Final Projects

Data Boot Camp

Lesson 23.1

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Class Objectives

By the end of today's class you will be able to:

- Familiarize yourselves with the MNIST dataset for handwriting recognition.
- Load an image file into a data array.
- Use pretrained models to make predictions.
- Make progress on your projects.

Time to Code

MNIST

Suggested Time:

Questions?

Intro to Final Projects

Project Week (This Week)!

Day 1	Form groups.
	Outline project ideas.
	Perform an initial data exploration.
	Begin research of datasets.
	Submit a project proposal for approval.
Day 2 & 3	Develop your project with your team.

Project Week (Next Week)!

Day 4	Develop your project with your team.
Day 5	Develop your project with your team and prepare your presentation.
Day 6	Present your project to the class.

Project Requirements

Final Project Requirements: Demystifying ML

01 Find a problem worth solving, analyzing, or visualizing.

02 Use machine learning (ML) with the technologies we've learned.

03 You must use Scikit-learn and/or another machine learning library.

04 You must use at least two of the following:

- Python Pandas
- Python Matplotlib
- HTML/CSS/Bootstrap
- JavaScript Plotly
- JavaScript Leaflet
- Tableau
- SQL Database
- MongoDB Database
- Google Cloud SQL
- Amazon AWS

Project 4 Group Work

The requirements for this project are broken into 5 categories:

01 Data and data delivery

02 Back end (ETL)

03 Visualizations

04 Group presentations

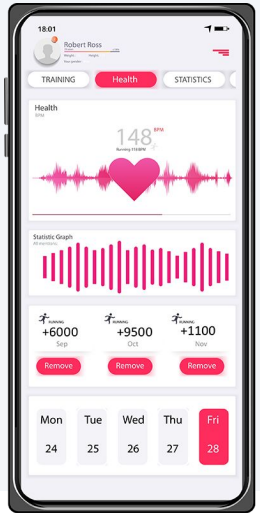
05 Slide deck

Project Group Work

You can focus on:

Finance

Healthcare



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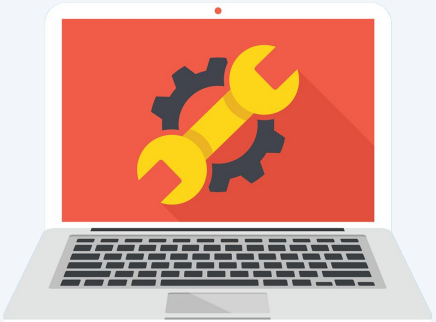


Questions?

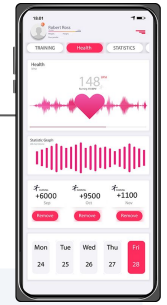
Project Examples

Final Project Requirements: Demystifying ML in Finance

Example finance-related projects:

- Create an algorithm that analyzes credit scores and predicts consumer personal-loan eligibility.
- Using natural language processing, create a chatbot to perform simple tasks and help users find information.
- Train an algorithm to analyze consumer spending and predict trends.
- Train an image classifier to assess property value, which could then be used to calculate insurance quotes.

Final Project Requirements: Demystifying ML in Healthcare



Example healthcare-related projects:

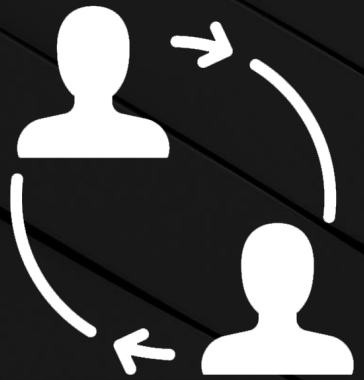
- Train an algorithm to recognize disease symptoms and predict if a patient is at risk.
- Train an image classifier to recognize anomalies, such as suspicious vs healthy areas of skin.
- Using natural language processing, create a chatbot that will help connect patients with doctors.
- Create an algorithm to analyze patient history and predict the likelihood of inherited illness.

Final Project Requirements: Demystifying ML

Project ideas: Prepare a 15-minute data deep dive or infrastructure review that shows machine learning in the context of what we've already learned.

- Create a front-end interface that maps to an API to "smarten" the algorithm.
- Perform a deep dive on existing data using machine learning.
- Create a visualization that continues to learn where clusters lie based on ML (use Leaflet or Plotly to change the visualization).
- Create an idea using mock data, and simulate how machine learning might be used.
- Create an analysis of existing data to make a prediction, classification, or regression.

The key is to show the value of what you know.



Project Work

Suggested Time:

125 Minutes

Project Work: AWS

Remember to closely monitor any AWS resources that you choose to use.

It’s crucial that you clean up and stop, or shut down any AWS resources to avoid accruing additional costs.

Double-check your billing costs.

Time to divide into teams!

Questions?

The End