INTRODUCTION

Demand Forecasting is a process by which an individual or entity predicts the how much the consumer or customer would be willing to buy the product or use the service. Without Proper Demand forecasting it becomes impossible for any business to function. Improper Demand forecasting. would result in heavy loss. Different industry or company has different methods to predict the demands. In case of food industry, it is at most important that the demand needs to be on bulls' eye since the food materials gets perished easily and has the fixed time frame to be used. So, the daily and weekly demand needs to be precise to avoid wastage which would otherwise increase the operating cost.

This is a Software Prototype on Demand Forecasting of perishable goods using machine learning solutions. The project aims to predict number of orders a meal delivery company would receive depending upon the past

LITERATURE SURVEY

Existing Problem:A food delivery service has to deal with a lot of perishable raw materials which makes it all.Too much inventory in the warehouse means more risk of wastage, and not enough could lead to out-of-stocks

Proposed Solution:The machine learning Model solution has been prepared which should have the ability to predict accurately. And the accuracy can be achieved if more data is provided. Hence More data Gives More Accuracy in demand Forecasting

THEORETICAL ANALYSIS

Hardware and Software requirements of project:

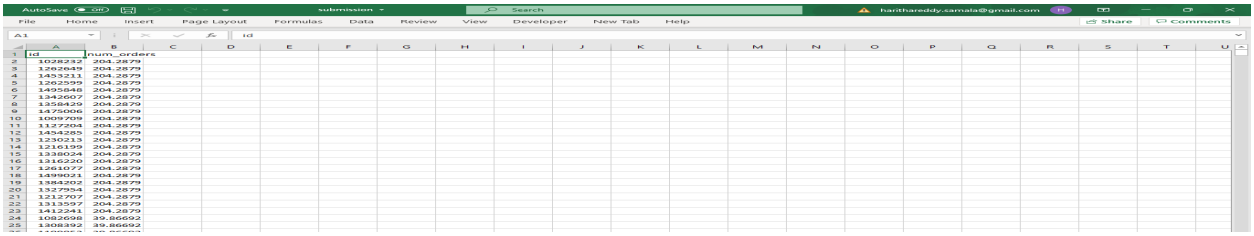
- IBM Cloud Storage
- Watson studio
- Anaconda Navigator

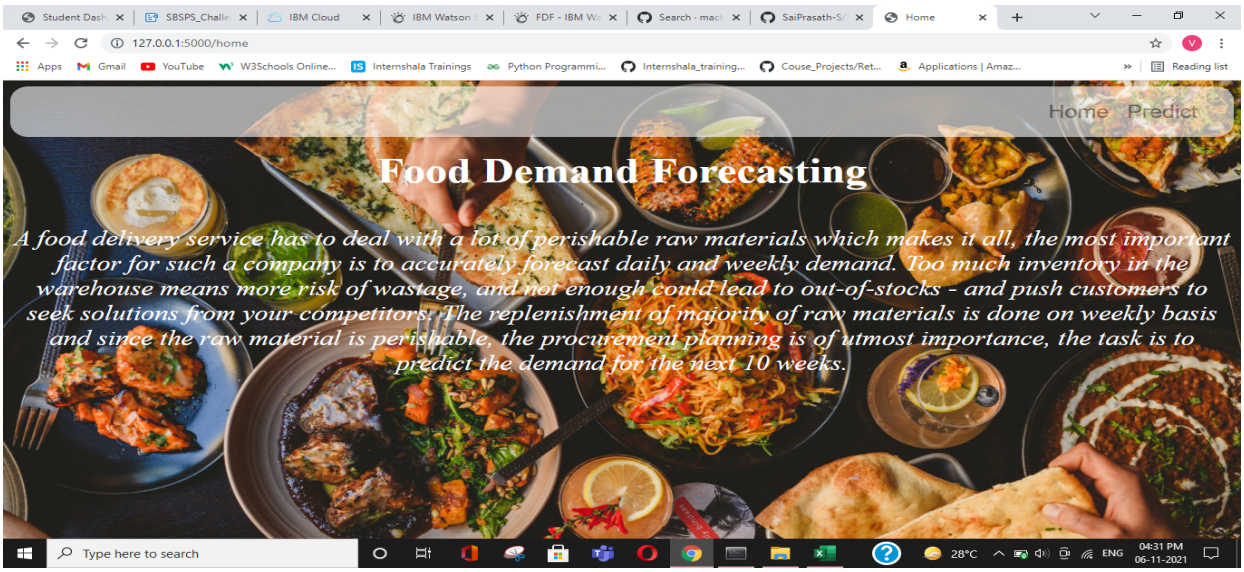
Libraries Used:

