SW Engineering CSC648/848 Fall 2018
Fulda Buy & Sell (FBS)
WS2018_FD #3
Milestone #2
November 15, 2018

Version	Modification Description	Date
1.0	Document creation	November 8, 2018
1.1	Document modification	November 15, 2018

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Competitive Analysis

Features	Planned	Amazon.de	OLX.com	wg-gesucht.de
User Registration and Authentication	✔	✔	✔	✔
Posting item	✔	✔	✔	✔
Category Management	✔	✔	✔	✔
Search for item	✔	✔	✔	✔
Admin Approval to Post	✔	✔	✔	✔
Financial transactions are done face to face and not via the system	✔	✘	✔	✔
Items can be saved to wish list	✔	✔	✘	✘
Discount and Promotion Management	✘	✔	✔	✘
Call Seller	✘	✘	✔	✔
Order Management	✔	✔	✔	✘
Buyer Feedback	✔	✔	✘	✘

Data Definitions

User :
User is a generic term used for all the types of users accessing the application. Sellers,Buyers,Guest Users are categorised under User entity with multiple access roles and interfaces. A user entity must be provided with all the required information and a particular role assigned to it. Every particular user is identified with a particular identity.

Buyer: Buyer is another category of user who visits the sites ,registers himself on the site as a Buyer and then later he can browse or search through all the products available there on the site provided by the seller.Buyer is supposed to buy and like the products.After buying the products he can also provide the rating for the sellers

Seller: Seller is someone who has a role assign to keep products out for sale.User shall be proved by admin and products of user should be approved by admin to make sure we have genuine products on the site.Sellers are rated by buyers

Username: Username is a unique name assigned to a particular user and stored in Database.The basic purpose of username is to identify multiple users with multiple role as unique one so that no user is replicated

Password: Password is one of the fields which is stored in encrypted format.It is one of the things a user can update through their profile feature.

Profile: Profile is a combination of all the details of a user along with their roles assigned.All the details like username,email,contact number ,address will be visible here on this page.A user can edit or update his profile.He can also delete his profile in that way.Every user goes through a screening process of its profile.

Rate: Rating feature is feature basically for sellers.A buyer gives rating after buying it from a particular user.This enhances and provides ratings to our frequent users.All the ratings will be visible on seller profile.

Wishlist: Wishlist is a bucket list for a user in which he can save items for later purpose.Basically user wishes to buy but he doesn't buys the item at the moment.Wishlist

Category: Categories are meant to categorise products in multiple sections, to which the product belongs.We will have all the basic categories defined be admin and if the user is not available

Product:
Products are here categorised in multiple categories. User is able to search products on the basis of multiple categories. These categories or verticals are added by admin. All the categorisation is managed by admin. Admin has access roles to delete or add a categories. Seller is supposed to add products for selling on the basis of categories only. Admin has access rights to map products to particular categories on the basis of categories while the product is under screening.

Administrator :
Administrator is someone who manages all the roles for different users. Admin is something who gets all the requests to approve for products and all types of users. Admin has manages the whole content of the application.

Order History:
Order history is something which has all the details of a particular order , be it a seller or a buyer they will have their own order history where orders are updated ,cancelled or deleted.Order history also shows when was the order updated.Order history will also have price of orders.Order status will show the current status of order.

Checkout:
Checkout shows the list of products and their pricing,seller details,etc.Checkout gives a total summary of active orders and their pricing the user has finalised to buy.After checkout user will be redirected to a payment success page directly.Here user can change the delivery address and their desired payment options.

Use Cases

Register:
To be able to use the application, a user should define a unique username and password for his/her account along with providing some personal information like telephone number, email and contact number, city etc.

Login:
User should be able to login to the application with a unique username and password that was created when registering. The system validates the credentials entered and the user is taken to the interface of their choice which can be a buyer or seller.

Search for item:
All users of the application should be able to browse through all available items and search for a specific item by name or category.There are multiple categories for a product and searching for a product is much of categorising as per the requirement of the buyer.

Post item :
All the items that are available for sale can be posted by a Seller. When posting an item for sale, all necessary information must be provided. This information should include the condition ,an image, price, category and the description of the item.

Contact Seller:
Any buyer who is a registered user and is interested in a particular item on the site can contact the seller.The seller information is already available and seller can be contacted via email (not via the website) and contact number

Approve item:
Before being officially posted to the website, the Admin user must review the content and images of the item being posted and decide whether it meets the requirements by approving the item or rejecting it.

Add to Wishlist:
User will be able to add a product to their wishlist if they are interested

Rate Seller:
After purchasing a product, the buyer is able to rate the seller

View Order History:
Buyers are able to view a history of the products that they had purchased and Sellers are able to view a history of the products that they had sold

Checkout:
Buyers are able to finalize their orders by checking out the items that were added to their wishlist

Functional Requirements

1. Users shall register for the website *(Priority 1)*
   1.1. By clicking on the sign up button
   1.2. User will see a signup or registration form
   1.3. The user will provide the basic information like email, username and password to get register on our website
   1.4. Every guest user can visit and register on our website by providing his/her information

2. Users shall be able to login *(Priority 1)*
   2.1. After successfully registration, user will provide his username and password to login to our website
   2.2. Our backend functionality will check the credentials provided by the user. If username and password matches and exist in our database , the user will be redirected to the landing page; otherwise the user will be prompted to enter the correct credentials

3. Users shall be able to change the language of the system *(Priority 3)*
   3.1. The user can select any option from a list of different languages
   3.2. The language which the user will select ,our website will be translated according to that language

4. Registered users can post a product for sale *(Priority 1)*
   4.1. Seller will be able to post a product by entering all the required data in the form

5. Seller shall be able to maintain/modify the product details before it has been approved by the admin *(Priority 2)*

6. Buyer shall be able to search products *(Priority 1)*
   6.1. Buyer is able to search for a product via the search bar by the title or category
   6.2. The products with matched keywords will be shown to the user

7. Buyer shall be able to view the seller's details for contact *(Priority 1)*
   7.1. Buyer can click on the contact seller button to see the contact information of the seller

8. Buyer shall be able to rate seller *(Priority 3)*
    8.1. The buyer can rate the seller via the contact seller module by clicking the stars

9. Buyer shall be able to put an item in a wishlist *(Priority 2)*
    9.1. Buyer clicks on the add to wishlist button via the product page. These products can later be seen in the wishlist page.

10. Admin shall be able to approve the product on the basis of content *(Priority 1)*
    10.1. The admin will approve, remove or add a product as 'featured' on the home page.

