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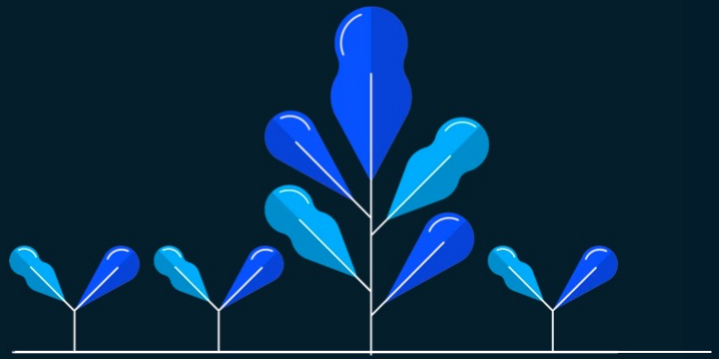
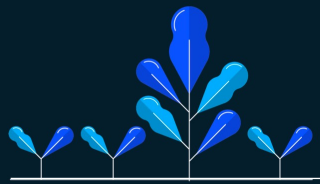


Model Deployment in Python

Presenter: Shaimaa Alghamdi

OUTLINES

- What is the Model Deployment?
- Criteria of ML Model Before Deployment.
- Steps for Deploying ML Models Into Production.
- Common Ways To Deploy ML Models.
- Fish Weight Prediction Application – DEMO
- References



What Model Deployment?

To integrate a machine learning model into an existing production environment where it can take in an input and return an output.

Criteria of ML Model Before Deployment

01

Portability

To the ability of your software to be transferred from one machine or system to another.

02

Scalability

Refers to how large your model can scale

Four Steps for Deploying Machine Learning Models Into Production

Prepare To Deploy the ML Model 01

Train the model (This involves selecting an algorithm, setting its parameters, and training it on prepared, cleaned data)

Validate the ML Model 02

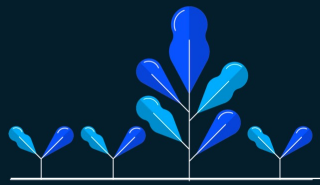
Validation includes testing the model on a fresh data set and comparing the results to its initial training.

Deploy the ML Model 03

Move the model to a production environment where resources are streamlined and controlled for safe and efficient performance.

Monitor the ML Model 04

Model monitoring ensures that the model is working properly and that its predictions are effective over time.



Steps of Deploy The ML Model Steps

01 The model needs to be moved into its deployed environment.

02 The model needs to be integrated into a process.

03 The people who will be using the model need to be trained in how to activate it, access its data, and interpret its output.

Two Common Ways To Deploy ML Models

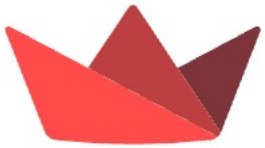
Batch inference

- Batch inference runs periodically and provides results for the batch of new data generated since the previous run.
- There is no latency constraint, you can deploy more complex models that can provide more accurate results.

Online inference

- Also called real-time inference, the model is available 24/7 and provides results in real-time, and on-demand.
- Since it should provide results in real-time, you cannot use complex models with online inference. Why!!!!

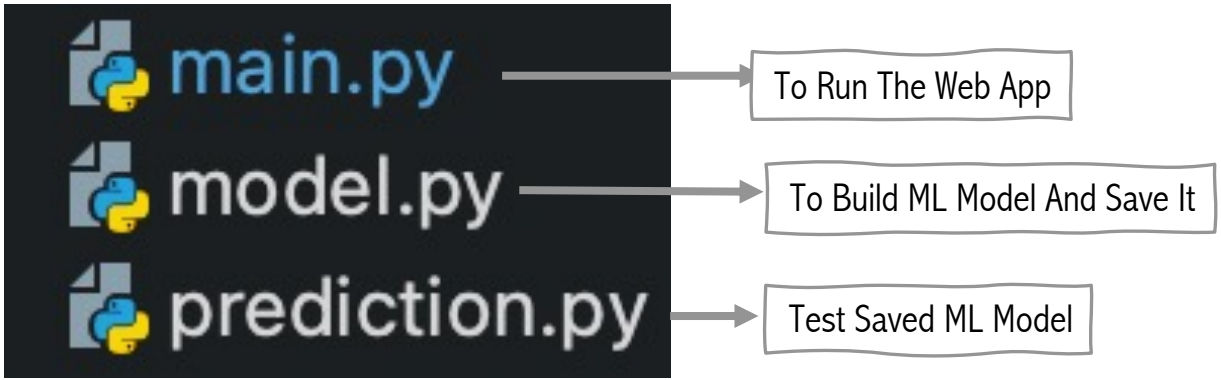
Weight Prediction Application - DEMO



STREAMLIT

- A **faster** way to build and share data apps.
- Streamlit turns data scripts into shareable **web apps in minutes**.
- **No** front-end experience required.

