Task Overview:

Create a simplified auction system with the following features:

1. **User Authentication**: Users must sign in to participate in the auction.
2. **Real-Time Bidding**: Users can place bids on a product in real time. When a bid is placed:
   - The current bid amount is increased.
   - The auction timer resets to 30 seconds.
3. **Timer Management**: The auction runs for 30 seconds. If a bid is placed within that time, the timer resets to 30 seconds.
4. **Bid Winner Enablement**:
   - If no bids are placed within the 30-second window, the last bidder wins.
   - The "Buy Now" button should be enabled for the winning bidder, allowing them to complete the purchase within 10 minutes.

Requirements:

1. **User Authentication**:
   - Implement basic user login and registration.
   - Restrict bid placement to authenticated users only.
2. **Real-Time Bid Placement**:
   - Use WebSockets (or a similar technology) to manage real-time bid updates.
   - Display real-time bid updates to all users viewing the auction.
   - Increment the bid amount by a defined minimum (e.g., $5) with each new bid.
3. **Timer Reset and Management**:
   - Display a countdown timer for the auction (starting at 30 seconds).
   - Reset the timer to 30 seconds each time a new bid is placed.
   - If no bid is placed within 30 seconds, declare the current highest bidder as the winner.
4. **Enable Purchase for Winning Bidder**:
   - Once the auction ends, show a "Buy Now" button only for the winning bidder.
   - Set a 10-minute timer for the "Buy Now" option. If not used within 10 minutes, the option should be disabled.
5. **Frontend UI**:
   - Display the product details, current bid amount, countdown timer, and bid button.
   - Show real-time updates for bid placement and timer reset.
   - Indicate when a user wins the bid and shows the "Buy Now" button.

Expectations:

- **Real-Time Capabilities**: The candidate should implement real-time updates using WebSockets.

- **State Management**: Handle the auction state, such as bid amounts, countdown timer, and enabling the "Buy Now" button for the winning bidder.
- **Responsive UI**: Ensure the auction page updates in real time without requiring manual page refreshes.
- **Code Structure**: Organize code effectively, adhering to best practices and ensuring scalability.
- **Security**: Implement basic security measures like input validation and user authentication.

Timeframe: 2 days

TechStack: MERN Stack
Output: Live Vercel URL
Github Repo Shared