

FINAL REPORT SOFTWARE ENGINEERING
DIA2 Team 06

CRUX STORE – ONLINE PET NUTRITION



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ABSTRACT

The purpose of the Crux Store is to provide healthy cat and dog nutrition. Therefore, we provided a wide range of dog & cat nutrition with several filter options to search more easily and faster. What differentiates the Crux Store from other animal nutrition websites is that we provide organic, healthy and quality food with transparency for our customers. Customers can first choose whether they want to have a look into the cat or the dog collection and afterwards, they can select items to be remembered as well as to check out directly and be linked to the payment methods.

Dogs and cats are among the most popular pets in the world, and the market for their food and accessories is expanding quickly. Dog or/and cat owners may shop for their pets' needs in a simple method by ordering pet food and supplies online. There are several internet vendors who provide a huge selection of dog or cat food, medications, and supplies. The supplies needed for their pets may be found in a range of online pet food, which cater to pet owners.

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1. Introduction

1.1 Goal

Many people have traditionally seen shopping as a kind of recreation. Online shopping is not an exception. This project's objective is to create a web-based user interface for online shops. The technology would be simple to use, which would improve consumers' purchasing experiences. The goals of this project are:

- To develop an easy-to-use web-based interface where users can search for products, view a complete description of the products and order the products.
- A search engine that provides an easy and convenient way to search for products specific to their needs.
- The search engine would list a set of products based on the search term and the user can further filter the list based on various parameters.
- A wish list is provided for the users to add their favourite products on the list which they can further add to the cart or remove.

1.2 Need of the project

There are large numbers of commercial Online Shopping websites offering large number of products tailored to meet the shopping interests of large number of customers. These online marketplaces have thousands of products listed under various categories.

Problems:

- The basic problems with the existing systems are the non-interactive environment they provide to the users.
- The use of traditional user interfaces which make continuous post backs to the server; each post back makes a call to the server, gets the response and then refreshes the entire web form to display the result. This scenario adds an extra trade off causing a delay in displaying the results
- A search engine that would display the results without allowing the users to further filter the results based on various parameters.
- Use of traditional and non-user-friendly interfaces that are hard to use.

Solution:

- The motive of this Online Shopping Web is to allow the user to play with the search tool and create different combinatorial search criterion to perform exhaustive search.
- Provide Interactive interface through which a user can interact with different areas of application easily.
- A search engine that provides an easy and convenient way to search for products specific to their needs. The search engine would list a set of products based on the search term and the user can further filter the list based on various parameters.

1.3 Scope

- The current system can be extended to allow the users to create accounts and save products into wish list.
- The current system is confined only to the shopping cart process. It can be extended to have an easy to use check out process.
- A database of merchandise with photos, product descriptions and price.
- Users can have multiple shipping and billing information saved. During checkout they can modify their products and proceed to select shipping and billing information.

1.4 Software Requirement Specification (SRS)– Deployment

1.4.1 Hardware Specification

Processor: Intel dual core or above

Processor speed: 1.0GHZ or above

RAM :1 GB RAM or above

Hard Disk :20 GB hard disk or above

1.4.2 Software Specification

Operating Environment Win 2000/XP Platform .Net Framework & IIS Visual Studio 2008 Database SQL Server 2005, NodeJS windowsinstaller.msi 64bit,

Operating System: Any OS

Programming Language: PHP, MySQL, CSS, HTML

IDE: Visual Studio

Database Server: MySQL

1.5 FOUR Phases:

- Determination of cycle objectives: Creating a website exclusively for dogs and cats
- Risk analysis: Testing at every phase, documentation of every change and its outcomes.
- Development and verification of the chosen solution: Created a timeline to track project progress and communication between members via Gantt
- Review of results and planning for the next cycle: Follow up on project phases and use the Gantt as a guide.

