Real Estate Finder

Functional Specification Document

Group # 13

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Draft Functional Specifications

A customer logs in with a user name and password and a window (frame) opens where he can browse through a list of available property listings that includes the property name, price, and address. From this window the customer can browse through property listings. The customer selects the property listing to view all the details in a pop-up window that include square footage, waterfront, and pool. The customer can add the selected property to the favorite list. The customer reviews their favorites list.

The customer clicks contact button and the customer's information is saved onto the seller's potential buyers list. (Transition happens offline). The seller updates their real estate listings.

When the seller logs in, a window shows their current property listings. The seller can add or remove the property listings. The seller can also update their property's details. The seller can view the interested customers.

First time user can create a regular account or a seller account upon entering the main window. The user then input the required information to complete the account creation process.

Functional Specification for Real Estate Finder

The main purpose of Real Estate Finder is to allow seller and buyer of real state to connect.

Application Features

The Real Estate Finder allows sellers to post real estate listings for selling and customers to browse listings and submit their contact information to the seller if they are interested in buying.

The application must provide the following features:

1. Sellers provide a picture of the real estate property along with inputting data into a text box including any Information that describes the real estate listing, which can include:
   a. Price
   b. Name
   c. Address
   d. Pool availability
   e. If it is waterfront property
   f. Square Footage
2. The system maintains a list of property listings on the market
3. Customer can browse the listings
4. Customer can select a specific listing and get all the listing details.
5. Customer can select to give their contact information to the buyer.
6. The seller can view the list of interested buyers who have sent their contact information.
7. The seller can update their property listings.
8. The seller or a customer can create account
9. Customer can log into their account
10. Seller can log into their account

The application is required to maintain persistent property listings between executions.

User Interface

The Real Estate Listing application has a text-based console user interface, centered on a menu of possible user options and input parsing.

Customer Navigation Menu is included on top of every page available to Customer. It included the buttons: Customers Property Listing Page, Favorites Page, and log-out.

Seller Navigation Menu is included on top of every page available to Seller. It included the buttons: Sellers Listed Property Page, Add Property Page, Interested Buyers page and log-out.

1) The "Log-in Page"
   a) Login for Customer or Seller
   b) A button to sign-up
2. The Sign-up page"
   a) 2 check boxes for account type selection(Seller, Customer)
   b) Text boxes for Username, Password, Name, Phone Number, Email Address
   c) Submit button
3. The " Customer Property Listings Page" displays:
   a) A list of the Properties that are on the market.
   b) A button for going to the Property description page
   c) A button for adding the Property to the Favorites
   d) Include the Customers navigation menu
4. The "Favorites Page"
   a) A button for property description that will take Customers to Property Description page
   b) A button for contacting Seller for a selected Property

      c)   Include the Customers navigation menu

5. The "Seller Listed Properties Page":
   a) The list of properties that the seller has on the market
   b) A button to go to Property Description page
   c) Include the Seller's navigation menu

6. The "Property Description Page" has different buttons dependent on if the user is a customer or seller. If the user is a customer and clicked to view a property on the Available Properties page, than a button for adding the property to your Favorites will be displayed. If the user is a customer and clicked to view a property on the Favorites page, a button for contacting the owner of the property will be displayed. If the user is a seller and clicked to view a property, then buttons will be displayed allowing the change of the picture or editing the text describing the property. The page will display a picture of the real estate property menu and any Information that describes the real estate listing, which can include:

   a) Property name
   b) Property price
   c) Property address
   d) Pool availability
   e) If it is a waterfront property
   f) Includes Navigation Menu depending on the actors account

7. Interested Buyers Page
   a) Includes Customers with their phone numbers and names
   b) Includes Seller's navigation menu

The Real Estate Finder System is implemented as an android application.

Glossary

listings: list of properties that are on the market
Interested Customers: Customers that have clicked the "Contact Seller"

Seller Account: Account type for people selling property

Customer Account: People who are buying property or browsing through listings.

Essential Use Cases

Use Case for Create Account

1) User clicks on create a seller account or customer account button
2) User enter the required information
3) An account is created with that information

Use Case Customer Log-In

1) User enter their username and password
2) Application authenticates the user
3) Customer is routed to Property Listings page

Variation #1 Use Case Customer Log-In

1) User enter their username and password
2) Application attempts to authenticates the user but cannot
3) Error Message is shown to user
4) User is prompted to try again with valid information

Use case for Seller Log-in

1) User selects the seller account for log-in
2) User enter their username and password
3) Application authenticates the user
4) Seller is logged in and routed to Sellers Listings page

Variation # 1 Use case for Seller Log-in

1) User selects the seller account for log-in
2) User enter their username and password
3) Application attempts to authenticates the user but cannot
4) Seller is displayed with Error Message
5) Seller is prompted to enter valid information

Use case for Customer browses for Property

1) The available properties are supplied to the system
2) Window displays the available property listings
3) Customers clicks on view Property Description button, customer is routed to Property Description page.

Use Case for Adding to favorites

1) Customer selects a property of their choice to add to favorites
2) Property is then added to their favorites
3) Customers clicks on Favorites button, and is routed to the Favorites page
4) Customer reviews properties from their favorites
5) Pop up Window displays the property details

Use Case for Contacting the Seller

1) Customer clicks on contact seller on the given property from the favorites page
2) Customers information is saved onto sellers interested customers list

Use Case for Seller adding property listings

1) Seller clicks on Add property Listing from Sellers navigation menu
2) Seller is routed to Create Listings Page
3) Seller enter the required property descriptions
4) Seller clicks the submit button
5) Property is added to the sellers listings
6) Seller is routed to sellers listings page

Use Case for Seller reviewing interested buyers

1) Seller clicks on interested buyers button
2) Seller is routed to interested buyers page
3) Seller reviews the interested buyers

Detailed use cases

Use Case for Creating an Account

   1) User selects Customer or Seller Account
   2) User enter the information needed to create the account
   3) Customer and Seller accounts are stored into Account

Use Case for Customer log-in

   1) User enter their username and password
   2) Application matches username and password with Customer and Seller objects provided by Accounts
   3) Customer is logged-in

Variation # 1 Use Case for Customer log-in

   1) User enter their username and password
   2) Application attempts to match username and password with Customer and Seller objects provided by Accounts
   3) Application displays Error Message to Customer

Use case for Seller log-in

   1) User selects the Seller account for log-in
   2) User enter their username and password
   3) Application authenticates the user
   4) Seller is logged in

Variation # 1 Use Case for Seller log-in

   1) User enter their username and password
   2) Application attempts to match username and password with Customer and Seller objects provided by Accounts

3) Application displays Error Message to Customer

Use case for Customer browses for Property

1) The AvailableProperties supply Property objects to Application
2) Application displays the available Property objects to Customer
3) Customer click "View Description" button
4) Customer is directed to the "Property Details" page

Use Case for Adding to favorites

1) Customer selects a Property of their choice to add to Favorites
2) Customer reviews Property objects from their Favorites
3) Favorites supplies Application with selected Property
4) Application displays the Property details

Use Case for Contacting the Seller

1) Customer clicks on contact seller on the given Property
2) The Customer is saved into Seller's InterestedBuyers

Use Case for Seller managing their listings

1) Seller clicks on manage listings
2) AvailbleProperties gets with Property objects that the Seller owns
3) AvailableProperties displays those property objects
4) Seller selects the Property to update from AvailableProperties
5) Seller can delete the selected Property from AvailableProperties
6) Seller can add a new Property to AvailableProperties

Use Case for Seller reviewing interested buyers

1) InterestedBuyers gets Customer objects
2) InterestedBuyers displays the information that the Customer holds

Classes

Customer
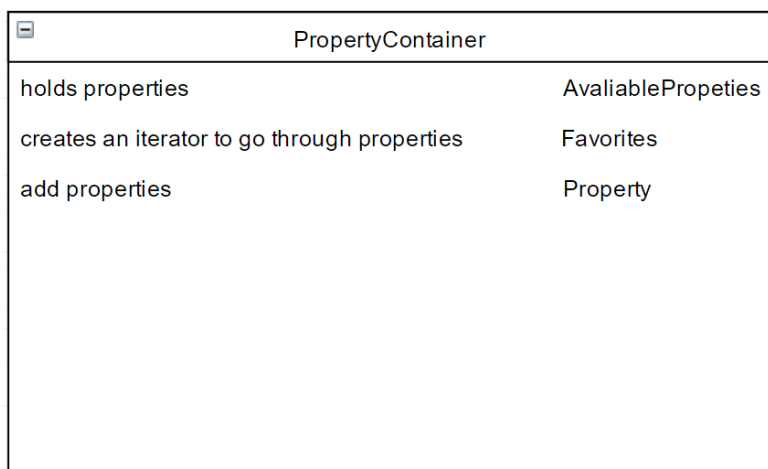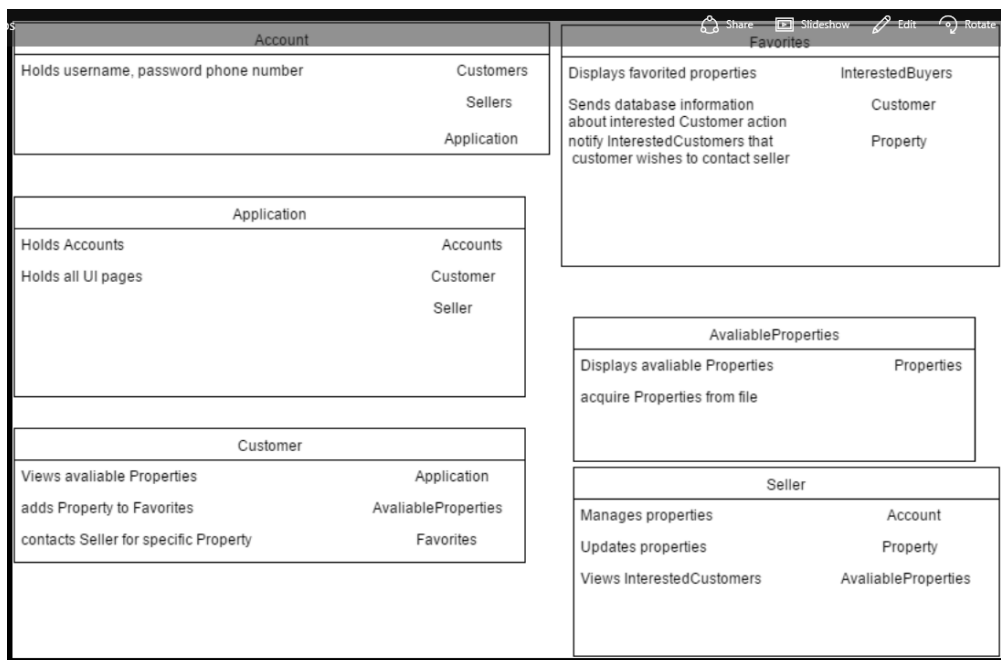
Seller

