

HO CHI MINH CITY UNIVERSITY OF TECHNOLOGY
FACULTY OF COMPUTER SCIENCE AND ENGINEERING



Web Programming (CO3049)

INDIVIDUAL WEBSITE

Advisor(s): NGUYỄN ĐỨC THÁI
Students: NGÔ PHAN KHẨI TÚ - 2153951

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1 Introduction

This report presents the design and implementation of an e-commerce style website developed for the Web Programming course. The project demonstrates the use of HTML5, CSS3, JavaScript, PHP, MySQL, responsive design techniques, AJAX search, authentication, and SEO practices.

The website includes:

- A responsive layout (desktop, tablet, mobile)
- User authentication (login, register, password recovery)
- Product listing with pagination and sorting
- AJAX-powered search suggestions
- SQL database with users, products, and orders
- Admin and user roles

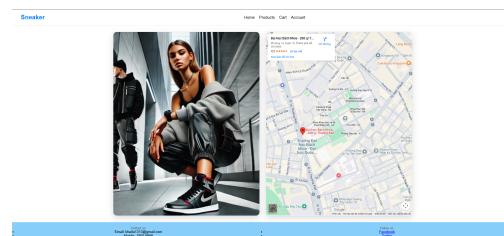


Figure 1: Home Page

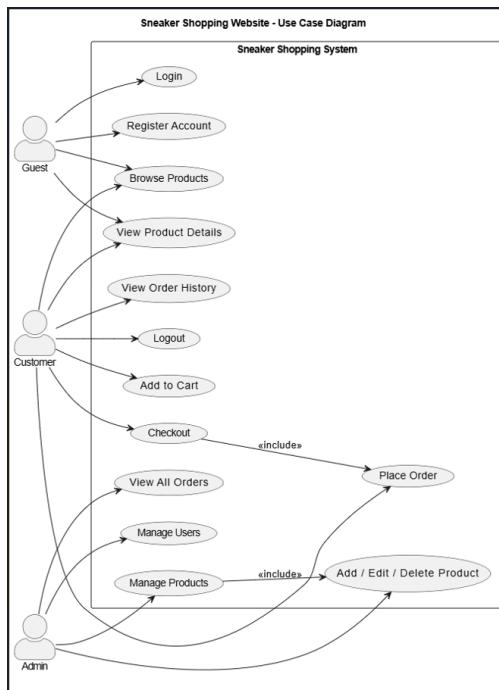


Figure 2: Use case diagram

1.1 Database Design

The system uses a MySQL database with three main tables: Users, Products, and Orders. The ERD is shown below.

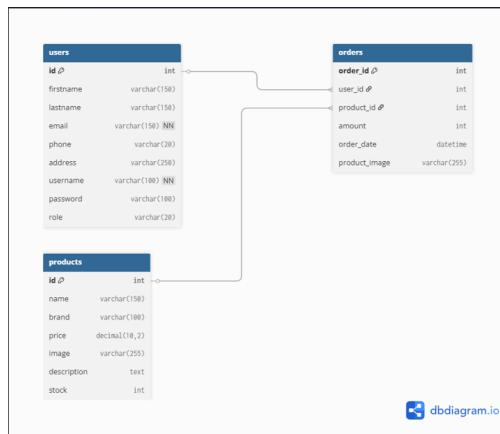


Figure 3: Entity–Relationship Diagram

1.2 Users Table

Stores customer and admin account information.

```
-- TABLE: users
CREATE TABLE users (
    id INT(11) NOT NULL AUTO_INCREMENT,
    firstname VARCHAR(150) NOT NULL,
    lastname VARCHAR(150) NOT NULL,
    email VARCHAR(150) NOT NULL,
    phone VARCHAR(20) NOT NULL,
    address VARCHAR(250) NOT NULL,
    username VARCHAR(100) NOT NULL,
    password VARCHAR(100) NOT NULL,
    role VARCHAR(20) NOT NULL DEFAULT 'customer',
    PRIMARY KEY (id),
    UNIQUE KEY (email),
    UNIQUE KEY (username)
);
```

Figure 4: Users Database

1.3 Products Table

Contains product details such as name, brand, price, image, and stock amount.



```
-- -----
-- TABLE: products
--

CREATE TABLE products (
    id INT(11) NOT NULL AUTO_INCREMENT,
    name VARCHAR(150) NOT NULL,
    brand VARCHAR(100) NOT NULL,
    price DECIMAL(10,2) NOT NULL,
    image VARCHAR(255) NOT NULL,
    description TEXT NOT NULL,
    stock INT(11) DEFAULT 100,
    PRIMARY KEY (id)
);
```