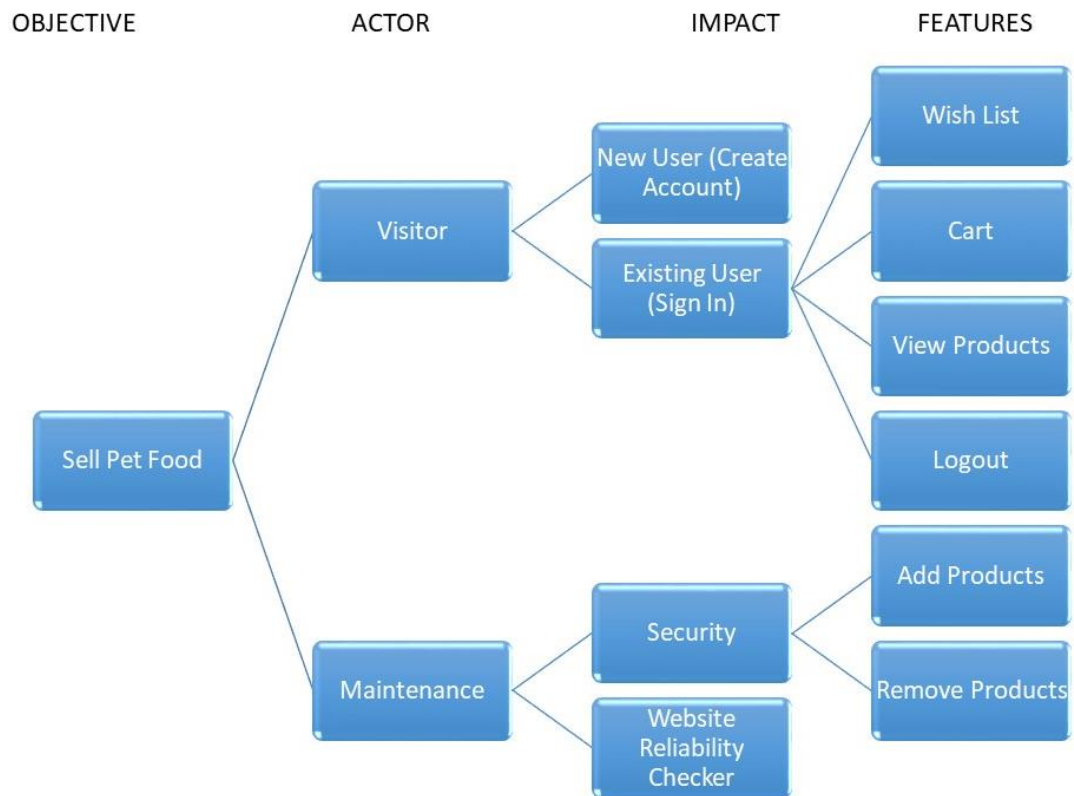
1.6 Functional Specifications

1.6.1 Functional Requirements

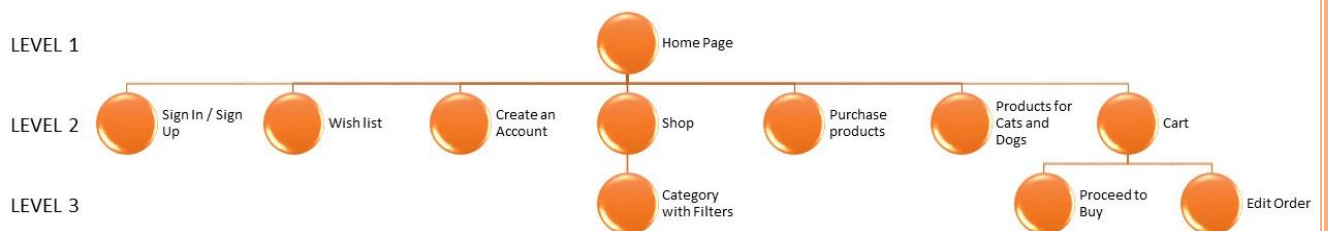
Implementation is the stages of project when the theoretical design is turned into a working system. If the implementation stage is not properly planned and controlled, it can cause chaos. Thus, it can be most crucial stage in achieving successful new system and in giving the users confidence that the new system will work and be effective. Normally this stage involves setting up a co-ordination committee, which will act as a sounding board of ideas, complaints and problems. The first task is implementation planning ie; of the methods and time scale to be adopted. Apart from planning, the two major task of preparing for implementation are education and training of administrator and testing of the system. After the implementation phase is completed and the user staff adjusted to the changes created by the candidate system, evaluation and maintenance is continuing to bring the new system standards. The activities of the implementation phase can be summarized as:

- Implementation planning.
- Education and training
- System training

1.6.2 Functional Scope



1.6.3 Tree Structure



2. System Analysis

By the end of the analysis process, we had created two significant diagrams after thoroughly examining the needs and functioning of the online application. The ER diagram and data flow diagram served as the basis for identifying entities, their relations, and the information flow.

2.1 USE CASE DIAGRAM

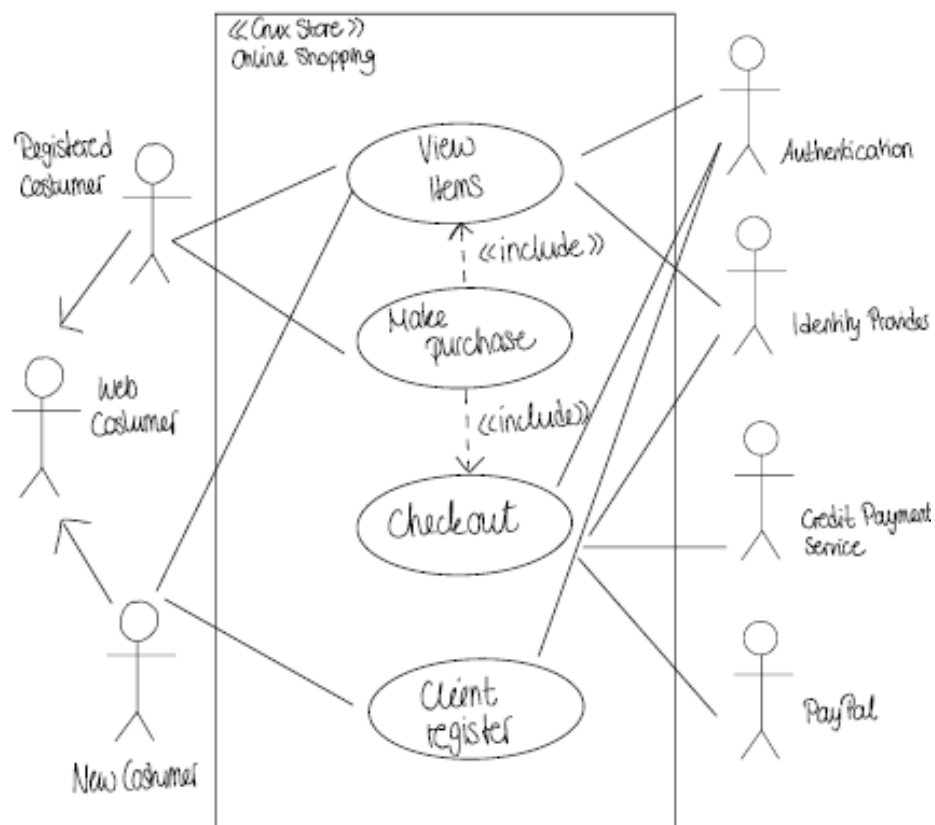


Figure 2.1 Use Case Diagram

Web Customers are actors who are online shopping on the Crux Store to buy Nutrition for their pet and therefore making purchases online.

- Top-level use cases are View Items, Make Purchase, and Client Register.
- View Items use case could be used by customers as a top-level use case if the customer only wants to find and see some cat/ dog nutrition products. This use case could also be used as a part of the Make Purchase use case.
- Client Register use case allows customers to register on the website, for example, to get some coupons or be invited to private sales. In addition,

registered users will have a faster checkout and the selected food for their pets will be memorized.

- Note, that the Checkout use case is an included use case and therefore not available by itself - checkout is part of making a purchase.