AvailableProperties
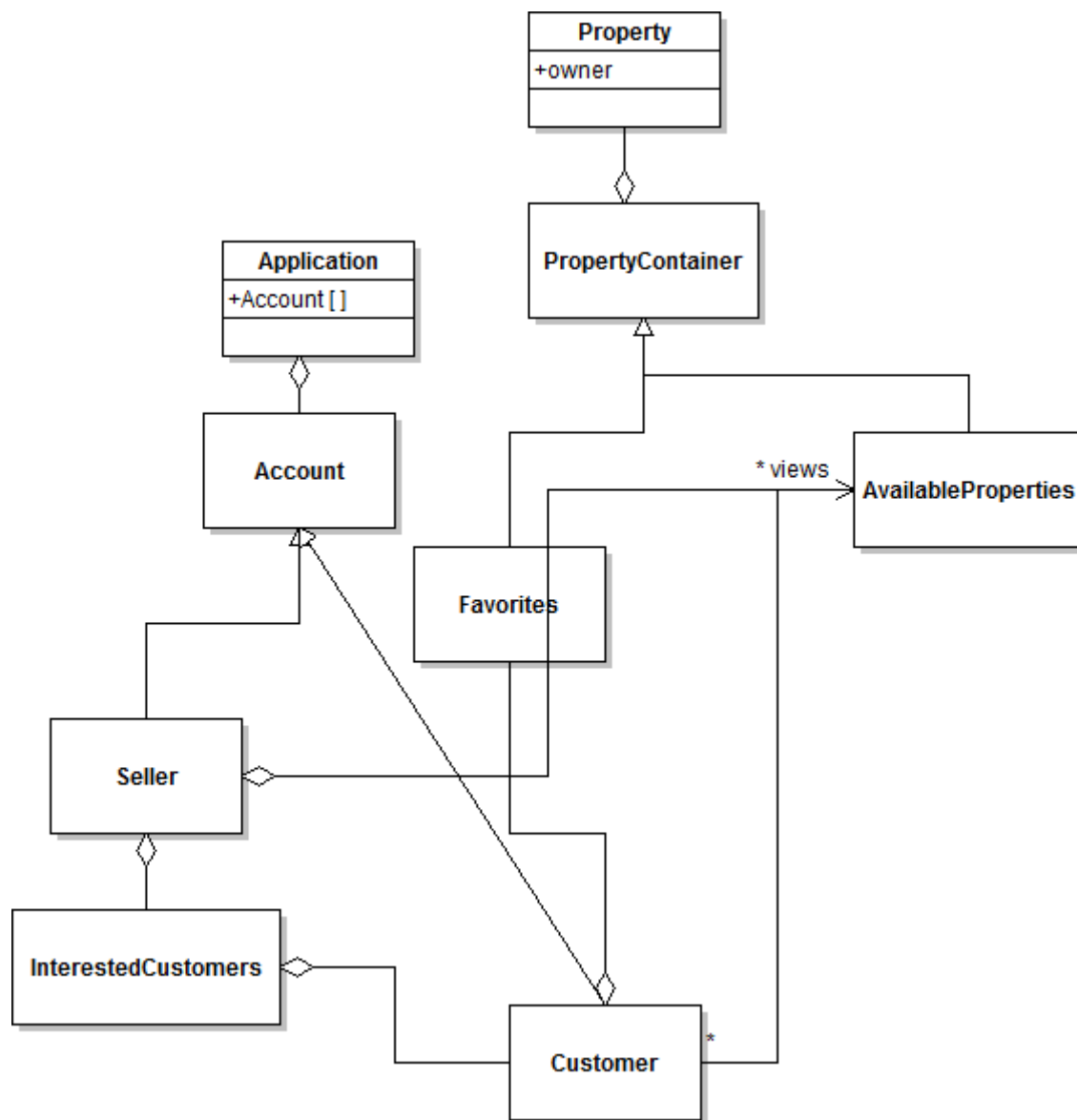
Property

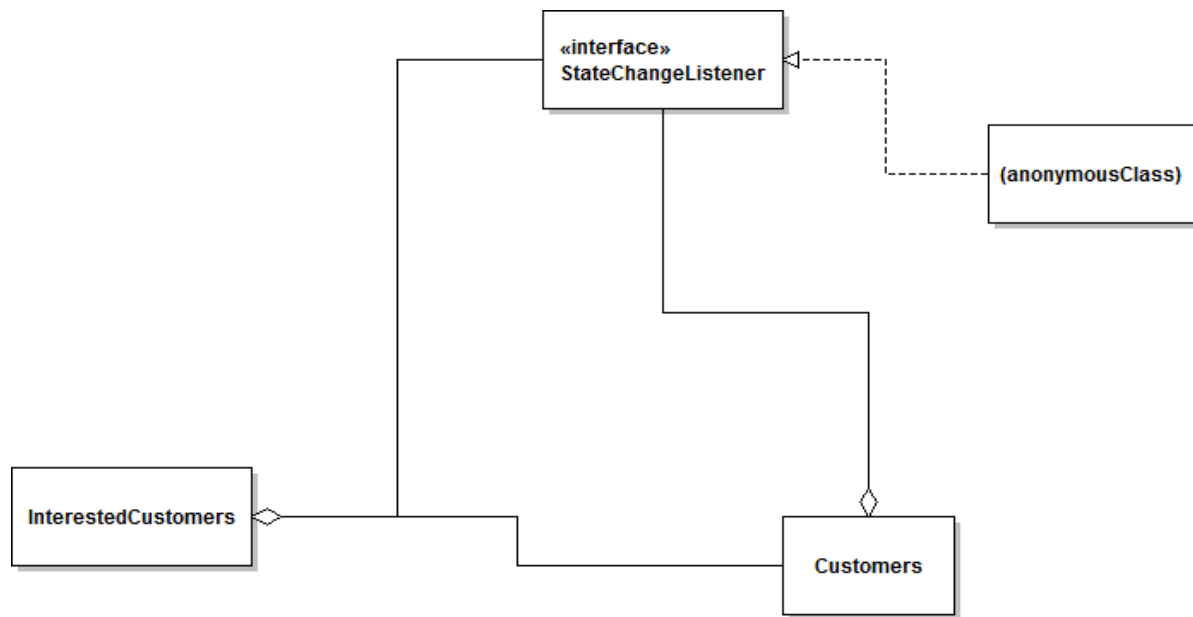Favorites

Application

InterestedBuyers

Account

CRC cards

Account	
Holds username, password phone number	Customers
	Sellers
	Application

Favorites	
Displays favorited properties	InterestedBuyers
Sends database information about interested Customer action	Customer
notify InterestedCustomers that customer wishes to contact seller	Property

Application	
Holds Accounts	Accounts
Holds all UI pages	Customer
	Seller

AvaliableProperties	
Displays avaliable Properties	Properties
acquire Properties from file	

Customer	
Views avaliable Properties	Application
adds Property to Favorites	AvaliableProperties
contacts Seller for specific Property	Favorites

Seller	
Manages properties	Account
Updates properties	Property
Views InterestedCustomers	AvaliableProperties

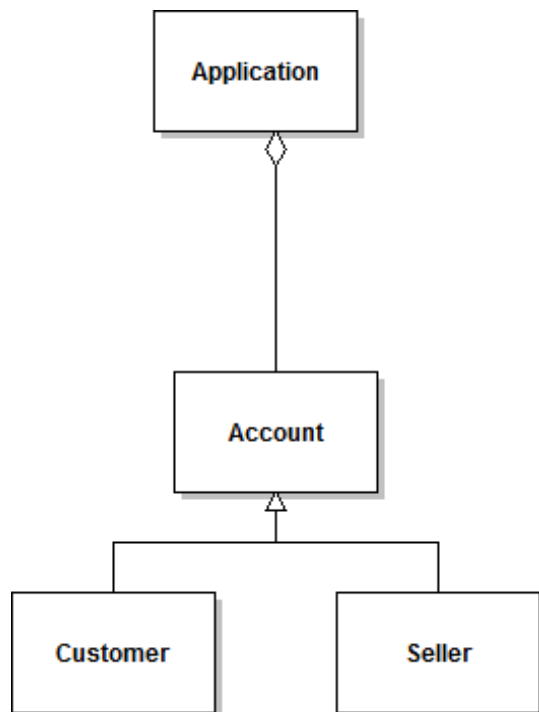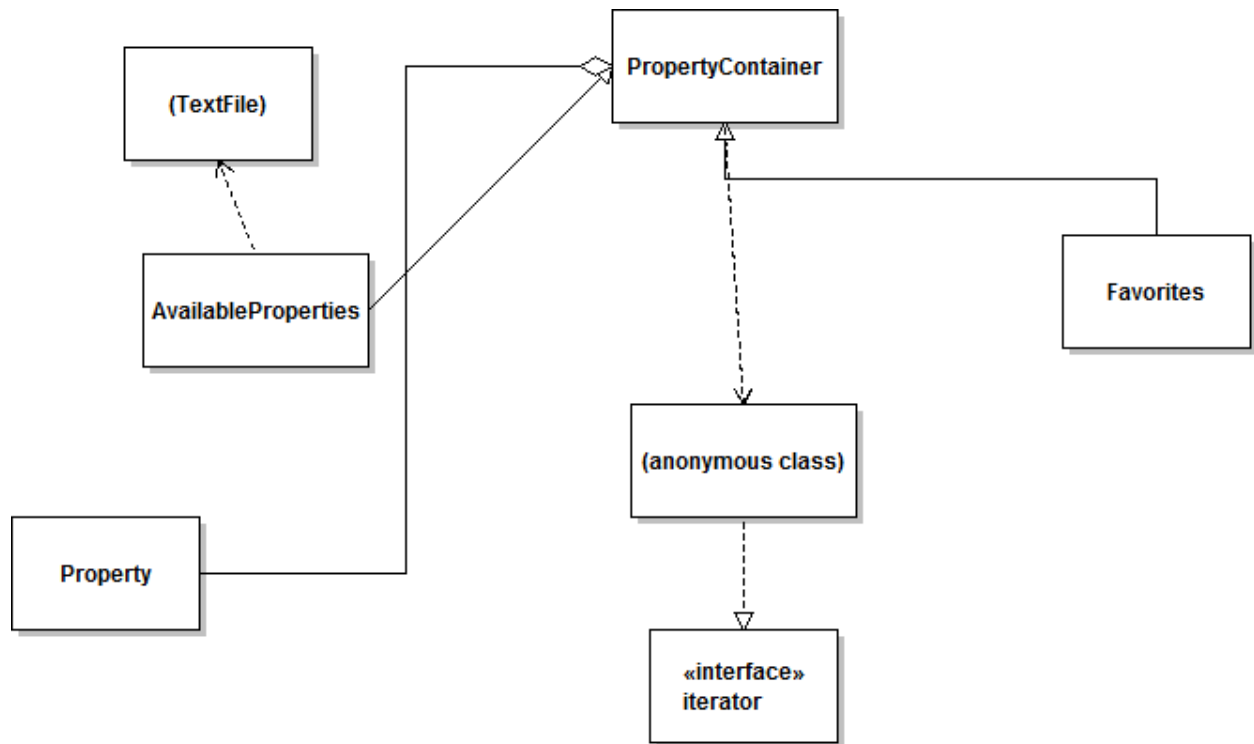| PropertyContainer	
holds properties	AvaliablePropeties
creates an iterator to go through properties	Favorites
add properties	Property