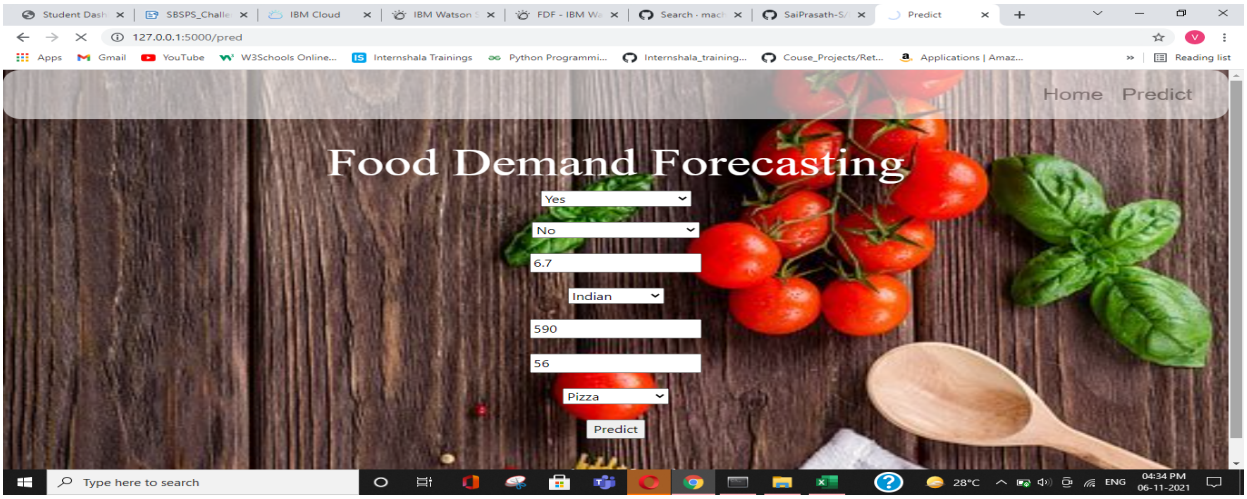
pandas, numpy, scikit learn, matplotlib, seaborn and flask

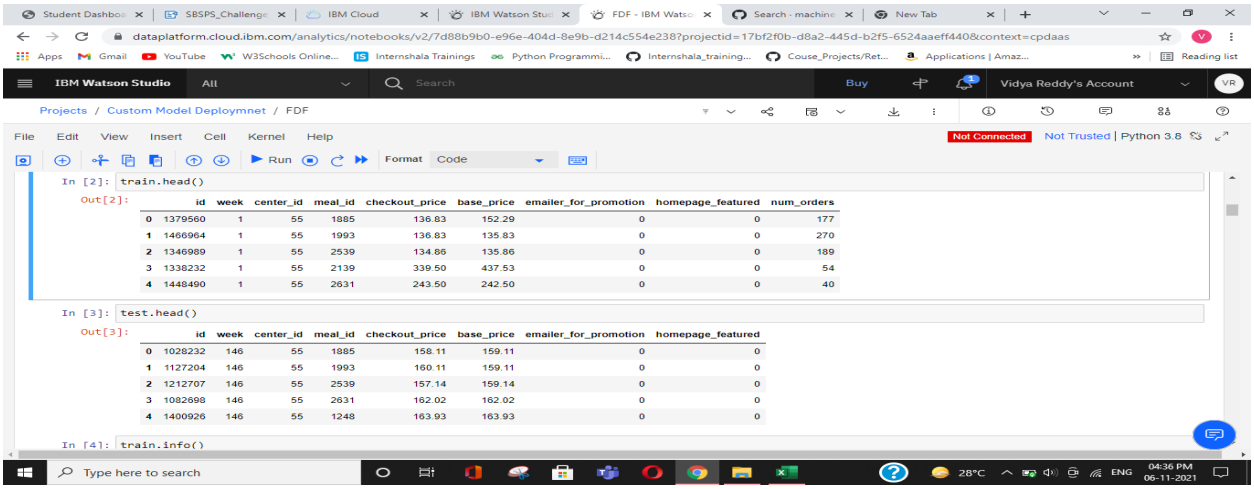
RESULT:

End Point: https://us-south.ml.cloud.ibm.com/ml/v4/deployments/11f7d5d6-bb8a-4e09-9a44-b27b8d63ef49/predictions?version=2021-11-05









In [2]: `train.head()`

Out[2]:

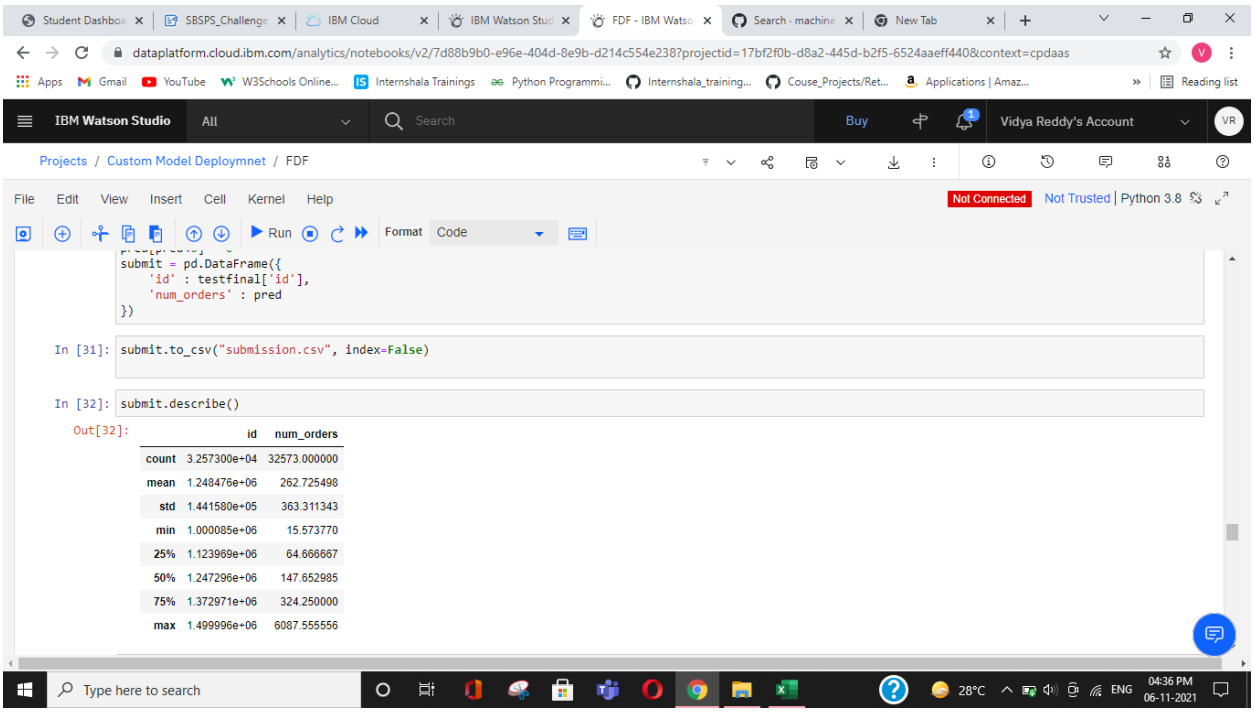
	id	week	center_id	meal_id	checkout_price	base_price	emailer_for_promotion	homepage_featured	num_orders
0	1379560	1	55	1885	136.83	152.29	0	0	177
1	1466964	1	55	1993	136.83	135.83	0	0	270
2	1346989	1	55	2539	134.86	135.86	0	0	189
3	1338232	1	55	2139	339.50	437.53	0	0	54
4	1448490	1	55	2631	243.50	242.50	0	0	40

