub, we have all been able to work on similar files that are able to be changed collectively each time someone pushes a change to the website.

Design*

For this project, we wanted to create a working product with a similar look and feel as those of big name companies, like Amazon or Etsy. Our idea was to have different pages that were displayed with each main part of the product that the user needed to work with, and we designed Nozama to meet these ideas. We focused on creating more of an Object Orientated design, creating different classes that we would implement inside of our controllers and main view classes in order to display Nozama.

We made three main packages filled with our controller classes, our viewing classes, and our main object files. These were created to separate the different items and their functionalities, rather than placing everything on one common file, or fewer than what we created.

Our controller classes are used to control the different pages that are brought up in Nozama. The NozamaController controls the NozamaView page, ShoppingCartController for the ShoppingCartView page, and WishlistController for the WishlistView page. The ButtomColumn class controls any buttons we create throughout Nozama in order to access different

Our viewing classes create and display the different pages within the Nozama store that the user can access when running our program.

Our main object files include different classes, like ShoppingCart and Item, that are used within all other view and controller classes. These object files create the basics of specifications of the items inside of Nozama in order to keep track of the data stored into each object.

** All UML Diagrams can be found in Iterations I & II (Located on the Website)*

Implementation

To implement our design ideas, we created a starting page that would allow the user to login as a Customer, a Company Member, or create a login if they had never logged in once before. Once the user created their login (stating whether they were creating a login as a Customer or Company member), they could then login to their perspective sites.

If the user logged in under the Customer page, they were met with the Home Page of Nozama. You can see the items sold in the store, as well as the option to add an item to cart or wishlist. The customer can also search through the catalog of items or clear their search. They also have access to their Shopping Cart through the "Show Cart" button and their Wishlist through the "Show Wishlist" button. When opening the Shopping Cart, the Customer can see what items they have put in their cart, and choose to checkout if they would like to purchase said items. If they checkout, they enter their shipping and payment information (address, card information), and are given a receipt that they can download, as well as a shipping confirmation through Novama. When the Customer clicks to access their wishlist, they are met with another window that displays any items that they have placed into their wishlist, and they can edit the amount of that item they'd like to keep in their wishlist.

If the user logged in under the Company page, they have access to the more behind-the-scenes parts of the Nozama store. The new options that the user is able to do include the ability to add a product to sell through Nozama to the database, delete a product from the database, restock an item, or generate a report of the orders that have been made through Nozama. When the user decides to add a product by clicking the "Add Product DB" button, they must input the name, description, price, ID, and quantity of the item they wish to add to Nozama. To delete a product from Nozama, the user must first select the item from the catalog, then press

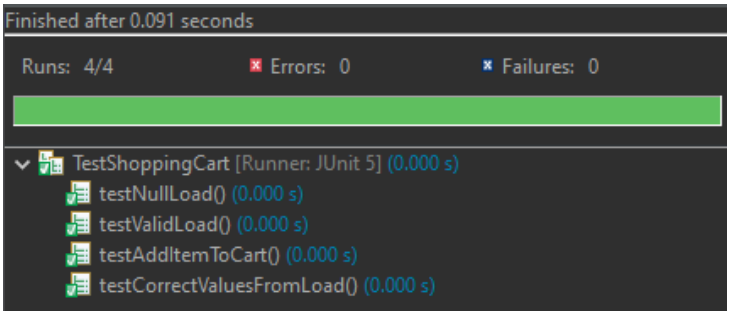
the “Delete Product DB” button, which will delete the item from the view and the Nozama database. The company member can also restock an item in the store through the “Restock Item” button, and download a report of the ItemID’s and quantities of those items that have been sold through Nozama. The company member is also able to do any of the above actions available to the Customer.

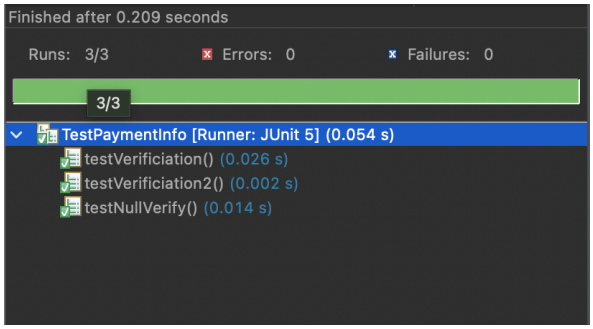
Our design was made to work through different windows for different ways to move and work through Nozama. This design makes it easier for the user to access what they’re looking for within our project.

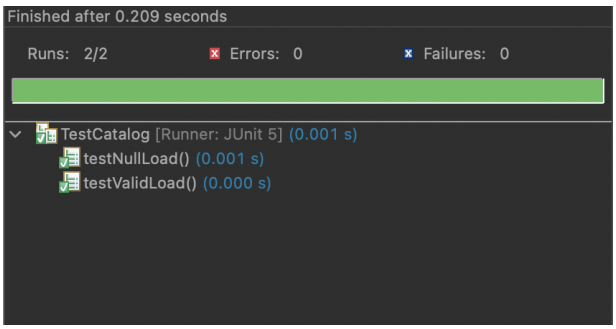
Evaluation / Testing (JUnit Testing)

Our project is JUnit tested. We tested our Catalog, Pair, PaymentInfo, and ShoppingCart classes to ensure that they work as intended and are free of bugs. Our test cases cover invalid input (primarily through null) and valid input. JUnit testing was beneficial because it showed us when and how our errors occurred and was very easy to write.