Figure 5: Products Database

1.4 Orders Table

Records purchase transactions for each user.

```
-- -----
-- TABLE: orders
--

CREATE TABLE orders (
    order_id INT(11) NOT NULL AUTO_INCREMENT,
    user_id INT(11) NOT NULL,
    product_id INT(11) NOT NULL,
    amount INT(11) NOT NULL,
    order_date DATETIME DEFAULT CURRENT_TIMESTAMP,
    product_image VARCHAR(255),

    PRIMARY KEY (order_id),

    FOREIGN KEY (user_id) REFERENCES users(id)
        ON DELETE CASCADE
        ON UPDATE CASCADE,

    FOREIGN KEY (product_id) REFERENCES products(id)
        ON DELETE CASCADE
        ON UPDATE CASCADE
);
```

Figure 6: Users Database



2 Website Features and Implementation

2.1 Layout and Navigation

The website includes a header, navigation bar, body section, and footer. The layout is responsive using custom CSS media queries.

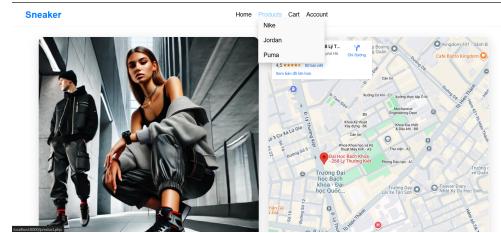


Figure 7: Navigation Bar

2.2 Products Page

Products are displayed with pagination and sorting. Each item shows price, image, stock status, and brand.

(a) Main product page

(b) Product Search

(c) Product view

(d) Product Sort

Figure 8: Product Page



2.3 User Authentication

The website supports:

- Registration
- Login / Logout
- Password reset (not yet)
- Google / Facebook login (demo)

(a) Login

(b) Register

(c) Admin Dashboard

(d) User Dashboard

Figure 9: Four key screens of the application.



3 Responsive Design

The site uses CSS media queries to adapt layouts for:

- Mobile phones (max-width: 480px)
- Tablets (481px–768px)
- Laptops and desktops

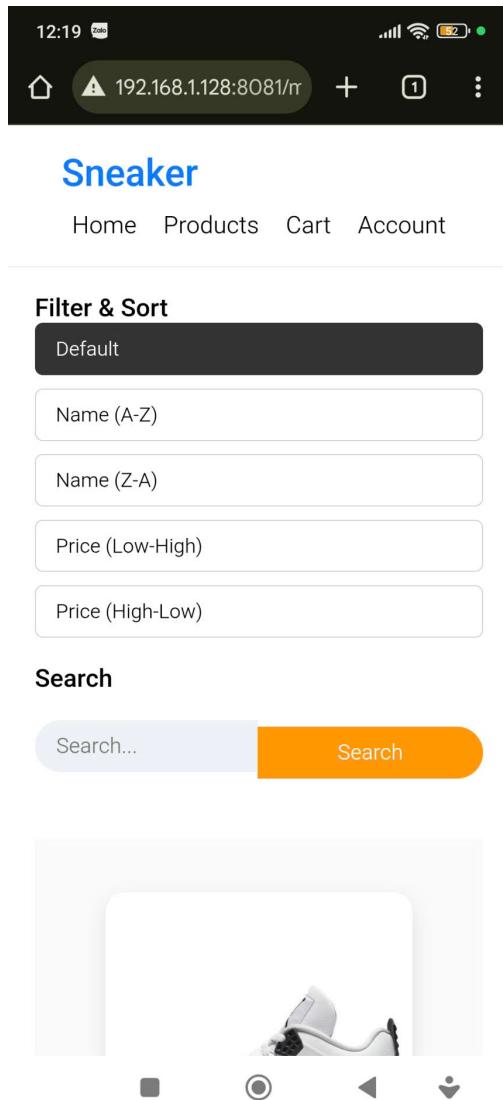


Figure 10: Products Page On Phone



4 SEO and Security

4.1 SEO Techniques Applied

- Semantic HTML structure
- Meta keywords and descriptions for each page
- Clean and meaningful URLs
- Image alt text for accessibility

4.2 Security Practices

- Password hashing using PHP password_hash()
- SQL injection prevention with prepared statements
- Input validation on both client and server sides

5 Conclusion

This project helped demonstrate full-stack web development skills, including UI/UX design, server-side programming, database management, and integrating AJAX and responsive design. Several improvements can be made in the future, such as:

- Adding an admin dashboard for product management
- Implementing order history tracking
- Applying more advanced SEO techniques

—————END—————