In [3]: `test.head()`

Out[3]:

	id	week	center_id	meal_id	checkout_price	base_price	emailer_for_promotion	homepage_featured
0	1028232	146	55	1885	158.11	159.11	0	0
1	1127204	146	55	1993	160.11	159.11	0	0
2	1212707	146	55	2539	157.14	159.14	0	0
3	1082698	146	55	2631	162.02	162.02	0	0
4	1400926	146	55	1248	163.93	163.93	0	0

In [4]: `train.info()`


IBM Watson Studio
Projects / Custom Model Deploymnet / FDF
File Edit View Insert Cell Kernel Help
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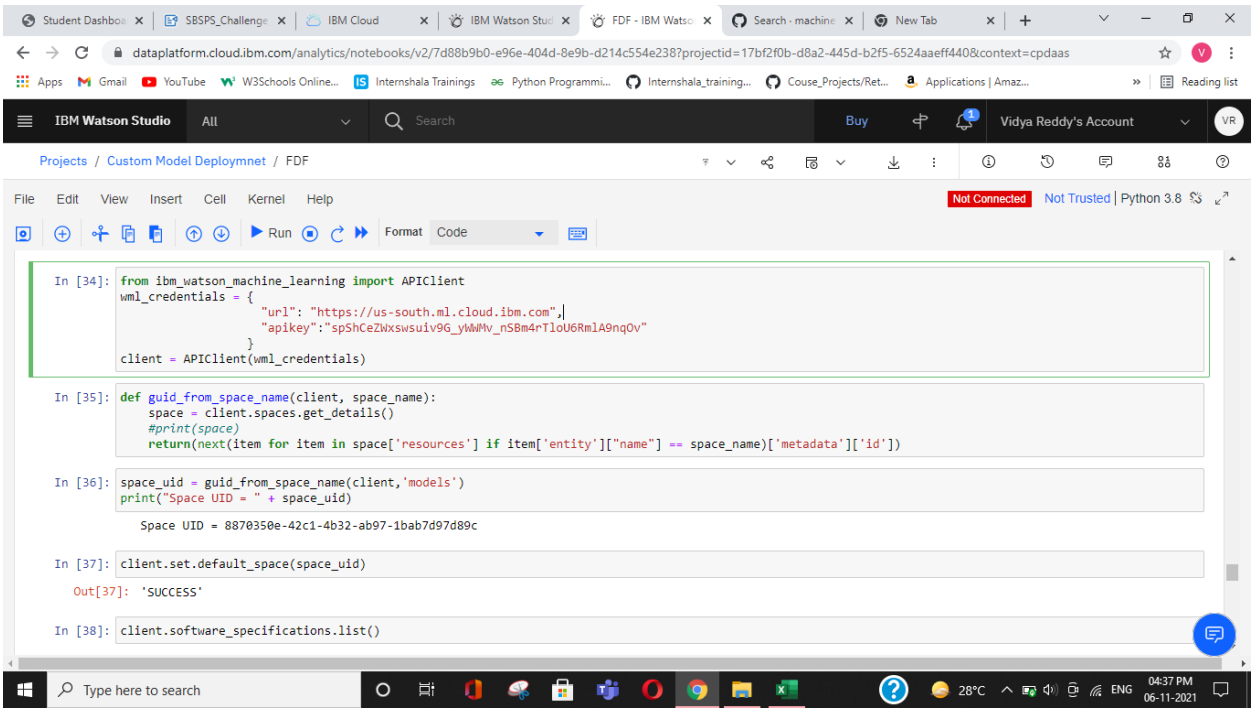