Example Tests:







USER MANUAL:

LOGIN PAGE:

The first page the user is met with is the Log-In Page. They can select one of three options: Customer Login, Company Login, or Create Login. With the selection of Customer Login, the user must enter their username and password associated with Nozama. Only users with Company access are able to login through the Company Login button. If the user does not have any account, they can create one to be stored in Nozama when pressing the Create Login button. NOTE: A company can login as a normal customer, but a customer cannot login as a company.

CUSTOMER PAGE:

After a customer logs in they see the Customer Page. On the top of the page is a search bar that is used to search for products. Under the search button is a clear search button. This button clears the search box. The middle of the page is a table that shows all the items in the store. On the table there are buttons to add the corresponding item to your cart or wishlist. On the right of the screen are buttons that bring up the customer's shopping cart and wishlist.

COMPANY PAGE:

After a company user logs in they see the Company Page. This page is the same as the customer page except that on the button you will see and add product button, delete product button, and a restock item button. The add product button will create a prompt to add a product to the store. The delete button is used to delete a product from the store. This is done by first clicking on the item you want to delete then clicking the delete button. The restock button is used to add stock of an item to the store. This is done by first clicking the item that you want to restock then clicking the restock item.

SHOPPING CART PAGE:

The main part of the shopping cart page is the table that shows the items in the shopping cart. Each item in the cart has a corresponding edit button that allows the user to edit the quantity of the item in the cart. You can remove an item from your wishlist by changing the quantity of the item to 0. On the right of the shopping cart page you will see the subtotal of all the items in the cart as well as a checkout button. Once the checkout button is hit it will start the process of buying the items in the cart, including payment info and shipping info. Receipts can also be generated if wanted.

WISHLIST PAGE:

The main part of the wishlist page is the table that shows the items in the wishlist. Each item in the wishlist has a corresponding edit button that allows the user to edit the quantity of the item in the wishlist. You can remove an item from your wishlist by changing the quantity of the item to 0.

Timecards report - Updated Gantt Chart for Iteration 3

Runtime Terror Gantt Chart

CSI 3471

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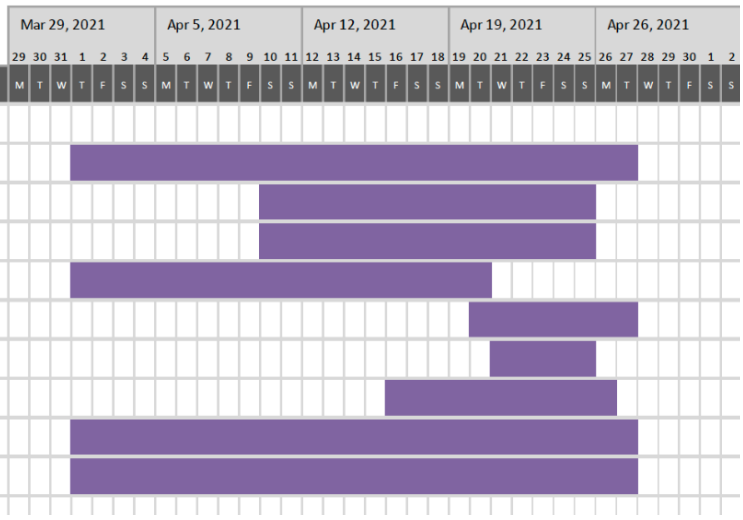
SIMPLE GANTT CHART by Vertex42.com

https://www.vertex42.com/ExcelTemplates/simple-gantt-chart.html

Thu, 4/1/2021

1

TASK	START	END
Iteration 3		
User Interface	4/1/21	4/27/21
User Input Validation	4/10/21	4/25/21
Test Documentation and Junit Testing	4/10/21	4/25/21
User Guide	4/1/21	4/20/21
Live Demonstration	4/20/21	4/27/21
3 Distinct Use Case Videos	4/21/21	4/25/21
Spot Bugs/Final Fixes	4/16/21	4/26/21
Update Website	4/1/21	4/27/21
Update Presentation	4/1/21	4/27/21



Revised Iteration 2

Available for download at https://runtimeterrorbu.github.io/Nozama/

**Also included in Canvas submission*

Original Point Distribution: 4.4 / 5

- From the original Iteration 2, we lost minor points due to issues within our diagrams and were missing detailed justification of our GRASP Patterns. We have fixed everything that was mentioned in the comments on our original submission, therefore we believe the suggested point redistribution should be full credit.

Suggested Point Redistribution: 5 / 5

Changes that were made:

- Reply messages that were missing a dotted line were given a dotted line
- Changed the GRASP pattern to be more detailed and explained

Conclusion

Throughout this project, we were constantly faced with new bugs, issues, and hurdles that we were forced to overcome in order to improve Nozama and make it more efficient for the user. Nozama allowed us to create a program that functioned as a working inventory management website, stretching our knowledge of Swing, JUnit testing, and GUI creation to its limit.

It wasn't difficult creating and designing each individual aspect of Nozama, but the hardest aspect was putting everything together to make it all work at the same time. We needed to make sure each individual class worked off of another, which could all be added together into a main running file in order to display Nozama for the user.

We learned not to underestimate ourselves because we were able to conquer challenging obstacles while programming Nozama. In the end, we were able to successfully complete all of the requirements asked for in Iteration 3 and throughout the entire project in general. We are proud of the product we have come up with and a lot of our time we spent planning, implementing, testing, documenting, and issue fixing, paid off.