# Web Programming Course

# Final Project

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***Project Title:***

MediHub: Medical Products Platform

***Project Team:***

Halime Sıla Özyurt: Designer and Developer

***Project Composition:***

## 1. Homepage

The homepage provides visitors with a quick overview of MediHub's purpose and offerings, emphasizing ease and reliability in finding medical products. Key sections include:

- **Product Categories:** Users can explore categories like Nebulizers, Stethoscopes, Wheelchairs, and Patient Care Equipment, with links directing them to the relevant shopping pages.
- **Who We Are:** Highlights MediHub's vision to provide high-quality products and services, with a focus on international standards.
- **Brands and Services:** Trusted brand logos (e.g., Leo, Wollex) and user benefits such as free shipping (for orders over 3000 TL), 30-day product returns, and multiple payment options are featured.

The page is user-friendly, with a clean design in blue and green tones, and action buttons like "Discover Products!" and "Buy Now" to guide users efficiently to the shopping section.

## 2. Shop Page

The shop page is designed to provide users with an easy and enjoyable shopping experience by displaying all products in one place. Key features include:

- **Product List:** Displays medical products with high-quality images, names (e.g., "Omron Nebulizer"), price details (discounted and non-discounted), and discount labels like "30% Off."
- **User Interactions:** Includes "Add to Cart" buttons and links to product detail pages for more information.

- **Categories:** Organized into sections like Nebulizers, Stethoscopes, Patient Beds, Blood Pressure Meters, and Wheelchairs for easy navigation.
- **Design:** A clean and organized layout ensures products are easy to browse, with menu links for seamless site navigation.
- **Bottom Section:** Highlights advantages such as free shipping (on orders over 3000₺), 30-day return options, and multiple payment methods.

The page serves as the main hub for browsing and purchasing products, focusing on simplicity and user-friendliness.

## 3.Product Detail Page

The product detail page provides all the necessary information about a product in a user-friendly layout:

- **Product Description:**
  - **Product Name:** Displayed prominently.
  - **Rating Score:** Star-based user reviews indicate product quality.
  - **Price Information:** Shows both discounted and non-discounted prices for transparency.
  - **Product Variations:** Options like color and size are available.
  - **Quantity Selection:** Users can choose the desired amount to purchase.
- **Product Images:**
  - **Main Image:** High-resolution product image.
  - **Alternative Images:** Different angles and accessories.
  - **Zoom Feature:** Allows users to examine details.
- **Product Details:**
  - **Description:** Outlines the product's purpose and benefits.
  - **Technical Specifications:** Key features like color and warranty in a simple table.
  - **User Reviews:** Ratings and comments build customer trust.
- **User Interactions:**
  - **Add to Cart:** A central button to easily add items to the cart.
  - **Navigation:** A breadcrumb structure helps users move between categories.

This page ensures users have a complete understanding of the product before making a purchase.

## 4.Contact Page

The contact page is designed to facilitate easy communication between users and the company:

- **Header and Message:** Displays the title "Contact Us!" and informs users they can reach out for product inquiries or suggestions.
- **Contact Form:** A simple form with fields for:
  - Name and Surname
  - Email Address
  - Message Subject
  - Message Details
  - Users can submit the form using the "Send Message" button.
- **Location Information:** Interactive Google Maps integration shows the store's physical location for easy access.

- **Contact Details:** Includes the store's address, phone number, email, and service hours (e.g., "Monday-Friday: 24/7").

This page ensures users can connect with the company quickly and conveniently.

**5.Cart Page**

The cart page provides users with an overview of their selected products and allows them to manage their orders:

- **Product Details:**
  - o **Image:** Small product images help users identify added items.
  - o **Product Name:** Clearly states the product name (e.g., "Omron Nebulizer").
  - o **Price:** Displays unit price, including discounted and non-discounted options if applicable.
  - o **Quantity:** Users can adjust product quantities directly.
  - o **Total:** Shows the total cost for each product (unit price × quantity).
  - o **Delete Button:** Allows users to remove unwanted products.
- **Coupon Code Field:**
  - o Users can enter and apply coupon codes to receive discounts, updating the total amount accordingly.
- **Update Cart:**
  - o Users can recalculate the total amount and details after adjusting product quantities.
- **Total Cart Amount Field:**
  - o **Product Amount:** Total cost of all products.
  - o **Shipping Fee:** Calculated based on the selected shipping type (e.g., "Fast Shipping: 1000₺").
  - o **Total Amount:** Final payable amount, combining product and shipping costs.
  - o **Address Change:** Link to edit the delivery address.
- **Proceed to Checkout Button:**
  - o Directs users to the payment process, enabling them to complete their purchase.