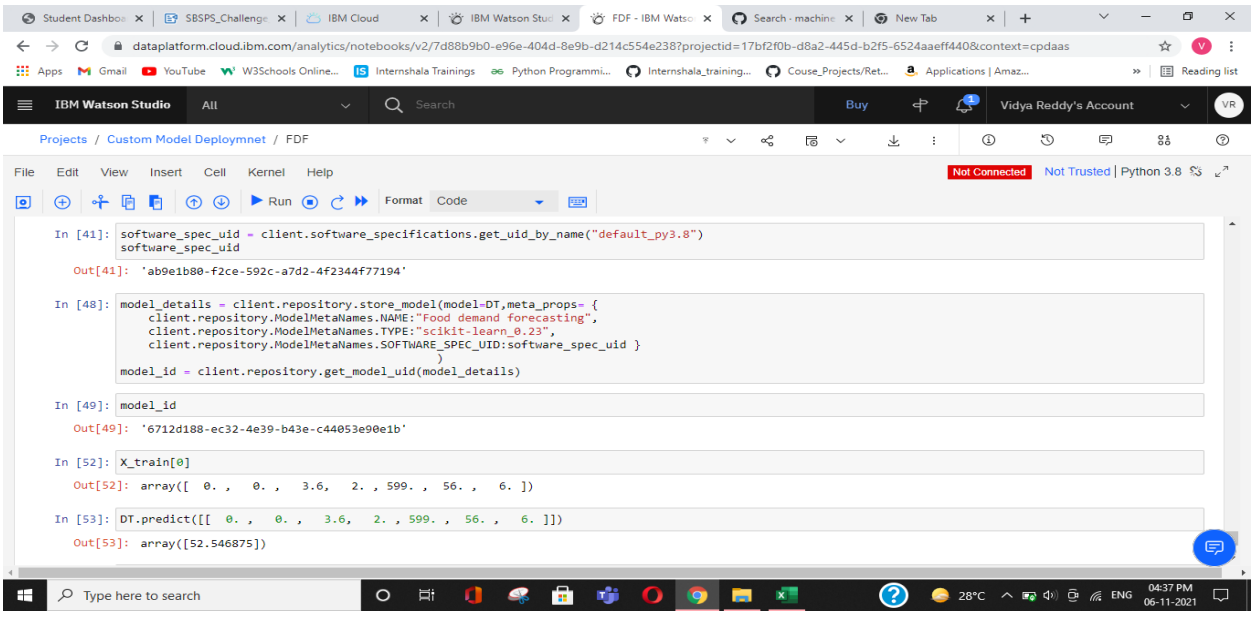
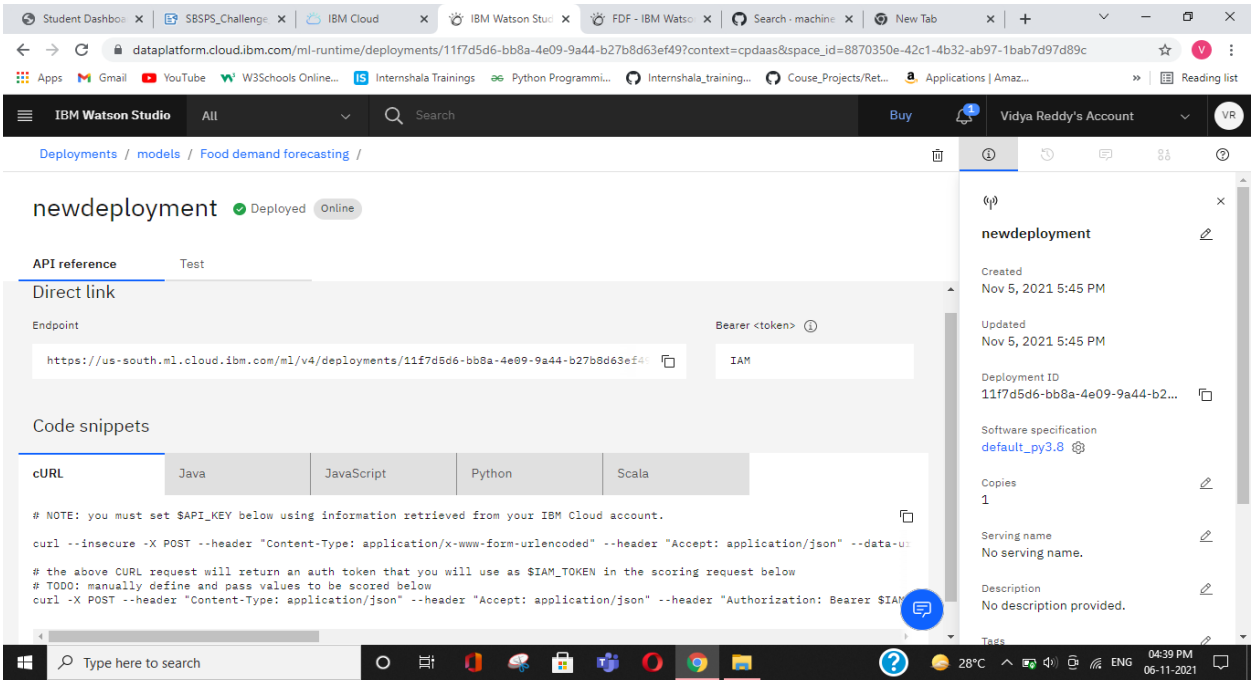
Run
Format Code
submit = pd.DataFrame({
'id' : testfinal['id'],
'num_orders' : pred
})
In [31]:
submit.to_csv("submission.csv", index=False)
In [32]:
submit.describe()
Out[32]:
id num_orders
count 3.257300e+04 32573.000000
mean 1.248476e+06 262.725498
std 1.441580e+05 363.311343
min 1.000085e+06 15.573770
25% 1.123969e+06 64.666667
50% 1.247296e+06 147.652985
75% 1.372971e+06 324.250000
max 1.499996e+06 6087.555556


