Assignment 4: Model Deployment, Feedback Collection, and Iterative Improvement

Course: Data Science
Class: BSCS-F22
Instructor: Ghulam Ali
Course Learning Outcome: CLO-03 GA-03

Due Date: Dec 20, 2025 11:45 PM

Objective:

The objective of this assignment is to move from model development to real-world deployment. Students will deploy their models using appropriate tools, gather user feedback, identify potential areas of improvement, and explore the lifecycle of versioning (e.g., version 2.0). They will critically evaluate limitations, assumptions, and propose next steps for enhancement.

Assignment Tasks:

1. Model Deployment:

- Choose a suitable tool for deploying your model (e.g., Streamlit, Flask, Gradio, Fast API).
- Clearly explain why this tool was chosen compared to at least two other deployment options.
- Deploy your model in a working environment (local or cloud-based).
- Include:
  - Link to deployed application (if hosted online) or instructions for running locally.
  - Screenshots of the interface and major functionality.

2. Feedback Collection:

- Share your deployed model with at least **15 users** (students, peers, instructors, etc.).
- Create a feedback form or interface that collects:
  - Usability feedback
  - Accuracy/relevance of model output
  - Suggestions for improvement
- Store all responses in a "Suggestions Dataset" (can be in CSV or spreadsheet format).
- Analyze the feedback and highlight key suggestions or recurring themes..

3. Improvement Plan and Versioning:

- Based on feedback, propose improvements and define a next version (v2.0 or higher) of your system.
- Describe:
  - What will change in the next version

    - Which suggestions are being prioritized and why
    - What additional resources or techniques will be needed
- You may optionally implement some changes as a proof of concept.

4. Improvement Plan and Versioning:

- Clearly mention the assumptions made during your model development and deployment.
- Discuss the limitations of your system, such as Bias in data, Generalizability of the model, Performance issues or Deployment constraints etc.

4. Documentation:

Students must submit a well-structured report covering:

I. **Introduction:** Purpose of the assignment, summary of the deployed system
II. **Deployment Tool Comparison:** Comparison of 3 tools and justification of selected one
III. **Deployment Process:** Description with steps, screenshots, and links
IV. **Feedback Collection & Analysis:** Summary of feedback and dataset of suggestions
V. **Improvement Plan:** Roadmap for future versions with prioritized features
VI. **Limitations & Assumptions:** Honest reflection
VII. **Conclusion:** What was learned through deployment and feedback
VIII. **Appendix:** Code snippets, feedback form link, or screenshots

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Submission Guidelines:

1. The report should be in PDF format.
2. The code must be submitted separately in a Jupyter Notebook (.ipynb).
3. Proper citations should be included if external sources are used.
4. Submit your assignment on Google Classroom by the due date.