11. Admin shall be able to maintain users *(Priority 2)*
    11.1. Admin is able to disable users

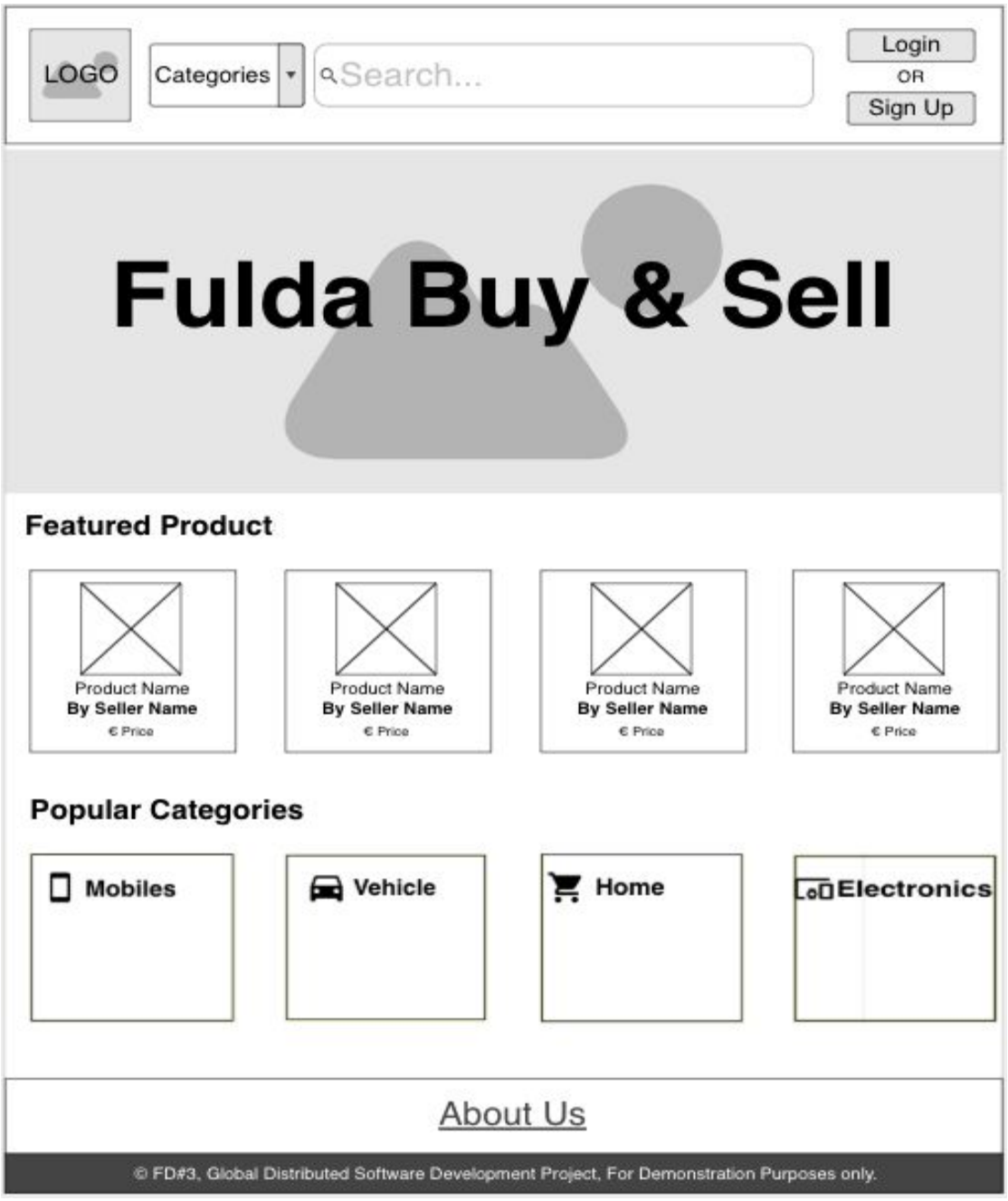
12. User shall be able to finalize their order by checking out the items in their wishlist (Priority 1)

13. Users shall be able to view a history of orders whether bought or sold (Priority 2)

Priority	**Functional Requirement No.**
1 - must have	1, 2, 4,6,7,10, 12
2 - desired	5,9,11,13
3 - opportunistic	3,8

UI Mockups and Storyboard

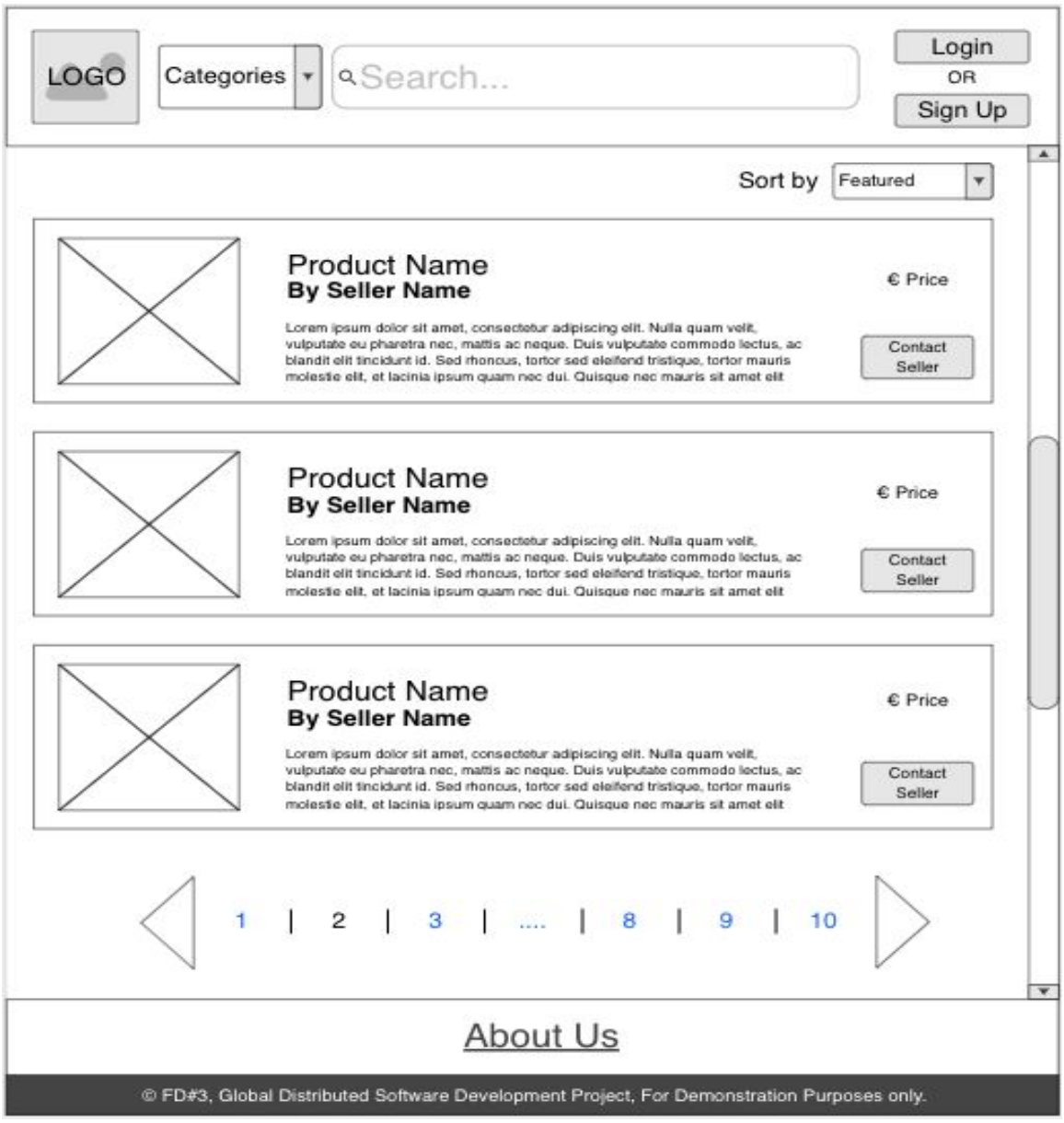
Landing Page



The landing page gives the user the ability to browse for products via the search bar or view by popular categories. In addition, the user can go to the registration and login page from here.