UML Class Diagrams

Main Class diagram

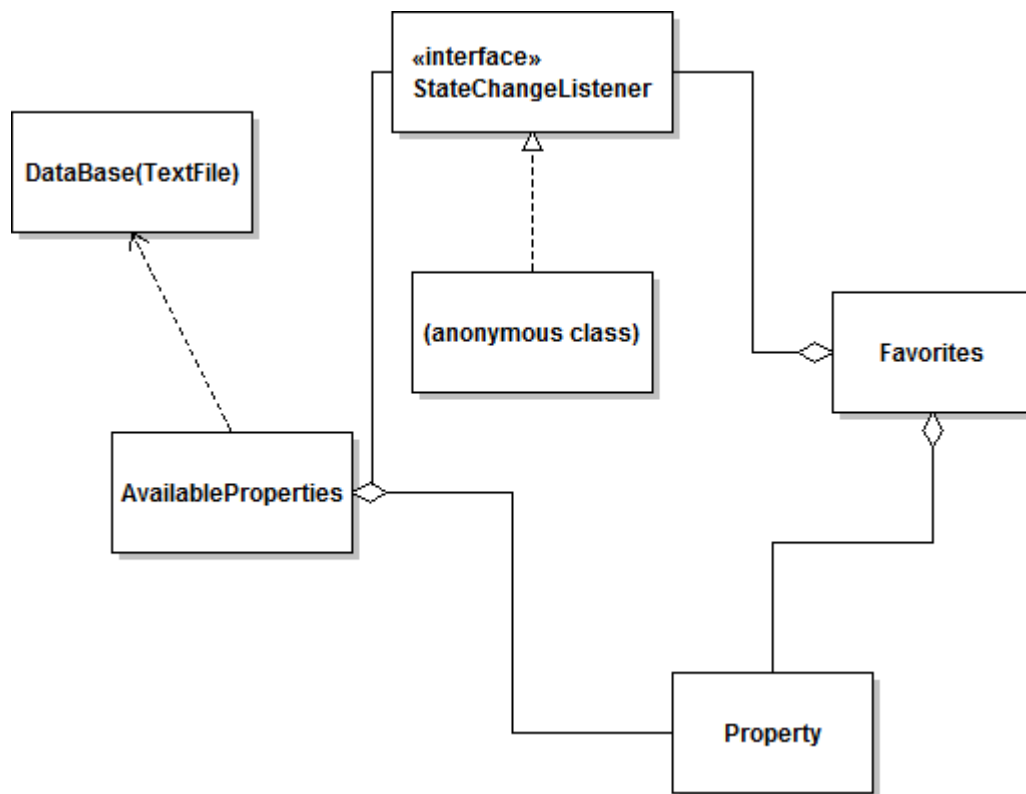*Interested Customers(Observer Pattern) Diagram*

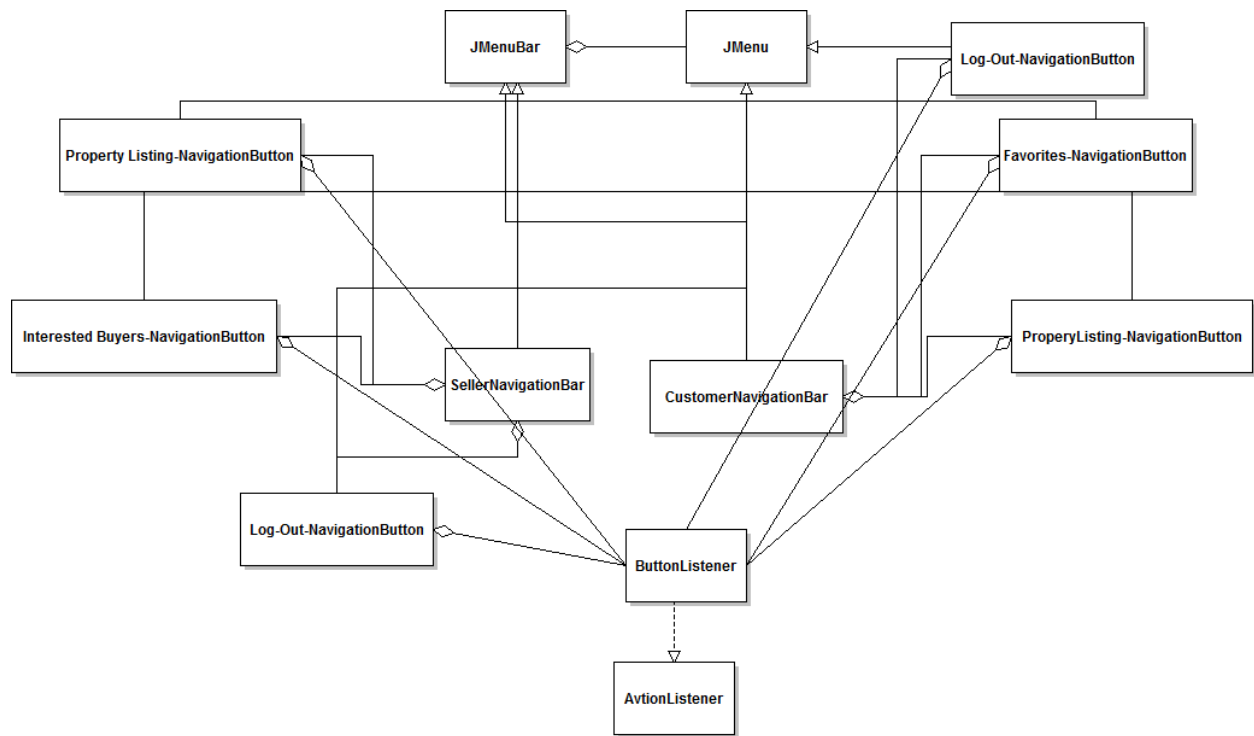*ApplicationAccount(Iterator Pattern) Diagram*

AvailableProperties and Favorites(IteratorPattern) Diagram
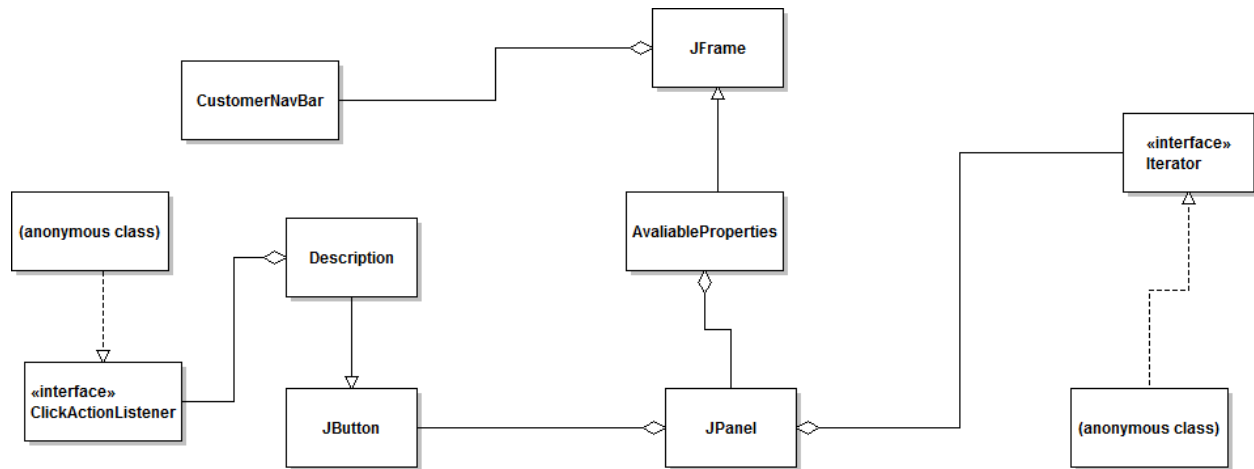
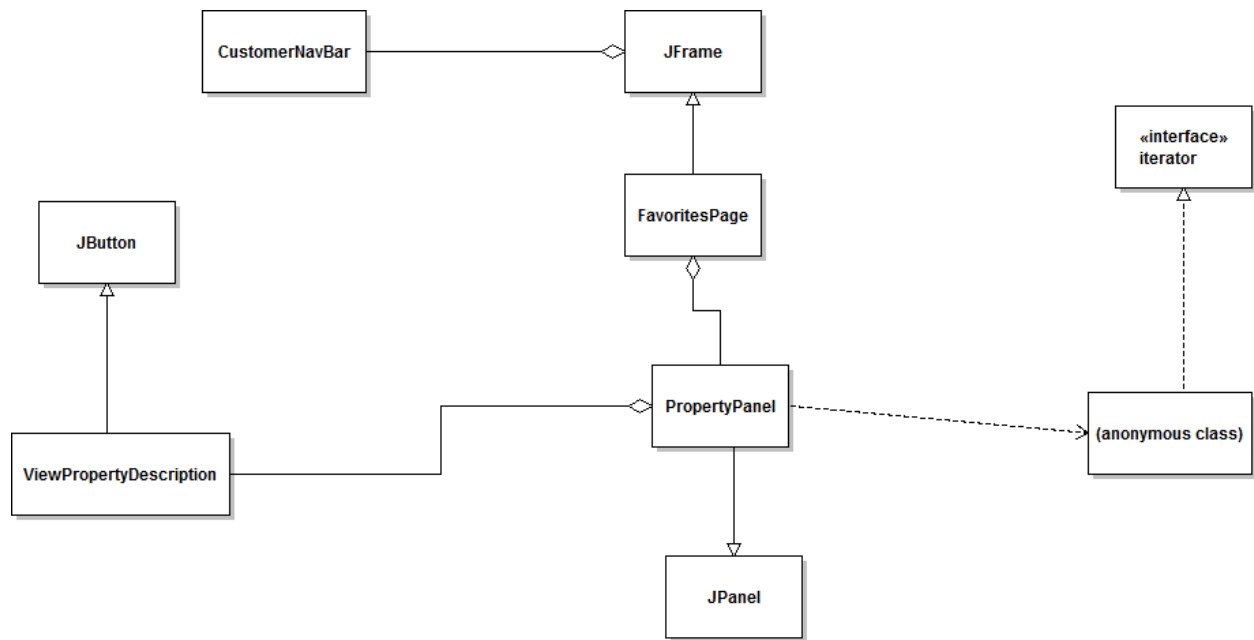*AvailableProperties and Favorites(ObserverPattern) diagram*

