**How to deploy machine learning models**

Machine learning deployment is the process of deploying a machine learning model in a live environment. The model can be deployed across a range of different environments and will often be integrated with apps through an API. Deployment is a key step in an organisation gaining operational value from machine learning. Deployment is the final step for an organisation to start generating a return on investment for the organisation.

The *four steps* to machine learning deployment include:

- Develop and create a model in a training environment.

- Test and clean the code ready for deployment.

- Prepare for container deployment.

- Plan for continuous monitoring and maintenance after machine learning deployment.

1. Installations

*pip install fastapi uvicorn*

2. Heroku

*sudo snap install --classic heroku*

3. On macOS, you can install it via,

*brew tap heroku/brew && brew install heroku*

4. Create the appropriate Model

5. Create a REST API using FAST API

*5.1. Import FastAPI and Form from the fast API library, which will be used to create an Input Form and endpoint for our API. Import HTMLResponse from* ***starlette.response****, which will help in creating an input form.*

*5.2. Start by creating an input form so that users can input data.*

*5.3. FastAPI app has been created in the first line and used the get method on the /predict route, which will return an HTML response so that the user can see a real HTML page and input the data on forms using the post method. This data will be used to predict on.*

6. Run the app now by running the following command.

*uvicorn app:app --reload*

**There can be several further works or adjustments.**

For Descriptions, "snappyshopper1" has been developed and related steps have been developed to get the forecasts of the mean orders in the other files. However, only "orders.csv" has been used only but there are significant information in the other two "csv" files that can be processed which can be collated to extract the data to compose the suitable number of orders and track the customers’ activities. If more time could be spent, then surely more data, techniques and other models could be involved and compared to explore more options to improve the current methods and interpret the results followed by enhancement of uses.

**References:**

https://www.kdnuggets.com/2021/04/deploy-machine-learning-models-to-web.html

https://www.seldon.io/how-to-deploy-your-machine-learning-models/