IBM Watson Studio
Projects / Custom Model Deploymnet / FDF
File Edit View Insert Cell Kernel Help
Not Connected
Not Trusted | Python 3.8
Run
Format Code
In [34]:
from ibm_watson_machine_learning import APIClient
wml_credentials = {
"url": "https://us-south.ml.cloud.ibm.com",
"apikey":"spShCeZWxswsuiv9G_yWWMv_nSBm4rTloU6RmlA9nqOv"
}
client = APIClient(wml_credentials)
In [35]:
def guid_from_space_name(client, space_name):
space = client.spaces.get_details()
#print(space)
return(next(item for item in space['resources'] if item['entity']["name"] == space_name)['metadata']['id'])
In [36]:
space_uid = guid_from_space_name(client,'models')
print("Space UID = " + space_uid)
Space UID = 8870350e-42c1-4b32-ab97-1bab7d97d89c
In [37]:
client.set.default_space(space_uid)
Out[37]: 'SUCCESS'
In [38]:
client.software_specifications.list()





APPLICATIONS

- Used in food industries to have a rough idea about the working
- Used in warehouse management to save raw materials.
- Used to employ and manage the working of employees
- Altogether gives the food delivery company a robustness and financial stability

CONCLUSION

Our project accurately predicts the number of orders from each area. So as a result, the food delivery company can estimate the total production required and number of employees to deployed to each area. Depending on the cuisine type the raw materials are ordered. Wastage can minimized further.

FUTURE SCOPE

Machine Learning (ML) has found it's impact in every part of our life.It is bound to bring about a new revolution in mankind. In this project ML model can predict and provide a better solution to the problem. It can also predict many other features like weather or any major change in lifestyle of people of a particular area and thus can map their effect on the number of orders. Hypothetically speaking their are countless benefits this project can draw from growing ML.

BIBLIOGRAPHY

- YouTube Vedios
- Google