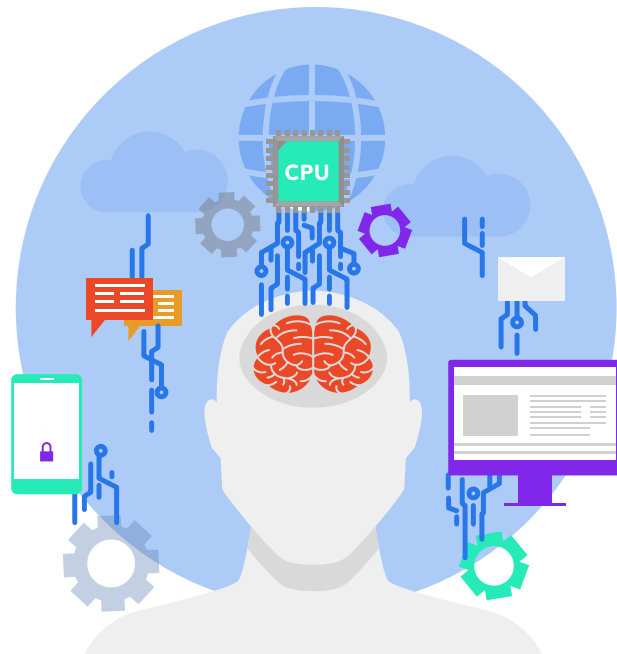




NETS Python Workshop Day 4

April 16, 2023



Machine Learning Recap



Yesterday:

- Model Selection
 - Linear vs. Ridge Regression
 - Neural network - Tensorflow
- Model Training
- Model Evaluation

Today:

- Model deployment & applications

Model Deployment

What?

Load a pre-trained machine learning model into application environments where you want to serve predictions

- **Image Classification**

For examples:

- **Identifying Quality of Tomatoes**

Model Deployment

What?

Load a pre-trained machine learning model into application environments where you want to serve predictions

- Image Classification
- **Natural Language Processing**

For examples:

- Identifying Quality of Tomatoes
- **Analyzing new text prompts and generate responses**

Model Deployment

What?

Load a pre-trained machine learning model into application environments where you want to serve predictions

- Image Classification
- Natural Language Processing
- **Predictive Maintenance**

For examples:

- Identifying Quality of Tomatoes
- Analyzing new text prompts and generate responses
- **Predicting failure of equipment**

Model Deployment

What?

Load a pre-trained machine learning model into application environments where you want to serve predictions

- Image Classification
- Natural Language Processing
- Predictive Maintenance
- **Fraud Detection**

For examples:

- Identifying Quality of Tomatoes
- Analyzing new text prompts and generate responses
- Predicting failure of equipment
- **Detecting fraudulent activity**

Model Deployment

What?

Load a pre-trained machine learning model into application environments where you want to serve predictions

- Image Classification
- Natural Language Processing
- Predictive Maintenance
- Fraud Detection
- **Autonomous Vehicles**

For examples:

- Identifying Quality of Tomatoes
- Analyzing new text prompts and generate responses
- Predicting failure of equipment
- Detecting fraudulent activity
- **Real-time navigation using sensor data**

Model Deployment

What?

Load a pre-trained machine learning model into application environments where you want to serve predictions

- Image Classification
- Natural Language Processing
- Predictive Maintenance
- Fraud Detection
- Autonomous Vehicles
- **Materials Science**

For examples:

- Identifying Quality of Tomatoes
- Analyzing new text prompts and generate responses
- Predicting failure of equipment
- Detecting fraudulent activity
- Real-time navigation using sensor data
- **Predicting molecules interactions and materials properties**

Let's deploy our model by putting it on an interactive website!