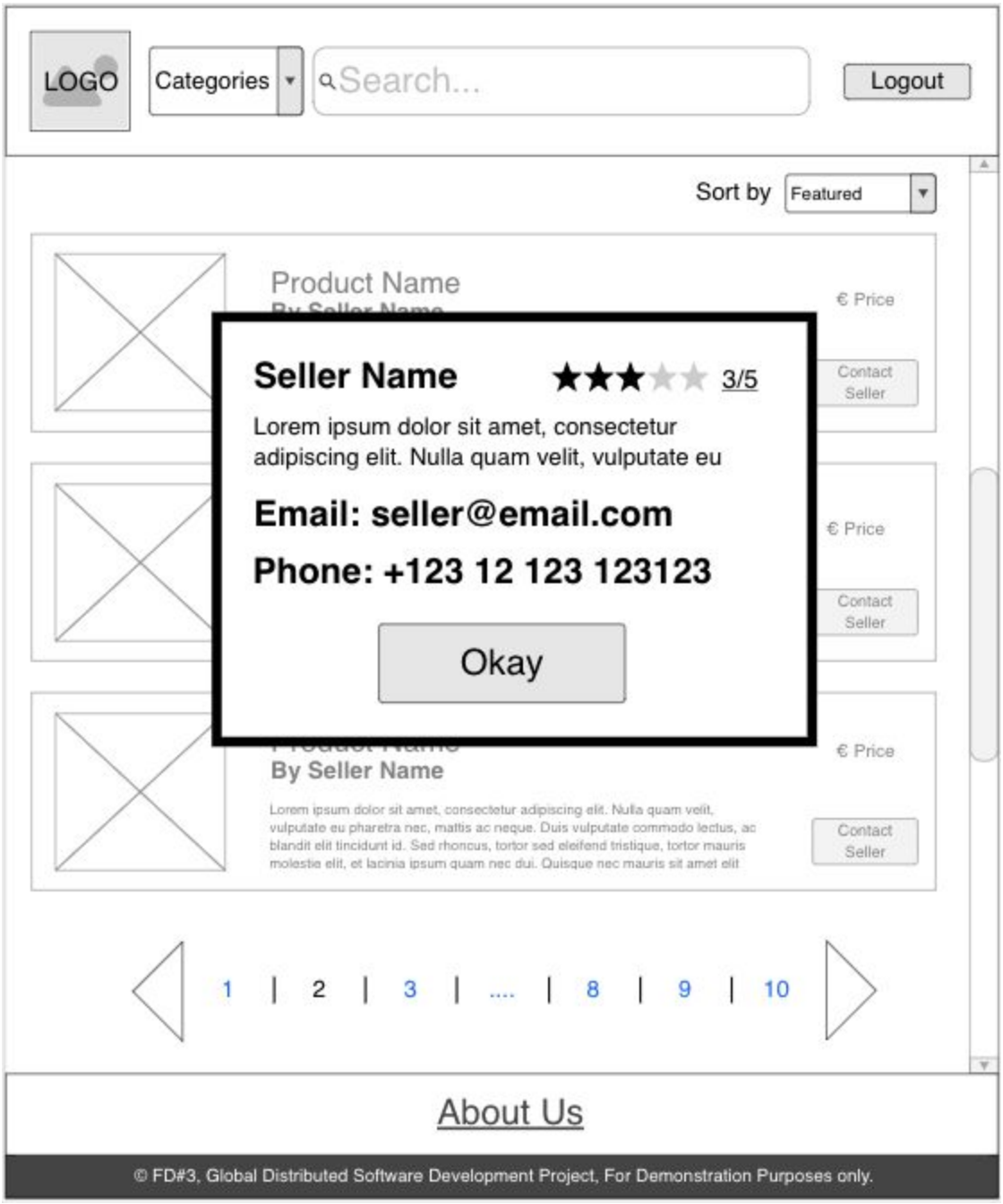
Landing Page (Logged In)

Search Results



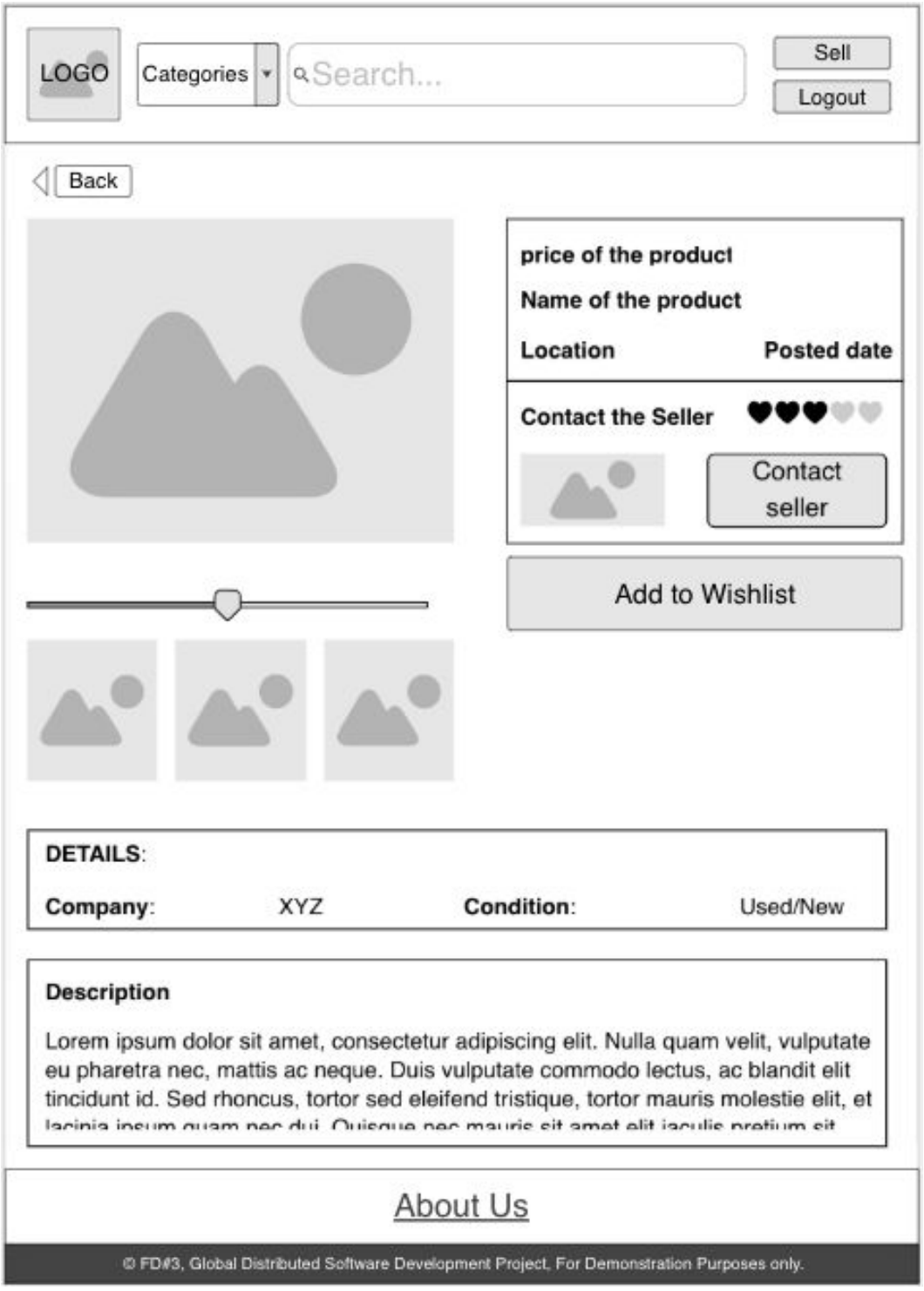
This page displays all the products that were derived after utilizing the search bar feature. The product name, description, price, seller name and contact information is also displayed. The user has the ability to sort by various options.

