

C# E-Commerce Website

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Problem statement

The project aims to provide an easy way to sell appliances to customers at the convenience of their homes. The goal is to be the most customer-centric online shopping destination and build a foundation on the simple concept that the customer comes first. The success of the project is based on its ability to delight customers with amazing customer service. When users visit an e-commerce site, they expect to find what they are looking for quickly and easily. Also, users do not know which brand or product they want to buy. They have a very broad idea of what they want to buy. The purpose of this e-commerce site is to help customers narrow down general ideas and to buy the products they want.

To get to this online shopping system all the customers will need to have an email and password to login and proceed with your shopping. The login credentials for an online shopping system are under high security and nobody will have the capacity to crack it easily. It is simple.

What are you trying to build?

User Stories

- 1. As a customer, I want to register an account for the website by entering my name, email address, a password and a username or login so that I purchase items on the website.**
- 2. As a customer, I want to be able to search for products, so that I can find the ones I want to buy.**
 - Search for a product by name or category
 - View products by category
 - View images and details for each product
 - Add to cart from the detail or search pages
- 3. As a customer, I want to be able to select products so that they reflect in my shopping cart.**

4. As a customer, I want to be able to buy products so that I can check out my desired products
5. As a customer, I want to delete my account so that account information is no longer stored on the website database.

Functional and Non-functional requirements

Non-functional Requirements
The software should be portable. So, moving from one OS to another OS does not create any problem.
Privacy of information, the export of restricted technologies and intellectual property rights should be audited.
The website should be capable enough to handle 1000 thousand users with affecting its performance

Functional Requirements	FR1
Requirement title	Register and Login Operation
Requirement description	<ul style="list-style-type: none">• A user can create an account with a username, password, and email address.

	<ul style="list-style-type: none"> • System should authenticate and create a valid user session upon successful authentication and redirect user to product search page. • An existing user can login
Business Rationale	Allow registered users to buy products and provide personalization features later
Exception scenarios	If authentication fails, "User id or password incorrect" message is displayed. Maximum password retries allowed are 3 after which the account should be temporarily locked and request user to contact customer support.

Functional Requirements FR2	
Requirement title	Search Operation
Requirement description	<ul style="list-style-type: none"> • User enters any of these product attributes: Product name, description product description, product keyword and clicks on "search". • The search function should retrieve the matching records from the product database. • Search results should be displayed in pagination format with configurable page size. The default page size should be 10. • It should allow the user to add the product(s) to the shopping cart.
Business Rationale	Help users to discover the product

Exception scenarios	Display "No products found" if no products match the Scenarios criteria.
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Functional Requirements FR3	
Requirement title	Shopping Cart Operation
Requirement description	<ul style="list-style-type: none"> • The shopping cart function should display all the product descriptions added by the user to the shopping cart. • While displaying the product, it should get the product availability from inventory system and product price from pricing system to display the availability and pricing information • It should allow the user to check out the product(s) in shopping cart.
Business Rationale	Provide the online users with a seamless shopping experience.
Exception scenarios	If the selected quantity of products is not available, system Scenarios should not allow the user to check out that product. It should display an appropriate error message

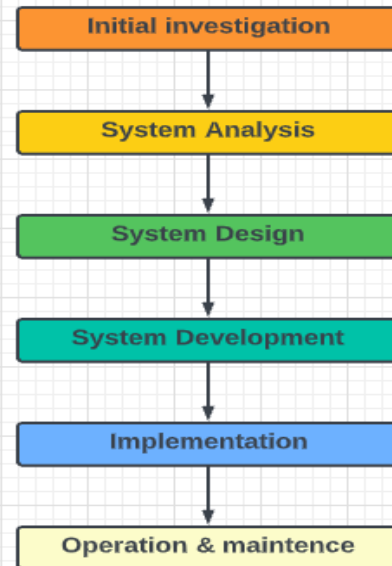
Functional Requirements FR4	
Requirement title	Checkout Operation

Requirement description	<ul style="list-style-type: none"> • The checkout function should display the final number of products in the shopping cart and the shipping information. • It should allow the user to enter credit/debit card information to complete the transaction. Additionally, other online payment schemes should also be supported. • Post successful payment, it should display the order information and send out a detailed mail to registered email account.
Business Rationale	Provide flexible options for users to purchase the product more purchase options like "cash on delivery" will be added in future.
Exception scenarios	<ul style="list-style-type: none"> • If the payment gateway is down, the system should display an appropriate error message. • If the credit/debit card account declines the transaction, an appropriate error message should be displayed and allow the user to retry the transaction. Maximum retries allowed are three.