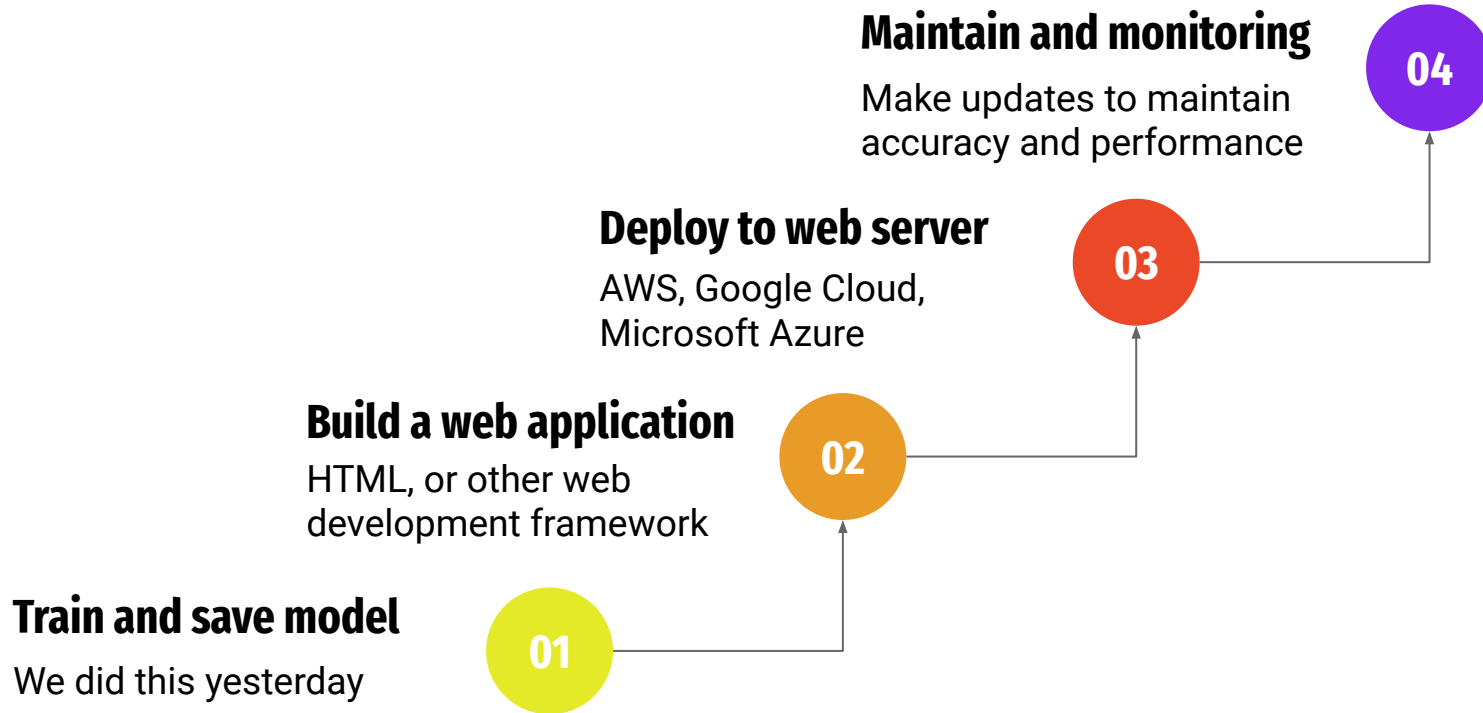
Why build a website application at all?