This page ensures a streamlined and user-friendly shopping experience.

***Project Description:***

This project is designed as a platform for healthcare professionals. It was developed to enable users to access medical products safely and quickly. The platform provides a structure where healthcare professionals can easily find and purchase the products they need. A simple and user-friendly interface is supported by product categories and advanced filtering options. Features such as secure payment methods, order tracking and access to past orders make the shopping process seamless. In addition, thanks to the mobile-friendly design of the platform, users can access it from any device. This project aims to facilitate the business processes of healthcare professionals and make their access to medical products faster and more reliable.

**Target Audience:**

The main target audience of the platform is professionals working in the healthcare sector. These professionals are targeted to meet the need for easy and reliable access to medical products. The details of the target audience are as follows:

1. Doctors

Intended Use:

To purchase devices and equipment necessary for diagnosis and treatment processes.

In particular, to provide quick access to frequently used products such as stethoscopes, sphygmomanometers and diagnostic tools.

Working Areas:

Hospitals, private clinics, polyclinics.

2. Nurses

Intended Use:

Access to disposable medical products (e.g. gloves, masks) and ancillary equipment used during patient care.

Shopping for devices that support patient monitoring (e.g. oximeters, glucometers).

Work Areas:

Operating rooms, ward units, intensive care units.

3. Other Healthcare Workers

Intended Use:

Physiotherapists: Equipment needed for patient rehabilitation (e.g. wheelchair, cane).

Paramedics: Portable devices and equipment used in emergencies.

Other health professionals: Professionals with specific equipment needs, such as laboratory technicians or dentists.

Work Areas:

Health centers, emergency services, special care units.

General Needs

Reliable Products: Health professionals expect products to be of good quality and certified.

Fast Delivery: In emergency situations, fast delivery of products is a high priority.

Easy Ordering Process: A system where users can quickly find the products that suit their needs and order with confidence.

**Core Message:**

This project aims to create a platform that will enable healthcare professionals to access the medical products they need quickly and reliably. Healthcare professionals will be able to easily access categorized products on the platform, view detailed product information and place orders securely.

The aim of the project is to design the shopping process in the most practical way possible with a simple and user-friendly interface. Advanced search and filtering features are provided so that healthcare professionals can quickly find the products they need in their busy work schedule. In addition, the user experience is maximized with functions such as easy management of orders, access to past orders and fast delivery.

This system aims to increase efficiency in the healthcare sector by making it faster and more reliable for users to procure medical products. Focusing on professional needs, this platform is designed as a tool to support the business processes of healthcare professionals.

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**Main Structure**

**I. Introduction**

Purpose of the Project:

To create a web platform where healthcare professionals can access the medical products they need in a secure, fast and user-friendly way.

The platform lists the medical products of a single company and facilitates the purchasing process. Users can review product details, create carts and manage their orders.

My goal is to enable users to save time and get a secure shopping experience.

Importance of the Project:

Healthcare professionals' traditional methods of accessing medical products can be time-consuming. This platform allows users to quickly find products and streamline the ordering process.

The integration of digitalization into the healthcare sector accelerates business processes and increases efficiency.

This project, developed individually in a limited time, has been an important opportunity to test the applicability of the new technologies I learned.

**II. Literature Review**

E-commerce has become an important tool for businesses to reach a wide audience. Traditional e-

commerce platforms (such as Shopify, WooCommerce, etc.) offer quick setup and basic features, but have some limitations in terms of customization and flexibility. Therefore, it is important to develop more flexible and user-friendly systems.

MERN stack (MongoDB, Express.js, React.js, Node.js) technology is frequently preferred in this field. Especially the NoSQL structure of MongoDB makes it easier to manage large and complex data sets. React.js offers user-friendly and dynamic interfaces, while Node.js and Express.js provide a reliable and scalable infrastructure for backend operations (Savadatti et al., 2024).

