

# **SmartInternz Gurucool Project**

## **Project Title**

**Predict heart failure using IBM Auto AI service**

**Output snapshots**

## **Prepared by**

**Dr.R.Suganya**

**Associate Professor**

**Department of Information Technology**

**Thiagarajar College of Engineering**

**Madurai**

**[rsuganya@tce.edu](mailto:rsuganya@tce.edu)**

## Procedure

1. Open Watson studio
2. Create a project
3. Add auto AI experiment
4. Create a ML instance
5. Associate ML instance to project
6. Load the dataset to cloud object storage
7. Select the prediction parameter in the dataset
8. Train the model
9. Deploy it – we get an API
10. Build web applications using Node-red

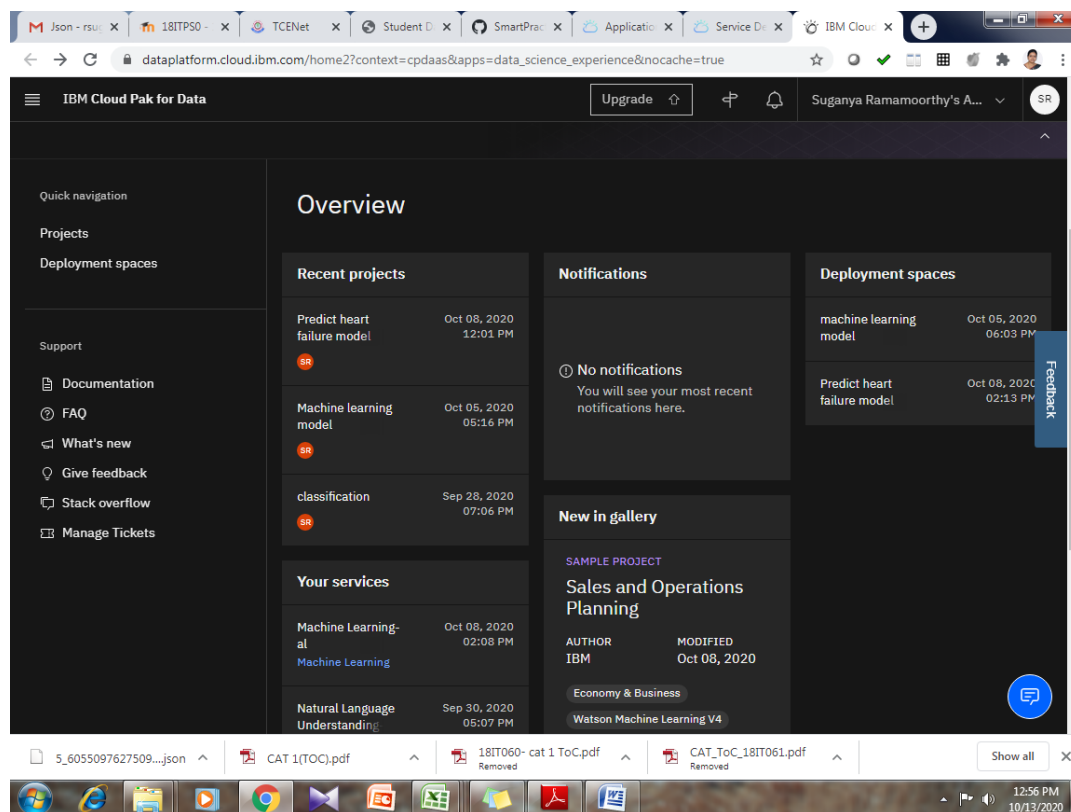


Figure 1: Open Watson studio from Dashboard->Services and create a project

Project Title: Predict heart failure model

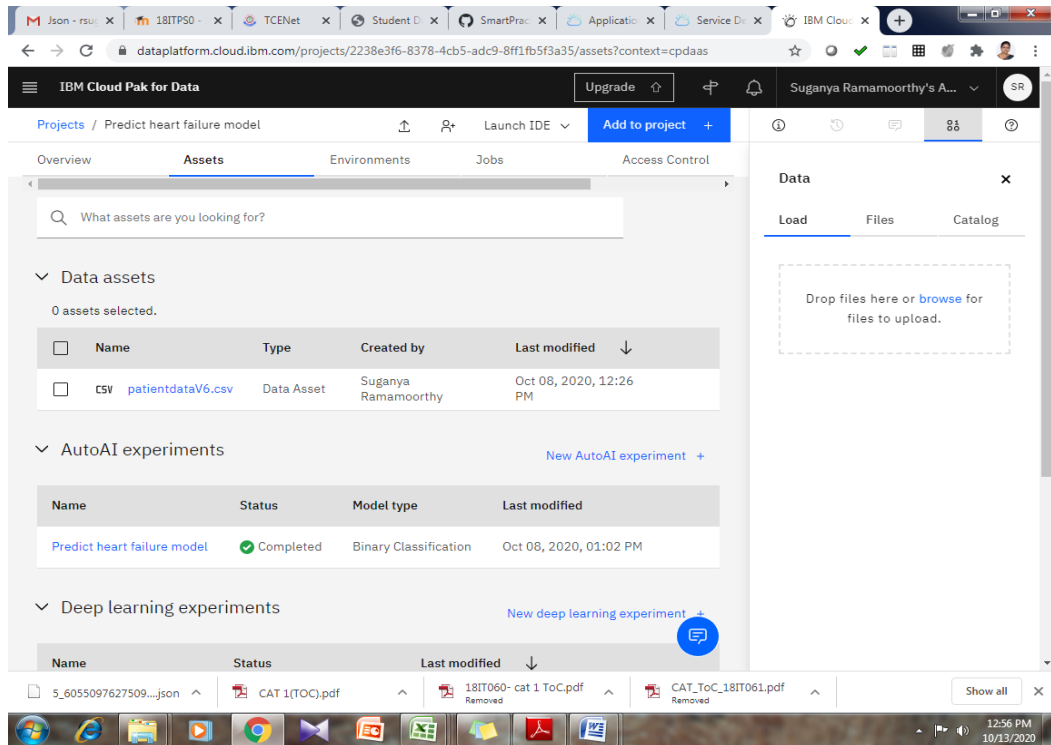


Figure 2 shows Auto AI experiments and dataset added