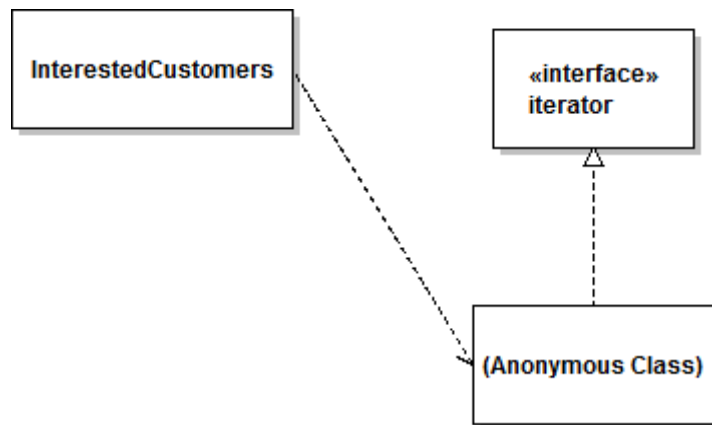*Navigation Bar(ObserverPattern) diagram*

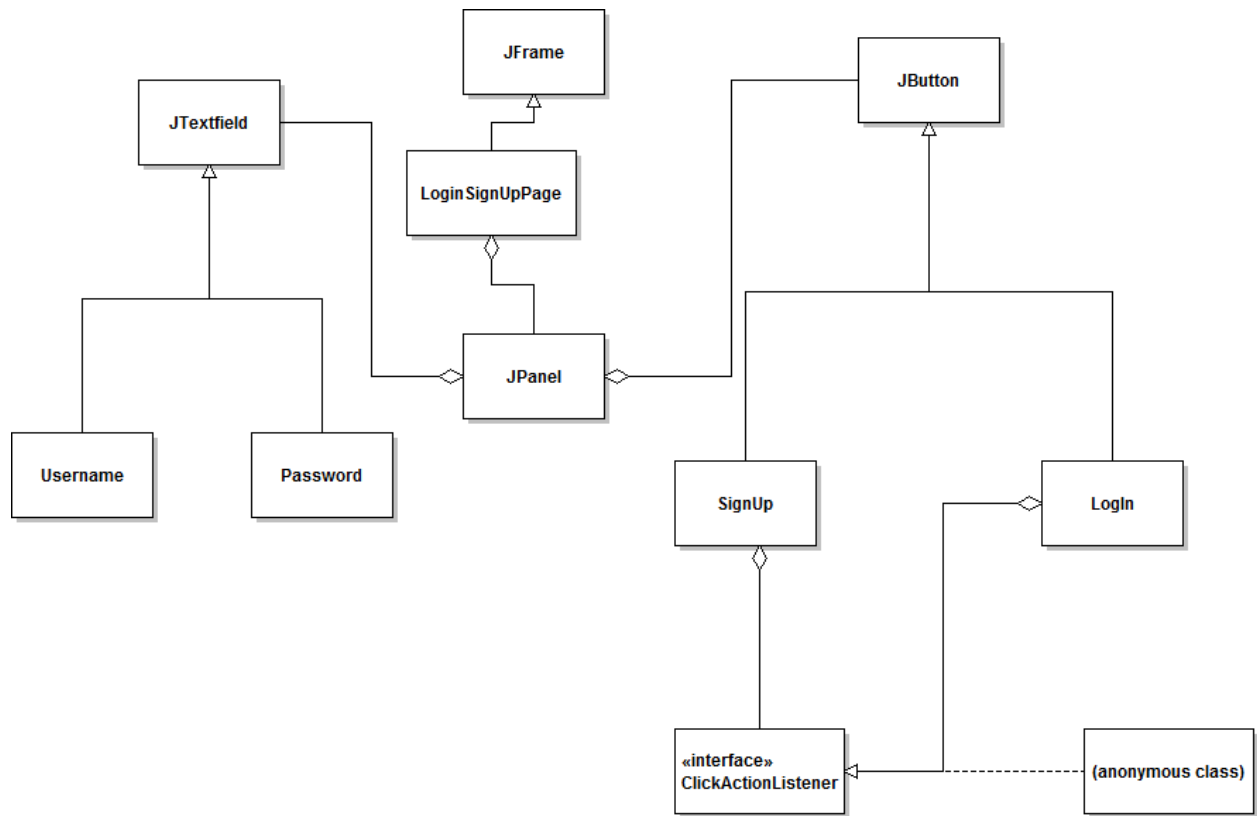*AvalableProperties (Observer and Iterator Pattern) Class Diagram*

Favorites (Iterator Pattern) Class Diagram

InterestedCustomers (Iterator Pattern) Class Diagram

LogInSignUP (Observer Pattern) class Diagram

JFrame

JTextfield

LoginSignUpPage

JButton

JPanel

Username

Password

SignUp

LogIn

«interface»
ClickActionListener

(anonymous class)

MyPropertInformationObserverPattern class diagram

JFrame

SellerNavBar

(anonymous class)

MyPropertyInformationPage

«interface»
ClickActionListener

JButton

Update

JPanel

CustomerPropertiesPageIteratorPattern

Diagram: CustomerPropertiesPage (Iterator Pattern)

- CustomerNavBar ◇—— JFrame
- JFrame △—— CustomerPropertiesPage
- CustomerPropertiesPage ◇—— PropertyPanel
- JButton △—— ViewPropertyDescription
- ViewPropertyDescription ——◇ PropertyPanel
- PropertyPanel ——▷ JPanel
- PropertyPanel ----▷ (anonymous class)
- «interface» iterator △---- (anonymous class)

SellerPropertyListingsPage(IteratorPattern)

Diagram: SellerPropertyListingsPage (Iterator Pattern)

- SellerNavBar ◇—— JFrame
- JFrame △—— SellerPropertyListingsPage
- SellerPropertyListingsPage ◇—— PropertyPanel
- JButton △—— ViewPropertyDescription
- ViewPropertyDescription ——◇ PropertyPanel
- PropertyPanel ——▷ JPanel
- PropertyPanel ----▷ (anonymous class)
- «interface» iterator △---- (anonymous class)
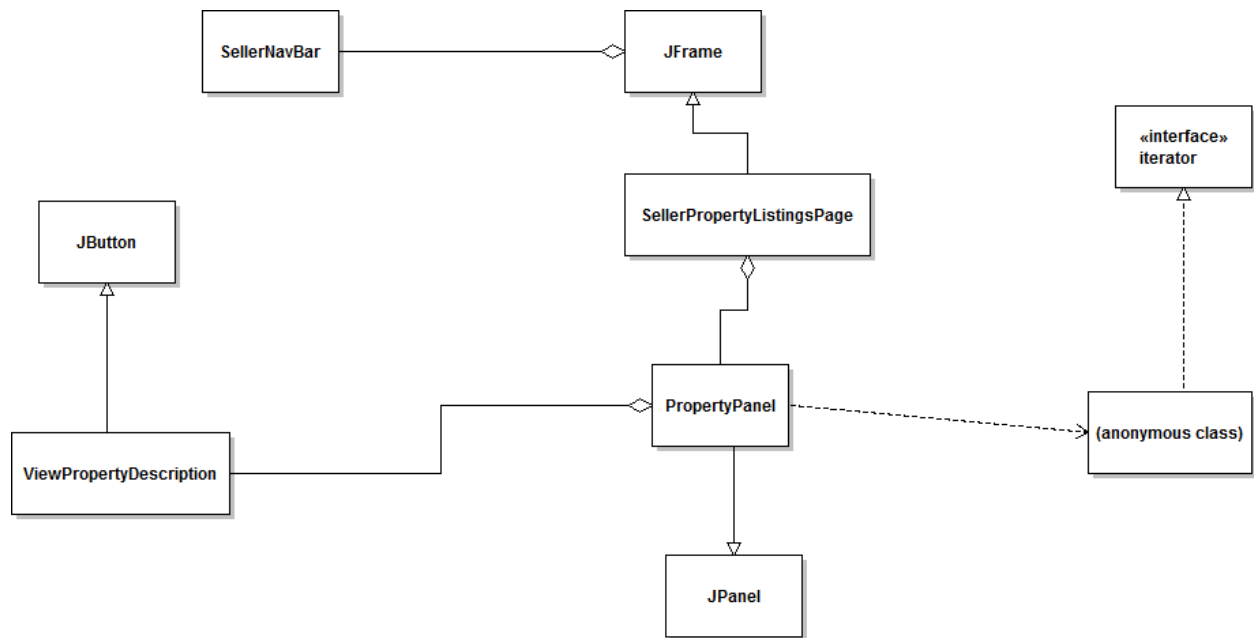
PropertyDescription (Observor Pattern) Class Diagram

JFrame

ActionListener

ButtonListener

PropertyDescriptionPage

AddToFavorites

JPanel

JButton

ContactSeller

UpdateProperty

SignUpPage (Observer Pattern) Class diagram

JTextfield

JFrame

JButton

Username

Password

SignUpPage

SignUp

PhoneNumber

JPanel

«interface» ClickActionListener

(anonymous class)