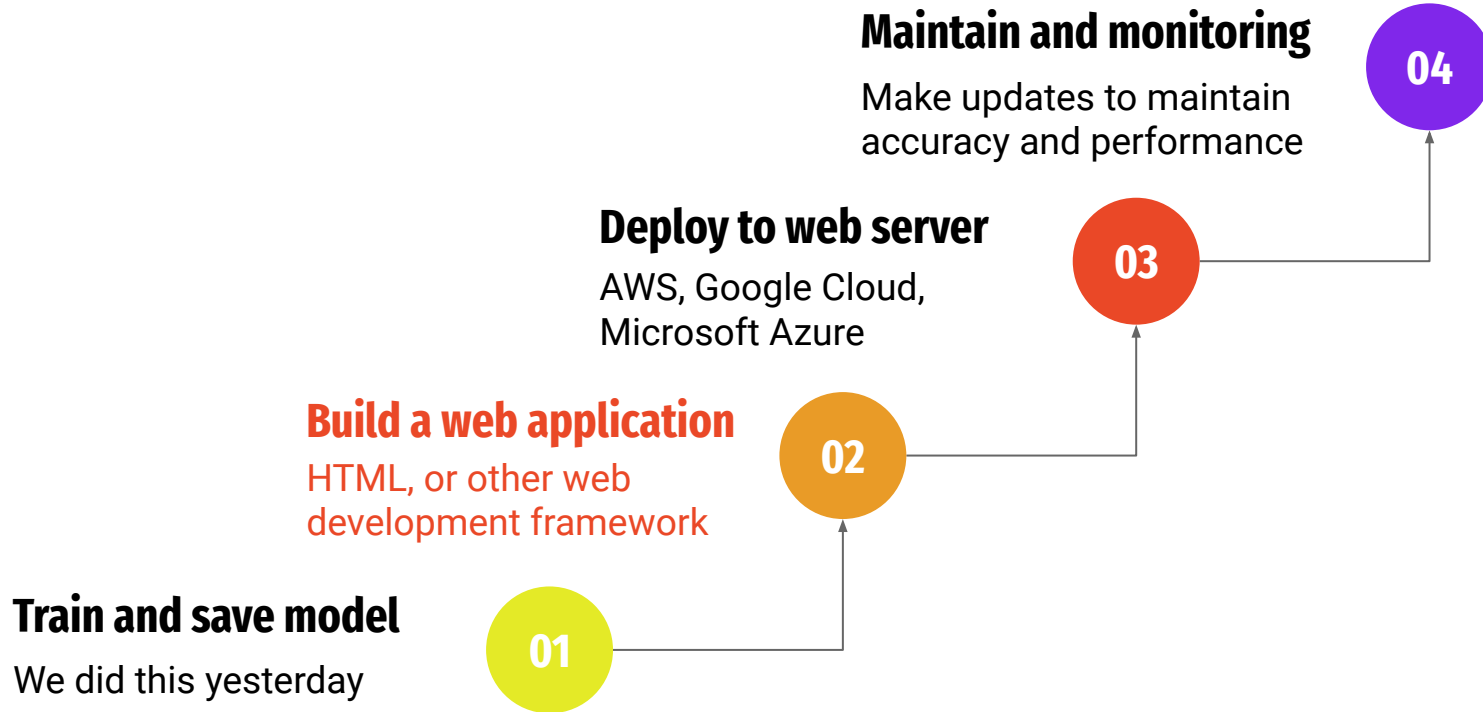
Well,

- **Reach:** they can be accessed from anywhere in the world, not necessarily on your local computer
- **Convenience:** they do not need to be downloaded, makes it much easier for users to access
- **Analytics:** forming a connection with tools like Google Analytics allows you to gain insights into user behavior and preferences to help you make informed decisions