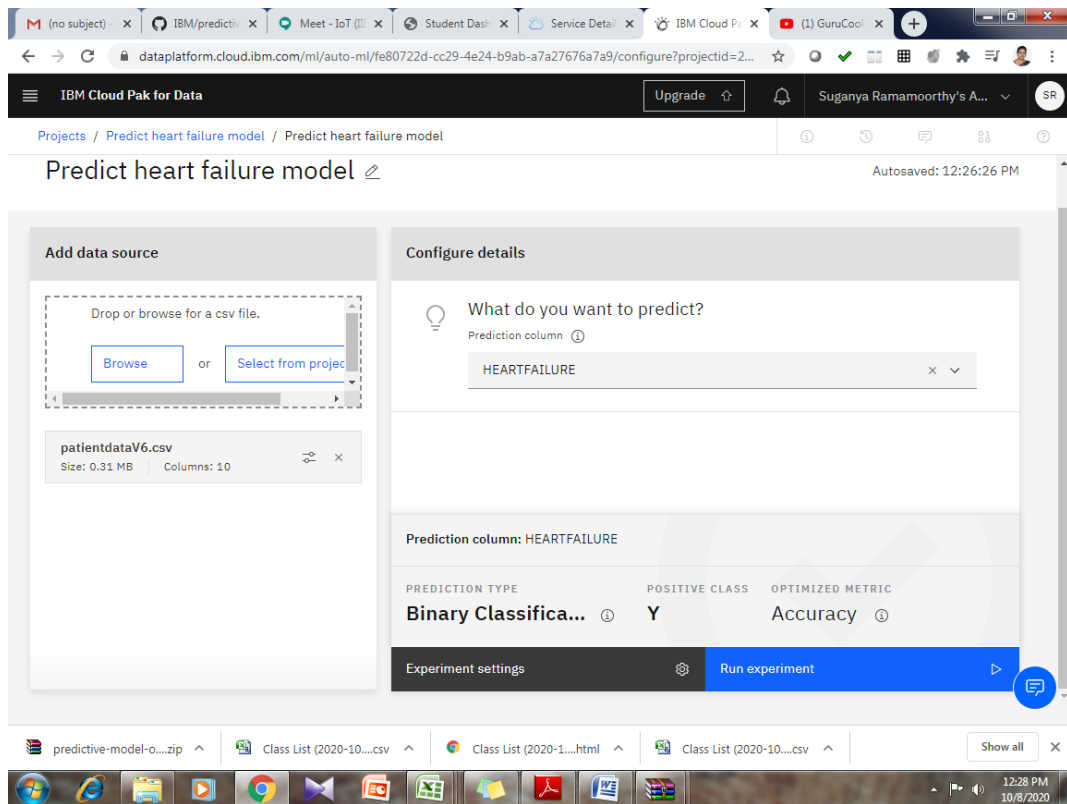


Figure 3: Predict heart failure model- Binary Classification

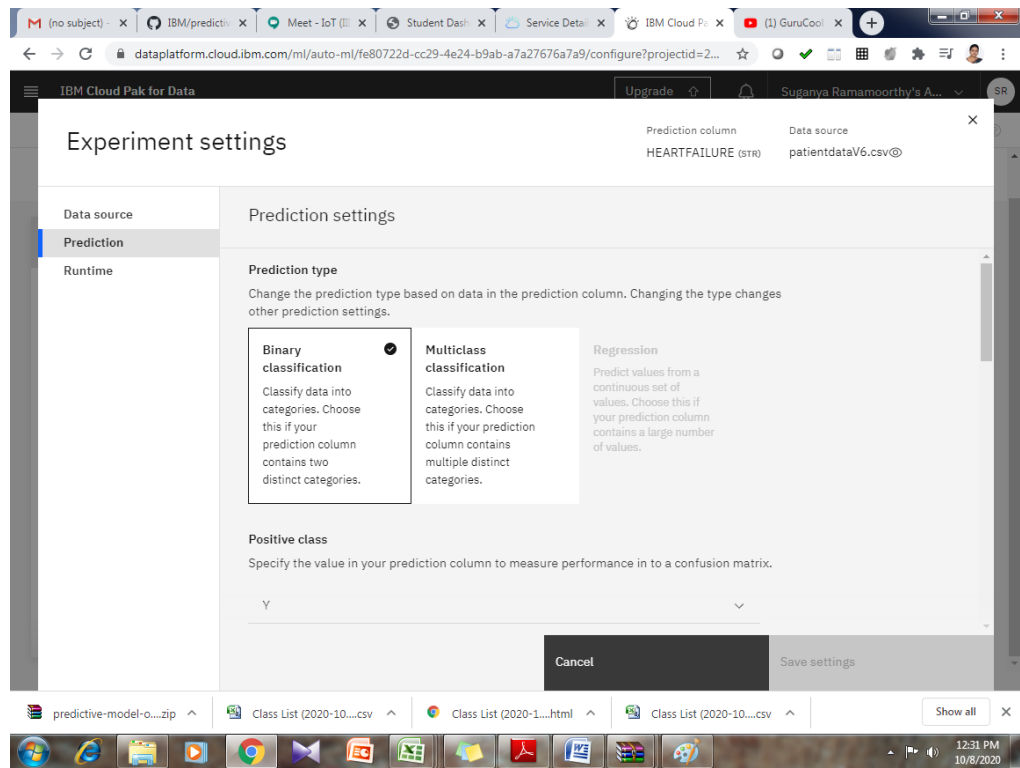


Figure 4 : Displays prediction settings as Binary classification

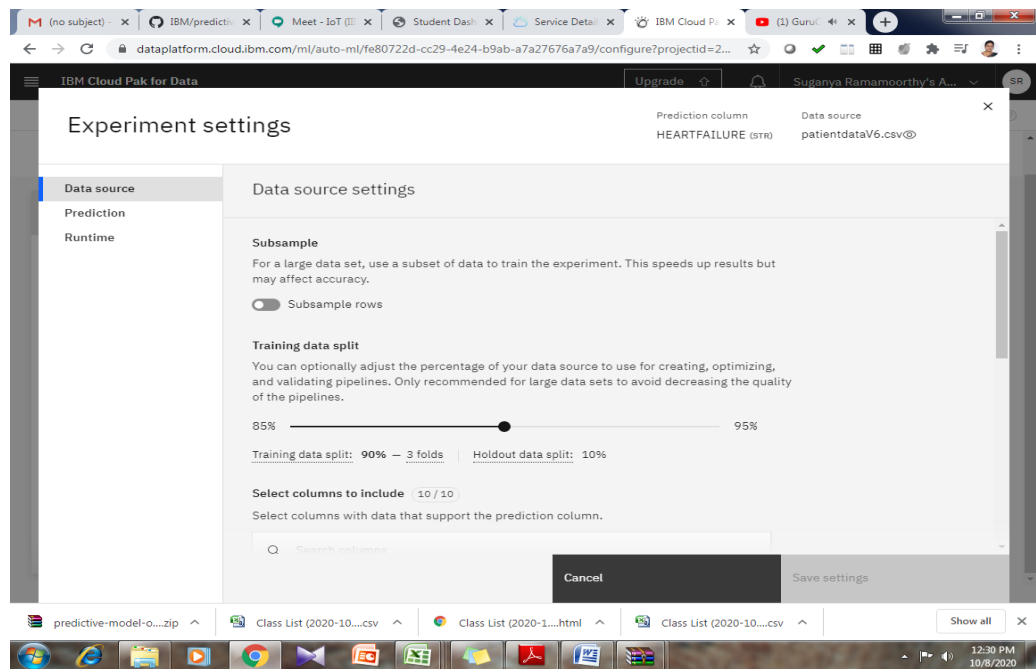


Figure 5: Experiment settings

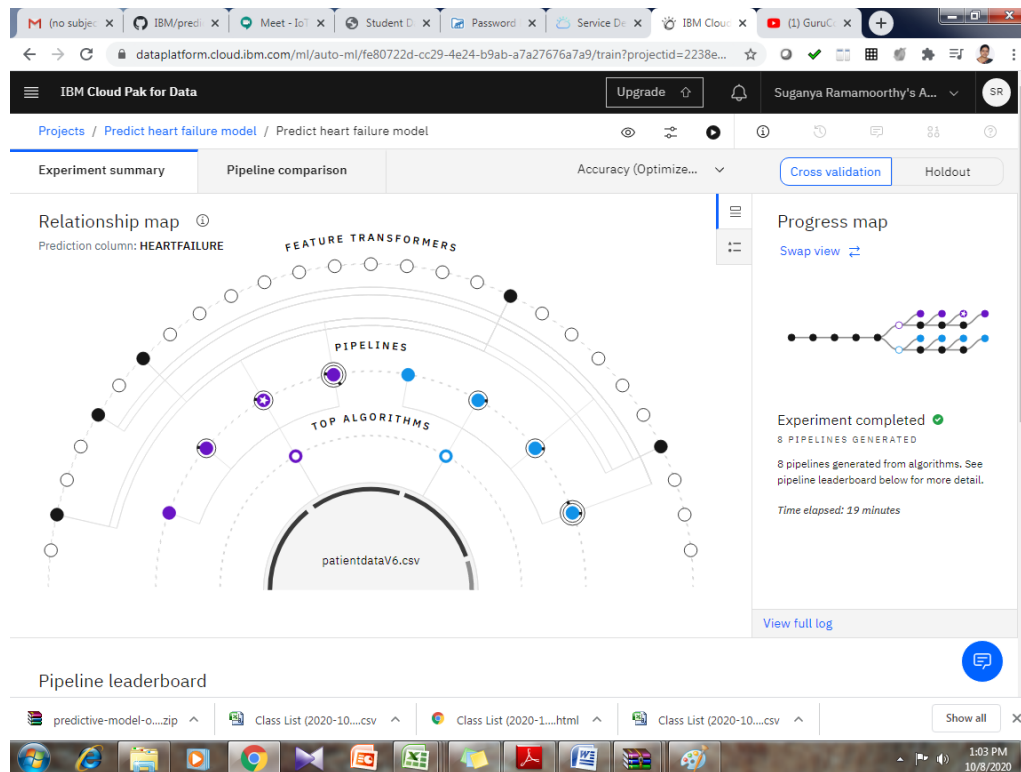


Figure 6: Relationship map / Progress map for heart failure dataset

Rank	Name	Algorithm	Accuracy (Optimize...	Enhancements	Build time
1	Pipeline 3	Gradient Boosting Classifier	0.875	HPO-1, FE	00:02:16
2	Pipeline 4	Gradient Boosting Classifier	0.875	HPO-1, FE, HPO-2	00:01:08
3	Pipeline 1	Gradient Boosting Classifier	0.874	None	00:00:03
4	Pipeline 2	Gradient Boosting Classifier	0.874	HPO-1	00:00:20
5	Pipeline 7	XGB Classifier	0.864	HPO-1, FE	00:01:42
6	Pipeline 8	XGB Classifier	0.864	HPO-1, FE, HPO-2	00:07:15
7	Pipeline 5	XGB Classifier	0.863	None	00:00:05
8	Pipeline 6	XGB Classifier	0.863	HPO-1	00:00:05