2.2 SEQUENCE DIAGRAM

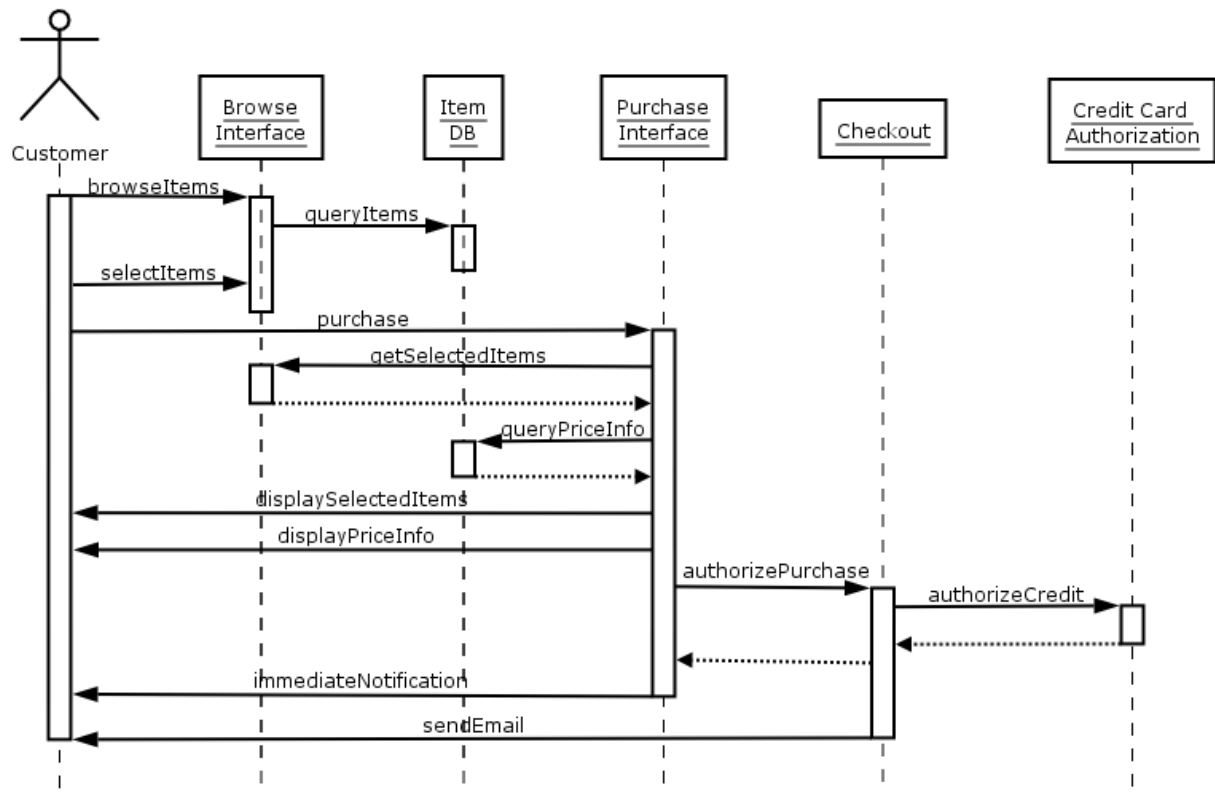


Figure 2.2 Sequence Diagram

- The customer arrives at the homepage (Browse Interface), to browse or select products, i.e., dog food or cat food.
- When the customer makes a purchase, this leads to the purchase interface, where this interface communicates with the browser interface to get selected items and display the price information called by the item database.
- Once the purchase is confirmed, this takes the customer to the checkout interface where the user can authorize the purchase via secure gateway payment and choose their desired options.

- Once the payment is made, the customer receives a notification and an invoice to their registered email IDs.

2.3 STATE MACHINE DIAGRAM

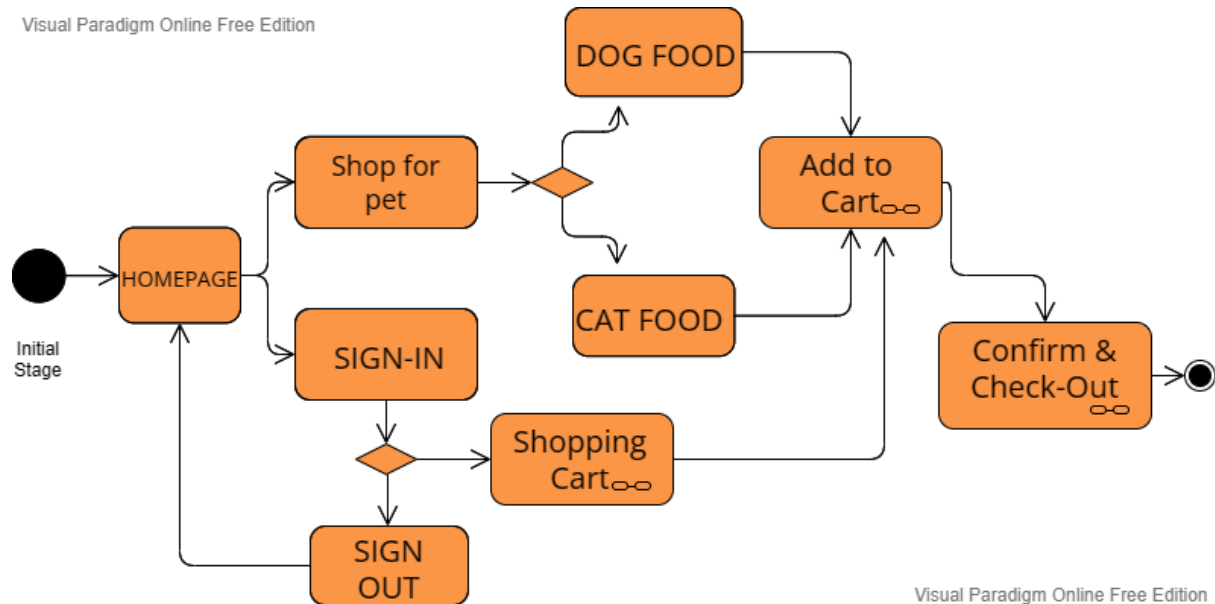


Figure 2.3 State Machine Diagram

- The website starts with the homepage and has two options: shop for the pet or log in first.
- Log in simply and choose. If one decides to explore you have two filters: Dog food and Cat food.
- Either way one needs to add food to the cart and pay the amount.
- Once the order is confirmed the process is terminated and loaded back to the previous screen.