Functional Requirements	FR5
Requirement title	Delete Operation
Requirement description	<ul style="list-style-type: none"> • User should be able to delete their account if they no longer wish to use the website

Business Rationale	A user should be able to unsubscribe.
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For this project we will be using the SDLC Waterfall Model



System Analysis

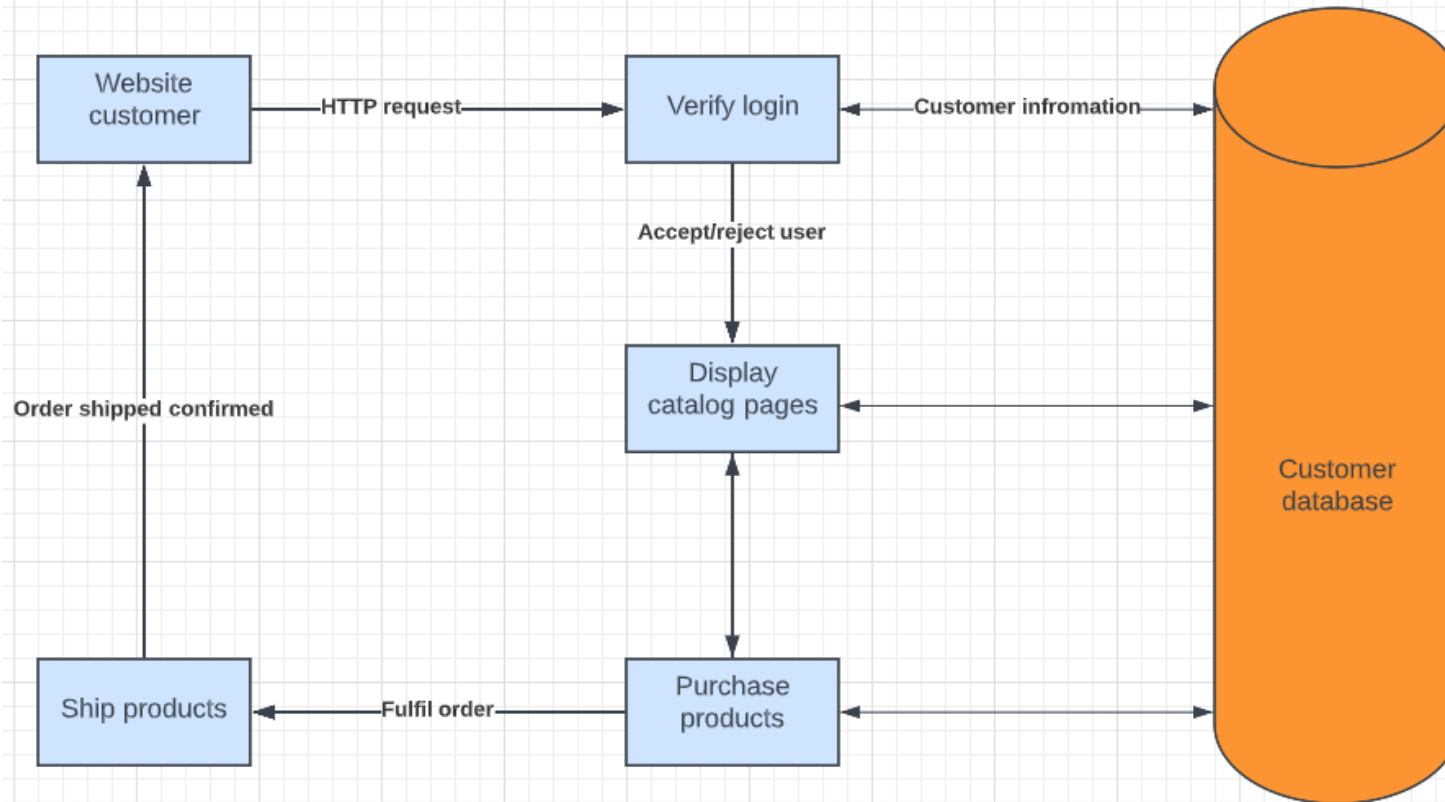
What do we want the e-commerce website to do? The following table will explain and answer this question.