Weight Prediction Application - DEMO



Weight Prediction Application - DEMO

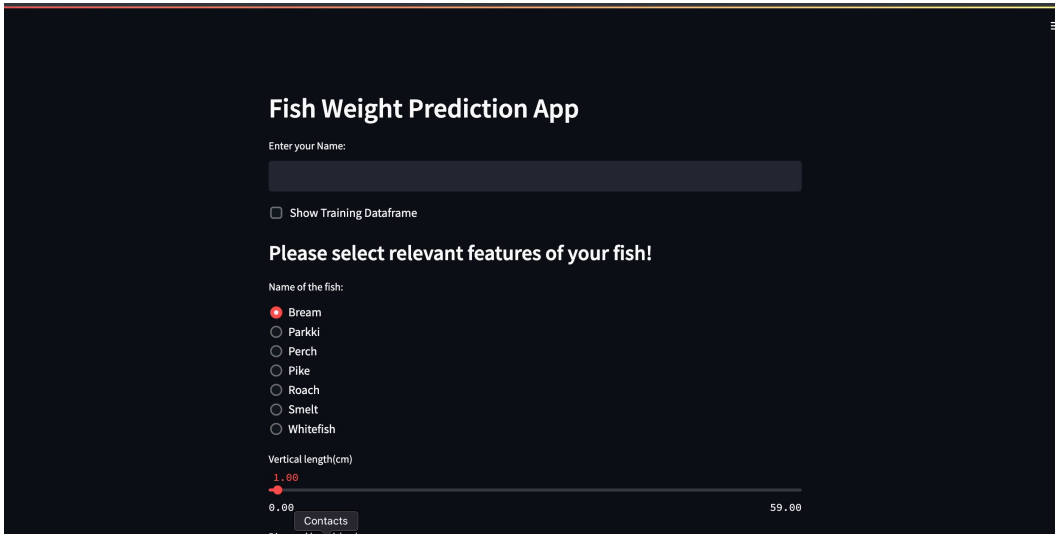
TO TEST THE DEMO, FOLLOW THESE STEPS :

1. Cloning a repository [DEMO]

2. Using the Terminal:

1.1 Install necessary libraries

pip install requirements.txt



Weight Prediction Application - DEMO

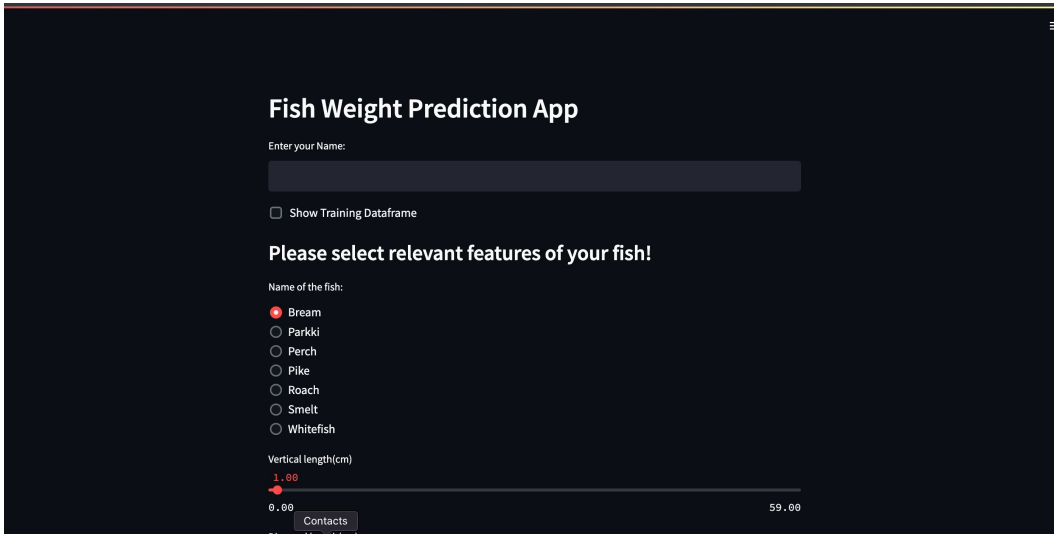
TO TEST THE DEMO, FOLLOW THESE STEPS:

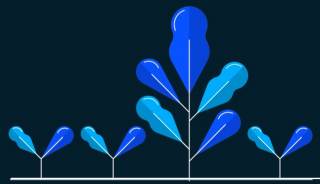
1. Cloning a repository [DEMO]

2. Using the Terminal:

1.2 Run the Streamlit tool

streamlit run main.py





REFERENCES

3 Ways to Deploy Machine Learning Models in Production

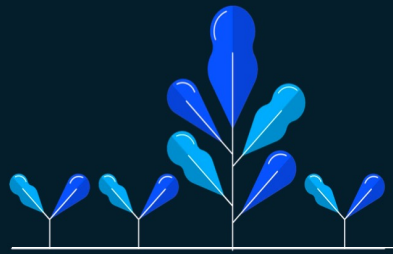
How to Deploy Machine Learning Models

3 Steps To Efficient Machine Learning Model Deployment

A Guide to Machine Learning Model Deployment

Streamlit Tool

DEMO



THANKS
ANY QUESTIONS