Contact Seller from Search Results



By clicking on “Contact Seller” , the user is able to see seller details for contact.

Product Page

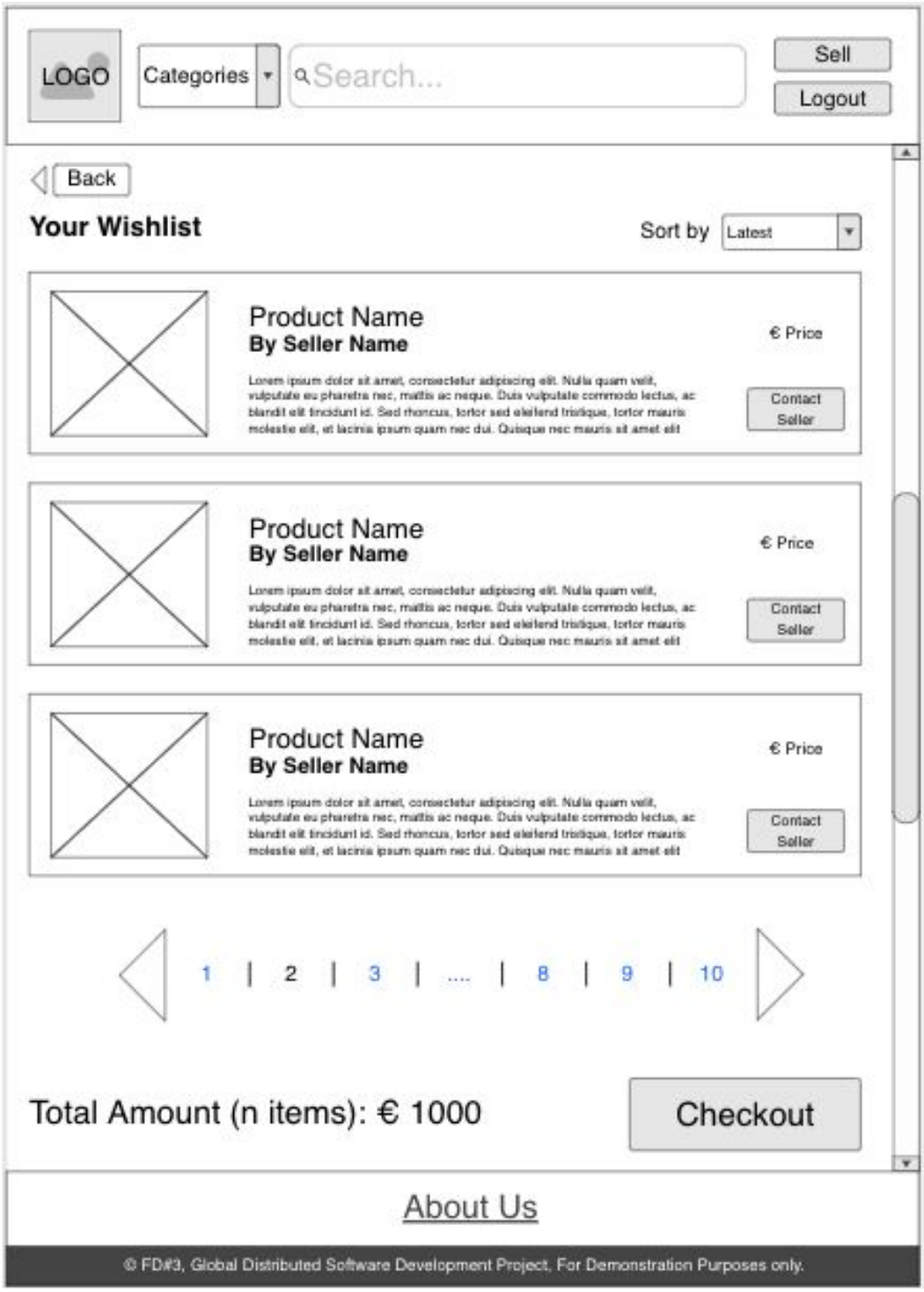


The buyer can see various information about the product on this page such as images, location, description, condition, date posted, seller information etc. Additionally, the user is able to add a product to the wishlist via this page.

Contact Seller from Product Page

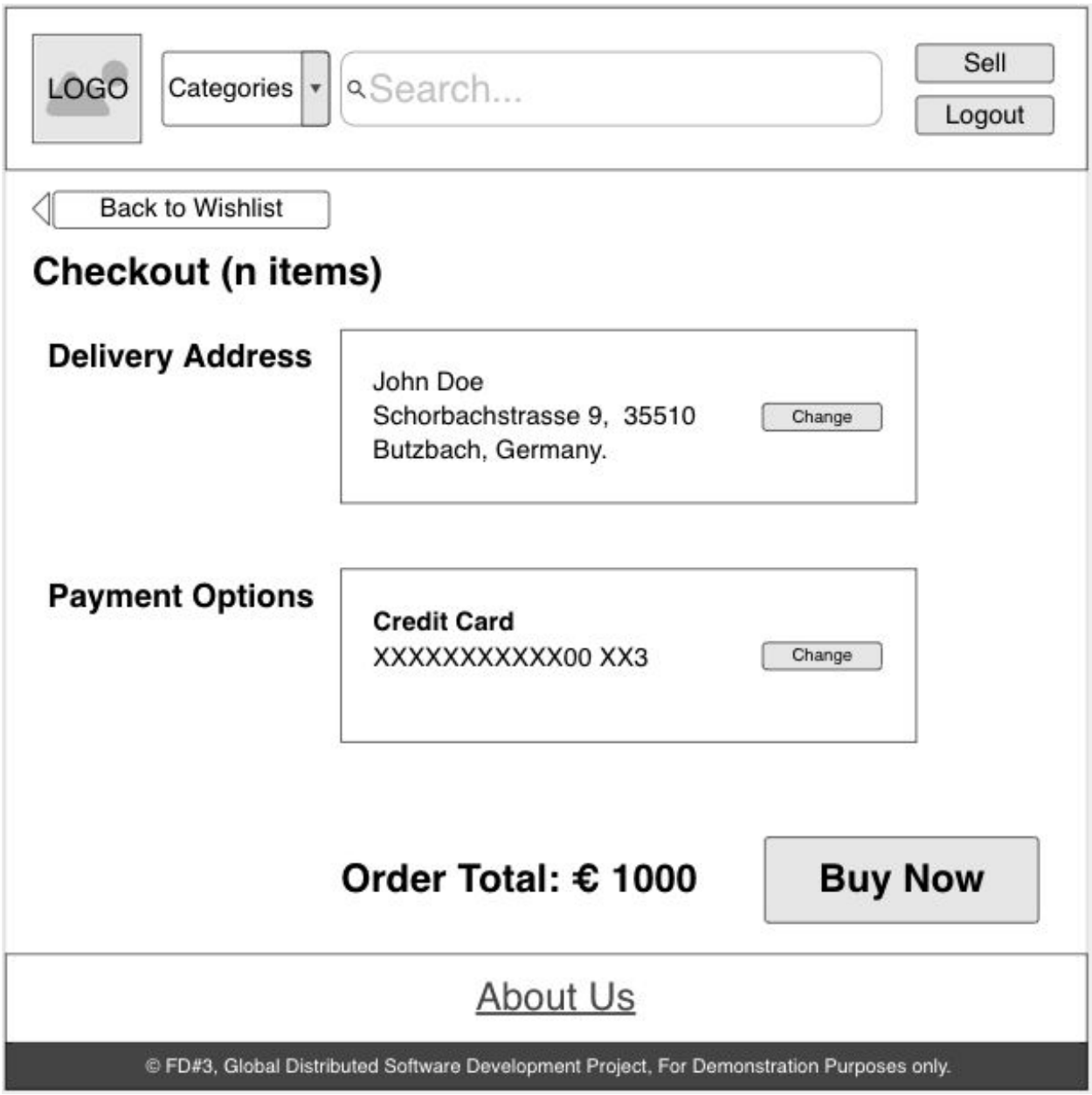
By clicking on “Contact Seller” , User is able to see seller details for contact.

