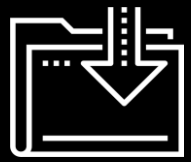
# Final Projects

Data Boot Camp

Lesson 23.1



# 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

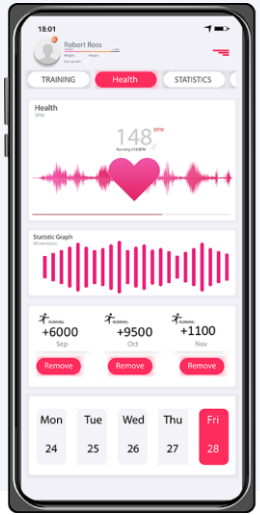
05 Slide deck

# Project Group Work

You can focus on:

Finance

Healthcare

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# Questions?

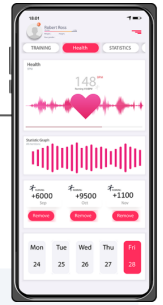
# Project Examples

# **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.

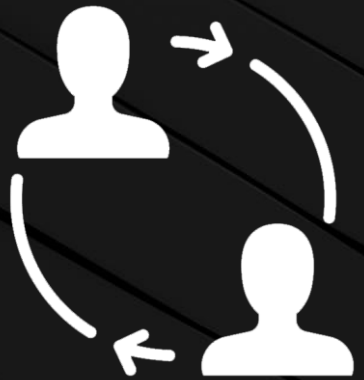
# **Final Project Requirements:** Demystifying ML

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

**Project ideas:**

- 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