COS 221 Practical Assignment 5 - Demo Presentation Script

Introduction (2 minutes)

**Team Member 1:**  
"Good [morning/afternoon] lecturers. We are [team name] and we're excited to present our CompareIt price comparison platform. Our team consists of [list all members]. Today we'll walk you through how we approached each requirement in the assignment, the challenges we faced, and the solutions we implemented."

Task 1: Research (1 minute)

**Team Member 2:**  
"For our research component, we focused on three key areas of e-commerce:

1. Current price comparison tools and their limitations
2. User behavior patterns in online shopping
3. Emerging trends in retail technology

We identified that modern consumers value real-time pricing, community reviews, and personalized recommendations. Our research informed several design decisions, particularly around user experience and filtering capabilities. We've included 5 academic references following IEEE format in our submission."

Task 2: (E)ER-Diagram (2 minutes)

**Team Member 3:**  
"Our EER diagram went through three iterations:

1. Initial basic structure with core entities (Products, Users, Retailers)
2. Added relationships for reviews and pricing history
3. Final version with specialization for different product types

Key features:

* Weak entity for PriceHistory dependent on Product
* Ternary relationship between User, Product, and Review
* Specialization for Electronics, Clothing, and Home categories

We used draw.io with Chen's notation as required, and all iterations are documented in our PDF."

Task 3: (E)ER to Relational Mapping (2 minutes)

**Team Member 4:**  
"The mapping process presented several interesting challenges:

1. The ternary relationship was implemented using a bridge table
2. Weak entities required careful foreign key placement
3. Multivalued attributes like product tags became separate tables

For the M:N relationship between Products and Retailers, we created a PriceListing junction table with additional attributes like timestamp and availability status. All mapping decisions are explained in detail in our documentation."

Task 4: Relational Schema (2 minutes)

**Team Member 1:**  
"Our final schema consists of 12 tables with:

* Proper normalization to 3NF
* Appropriate constraints (CHECK for ratings 1-5, NOT NULL for critical fields)
* Cascading deletes where appropriate

Key design choices:

* Used ENUM for product categories
* Created composite indexes for frequent query patterns
* Implemented full-text search on product descriptions

The visual schema diagram and complete SQL DDL are included in our submission."

Task 5: Web Application (4 minutes)

**Team Member 2:**  
*[Live Demonstration]*  
"Our web application implements all required functionality:

* Secure user authentication with bcrypt hashing
* Comprehensive product management
* Advanced filtering with price range, ratings, and categories
* Review system with moderation capabilities

Technical highlights:

* Responsive design using Bootstrap
* AJAX for dynamic price updates
* Prepared statements for all SQL to prevent injection
* Dashboard with data visualization using Chart.js

Would you like me to demonstrate any specific feature in more detail?"

Task 6: Data (1 minute)

**Team Member 3:**  
"We populated our database with:

* 150+ products from dummyjson.com API
* 20 retailers with realistic pricing data
* 300+ user-generated reviews

We created Python scripts to:

1. Fetch and transform API data
2. Generate realistic price fluctuations
3. Create varied user reviews

This gives us a robust dataset for testing all application features."

Task 7: Analysis & Optimization (2 minutes)

**Team Member 4:**  
"We analyzed a product search query that was performing poorly. The execution plan showed:

* Full table scans on large tables
* Missing indexes on filter columns

Optimizations implemented:

1. Added composite index on (category, price)
2. Rewrote query to use covering index
3. Added materialized view for common searches

Result: Query time improved from 1200ms to 85ms. Full details are in our optimization report."

Task 8: Development Practices (1 minute)

**Team Member 1:**  
"We followed rigorous development practices:

* Git with feature branch workflow
* Semantic commit messages
* Composer for PHP dependencies
* Comprehensive code documentation
* Peer code reviews

Our README provides clear setup instructions, and commit history shows steady progress."

Task 9: Bonus Features (2 minutes)

**Team Member 2:**  
"We implemented two bonus features:

1. Accessibility enhancements:
   * WCAG 2.1 AA compliance
   * Keyboard navigation
   * Screen reader support
   * Color contrast verification
2. Recommendation system:
   * Collaborative filtering based on user behavior
   * Shows 'similar products' and 'frequently bought together'

*[Demonstrate one bonus feature]*"

Task 10: Demo Preparation (1 minute)

**Team Member 3:**  
"To prepare for today's demo:

1. We rehearsed with timed segments
2. Prepared backup screenshots in case of technical issues
3. Assigned clear speaking roles
4. Identified key features to highlight

Each team member contributed equally, with roles documented in our PDF."

Conclusion (1 minute)

**Team Member 4:**  
"In conclusion, CompareIt demonstrates:

* Solid database design principles
* Full-stack web development skills
* Attention to user experience
* Good software engineering practices

We're proud of what we've accomplished in this first major group project. Thank you for your time. We'd be happy to answer any questions you may have."