3. Implementation

3.1 Planning Stage

The planning can be viewed as the following:

1. **Within the Organization:** How the project is to be implemented? What are various constraints like time, cost, staff? What is the market strategy?

2. **With respect to the customer:** Weekly or timely meetings with the customer with presentation on status reports. Customer feedback is also taken, and further modification and developments are done. Project milestones and deliverables are also presented to the customer.

The role of the scrum team:

- *Product Owner:* Alina Tenne, Shubham Saini, Manisha Rawla
- *Scrum Master:* Alina Tenne
- *Developer Team:* Shubham Saini, Manisha Rawla, Seohyun Ko

During the planning stage, we plan the structure of our website by outlining the: -

- Collectively deciding the programming language
- Choosing a logo and icons for the website
- Home-page appearance
- Home-page Elements (appear on the homepage itself)

The tasks were divided through the team members regarding to the main part of a person. This means, we announced three official parts which are: 1/ Organization, 2/ UX/ UI and 3/ Programming. Regarding to each of these three main parts, the team members needed to process their subtasks. To give one example:

The UX/ UI part in general included to select and justify the layout of the website as well as to decide which filters to use or which colours to take. Therefore, announced subtasks to that person would be for example: 1/ choose font size, 2/ define colour for homepage etc.






Sprints		
▼	€5=2 Designing a Homepage	FERTIG
📌	€5=4 Choosing Progra...	FERTIG 
📌	€5=8 Logo for a website	FERTIG 
📌	€5=5 Layout and color c...	FERTIG 
📌	€5=7 Icons	FERTIG 
📌	€5=6 Search bar	FERTIG 

Figure 3.1 Jira Overview I

In the above figure, one can see, that we had a sprint called “Designing a Homepage” and therefore we assigned some subtasks to reach the overall sprint in the end. The more technical tasks were assigned to the team of programmers as well as for example the configuration of the search bar. Whereas the more creative subtasks were announced to the UI/ UX part which includes to search for icons or to create a logo for the website.

