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Role: Tester

Tester Responsibilities: Blockchain-Based Energy Trading in AI-Driven Smart Applia

1. AI-Driven Smart Appliance Control (AI Module)

Testing Focus: Automation, decision-making accuracy, and energy optimization.

- Functional Testing: Check if appliances turn on/off based on AI decisions.

- Input/Output Testing: Feed different user preferences or sensor inputs.

- Edge Case Testing: Test scenarios like internet failure or user overrides.

2. Energy Monitoring System

Testing Focus: Accurate energy usage and generation data tracking.

- Data Accuracy Testing: Validate energy data shown in dashboard.

- Real-Time Testing: Check timely updates in energy stats.

- Stress Testing: Simulate high data input from multiple sensors/users.

3. Blockchain Integration (P2P Trading)

Testing Focus: Secure, accurate, and fast energy trades.

- Transaction Testing: Verify correct energy buying/selling.

- Smart Contract Testing: Check contract rules execution.

- Security Testing: Simulate tampering or unauthorized access.

- Wallet Testing: Test wallet creation, balance updates, history.

4. UI/UX Testing (Dashboard & Mobile App)

Testing Focus: Interface usability for trading, monitoring, and settings.

- UI Testing: Layout and visual checks across devices.

- User Flow Testing: End-to-end interaction testing.

- Error Handling: Test system response to user errors.

5. Integration Testing

Testing Focus: Ensure seamless interaction of all modules.

- AI + Blockchain: AI recommends trades, blockchain executes.

- Energy Monitor + AI: Real-time data guides AI.

- User Action + Blockchain: Ensure secure trade processing.

6. Performance & Load Testing

Testing Focus: Real-world performance under load.

- Load Testing: Simulate multiple users trading.

- Response Time Testing: Measure speed of trades and responses.

7. Regression & Compatibility Testing

- Regression Testing: Ensure updates dont break features.

- Cross-platform Testing: Test on web, Android/iOS, smart devices.