Wishlist

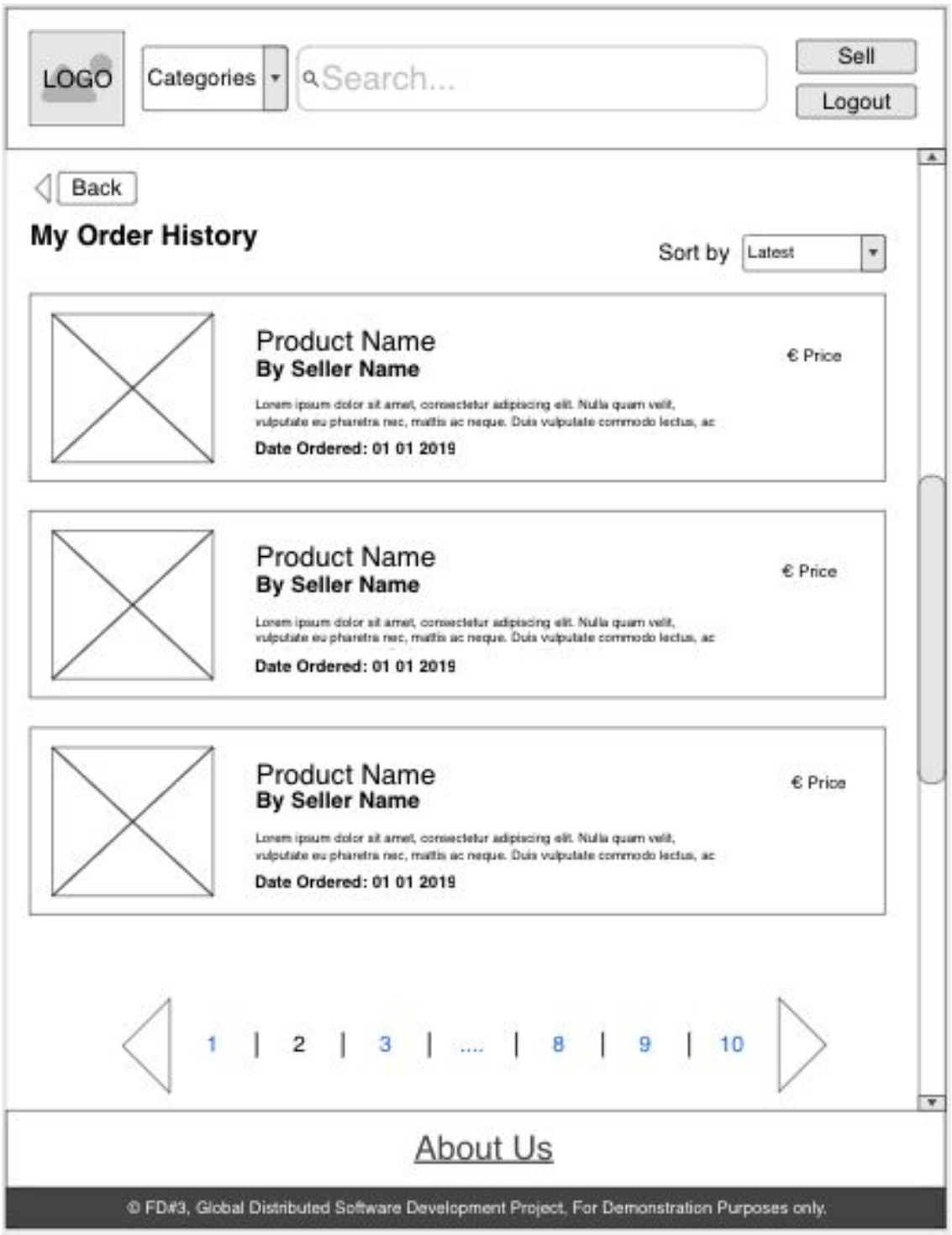


This page displays all the products and their details that the buyer previously added to their wishlist.

