

# FINAL PROJECT

## Guidelines

- For the final project, students will team up as groups of 3 or 4 to collaborate on the deep learning project.
- You may use any open (non-proprietary) data sets.
- You may use any deep learning framework and infrastructure for model training and inference.
- Please include links and references and sources where you reused the code, algorithms or patterns.
- Please include author names and tables of contents in your final report.
- All members must actively participate in the project and contribute their share. If the team agrees that a member “dropped the ball”, marks of that member will be deducted accordingly.
- Submit your report/presentation pdf/ppt and full source code for the project.

## Final Report (80)

1. Abstract (5)
  - Written collaboratively, briefly summarize the problem, your approach, and describe results.
2. Exploratory Data Analysis (15)
  - Summarize data: record counts, missing values, and schema
  - Visualize the raw dataset using charts and tables (line/bar charts, q-q plots, heatmaps, violin, etc.)
  - Structured Data: Perform univariate and bivariate analysis of the features
  - Image Data: Histograms, samples, outliers
3. Model Training and Evaluation (40)
  - Identify and solve **two** different cognitive problems in the project (e.g. classification, regression, tagging, translation, compression, in-painting, style-transfer, fake detection, etc.)
  - Build at least **two** competing (champion-challenger) models per problem
  - Print detailed model evaluation and comparative metrics (e.g. F1, Accuracy, Confusion Matrix, ROC etc.)
  - Describe the algorithms implemented and their pros and cons with respect to the data
  - Perform detailed model performance evaluation and comparison with appropriate metrics
4. Model Operations (10)
  - Provide a mechanism (architecture) on how the model would be deployed
  - Provide a plan for model maintenance and a process for parameter update.
5. Conclusion (10)
  - Conclude the paper with a discussion of findings, references, and resources for interested readers.

## Presentation (20)

- Each team will be given 20 minutes to present their portion of the project (approximately 5 mins per member).