Day 5: Mini-Project

Summer STEM: Machine Learning

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Learning Objectives

- How to load and visualize the data?
- How to identify the machine learning algorithm given a data set?
- How to select an appropriate model and loss function?
- How to train and evaluate a model?

Timeline for Implementing the Project

- 9:00AM - 9:15AM Team formations (Groups of 2)
- 9:15AM - 10:00AM Find or build your own data set
- 10:00AM - 10:15AM Identify the algorithm you want to use on your data set (Classification/Regression)
- 10:15AM - 10:45AM Visualize and understand your data
- 10:45AM - 11:15AM Train your model
- 11:15AM - 12:00PM Improve your model's performance by using cross-validation and test sets
- 12:00PM - 1:00PM Break
- 1:00PM - 2:00PM Prepare presentation slides according to the template
- 2:00PM - 4:00PM Presentations

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Presentation Template

- Slide 1: Title and introduction
- Slide 2: Explain your data set and cite your data
- Slide 3: What algorithm have you chosen and why?
- Slide 3: Your model and loss function
- Slide 4 & 5: How did you train your model? (Linear/polynomial, did you use K-folds? packages, choice of hyper parameters, etc). Model performance on training set?
- Slide 6: Model performance on test set
- Slide 7: Challenges and learnings
- Slide 8: Conclusion

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Rules

- Your dataset should not be a readily available machine learning dataset. Avoid websites like *uci*, *kaggle* etc
- Your dataset needs to be approved by an instructor.
- Both the team members should contribute equally.
- Each team should present for 8-10 minutes.

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Thank You!

- Next Week: Deep Learning
- Have a fun weekend!
- Revise Revise Revise!

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