Studies show that e-commerce systems developed using the MERN stack improve the user experience. For example, it is stated that features such as user accounts, product management, shopping cart and secure payment transactions are designed effectively with these technologies. Moreover, these systems are scalable and can easily support an increasing number of users.

Therefore, MERN stack-based solutions are an effective option for delivering a customizable and powerful e-commerce infrastructure. [1]

Sample Systems:

Hepsiburada and Trendyol: Product listing, category structure and user experience are taken as examples by analyzing large e-commerce platforms.

Medical Product Sites: The design and features of platforms specific to the health sector are examined (e.g. Private sites for medline or healthcare professionals).

Responsive Web Design Techniques and Contribution to the Project

Mobile-friendly web design is one of the most important approaches to improve the user experience today. Responsive Web Design: Techniques, Challenges and Frameworks explains how the HTML and CSS designs used in the project can be created with flexible structures and how techniques such as media queries can be applied in terms of mobile compatibility.

The information on media queries, grid systems and CSS frameworks in the article has been guiding parts of the project, such as the homepage, product detail and user panels, to ensure their smooth running on mobile devices. In addition, the challenges highlighted in the article (such as browser compatibility) were taken into account during the testing stages of the project and the design errors were minimized. [2]

III.    Implementation

   Tools and Technologies Used:

   Database:

   MongoDB was used for the storage of products, users and orders. The database schema was

simplified and created as follows:

Product Diagram: Product name, description, price, category and stock information.

User Diagram: User name, email, password and address information.

Order Scheme: The ordered product, user information, total amount and order date.

Frontend:

user interface is designed with HTML/CSS, mobile compatibility is provided.

Components such as product detail page and basket sheet have been created.

Development Process:

Start: During the first four weeks, the project was focused on the idea of a marketplace, but due to lack of time and resources, it was transformed into a site that sold products from a single firm.

Backend Development: Key features such as product listing, detail display and order management are coded.

Frontend Development: Home page, product detail page and user panels have been completed.

Testing and integration

## IV. Reference

[1] Savadatti, M. B., Baskar, S., Kumar, P. V. K., Ponnuru, S., Kshirsagar, U., & Bale, A. S. (2024). *Design of MongoDB based Website for E-Commerce Applications*. IEEE Second International Conference on Intelligent Cyber Physical Systems and Internet of Things (ICoICI 2024)

[2] Smith, J. A. (2020). *Responsive Web Design: Techniques, Challenges and Frameworks.* Journal of Web Development, 15(3), 123-145.

## V. Comparison with Existing Systems

Comparative Analysis

In this section, the project is compared to existing systems:

Similarities:

Product Listing: Product categories and filtering options are offered, as are the case with major platforms such as Hepsiburada and Trendyol.

User Experience: A structure is created that provides a simple interface and easy navigation.

Differences:

Scope: The project lists only the products of a single company, and does not offer a large marketplace

such as large platforms.

Customization: User-specific recommendations or personalized shopping experience are not yet integrated.

Scale: Some features were limited due to a smaller structure and single person development process

## VI. Conclusion

Final Thoughts and Results

Results:

A user-friendly web platform for healthcare professionals has been successfully created.

Key features such as product listing, detail display, basket and order management interface have been completed.

Achievements:

Practical experience in C#, MongoDB and frontend technologies (html, css, javascript) has been gained.

The importance of developing a user-oriented project and the difficulties encountered have been learned.

Future Developments:

Adding a wider range of products.

Integration of more user-friendly search filters.

Ensuring payment integration.

## VII. Project Duration

**First 4 Weeks**: Planning the Project as a Medical Products Marketplace

**Week 1:** Project Planning and Research

Project research was conducted to create a marketplace for medical products.

The technologies to be used and design needs were determined.

Information was collected about the advantages of MongoDB and its integration into the project.

**Week 2:** Page and Database Design

Page Design: The general structure of the pages such as home page, product detail pages, supplier

panel and user panel were sketched.

Database Design:

Product Schema: Created to include product name, description, price, category and supplier information.

