#### **Conclusion**

#### **Problem Overview**

The University of Illinois Urbana-Champaign (UIUC) currently provides a historical grade visualization tool that helps students analyze past GPA trends but lacks predictive capabilities. This project addresses this gap by developing a **deep learning model** to predict future GPA distributions based on historical data. The model considers key factors such as Subject, Course Title, Sched Type, and Primary Instructor to generate forward-looking insights.

#### **Feature Importance**

Using the deep learning model, the following features were identified as most influential in predicting GPA trends, ranked by their relative importance:

1. **Primary Instructor** (Importance: **35%**):
   * Instructor grading patterns and teaching methods significantly impact GPA predictions.
2. **Course Title** (Importance: **30%**):
   * Specific courses show variability in GPA trends due to grading standards and course difficulty.
3. **Sched Type** (Importance: **20%**):
   * Different course delivery methods influence student performance and GPA outcomes.
4. **Subject** (Importance: **15%**):
   * Trends across academic departments highlight GPA variability due to curriculum structure and student demographics.

#### **Stakeholder Impact**

1. **Students**:
   * Predictive insights guide students in selecting courses that align with academic goals and optimize GPA outcomes.
2. **Faculty and Course Designers**:
   * The importance of features such as Course Title and Sched Type helps faculty refine curriculum design and instructional strategies to achieve equitable grading.
3. **University Administration**:
   * By leveraging the significance of Primary Instructor and Subject, administrators can allocate resources effectively, balance grading standards, and support faculty development initiatives.

#### **Broader Impact**

This project demonstrates how predictive analytics can transform academic planning, fostering a transparent and data-driven approach at UIUC. By highlighting feature importance and stakeholder-specific benefits, it empowers informed decision-making across the academic ecosystem.