JCheckBox
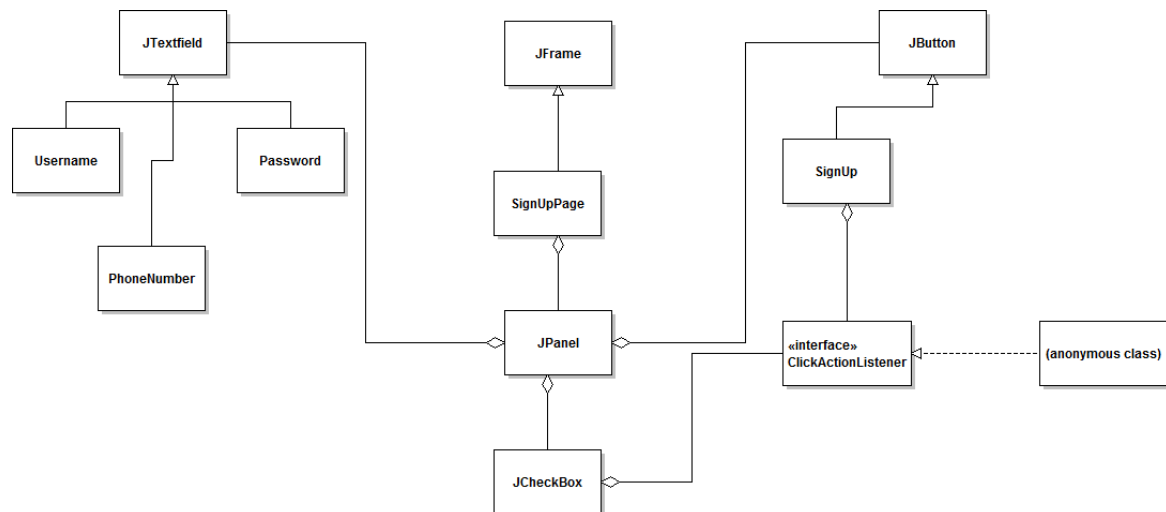
PropertyDescription (Strategy Pattern) class diagram

```
              ┌──────────────────┐
              │      JFrame       │
              │                   │
              └──────────────────┘
                       │
                       ▽
       ┌───────────────────────────────┐
       │   PropertyDescriptionPage      │
       │                                │
       └───────────────────────────────┘
         ╱                          ╲
        ▽                            ▽
┌─────────────────────┐   ┌─────────────────────┐
│ (anonymous class)   │   │ (anonymous class)   │
│  SellerStrategy     │   │  CustomerStragety   │
│                     │   │                     │
└─────────────────────┘   └─────────────────────┘
         │                          │
         └────────────┬─────────────┘
                      ▽
      ┌─────────────────────────────────────┐
      │ «interface»                          │
      │ PropertyDescriptionPageStrategy      │
      ├─────────────────────────────────────┤
      │                                      │
      ├─────────────────────────────────────┤
      │ BuildView()                          │
      └─────────────────────────────────────┘
```
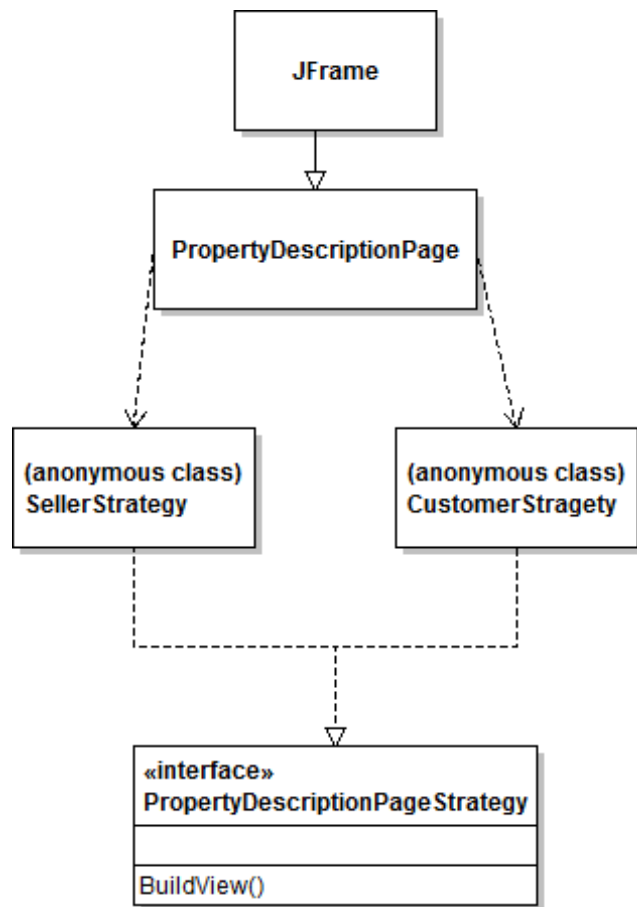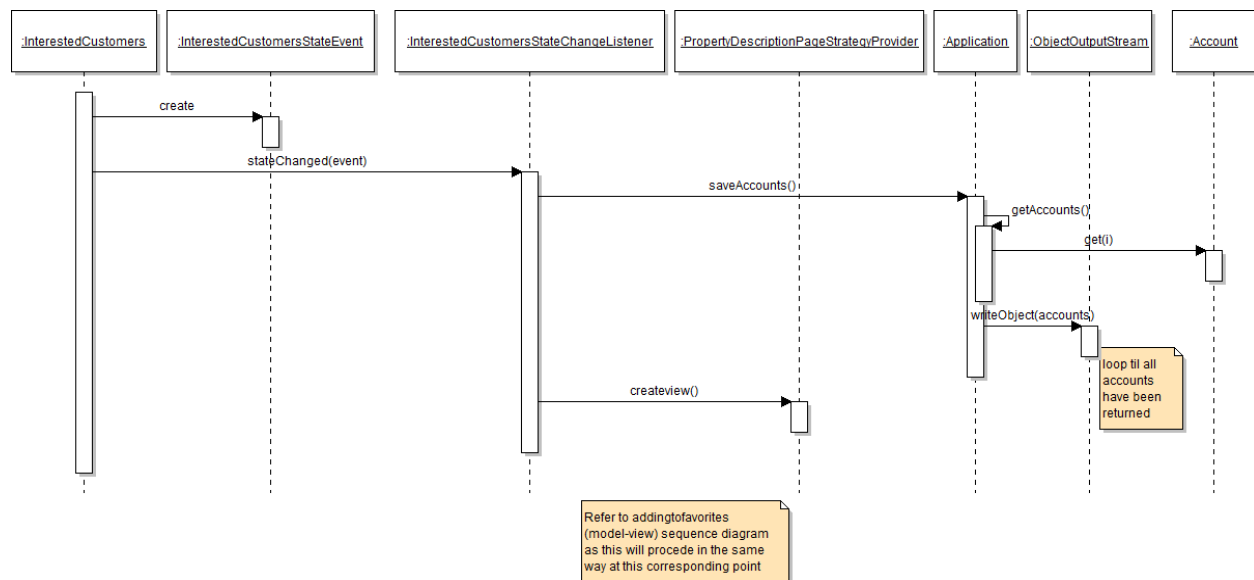
ScrollBarClassDiagram(Decorator Pattern)
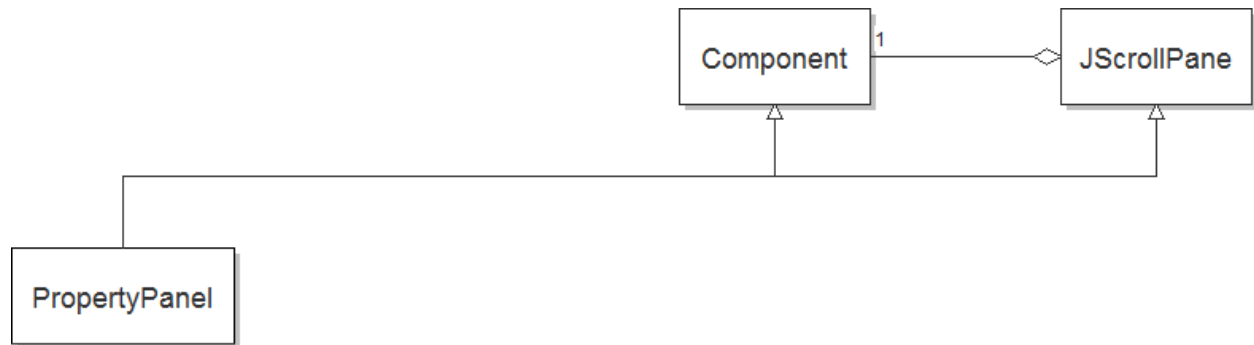
Sequence Diagrams

ContactingSeller Sequence Diagram(Model-View)

FINAL

ContactingSeller Sequence Diagram(View-Model)
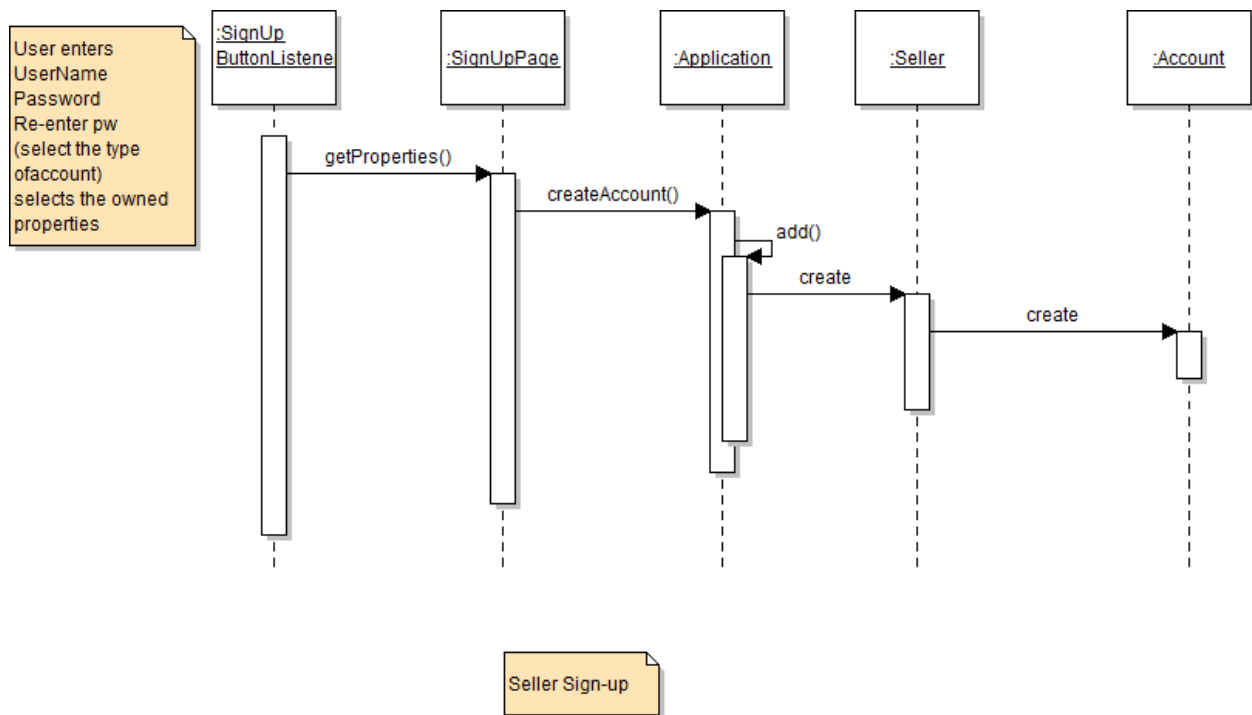
FINAL

| :ContactSellerButtonListener | :Application | :Customer | :Seller | :InterestedCustomers | :InterestedCustomersStateEvent | :InterestedCustomerStateChangeListener |

contactSeller(name)

provideloggedinaccount()

UpdatePropertyInterestedIn(propertyname)

FindOwner(propertyname)

getOwnedProperties()

loop until
the owner of
the property is found

getInterestedCustomers()

addCustomer(loggedincustomer)

create

stateChanged(event)

