# CPS485 - 2025 Fall - Assignment #12

## DUE DATE: No later than Oct. 6 (Mon.), 2025, 11:59 PM EST.

## REQUIREMENTS

- Each group will hand in only **one submission**.
- **Print names of all members** are required in submissions.
- **All code is required to be runnable**.
- **All conclusions need to be rigorously defended.**
- All source code and document for each submission are required to be packed in a **ZIP file**. The name of this ZIP file is suggested to follow the format:

  `CPS485_2025_Fall_[HW NUMBER]_[MEMBER NAMES].zip` .
- All submissions will be sent to Fanchao ([fmeng@misericordia.edu](mailto:fmeng@misericordia.edu)) via **emails** or using GitHub repos. Fanchao will confirm each submission. No printed submissions.
- **Late submissions are NOT accepted** unless you have the permission from Fanchao.

# Problems (100 points in total)

1. (100 pts) **Overfitting & Underfitting** Please use a concrete dataset and **at least two supervised ML models** to demonstrate both the *overfitting* and the *underfitting* phenomena.
2. [BONUS] When overfitting occurs in your models, how do you address this issue, i.e., mitigate overfitting?