

# Final Retrospective

## Skills Acquired

### Technical Skills

- **Django Framework:** We learned to build a full-stack web application using Django, integrating database management with frontend interface development.
- **Database Design:** We gained experience designing and implementing a SQLite database structure that effectively stores and manages course data from multiple sources.
- **Data Analysis:** We developed skills in analyzing historical enrollment patterns to create predictive models that could forecast future course demand.
- **Frontend Development:** We enhanced our abilities in creating user-friendly interfaces with data visualization elements that make complex information accessible and digestible.

### Soft Skills

- **Project Management:** We improved our abilities to plan, organize, and track progress on complex software development tasks.
- **Communication:** We strengthened our ability to explain technical concepts to different stakeholders (students, faculty, administration) of varying exposure to CS concepts.
- **Problem-Solving:** We developed creative approaches to address the complex challenge of predicting course demand using multiple variables.
- **Collaboration:** We learned to effectively distribute tasks and responsibilities among team members based on individual strengths.
- **Time Management:** We gained experience in prioritizing features and managing deadlines throughout the development process.

## Lessons Learned

### Software Development Lessons

- **Data Integration Challenges:** Combining data from different sources (PDF files, Registrar's Office, Course Catalog) required more standardization and cleaning than initially anticipated.
- **Iterative Development:** We learned that building features incrementally and testing them throughout the process was more effective than trying to implement everything at once.
- **Testing Importance:** Thorough testing of prediction algorithms was critical to ensure reliable course recommendations for students.

## Teamwork Lessons

- **Diverse Perspectives:** Each team member brought unique insights that contributed to a more comprehensive solution than any individual could have developed alone.
- **Clear Role Definition:** Defining specific responsibilities while maintaining flexibility was crucial for efficient teamwork.
- **Regular Check-ins:** Consistent communication about progress and challenges helped keep everyone aligned and problems addressed promptly.
- **Conflict Resolution:** We learned to address disagreements constructively by focusing on project goals rather than personal preferences.
- **Knowledge Sharing:** Teaching each other about our respective areas of expertise strengthened both individual skills and team capabilities.

## Accomplishments and Challenges

### What We Accomplished

- Successfully built a functioning web platform that uses historical data to predict course demand
- Developed personalized likelihood prediction based on multiple factors (professor demand, class year, major, past course demand)
- Created a system that addresses the needs of all three stakeholder groups
- Implemented a database structure that effectively integrates data from various sources
- Delivered an intuitive user interface that makes complex prediction data accessible to students

### Challenges and Limitations

- **Data Availability:** Limited historical data in some departments affected prediction accuracy
- **Edge Cases:** Some unusual course selection patterns were difficult to account for in our prediction model
- **Scalability:** While we established a foundation for scaling to other departments/institutions, full implementation would require additional resources
- **Integration with Existing Systems:** Complete integration with Workday for direct enrollment remains a future implementation goal