Figure 7: Pipeline comparison

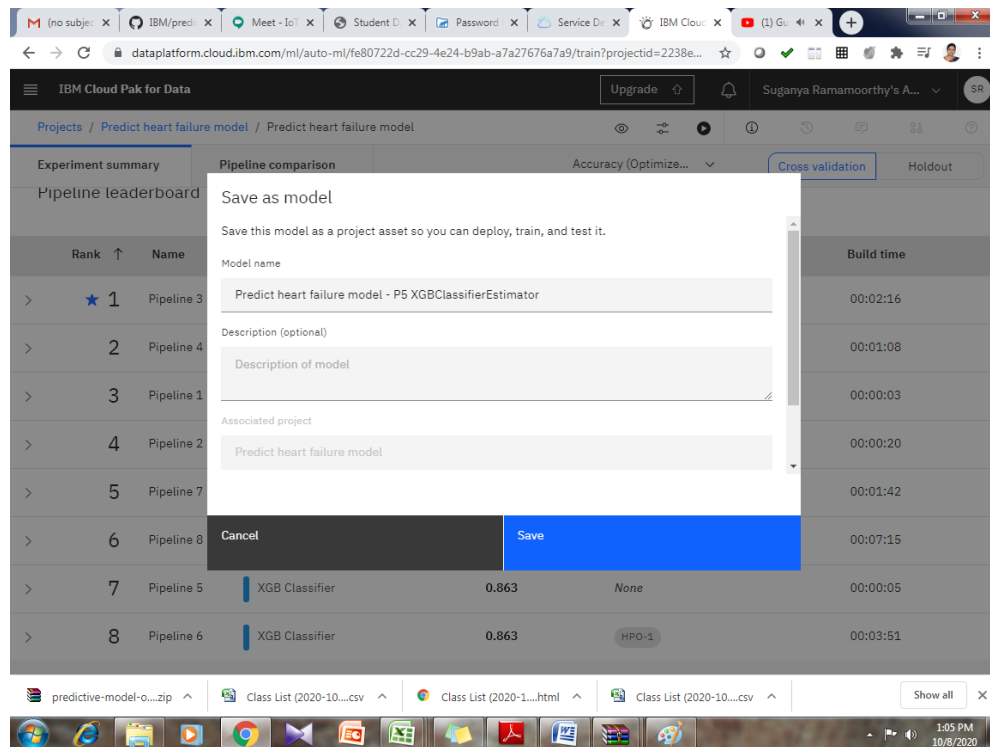


Figure 8: Model name: Predict heart failure model- P5 XGBClassifierEstimator

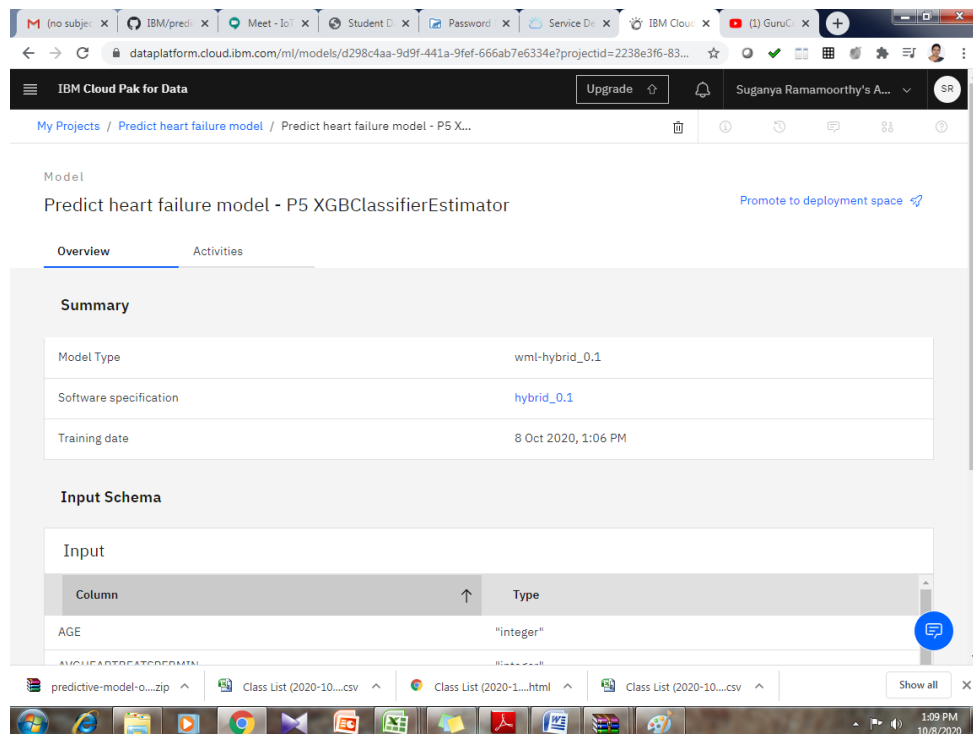