CreateAccountSequence Diagram(Customer)
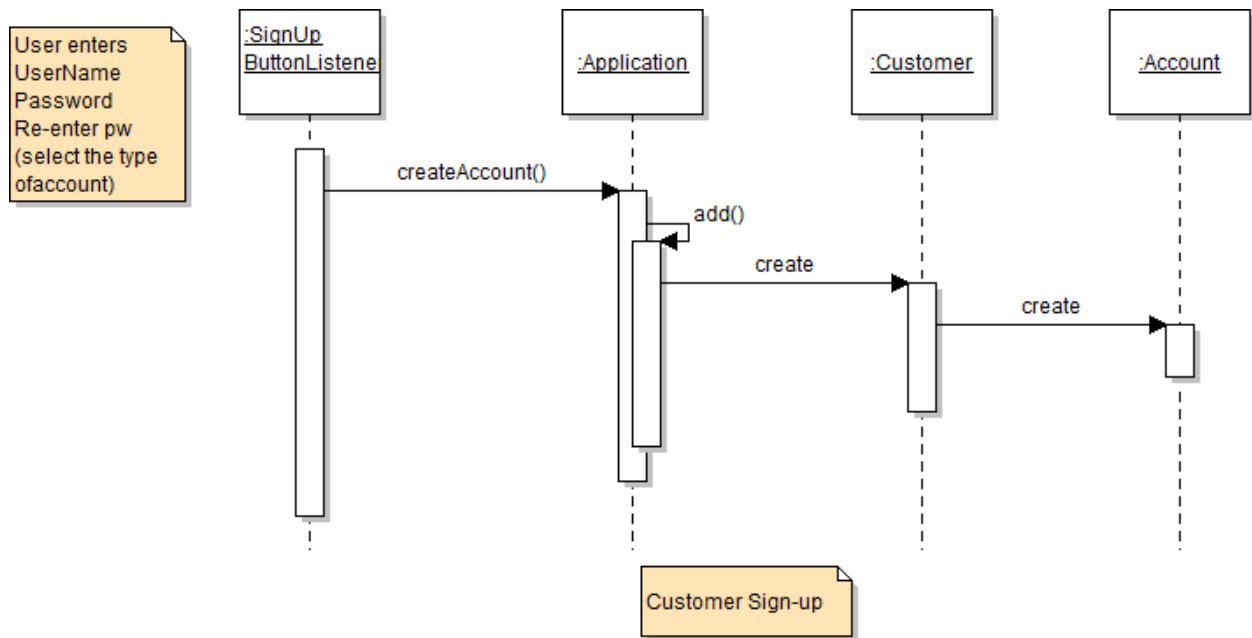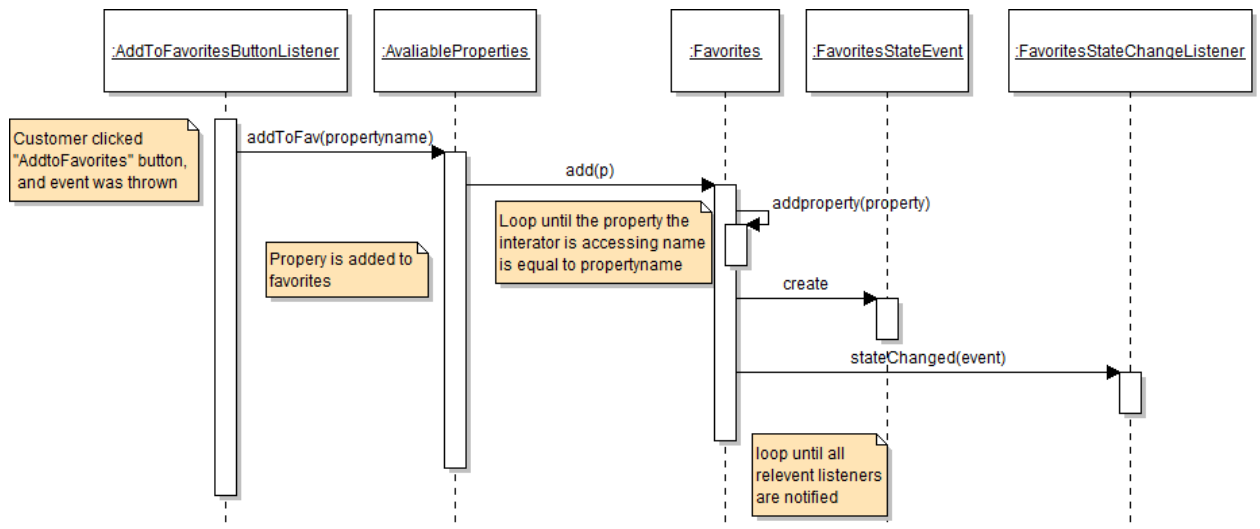
CreateAccountSequence Diagram(Seller)

CustomerAddingToFavorites Sequence Diagram(Model-View)
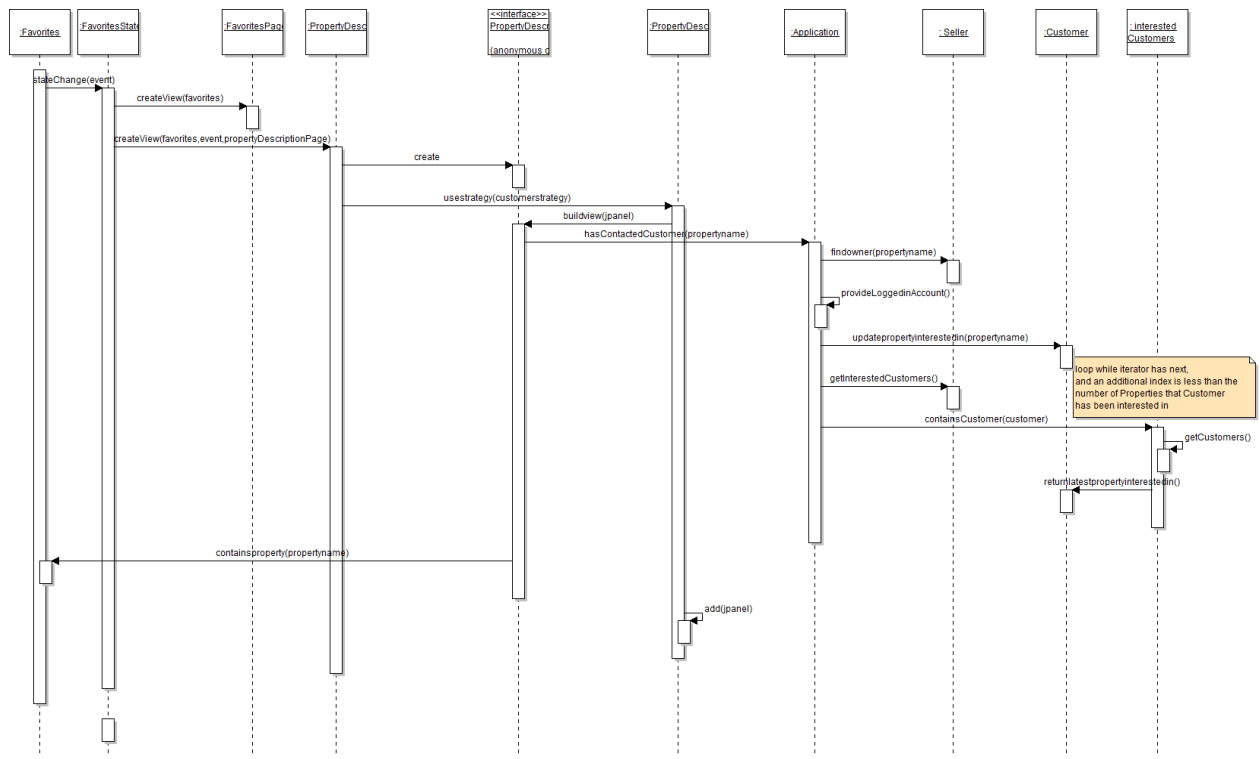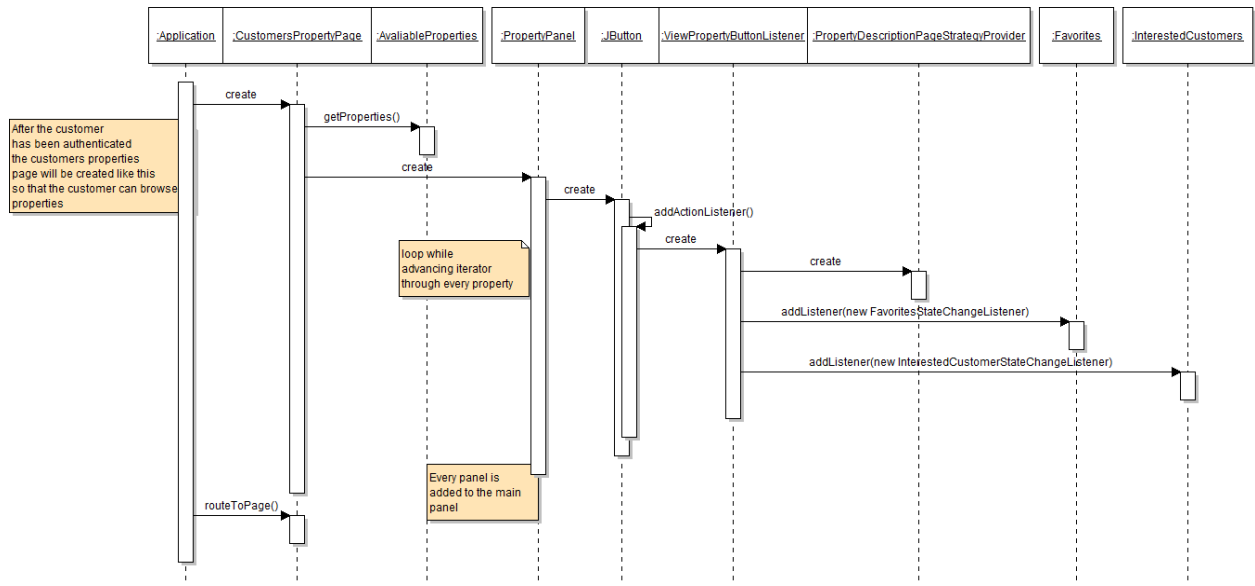
FINAL

