Deployment types and instructions

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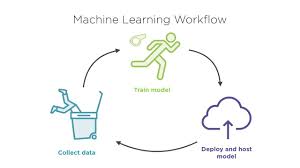
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# Deployment of Model:

Deployment refers to the process where the build model in python or any other code is integrated with the production environment where it can take input the live cases and predict on the new data.



Building a model, or writing a code in python or R is not enough as this will not be understood by the client. All the code and building model comes under technical domain and it is highly possible that the client is unfamiliar with it. For this reason it is recommended and practiced widely to make the code user friendly for the client. It will help them to work with the build model without going into the depth of the code that is behind it. Deployment will also check the real world data on which the model is built.

Also, while building a model we get scores and probabilities based on the historical data we use to build a model. Using the scores we accept or reject a model. To see how our model performs the model needs to be test on real time data. Although, we make use of train and test data within our historical data, yet it is definite to check model’s response to real world data applications.

# Types of Deployment:

There is not a single particular way to deploy a model; in fact, there are many ways in which as model can be deployed. The most common method used are online and offline deployment. Writing a code doesn’t clear up the task for a data scientist, synchronizing the code with other programming languages: Java, Html, database connections: SQL, DBMS, is also an important step to make the model easily available to the end users. It also enhances the versatility of the code as well as the function.

## Online method:

In case of online deployment there are some of the tools available online which can easily be executed. The main factor here is that the tools provide the UI for the users to have access to the model. It helps non-technical person also to easily use the ML model for real time data.

These deployment methods is commonly used for E-commerce sites, social media’s where the data is available easily. Their data is less sensitive than the domains such as banking, government, money markets. Some of the tools are as follows:

1. MS Azure.
2. AWS
3. Orange.
4. RevoDeployR

## Offline Method:

In the case of offline method, it is preferred mostly by the organizations whose data are highly sensitive such as Military, Banking etc. Here the UI may be generated using languages such as Java, C, VB etc. For this the code for the model that may be written in Python or R, has to be connected with this UI’s so that it is easily understood by the computer.

Some of the offline method types are:

1. Use of programming languages Java, C to make the UI.
2. PMML.
3. Schedulers.

## Offline deployment Procedure:

By using schedulers offline deployment can be easily executed. The process is lucid and is as follows: The data is gathered from different sources and then it is stored in a database. The model build using the train and test data is stored in the client premises using a scheduler. *The function of the schedulers is to invoke actions that are predefined on a specific time frame*. So, whenever the client’s needs for new data to be predicted by the model, schedulers will be set beforehand and the code written in R or Python will run, extract data from the database, run the data and predict the outcomes, and again store the new data at a specified location in the database. Schedulers can be set with a varied number of task one after another so that each task can have optimum outcome. Visualization or report can also be done with the help of schedulers.

## Online method procedure:

In online methods the tools help the end user to work on the model with real live data sets. There is always a medium that connect the R code to the end user. It is because once the end users give an order. R cannot directly understand the task. RevDeploR is one of the online tools which act as a mediator between the end user and R code environment.

R also has its own UI generating application called R shiny. It is used for basic development of UI as it doesn’t allow applications such as HTML or JAVA.