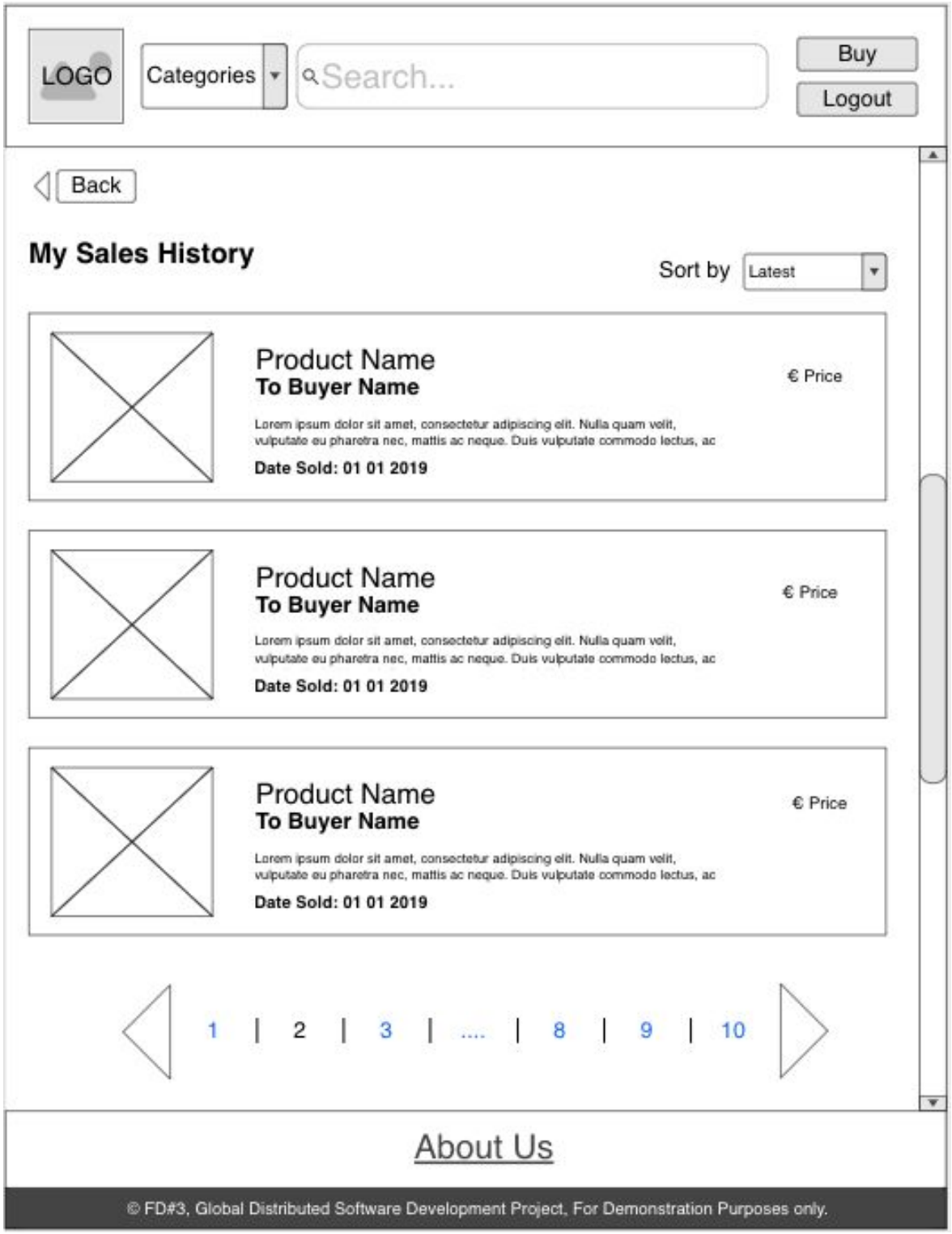
Checkout



Order History



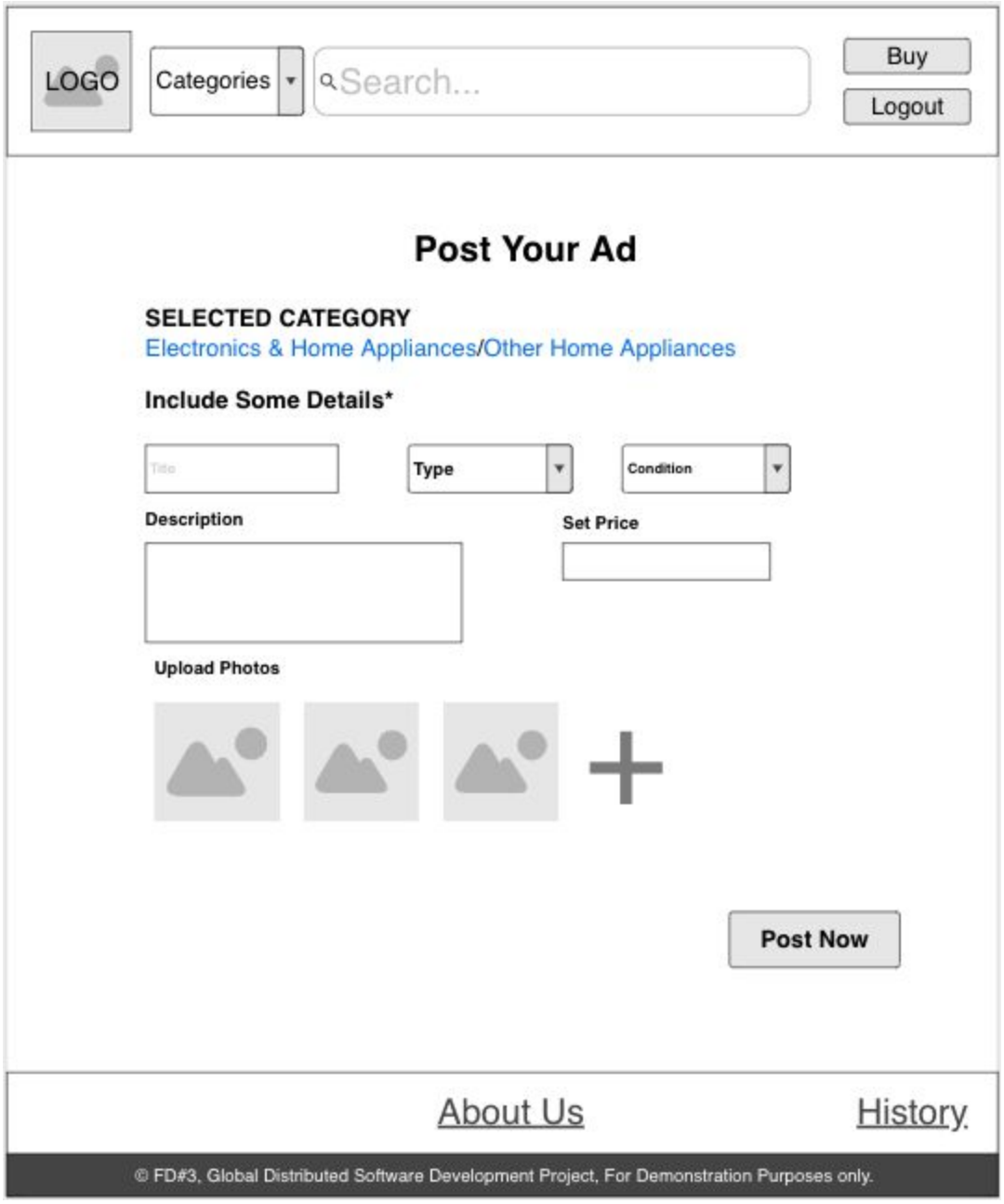
Sales History



Sell Product

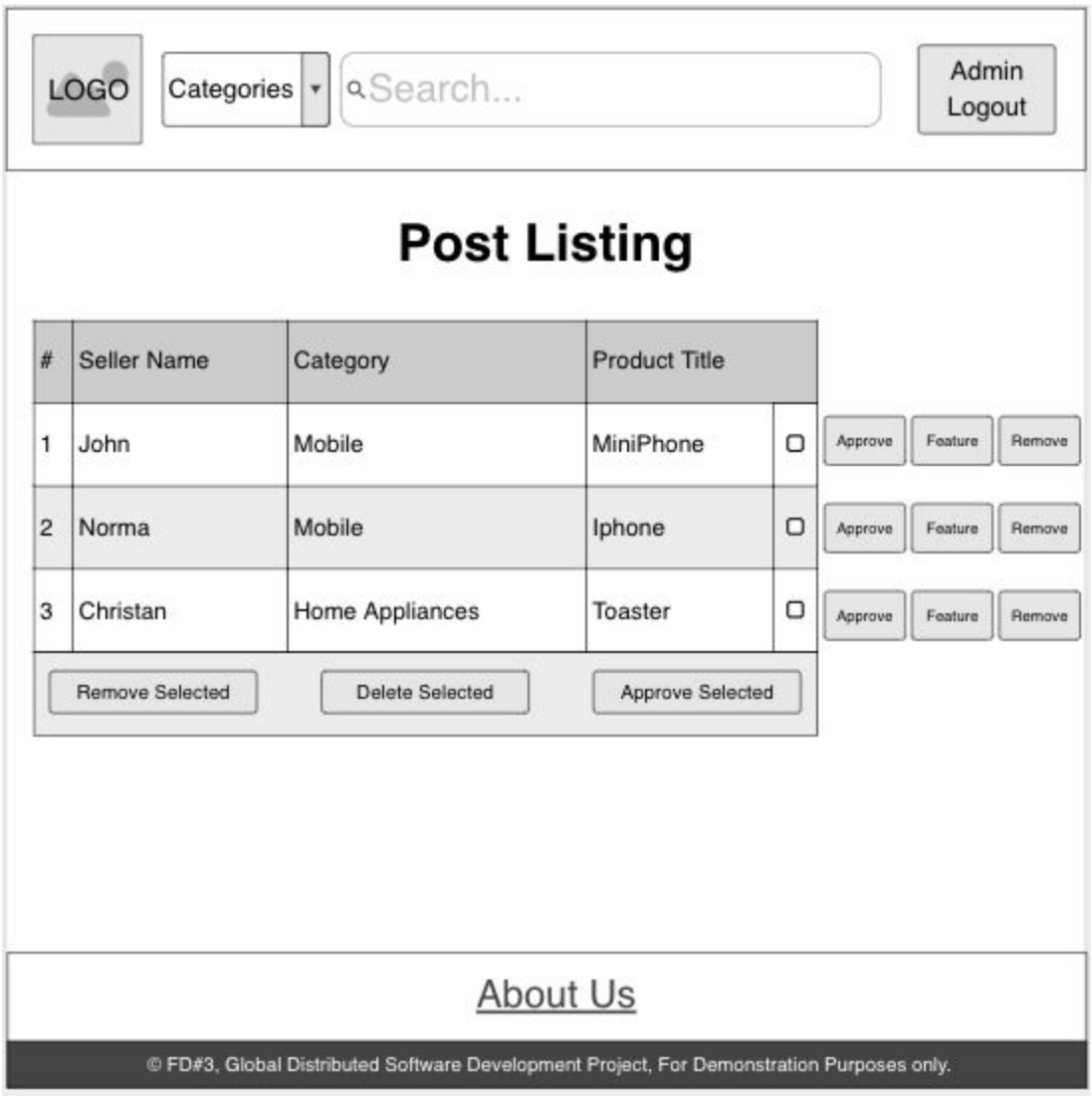
Seller can add Products he want to sell from this page. The title and category is added and the user clicks next to proceed to the next page.