Steps to deploy web application



Steps to deploy web application

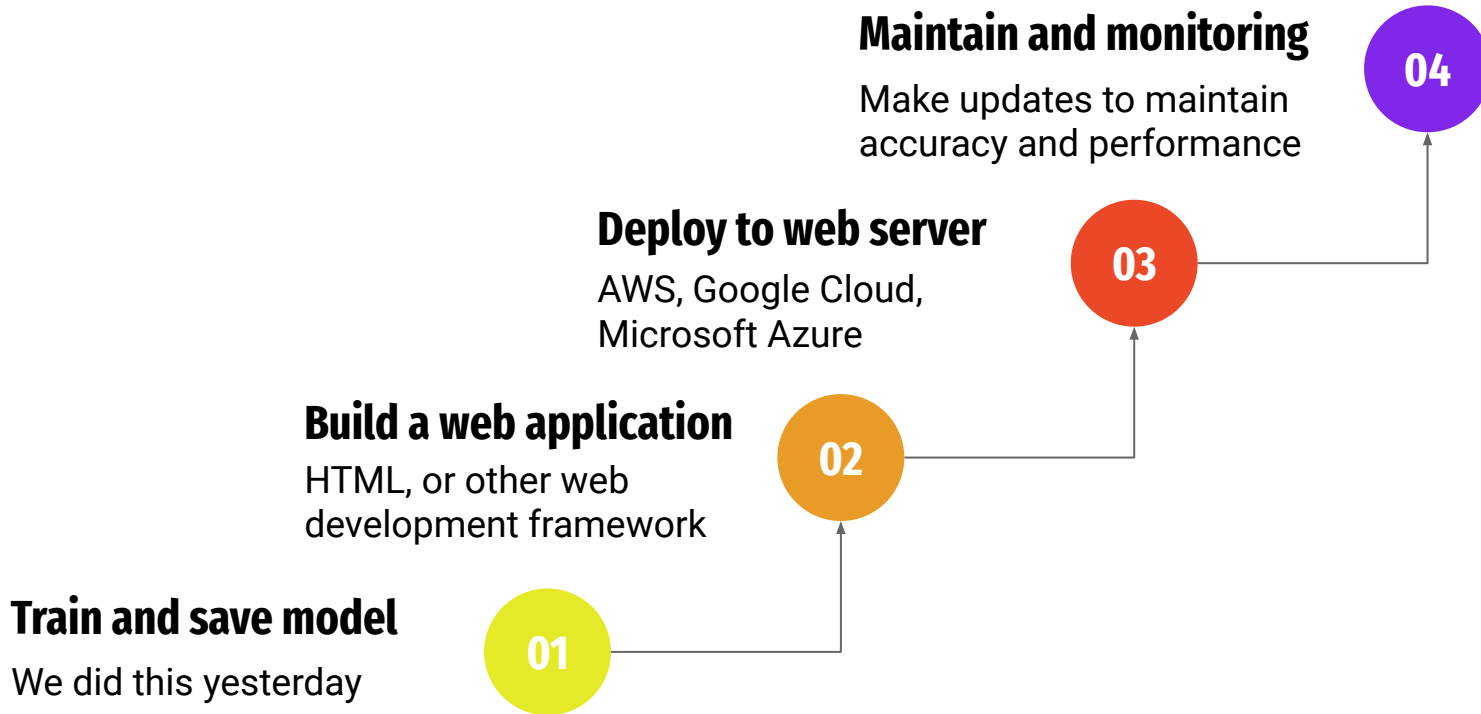


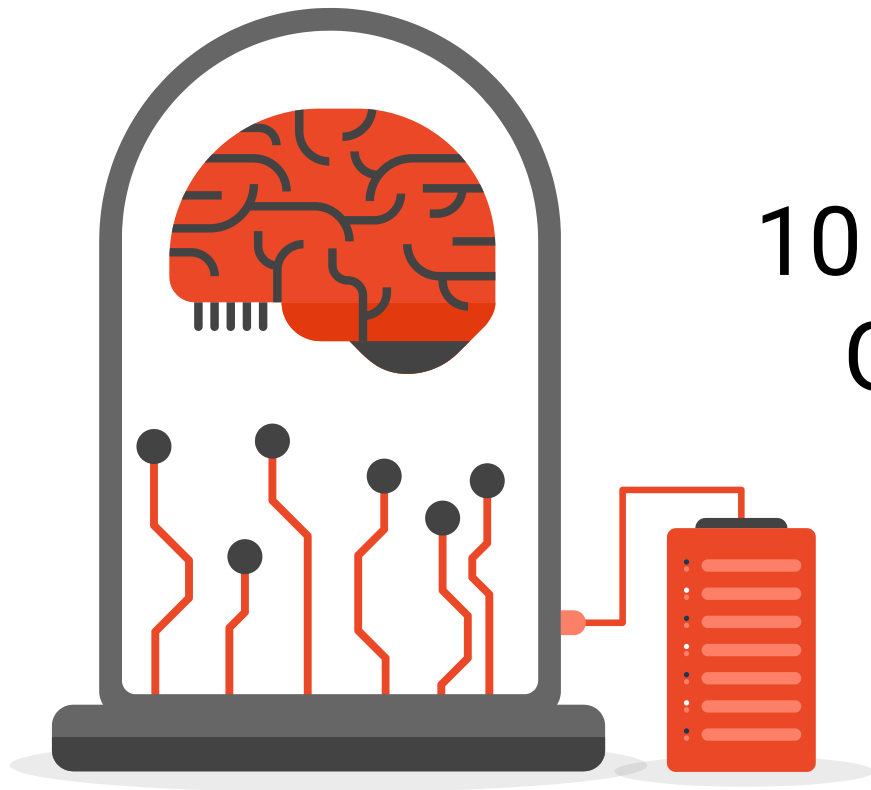
Open Notebook

Day_1_Spring_Part_B_ML.ipynb



Recap: Steps to deploy web application





10 minutes break
Grab a bagel!



Acknowledgement

Python topic hosts

Mai Her, Ethan Doan, Eric Oberholtz, and
Duc Tran

Social Media/Arts/Marketing

Daisy Hu, Yuki Guan, Pahan Jayatilake,
Alison Lao, and Arthur Zhou

NETS board

And all of you who came!

**Thank you all and we appreciate your
feedback!**