CustomerAddingToFavorites Sequence Diagram(View-Model)
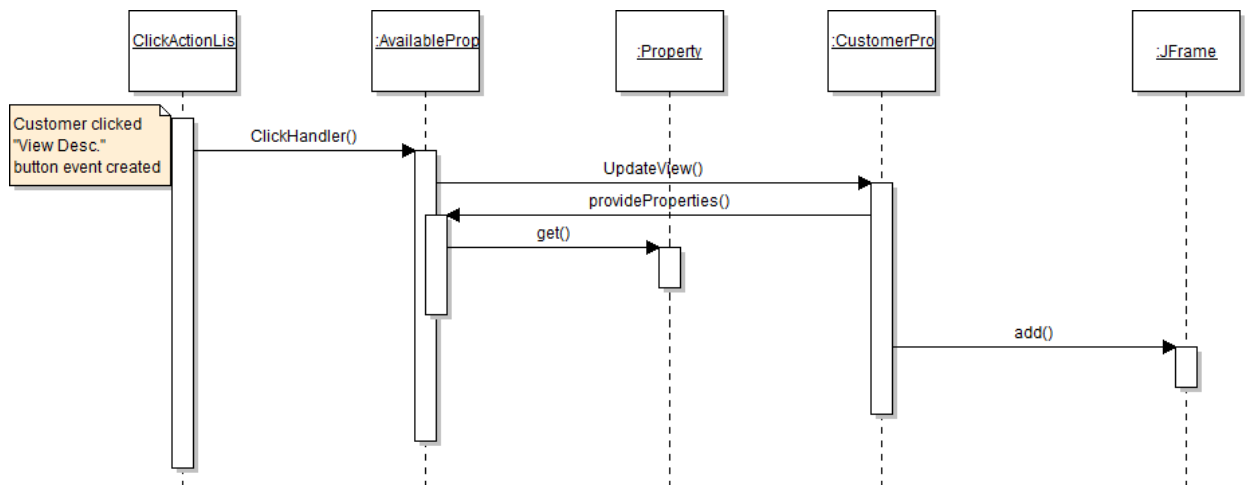
FINAL

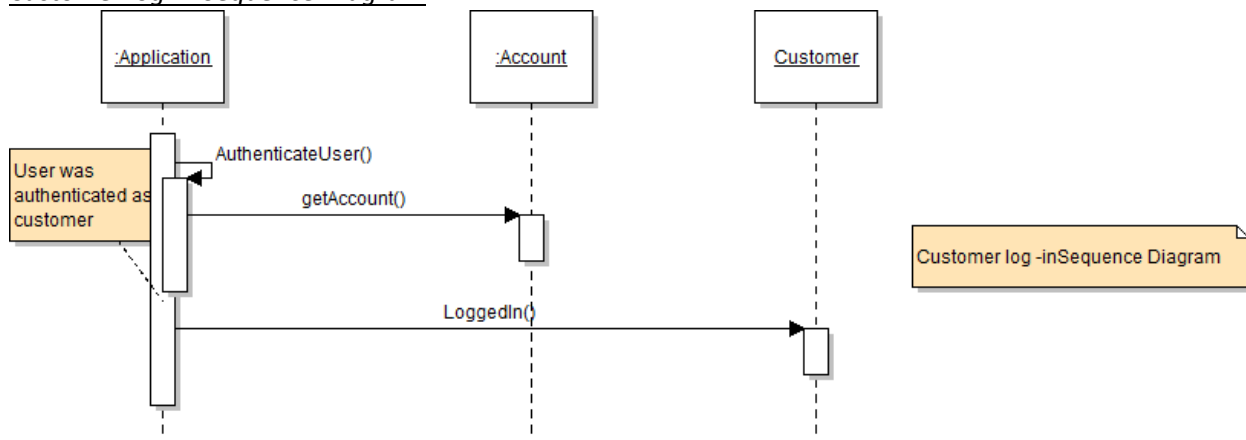*CustomerBrowseProperty(View-Model) sequence Diagram*
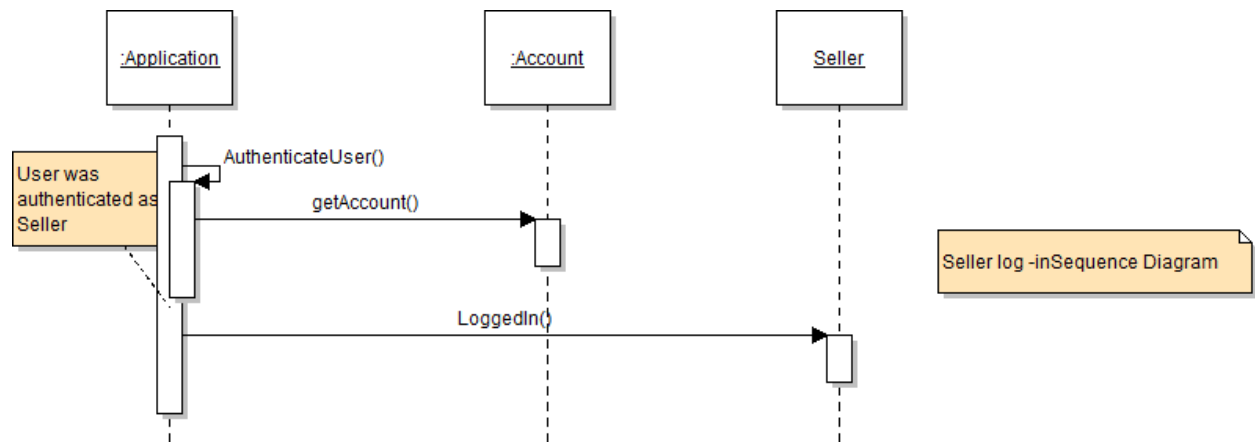
FINAL

CustomerBrowseProperty(Model-View) sequence Diagram

CustomerLog-in Sequence Diagram

SellerLog-in Sequence Diagram

:Application   **:Account**   **Seller**

AuthenticateUser()

User was authenticated as Seller

getAccount()

Seller log -inSequence Diagram

LoggedIn()

SellerReviewsInterestedBuyers Sequnece Diagram

InterestedCus   **InterestedCus**

routeToPage()

Interested Customers are showed
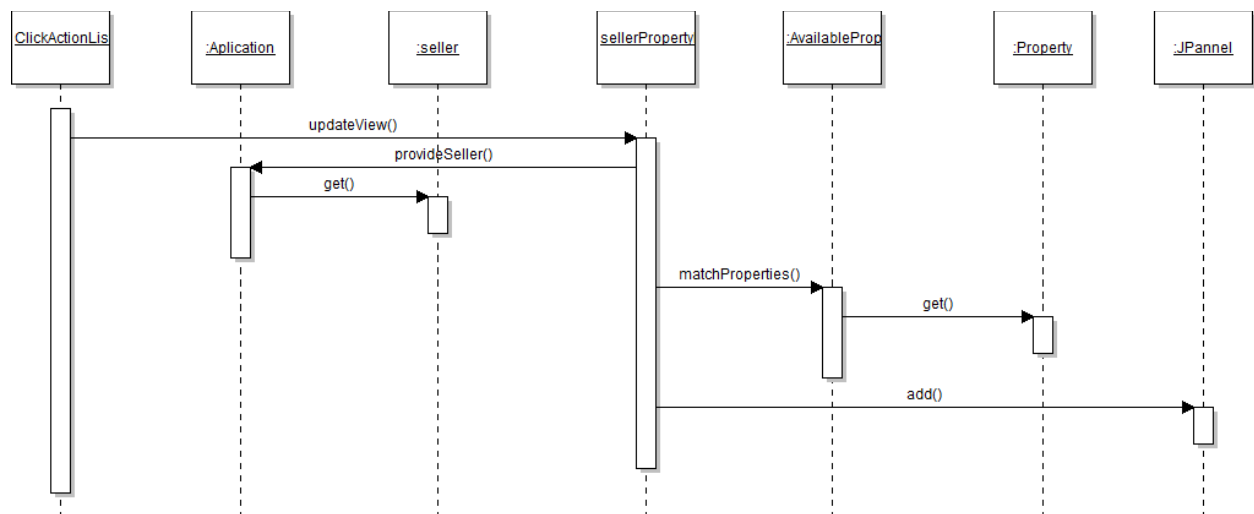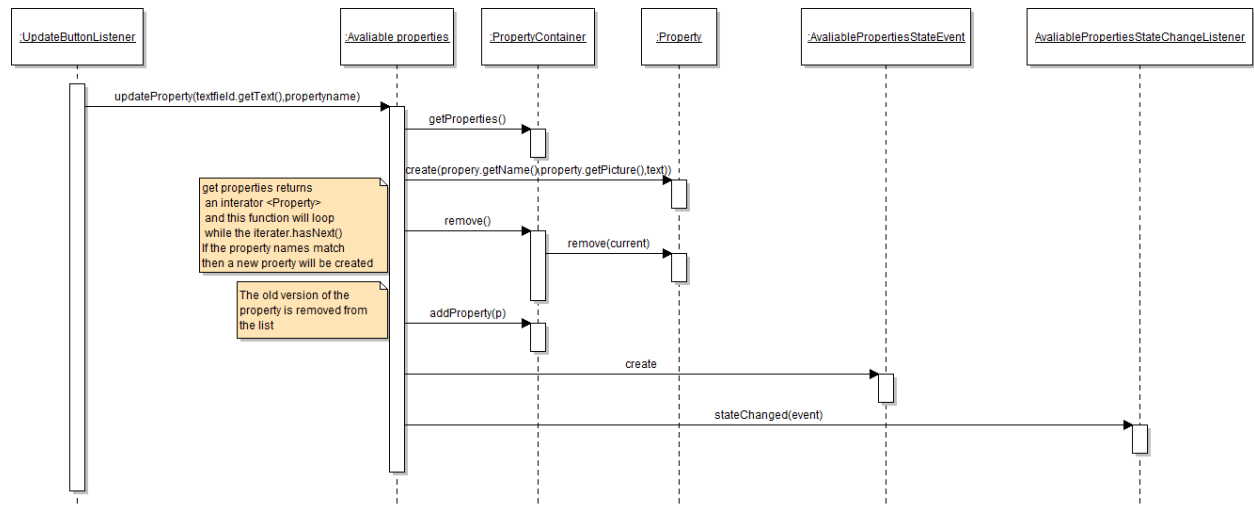
Seller reviewing interesed buyers
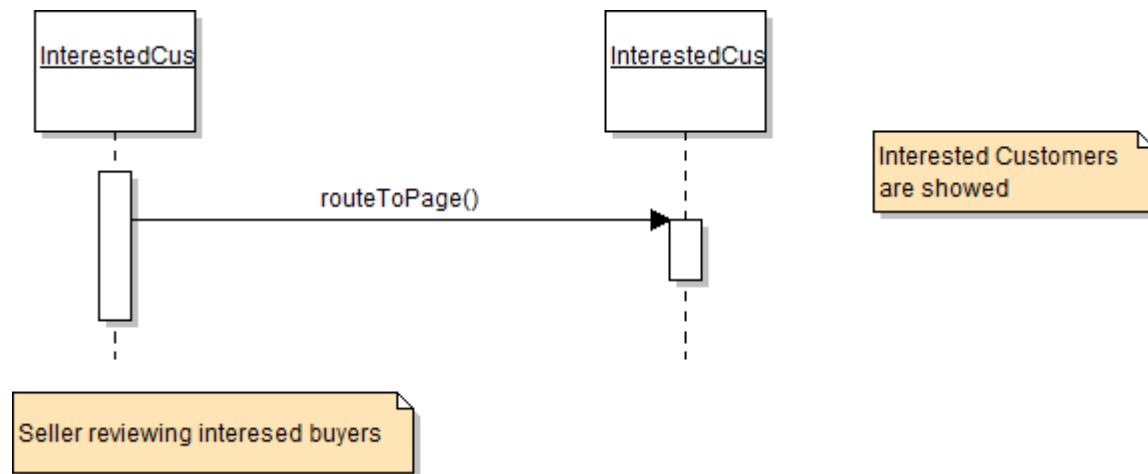
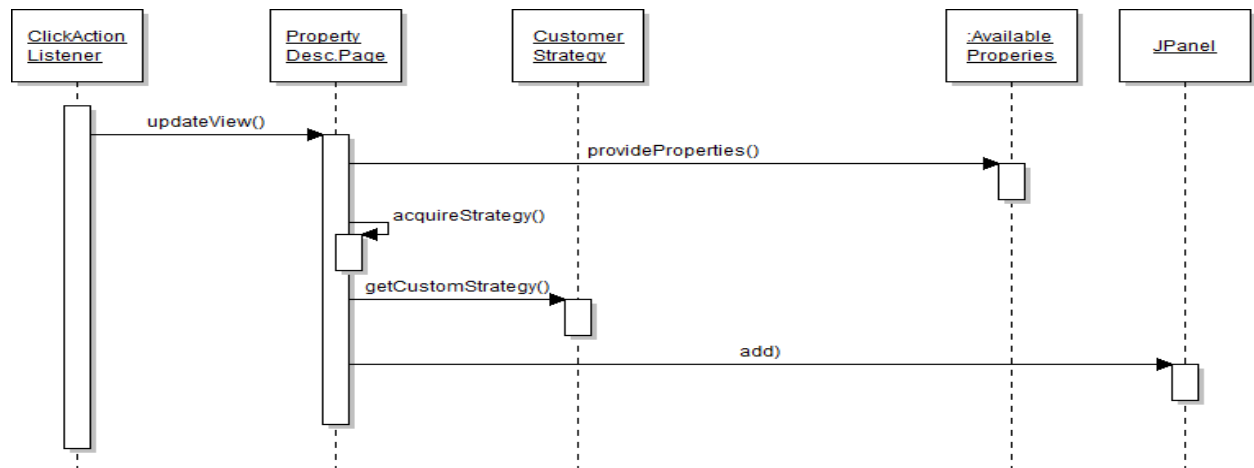## Seller Updating Properties Sequence Diagram(Model-View)
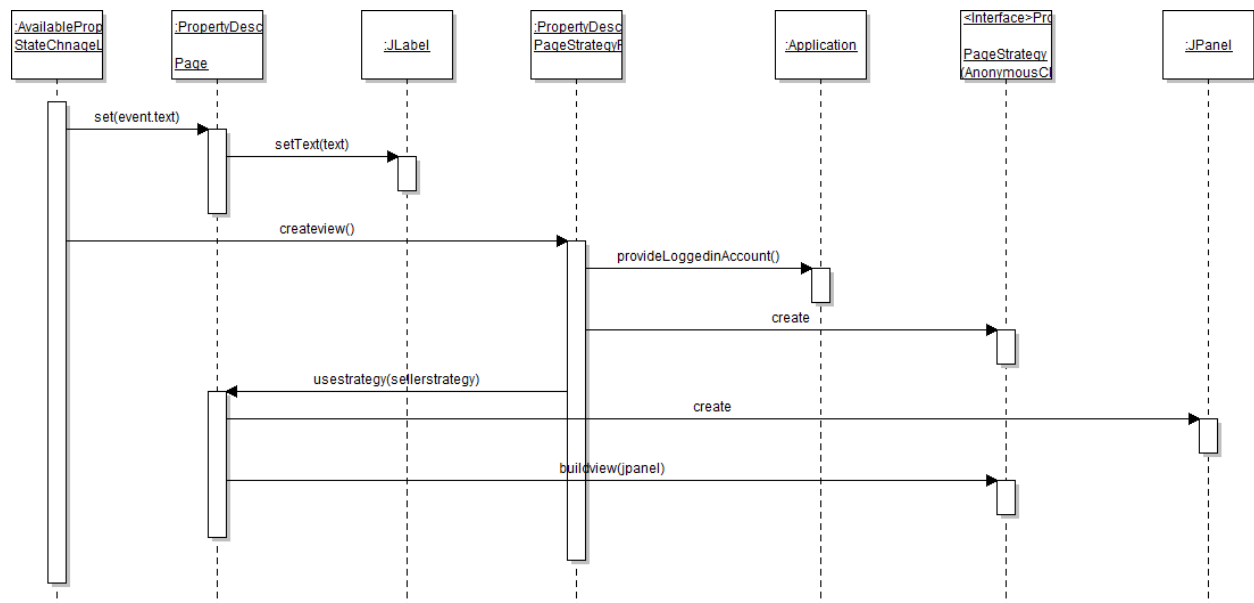
SellerViewsPropeties(Model-View)