Sell Product Details



This page is the second step of adding a product. Here more details such as price, description and images are added.

Approval of product posting



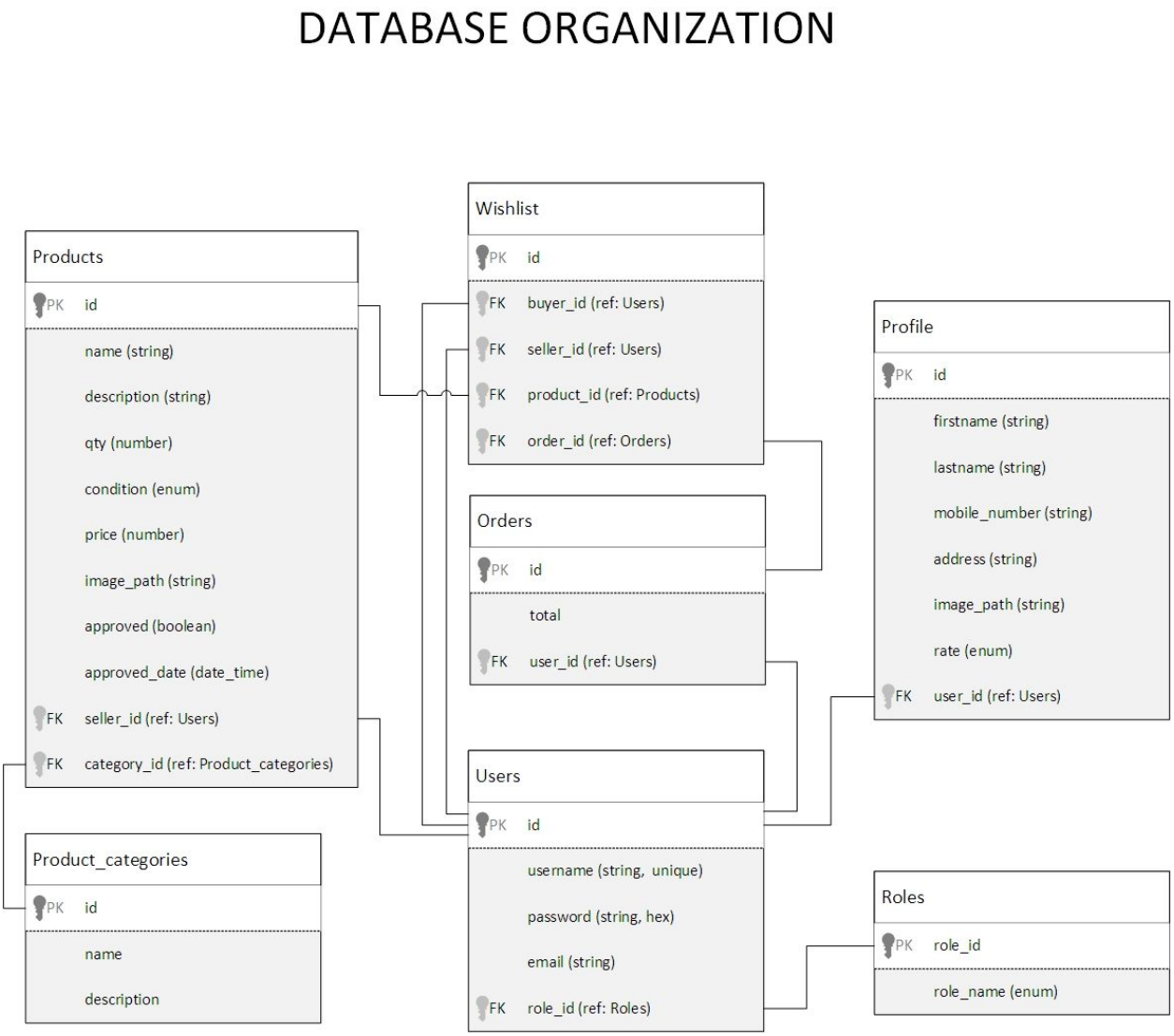
This page is only accessible by the administrator. Here the administrator will see the products that are pending to be posted to the website. He has the ability to approve, remove and add the product as a 'featured' on the landing page.

Rate seller via the contact seller interface

Buyer can see the seller details and later on he can come here and can rate the seller,if he/she is satisfied by clicking on the stars that are next to the seller's name.

High Level Architecture & Database Organization

Database organization:



Media storage:

Images will be kept in file system instead of DB BLOBs. The image will be uploaded to an 'upload' folder using Multer, a node.js middleware for multipart/data. The path of the image will also be stored in the database.

Search/filter architecture and implementation: what will be the alg/SW for search;

how will you organize search items for the user; what DB terms will be searched, how it will be coded and organized in the DB (check instructors' suggestions in the class. OK to use SQL and %like).

