Rules

- The use of AI tools like ChatGPT, GitHub Copilot, or any other AI-based assistance is strictly forbidden.
- You can use your handwritten or digital notes.
- Any form of browsing the internet is not allowed (Google, MDN, Stack Overflow, etc.).
- Do not share or discuss answers with others during the exam.
- Anyone caught sharing solutions will face strict action.
- Complete the exam honestly.

Question: Build an Online Shopping Wallet System

You are tasked with creating a shopping wallet system using JavaScript. This system will allow users to manage their wallet and transactions for an online shopping platform.

Features to Implement

User Registration
- Users should be able to register with a unique username and password.
- Store user data (e.g., wallet balance and transaction history).

Login/Logout System
- Allow users to log in using their username and password.
- Upon successful login, display a personalized greeting and wallet balance.
- Include a "Logout" button for manual logout.

Wallet Management
- Users can:
    - Add funds to their wallet.
    - Deduct funds for shopping (ensure the user cannot spend more than their available balance).
    - Implement a feature to display the total amount spent on purchases over time.

Purchase Feature
  - Display a list of dynamic products (e.g., "Shoes - $50," "T-shirt
    - $20") with add more options.
  - Allow users to select products to purchase, deducting the total
    cost from their wallet.
  - Show a success message if the purchase is successful or an error
    message if there are insufficient funds.

Session Timeout
  - Automatically log the user out after 3 minutes.

Data Persistence
  - Use the browser's localStorage to persist user data, including
    wallet balances and transaction history.

Transaction History
  - Allow users to view their last 5 transactions, including the
    product name, amount spent/added, and a timestamp.

Dynamic DOM Manipulation
  - Use DOM manipulation to dynamically display the current state of
    the system (e.g., login form, wallet dashboard, product list,
    etc.).

Requirements
  - Use JavaScript arrays, strings, filter, map, and reduce to manage
    data.
  - Try to use pure function
  - Validate user input (e.g., ensure the username is unique,
    validate numeric inputs for wallet balance and purchases).
  - Provide clear and interactive feedback through DOM updates (e.g.,
    success/error messages).