Figure 9: Promote deployment space

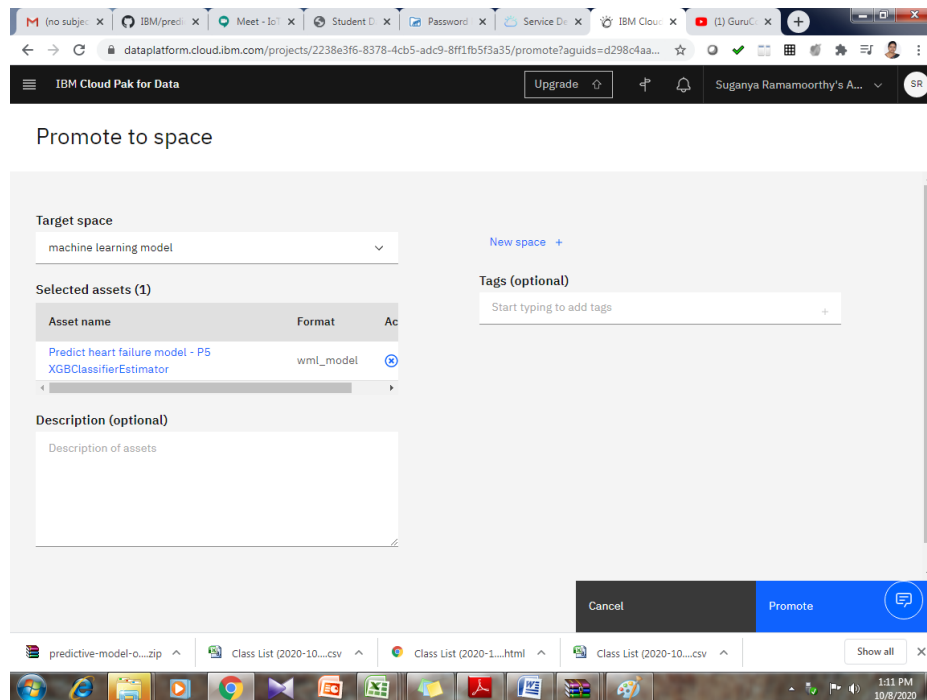


Figure 10: Promoted deployment space

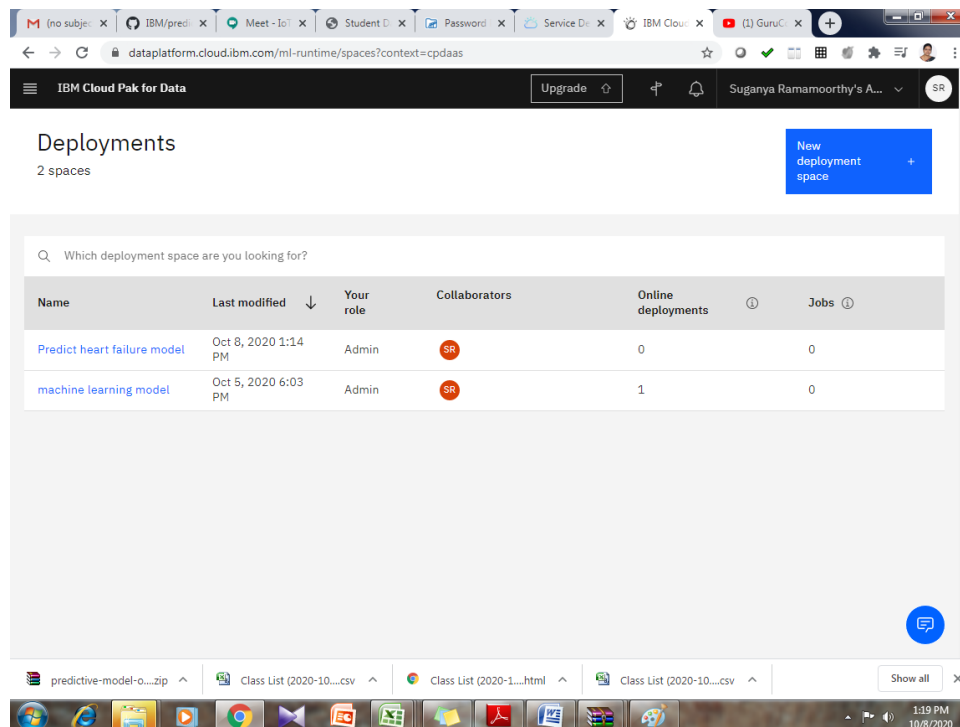


Figure 11: Deployments