Business Objective	System Functionality	Information Requirement
Accumulate customer information	Register and login operation	Name, address, phone, and e-mail from all customers during online registration.
Display products with product information	Search operation	Dynamic text and graphics catalog. Product descriptions, stocking numbers, inventory levels.
Execute a transaction and payment	Shopping cart and checkout operation	Secure credit card clearing and multiple options
Remove customer details	Delete operation	None

System design

Logical diagram

Logical Design for the E-commerce Website



The diagram above shows the simple data flow of information requests and responses for the E-commerce website.

System Development

In this phase the designs will be translated into code. We will be building the system by programming, gathering, and implementing any data needed. The tools needed are as follows:

- **Microsoft visual studio will be the IDE we will use. C#**
- **Lucid Chart**
- **Visual Studio Code - Angular**
- **Microsoft SQL Server Management Studio 2019**

Testing

Once the site is built and before it is released for general use, it will be tested thoroughly

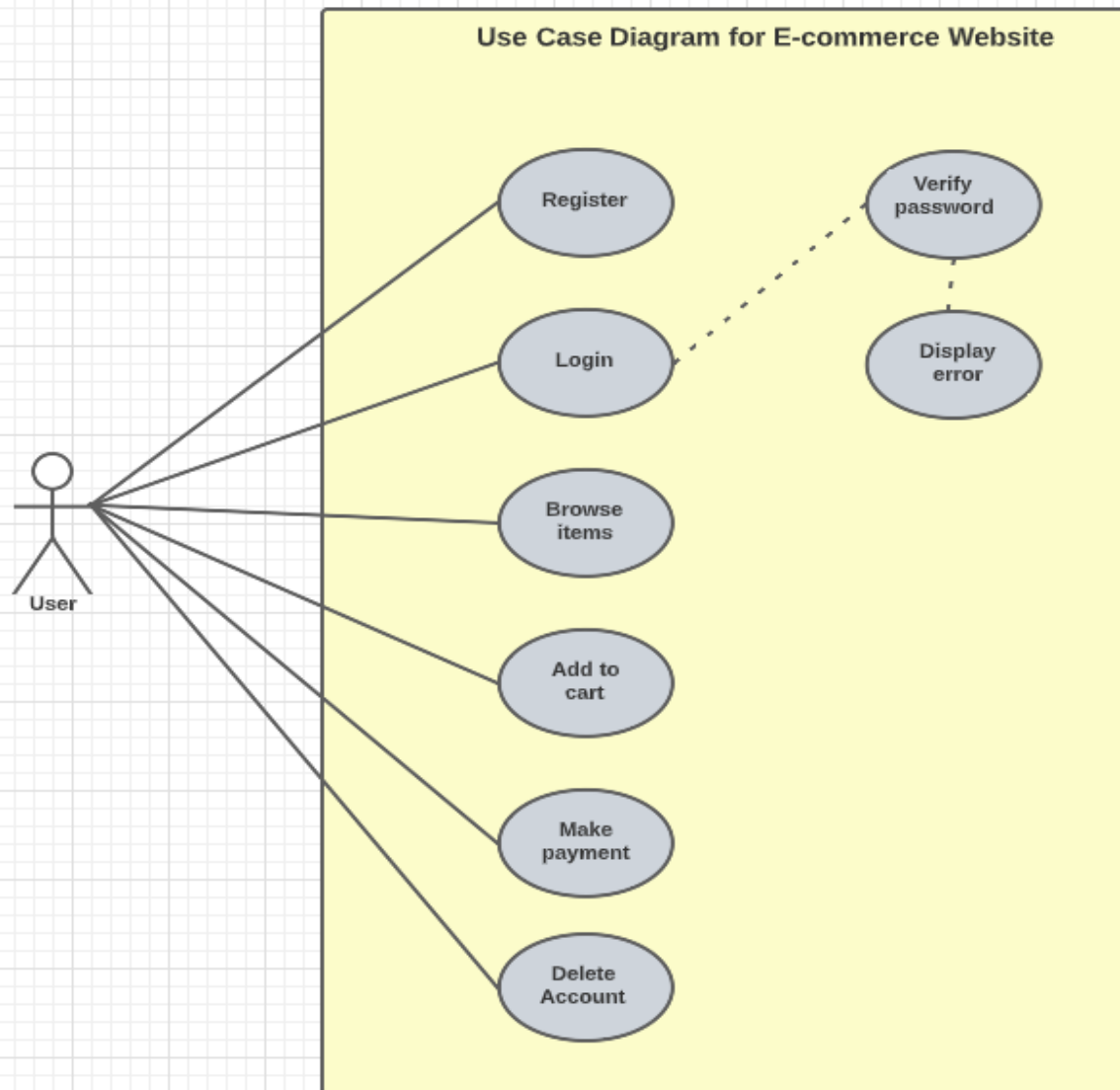
Some of the test cases we will use are:

- Unit testing
- System testing
- Acceptance testing

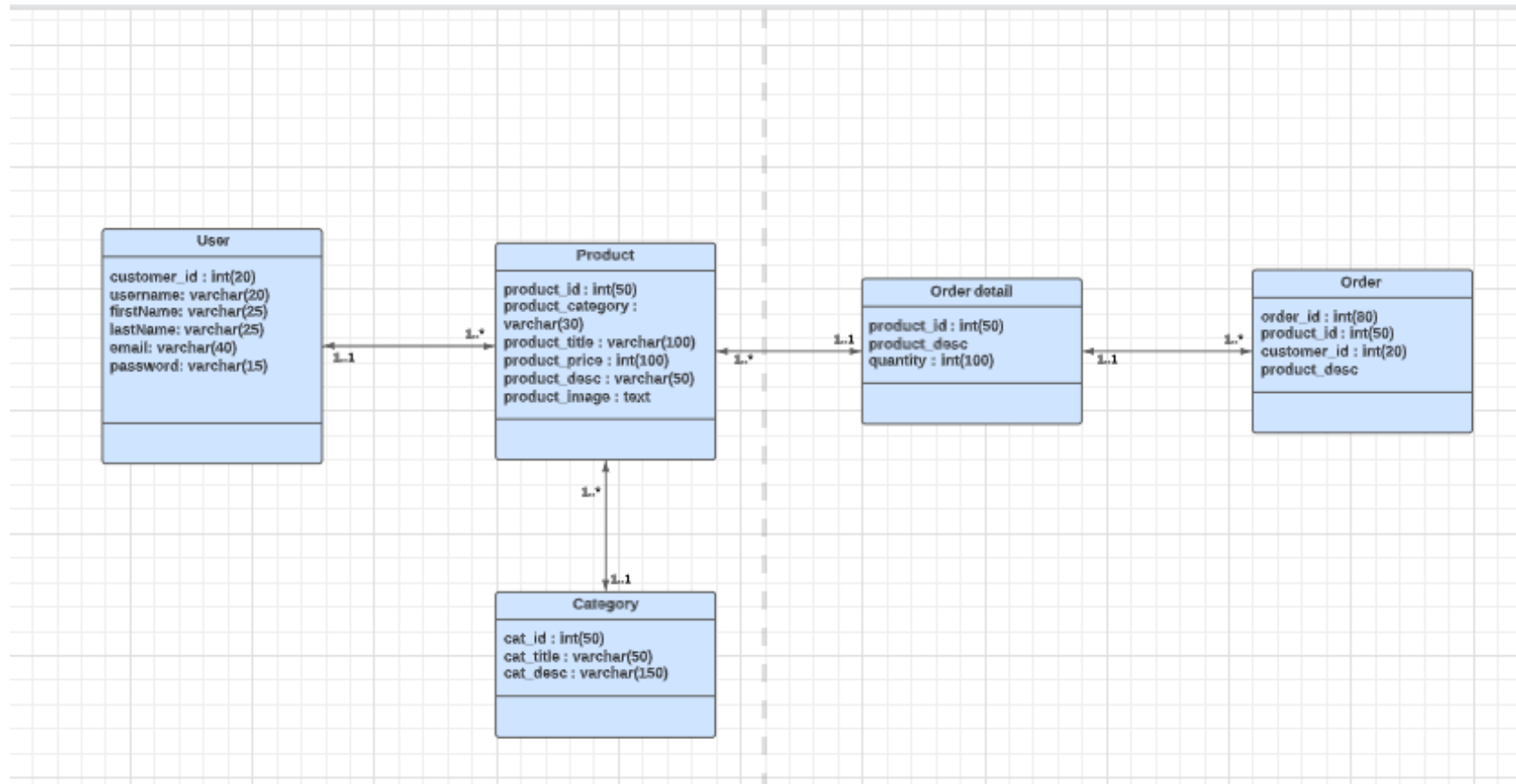
Implementation

The final step, implementation of the E-commerce website. During the implementation the system will be monitored, checked, tested, and repaired on an ongoing basis.