SellerUpdateProperties(View-Model)

CustomerViewingDescriptionPage(Strategy(Model-View))

State Diagrams

Account State Diagram

Account State

User is clicking sign up — User checks seller or buyer → Displaying textfields to enter information

Displaying textfields to enter information — User enters information → Creating account

Customer State Diagram

Customer State

User Loging in — enter credentials → User logged in → Browsing properties page — Press view button → Viewing description

Viewing description → adding to favorites

adding to favorites → Contacting seller

Contacting seller — Press avalible properties button → Browsing properties page

Contacting seller — user presses logout → User Logged in
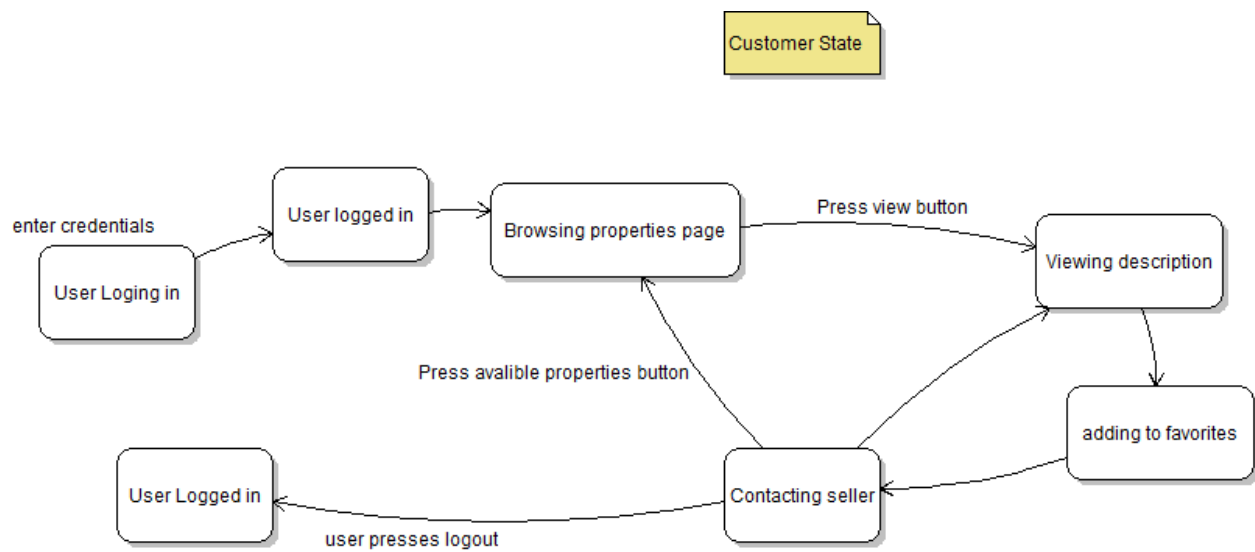
Favorites State Diagram

Favorites

Customer viewing favorites

Customer clicks add to favorites button

adding property to favorites   Customer clicks favorites button

displaying favorites
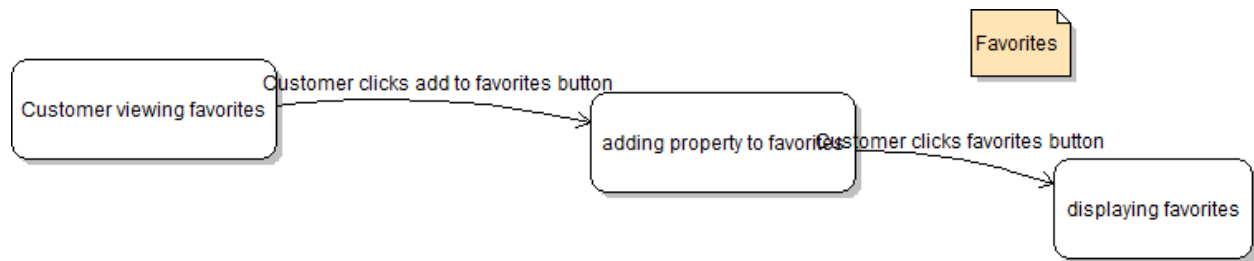
Interested Customers State Diagram

Interested Customers

Customers viewing properties

User clicks add to favorites

Customer clicks favorites button

Adding property to favorites

viewing favorites

Customer clicks contact seller

Customer is added to Interested Customers list

Seller State Diagram

Seller State

User Logging in

enter credentials

Seller logged in

Viewing list of properties

click view on a property

Click interested customers

Viewing interested customers list

Updating a property   Clicking update button

Viewing a specific property

Press Log out button

Seller logged out

GUI

(Customer)

Avaliable Properties	favorites	Log Out

Avaliable properties

_____ | View DESC.

_____ | ☐

_____ | ☐

_____ | ☐

(Customer)

NAV

Property description

| pic |
text

_____

_____

_____

| Add to favorites |

(Customer)

NAV

favorites

_____ | Contact Seller

_____ | ☐

_____ | ☐

_____ | ☐

Login / Sign Up

Login:

Username: [_____]

Password: [_____]

| Sign up | | log in |

Sign up

Choose a username: [_____]

Enter password: [_____]

Enter password *again: [_____]

Check if you are a seller [Sign up]

☐

* More text fields

(seller)

Property Listing	Interested Customers	Log Out

Interested Customers

name: phone:

_____ _____

_____ _____

_____ _____

_____

(seller)

NAV

Update property

Pic   Change pic

[   ]

edit

(seller)

Property Listings	Interested Customers	Log Out

Properties

_____ View

_____ [ ]

_____ [ ]

_____ [ ]

_____ [ ]

⋮   ⋮

(seller)

Property Listings	Interested Customers	Log Out

My Property Information

text Pic

_____

_____

_____

_____

update