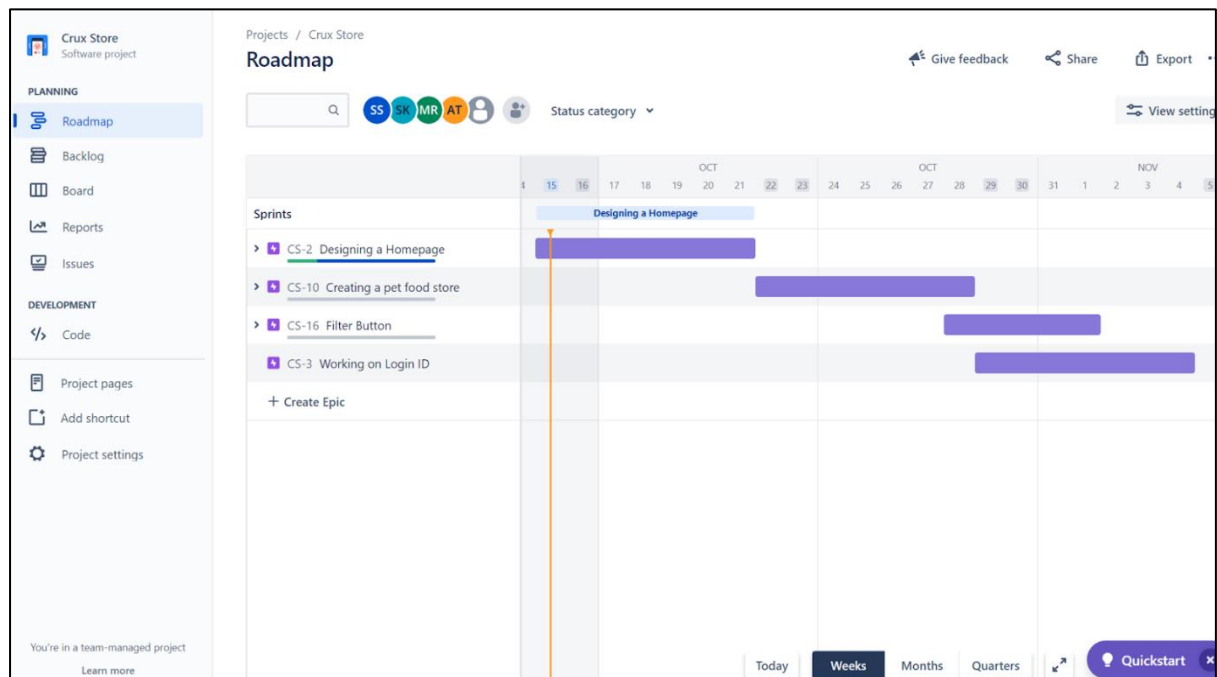


Figure 3.1 Roadmap using Jira

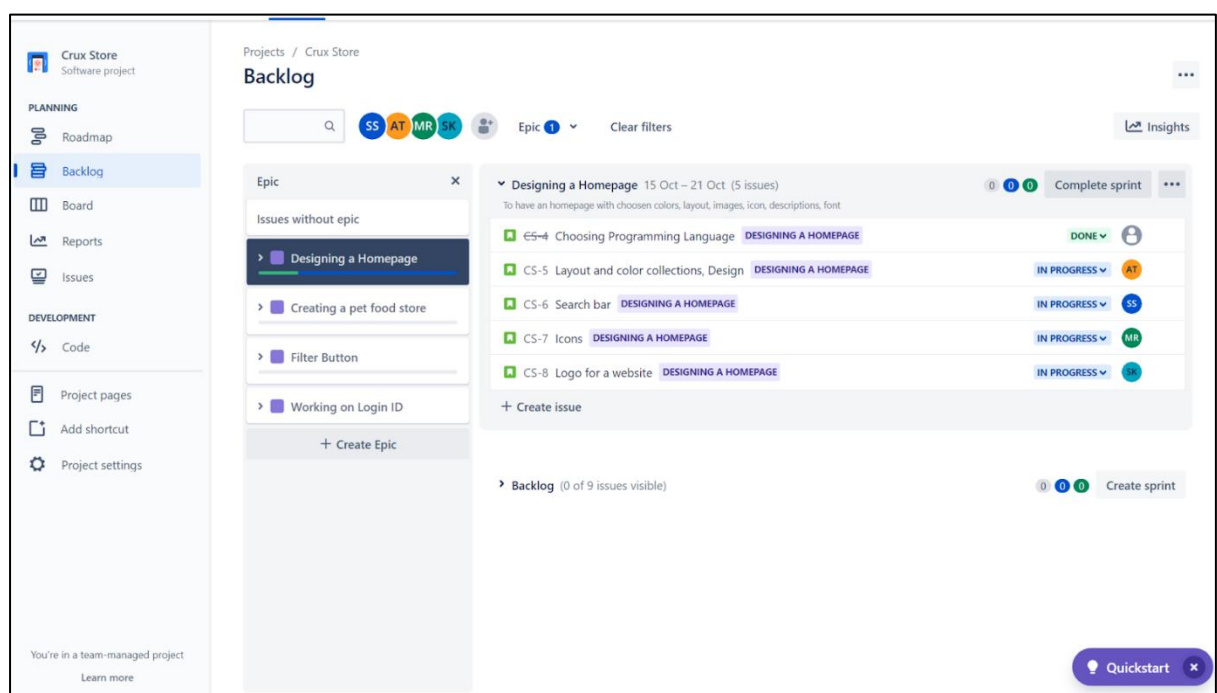


Figure 3.2 Backlog of the Team

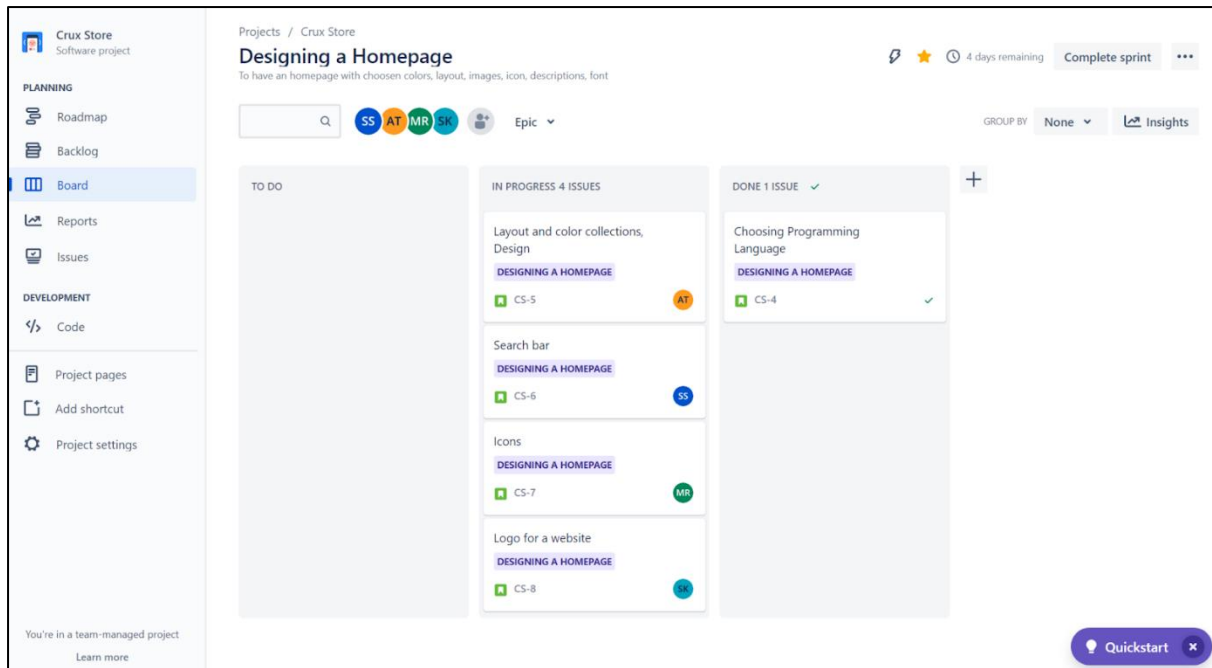


Figure 3.3 Board view

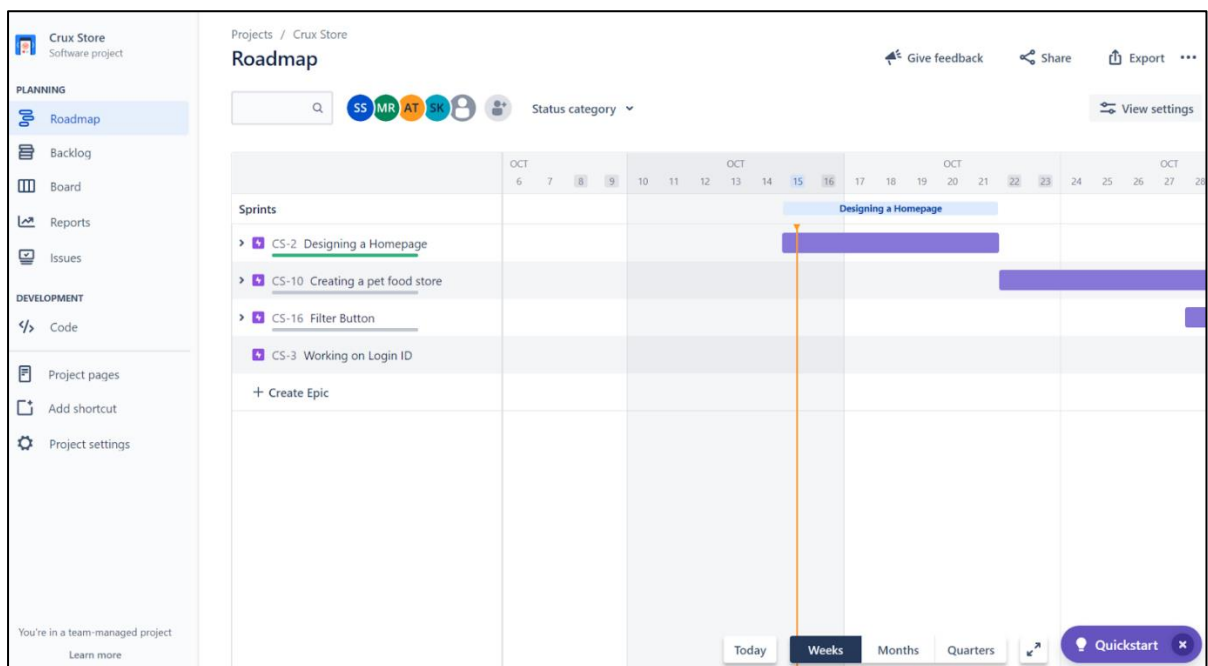


Figure 3.4 Roadmap after first sprint

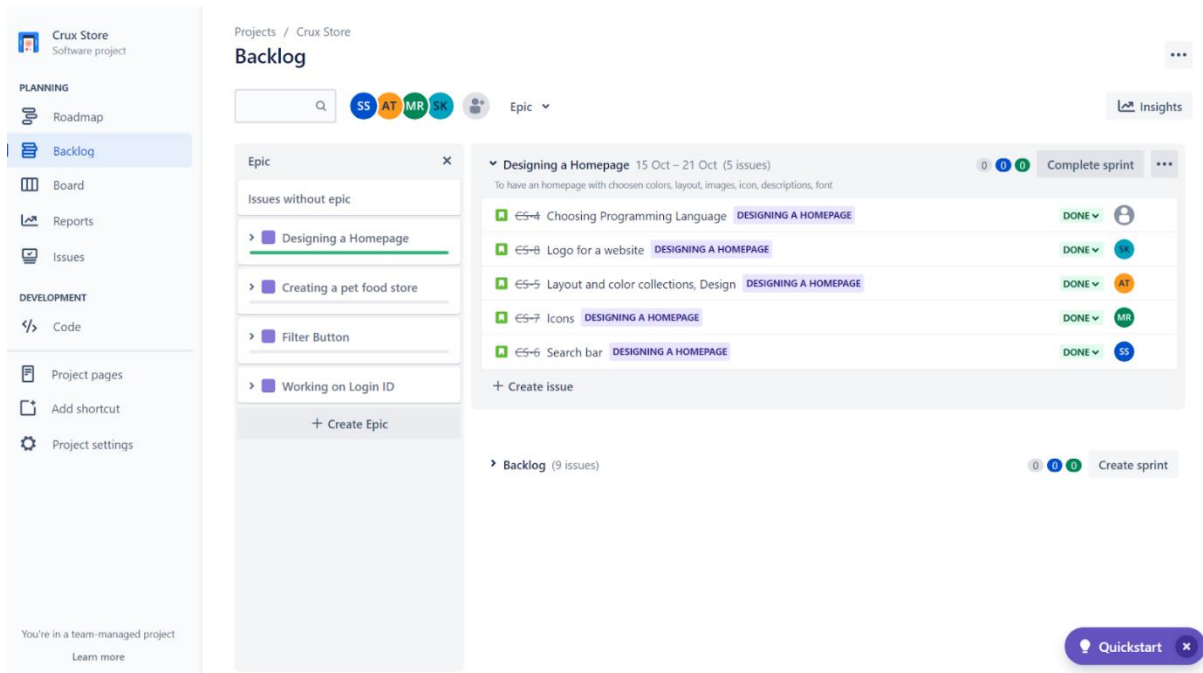


Figure 3.5 Back-log after Finishing 1st sprint

3.2 Developing Stage

3.2.1 Designing the Layout