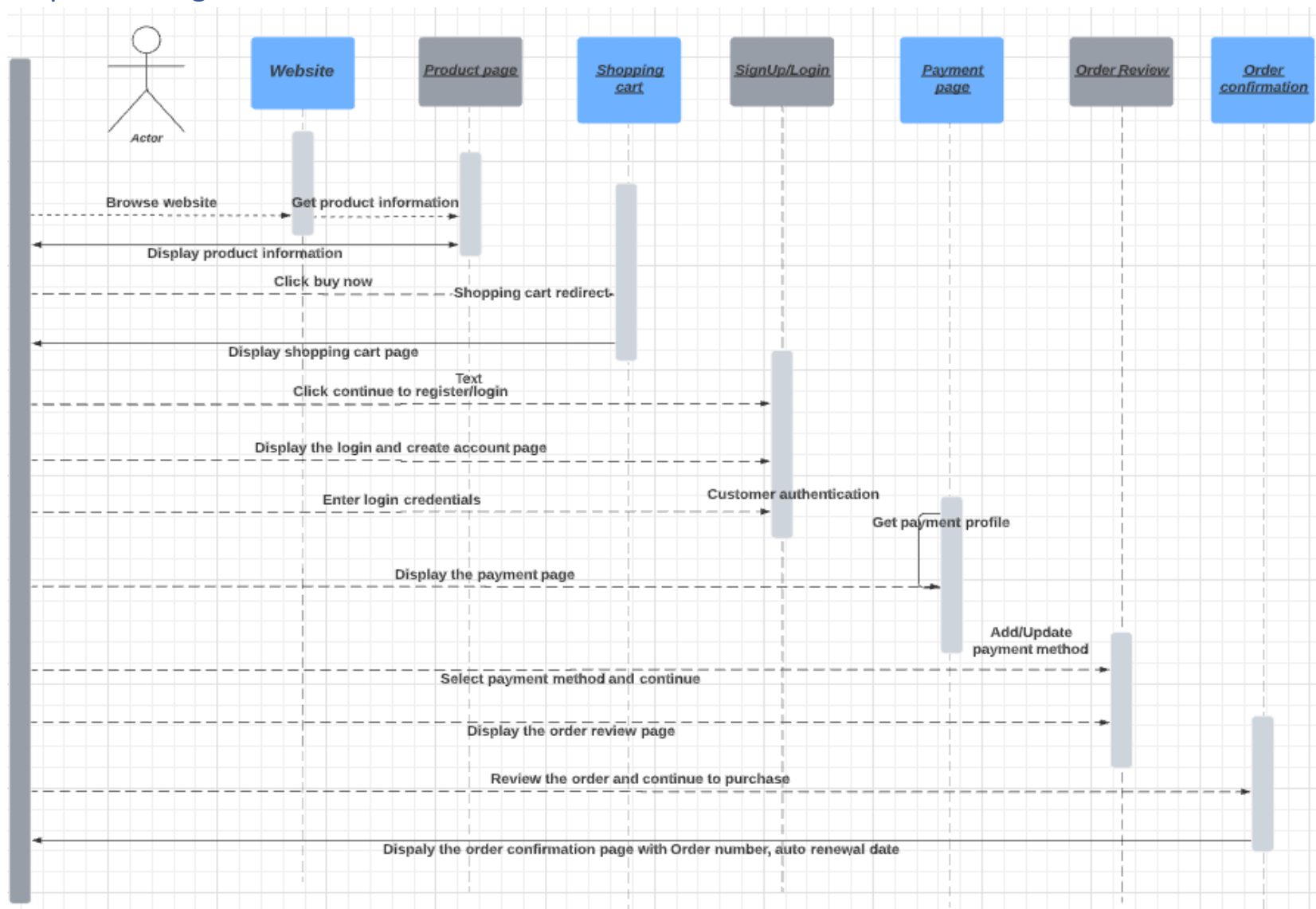
Use case diagram



ERD Diagram

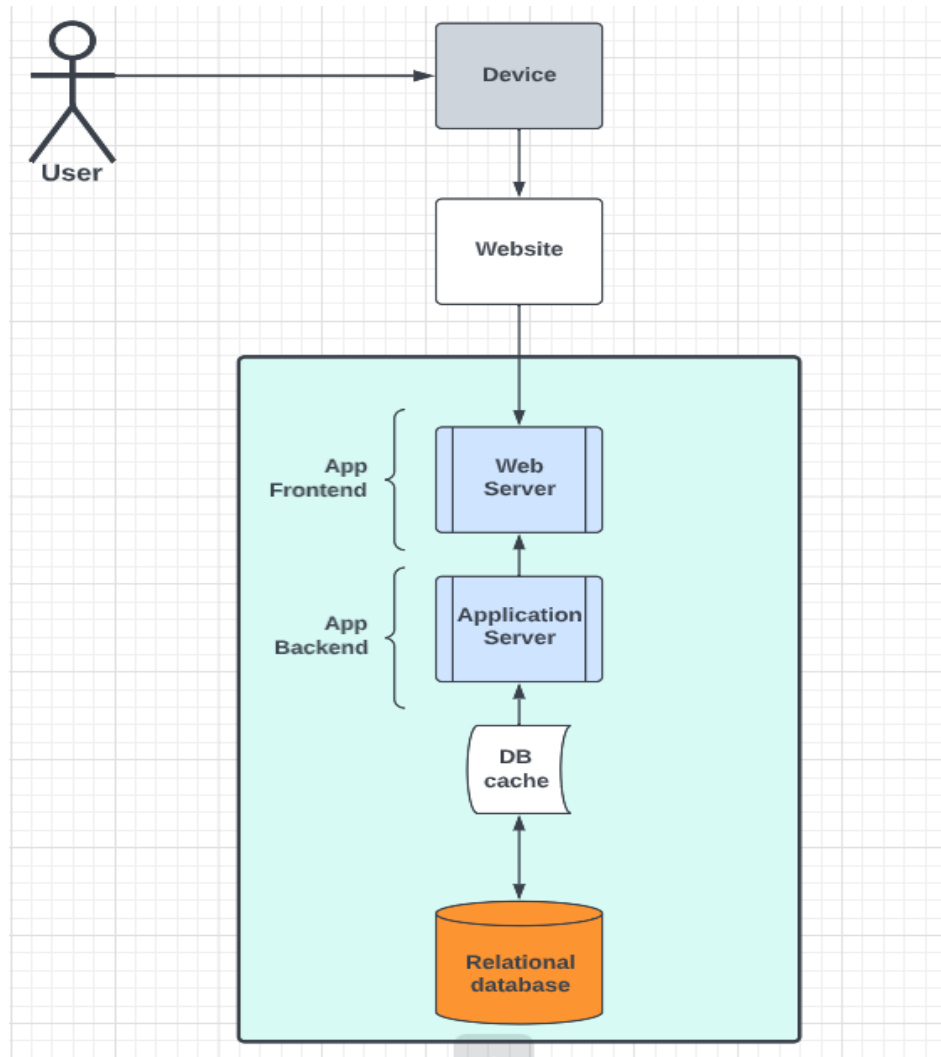


Sequence diagram



The layers of your program

Architecture Diagram



Data Flow diagram