User Schema: User name, e-mail, password and address information were added.

Order Schema: Designed to include user, product, order date and total amount.

**Week 3**: Starting Backend Development

Establishment of C# Backend Structure: The basic backend infrastructure for the project has been created.

MongoDB Connection: Connection between C# and MongoDB was established.

Database Operations: First APIs were written for adding, deleting and updating products.

**Week 4:** Starting Frontend Development

Home Page Design: The main page of the site was created with HTML/CSS. Categories and a short description were added.

User and Supplier Panels: Initial designs were made for the panels. No functionality has been added yet.

Project Direction Change and Subsequent Weeks

Decision to Change Project (Start of Week 5):

During the first four weeks, the marketplace idea was worked on, but it was realized that it could not be completed within the given deadline.

At the presentation, it was decided to transform the project into a website selling medical products of a company.

It was planned to continue the project in accordance with the new structure.

**Week 5**: Updating the Project Structure

New Goal: The basic structure of a system that lists and sells medical products of a single company was created.

Backend Arrangements: Product management was simplified by removing the supplier base.

Frontend Updates: The category system was preserved and the designs were adapted to the new goal.

**Week 6**: Coding and Development

Product listing and detail pages were completed.

The interface and foundations of the user input/output system were established

Basic infrastructure was created for users to add products to the cart and purchase transactions.

**Week 7:** Testing and Debugging

System-wide tests were conducted and bugs were fixed.

Adjustments were made to improve the user experience.

**Week 8**: Report Writing

The project process was reported in detail.

Changes made, difficulties encountered and decisions taken were indicated in the report.

Technical details and visuals of the project were added to the report.

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## Content Details and Structure

### 1. Homepage

Homepage The home page is designed to give visitors a quick and easy insight into the overall purpose of the site and the services it offers. Our aim is to enable users to find the medical products they need in the fastest and easiest way.

General Introduction Our website, MediHub, is a platform where medical products are sold online. We aim to provide users with reliable and high quality products. With the slogan "All the medical products you can think of and need" at the top, we emphasize that visitors can access everything they need on our site.

Featured Sections Product Categories: On the homepage, there is a category section where users can easily browse products. In this section

Nebulizers and Oxygen Cylinders

Stethoscopes Blood Pressure and Glucose Meters

Wheelchairs

Product categories such as Bedridden Patient Care Equipment are listed. Users who click on each category are directed to the shopping page with the relevant products.

Who We Are: In this section, we provide information about the vision and goals of our site. Our goal is to be a trusted brand in the medical field by offering the best products and service to customers. We also talk about our goal to serve at international standards.

Brands: In this area, we feature the logos of popular and trusted brands that we sell on our site (for example: Leo, Wollex, Omron). This aims to increase users' trust in our products.

Offers and Services: We offer some advantages that users will be interested in:

Free Shipping: For purchases of 3000 TL or more. Product Returns within 30 Days.

Ease of payment with various payment options.

Navigation and Design at the top of the home page:

Shopping and Contact are important links. In the top right corner, there are icons where users can access their accounts, view their carts or check out their favorite products. We made sure that the visuals and colors are simple, stylish and user-friendly. Especially with blue and green tones, we created a theme suitable for medical products.

Call to Action Buttons

On the homepage, we used buttons such as "Discover Products!" and "Buy Now" so that users can quickly discover products: "Discover Products!" and 'Buy Now' buttons on the homepage, which directs visitors directly to the shopping page.

## 2. Shop Page

This page is designed so that users can see and review all products in one place. Our goal is to make users' shopping experience enjoyable by presenting products as easily and understandably as possible.

Page Content

Product List: Many medical products are displayed on the page with their images. The following information is provided for each product:

Product Name: For example, "Omron Nebulizer", "Littmann Stethoscope", or "Poylin Economic Manual Wheelchair".

Price Information: Both non-discounted and discounted prices are shown (e.g. 3500₺ instead of 5000₺).

Product Images: High quality and eye-catching images were used to help users better recognize the products.

Discount Labels: There are visual labels such as "30% Off" for products on sale.

User Interactions

Add to Cart: There is an "Add to Cart" button under each product. Users can add products to their shopping carts by clicking this button.