The Homepage for dog nutrition collection, comes with buttons for your personal accounts and setting as well as a shopping venture, a home button and the direct option to go to the shop.

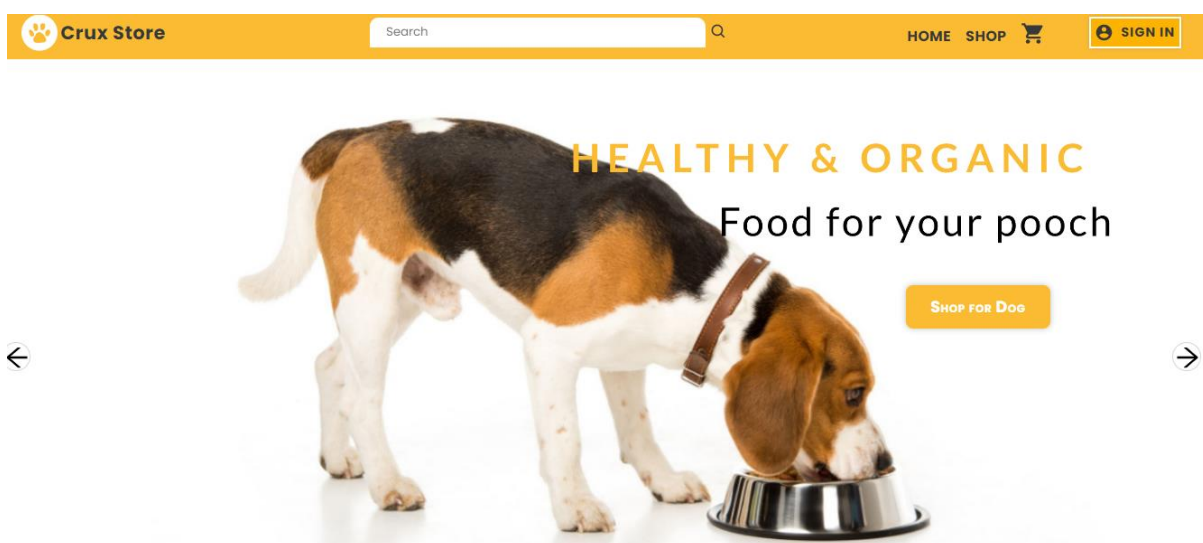


Figure 3.2.1 Homepage of Crux Store

Furthermore, the homepage provides a search button for quickly search & finds. With that option a costumer does not necessarily need to search through the whole store.