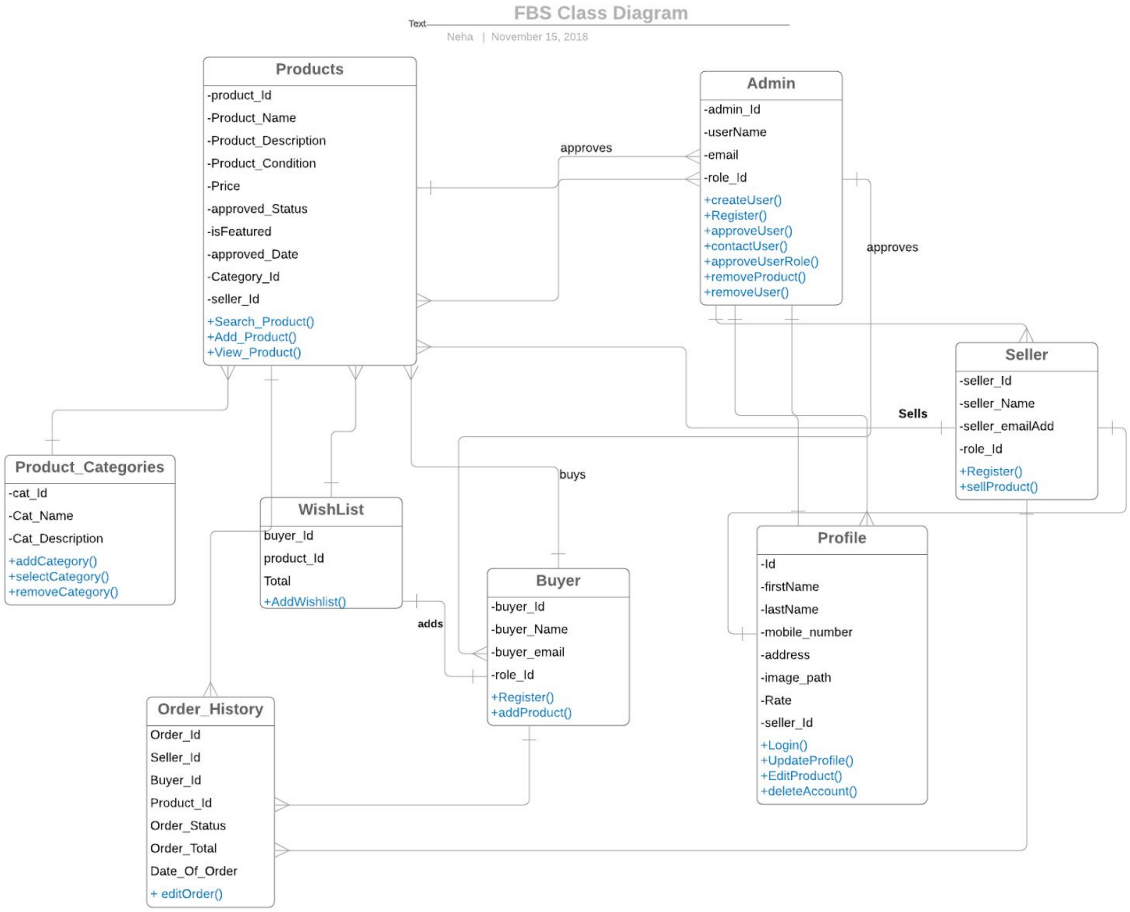
We will be utilizing MongoDB Full-Text Search. This allows us to define a text index on fields of our choice (title, description, category). The text content of these fields are stem, the database is tokenized and then the indexes are set up accordingly. A text operator is used to search the documents and a textScore expression is used to indicate relevant matches.

Additional SW tools and framework:

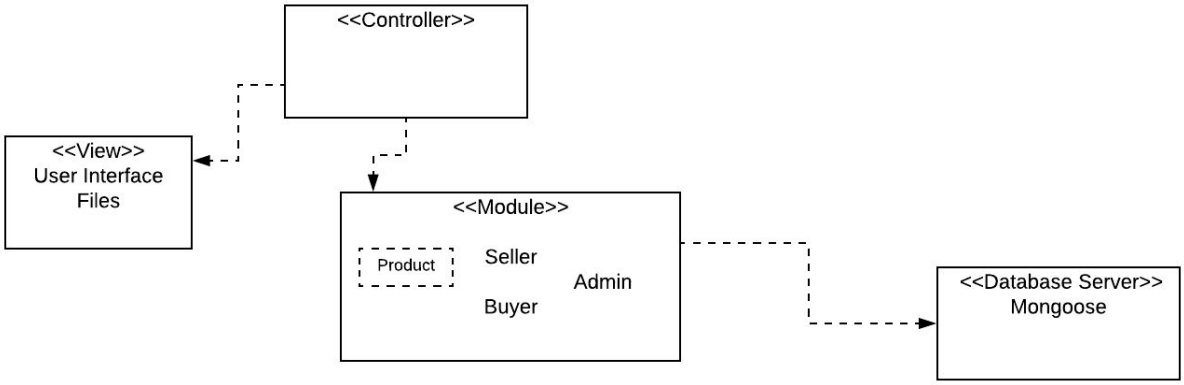
Note: change of database from MySQL to MongoDB

High Level UML Diagram

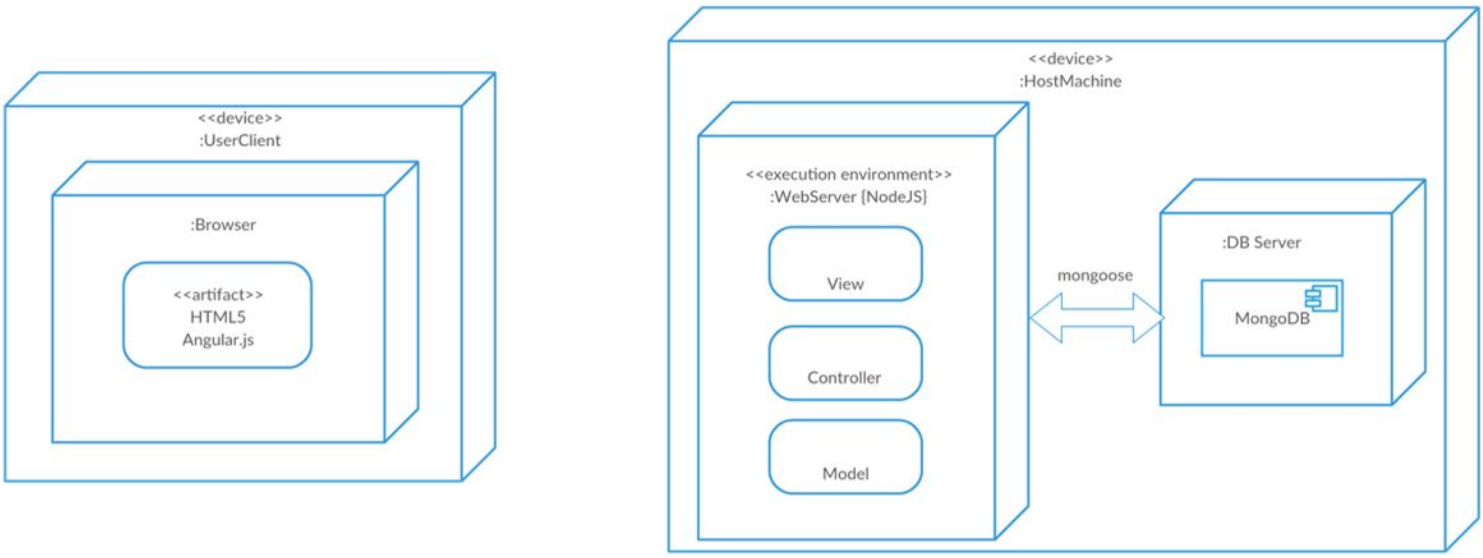
UML Class Diagram:



UML Component Diagrams:



Deployment Diagram:



Actual Key Risks

Skill risks: - The team consists of 6 members; however, only two back-end programmers are proficient in Node.js. The other 4 members are currently learning how to use this. Three members of our team are very familiar with front-end design; however, we will be using Angular. and they are not very familiar with it so they are also learning how to use this framework.

Schedule Risks: - Considering the heavy workload of other courses, we believe that we will be able to completed Priority 1 and 2 requirements. We will attempt to complete Priority 3

Technical Risks: - Pushing the same code from local machine to server sometime makes problem with requirements, some of which needs more time than expected to solve the issues.

Teamwork Risks: - Sometimes it is difficult to physically meet as a team due to different schedules and part time jobs.

Legal/content Risks: - Content and SW can all be acquired legally. All SW and frameworks being used are all open source.