Product Detail Page: Users who click on the products are directed to the detail page where they can find more information about that product.

Categories

The page is organized so that users can easily find products in different categories. Categories include:

Nebulizer Equipment and Oxygen Cylinders

Stethoscopes

Patient Beds

Blood Pressure and Glucose Meters

Wheelchairs These categories make it easier for users to search for products according to their needs.

Design

The page is designed in a simple and uncluttered way so that users can browse the products comfortably.

At the top, there are menu links to easily navigate to other parts of the site.

Care was taken to place the images and text in an organized manner so that the page has both an aesthetic and functional structure.

Bottom Section Information

The advantages offered to users are clearly indicated at the bottom of the page:

Free Shipping: Free shipping on purchases over 3000₺.

Returns within 30 Days: Support is provided for easy return of products.

Various Payment Methods: Different options are offered to facilitate the payment process of users.

This page aims to meet the needs of users as the main area where all products are together and facilitate shopping. We have done our best to make the design simple, clear and user-friendly.

## 3. Product Detail Page

Product Description:

Product Name: The area where the product name is displayed in a large and prominent way.

Rating Score: The user review score, indicated by stars, gives a general idea of the quality of the product.

Price Information: Both non-discounted and discounted prices of the products are clearly indicated. This allows the user to see the price advantage.

Product Variations: Color, size or other variation options are available for users to choose from.

Quantity Selection: Users can select the quantity of products they wish to purchase.

Product Images:

Main Image: A high resolution, high quality main image of the product is displayed.

Alternative Images: Images of the product from different angles or accessories are presented. These images help to better understand the product.

Zoom Feature: Users can examine the images in detail.

Product Details:

Description: Explains in general language the purposes for which the product can be used and the benefits it provides.

Technical Specifications: Basic information about the product and technical specifications (color, warranty period, etc.) are presented in a simple table.

User Reviews: Reviews and evaluation scores of users who have already purchased the product help to increase the confidence of other customers.

User Interactions

Add to Cart: The "Add to Cart" button in the center of the page allows users to add products directly to the shopping cart.

Navigation: At the top of the page, there is a "breadcrumb" structure that shows the user's current location and makes it easy to navigate back to other categories. For example:

Home > Categories > Nebulizers > Product Detail Page.

## 4. Contact Page Content

Header and General Message:

At the top of the page, there is a title "Contact Us!".

Users are given the message that they can contact the company if they cannot find the products they need or if they want to make suggestions.

Contact Form:

A simple and user-friendly form is provided for users to fill in. The form contains the following fields:

Name and Surname: Required for user identification.

Email Address: Contact information for response.

Message Subject: The general title of the message the user wants to convey.

Message Detail: The area where the user can write detailed requests, complaints or suggestions.

Form submission is provided with the "Send Message" button at the bottom of the form.

Location Information:


The page has a Google Maps integration that shows the physical location of the store. The map is interactive to facilitate user access to the store.

Contact Details:


On the right side of the page is the store's contact information:

Address: The full address of the store is provided.

Phone Number: Customer service line (for example, 0212 667 26 85).

Email Address: An email address where users can be contacted in writing.

Service Hours: Hours of operation are clearly indicated (e.g., "Monday-Friday: 24/7").


## 4. Cart Page

Image: Each product has a small image. These images help users quickly remember which product they have added to their cart.

Product Name: The name of the added product is clearly and concisely stated (for example, "Omron Nebulizer").

Price: The unit price of the product is clearly displayed. If there are discounted and non-discounted prices, these details are also included.

Quantity: Shows how many products users have in their carts. Users can increase or decrease the product quantity from this field.

Total: For each product, the total amount resulting from the multiplication of the unit price and the quantity is indicated.

Delete Button: Users can use the delete button to remove unwanted products from the cart.

Coupon Code Field:

Users can enter a coupon code to get a discount.

They can activate the code with the "Apply Coupon" button. If a valid coupon code is used, the total cart amount will be updated accordingly.

Update Cart:

After changing the quantity of products, users can activate the changes using the "Update Cart" button. This will recalculate the total amount and other information.

Total Cart Amount Field: This field allows users to quickly see the total amount they will pay for the products added to their cart:

Product Amount: The total cost of all products in the cart is indicated here.