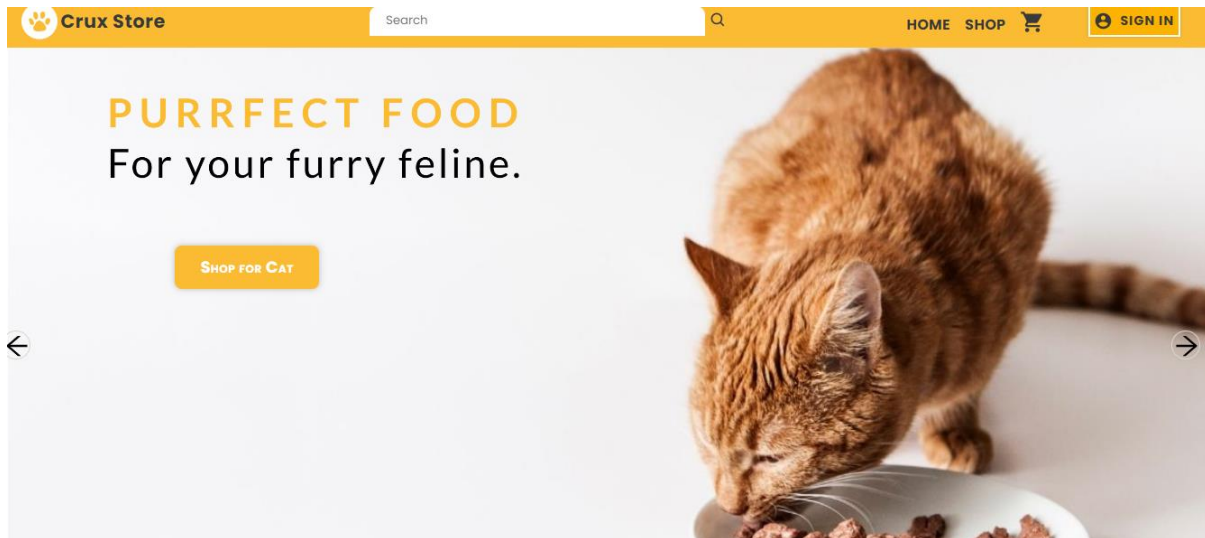


Figure 3.2.2 Homepage (second view)

The same homepage is provided for cat owners. Therefore, if a customer is only interested in buying cat nutrition, ones can be directly linked to the cat shop. The homepage has the same features as the homepage for dog nutrition. Also, one can navigate through both homepages with the provided arrows on the side.

Figure 3.2.2 Homepage with dynamics view

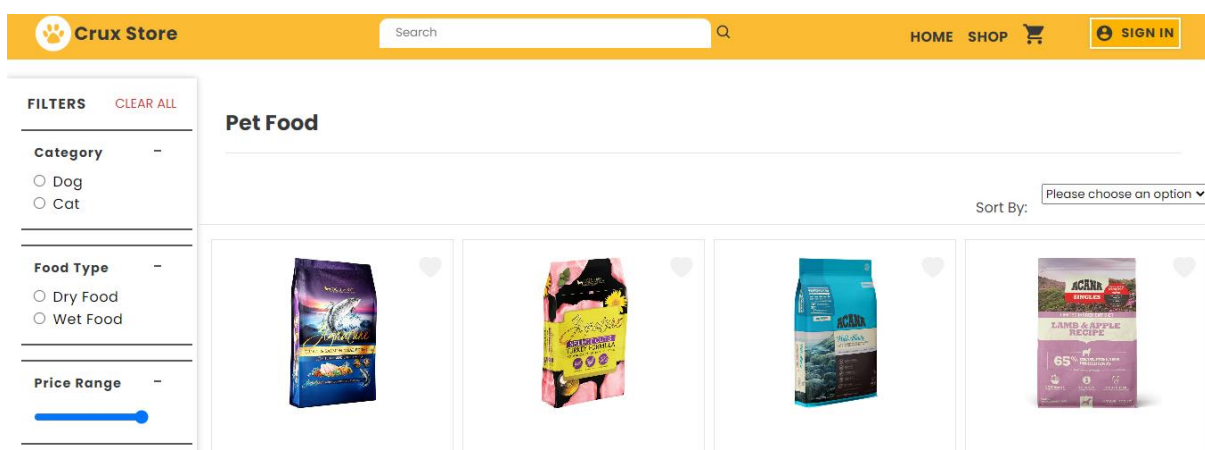


Figure 3.2.3 Filter Options I

With a click on the shop button, the customer will be linked to the whole shop collection which includes dog and cat nutrition. On the side there is a wide range of

filters provided. The filter includes to select whether the costumer wants to select dog or cat nutrition, the food type because animal food can be either dry or wet. Additionally, a price bar is provided therefore the customer can easily navigate the choice of price. This feature is especially helpful because mostly, costumers have already a price range in mind when they are searching for a product.

