Presentation Notes:

SLIDE 4: SOLUTIONS

* **Early Warning System:** The model is being designed to identify employees at risk of layoff. If the model flags you, it's an early heads-up. This could give you valuable time to:
  + **Proactively discuss your performance:** Talk to your manager about areas for improvement and how you can become more valuable to the company.
  + **Explore other opportunities:** If necessary, you can start looking for new positions within the company or update your resume for external opportunities.
* **Data-Driven Decisions:** This project aims to use data (performance reviews, skills, etc.) to predict layoffs, which can be fairer than relying solely on subjective opinions. This can potentially minimize bias in layoff decisions.
* **Focus on Retention:** By identifying employees at risk, the company might put more effort into keeping valuable staff. This could translate to:
  + **More investment in training and development:** Helping us enhance our skills and increase our value to the company.
  + **Improved work environment:** Addressing potential causes of high turnover and creating a more positive work atmosphere.

SLIDE: IMPLEMENTATION

* **Data Collection:** Gather employee data relevant to job performance, skills, and tenure (e.g., performance reviews, training records, years with the company).
* **Data Preprocessing:** Clean and organize the data, addressing missing entries, inconsistencies, and outliers.
* **Feature Engineering:** Create new features from existing data that might be more relevant for predicting layoffs (e.g., combining performance ratings across different categories).
* **Model Selection and Training:** Choose a machine learning classification algorithm (e.g., Random Forest) and train it on the prepared data to identify patterns that differentiate employees who are laid off from those who are retained.
* **Model Evaluation:** Assess the model's performance on unseen data to gauge its generalizability and effectiveness in real-world layoff prediction scenarios.

SLIDE: LESSON

**Lessons Learned:**

* **Importance of Data Quality:** The model's performance heavily relies on the quality and relevance of the employee data used for training. Missing values, inconsistencies, or biases in the data can lead to inaccurate predictions.
* **Model Selection and Tuning:** Choosing the right classification algorithm and fine-tuning its hyperparameters can significantly impact the model's accuracy and generalizability. Experimenting with different options is crucial.
* **Ethical Considerations:** Using employee data for layoff prediction raises ethical concerns. Transparency and responsible use are essential to avoid biased outcomes.

SLIDE: CHALLENGES

* **Data Availability:** Obtaining comprehensive and accurate employee data can be challenging due to privacy regulations or missing information.
* **Model Interpretability:** While the model might predict layoffs, understanding the exact reasoning behind its decisions (especially for complex algorithms) can be difficult.

FUTURE

* **Improve model accuracy:** Explore techniques like hyperparameter tuning to see if accuracy can be enhanced.

TODO:

IDENTIFY AS BINARY CLASSIFICATION PROBLEM

SHOW THE ROWS AND TYPE OF COLUMN

REPORT F1, PRECISION, CONFUSION MATRIX