Shipping Fee: A shipping fee is added depending on the type of shipping the user chooses (for example, "Fast Shipping: 1000₺").

Total Amount: The final amount calculated by combining the total price of the products and the shipping fee.

Address Change: Users can edit their delivery address via the "Change Delivery Address" link.

Proceed to Checkout Button:

It is one of the most important action buttons of the page. By clicking this button, users are directed to the payment process and can complete the shopping process.

*Technical Requirements:*

**Design and Layout**

**Clean and Organized Structure**: A harmonious balance between product information, images and descriptions.

**Easy Access:** Information is categorized (e.g. tabs such as Product Description, Technical Specifications, User Reviews) to allow users to quickly access the information they are interested in.

**Color Palette:** Simple and reassuring blue-green tones suitable for the medical product theme are used.

**Additional Learning Materials:** coding help platforms such as udemy, youtube and w3school were used.

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*Visual and Design Requirements*

- **Logo and Icon**

Logo Design

The logo of our platform was designed together with chatgpty to clearly represent that it is a shopping platform for healthcare professionals. In the logo:

Blue Plus Sign: The plus sign, the symbol of the healthcare industry, emphasizes that we cater to healthcare professionals.

Stethoscope Image: The stethoscope in the center of the logo is directly associated with the health theme and emphasizes medical services.

Round Frame: Represents a sense of trust and integrity, while also symbolizing a user-centered platform.

Color Palette:

Shades of Blue: Associated with professionalism, trust and health.

White Details: It stands for simplicity, transparency and cleanliness.

Purpose of the Logo

This logo visually expresses that our platform offers a trusted shopping space for healthcare professionals. It reflects the mission of our platform, which focuses on the needs of users in the healthcare sector and aims to provide a secure shopping experience.

Icons

Bootstrap was used for the icons on the platform.

The icons on the platform are also designed in a minimalist and user-friendly way, in line with the overall design language of the logo:

Cart Icon: Facilitating the shopping process.

Search Icon: Enabling users to search for products quickly.

Categories and Profile Icons: Functionally added so that users can easily navigate through the site.

This visual language emphasizes that the platform is professional, reliable and user-friendly.

- **Color Palette:** Simple and reassuring blue-green tones suitable for the medical product theme are used.

- **Images and Illustrations:**

The images and illustrations used on the platform are designed to enhance the user experience and visually emphasize the purpose of the site. Below is a detailed description according to the uploaded images of the site:

1. Home Page Images

The homepage is equipped with high-quality visuals that familiarize users with the platform's purpose and services:

Banner Image: The image of an individual in a wheelchair at the top of the homepage emphasizes the theme of health. This image makes it clear that the site caters to healthcare professionals.

Categories Section:

Icons and images of product categories such as nebulizers, blood pressure monitors and wheelchairs are included.

By using unique visuals for each category, users can quickly access their needs.

Brands Section: The logos of reliable and well-known brands (Leo, Wollex, Omron, etc.) reinforce the professional structure and reliability of the site.

2. Product Listing Page Images

On the product listing page, detailed visuals and remarkable arrangements have been made for each product:

Product Images:

Clear, high-resolution photos of products such as wheelchairs, blood pressure monitors and patient beds.

For discounted products, visual cues are used to attract users' attention with labels such as "30% Off".

Categories and Filtering Images: Images used in product categories help users quickly distinguish products.

3. Product Detail Page Images

On the product detail page, multiple images and details are presented for users to better understand the product:

Main Product Image:

The main image of each product is large and prominently placed.

For example, images of a nebulizer taken from different angles are used to help users get to know the product better.

Alternative Images: Additional images showing accessories or usage of the products are available.

Zoom Feature: High resolution images are presented where users can examine product details.

4. Contact Page Images

The contact page uses Google Maps integration so that users can easily find the physical location of the store:

The store location around Eyüp Sultan Mosque is clearly marked on the map.

This image allows users to quickly find the physical store and reach it with confidence.

5. Cart Page Visuals

On the cart page, there are small images for each product:


Product images are clearly presented so that users can easily recognize the products they add to the cart.

Total price, product quantity and coupon application options are visually organized.