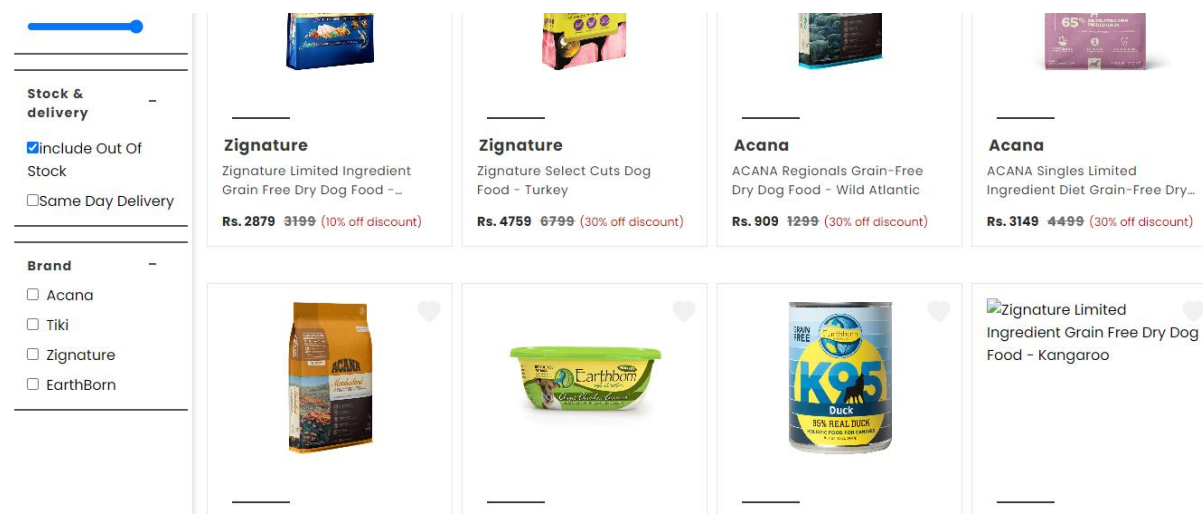
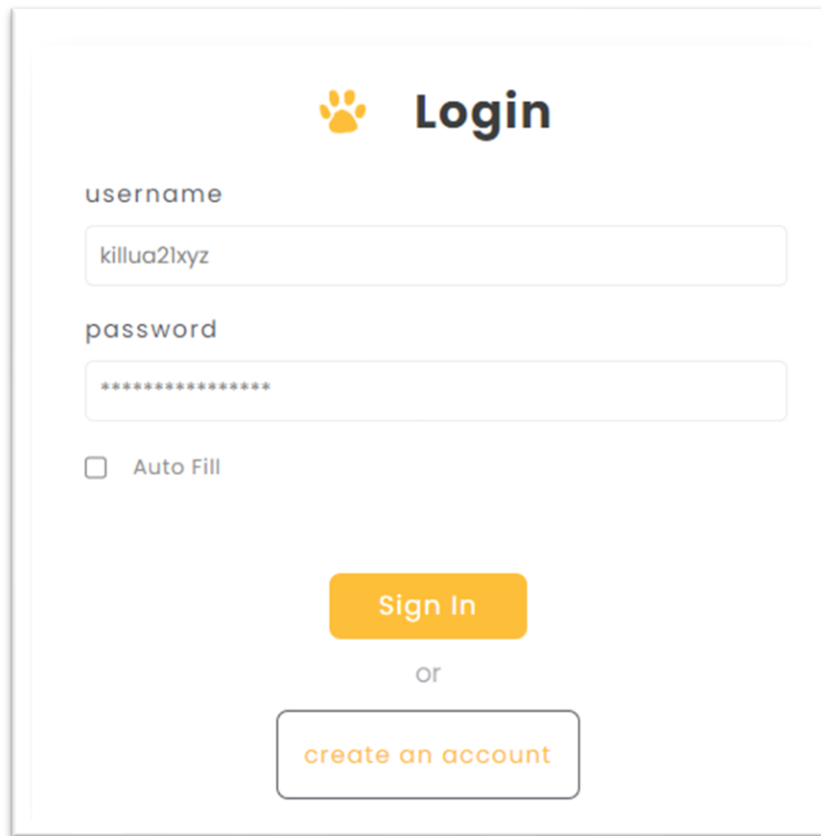



Figure 3.2.4 Filter Options II

However, more filters are provided. If pet owner already has a favourite brand, they can easily click the brand type and see the brand type collection. This is especially useful because dogs and cats are most likely to always get the same type of food because their fur as well as their taste get used to it. Moreover, if costumer need a same day delivery which happens quite often because people are not used to long shipping days anymore due to increasing online shopping rates and therefore an ongoing trend in reducing the days until the delivery. Finally, customers can select whether they would like to see items out of stock or not.



 **Login**

username

killua2lxyz

password

☐ Auto Fill

Sign In

or

[create an account](#)

Figure 3.2.5 Login

Customers are welcome to create an account to benefit from faster checkouts including the remembered favourite items as well as the usually selected payment method. Therefore, Customers need to first create an account and then be signed in.

4. What did we achieve?

4.1 Summary

To make the project functional and working, we as the team have discussed multiple platforms and sources to make our website live. We can finish our product with constant updates and team meetings.

We have decided to work with NodeJS, Express JS, HTML, and CSS since we as a team are more familiar with concepts of following language, for the database we prefer for the MongoDB because of its qualities like Full cloud-based developer data platform, Flexible document schemas, Widely supported and code-native data access, Change-friendly design.

Initially, we focused on the frontend/look & feel for our product because we firmly believe first look is always a style statement for your product. Once we have developed the dynamic frontpage we start building our backend and datasets.

We as a team faced multiple technical problems to achieve our results which we tackle with the utmost professional approach. It's worth knowing that, our website is accessible via live link (can be accessed anywhere in the world) hosted on Netlify and all the functions are working fine the website is completely functional and operable.

The source code of website is easily visible on the GitHub link committed by one of our team members. The sample video product with the voiceover is also available. *(ALL THE LINKS WILL BE AVAILABLE AT END OF THE REPORT, Check section 4.3)*

Our product is ready hit the market and ready to use by who want to buy food for the pet on the go without worrying about quality.

The main highlight of our product is the simple UI/UX so that customers do not need to spend lot of time figuring out how to get simple task done, plus while building the final product we have aim to make it simpler for users so that old generation can also have the benefits of ordering the food online.

4.2 Motivation

This product is built for the Final submission of Software Engineering for the Association of Pôle Léonard de Vinci.

4.3 Sample Video and Source code link

- Source code link (With backend and front end): - [shubhamsaini20/Software-Engineering \(github.com\)](https://github.com/shubhamsaini20/Software-Engineering)

PS: -Backend data is hidden and can't be shared due to privacy issues.

- Sample Video link: - <https://www.youtube.com/watch?v=93BMW-i7xpo>