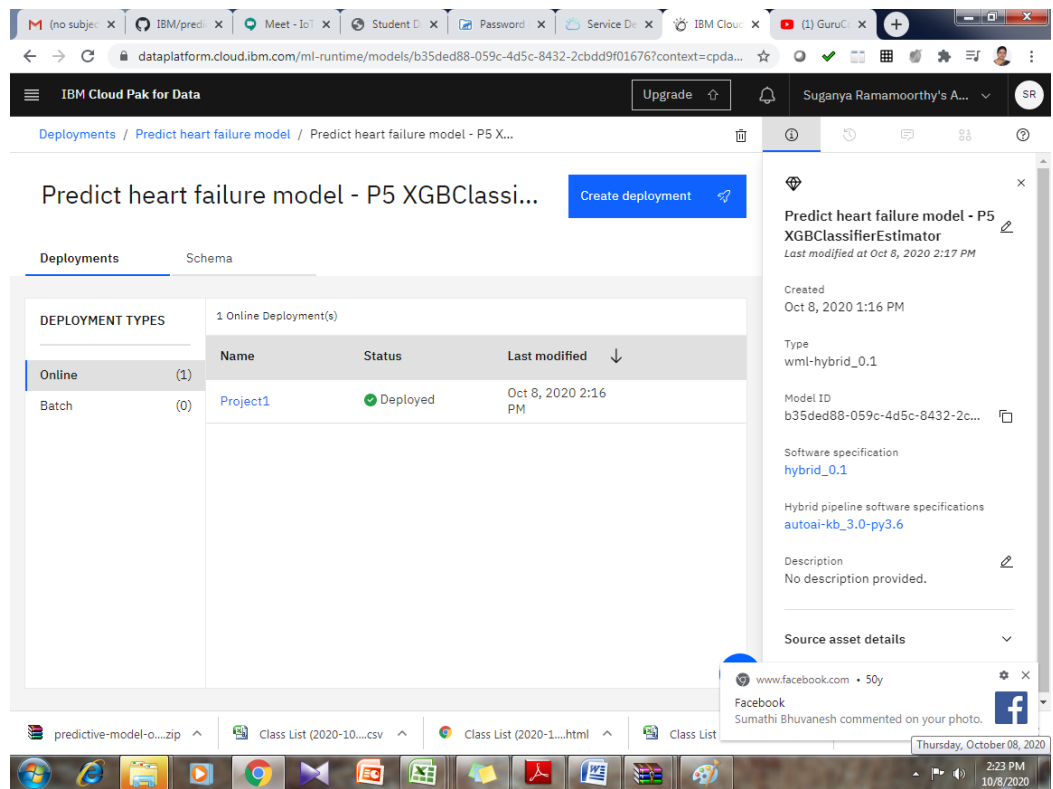


Figure 12 : Online mode of deployment

## Endpoint

<https://us-south.ml.cloud.ibm.com/ml/v4/deployments/4a40125b-9dbf-4a60-823d-8ebfdc03e8a3/predictions>



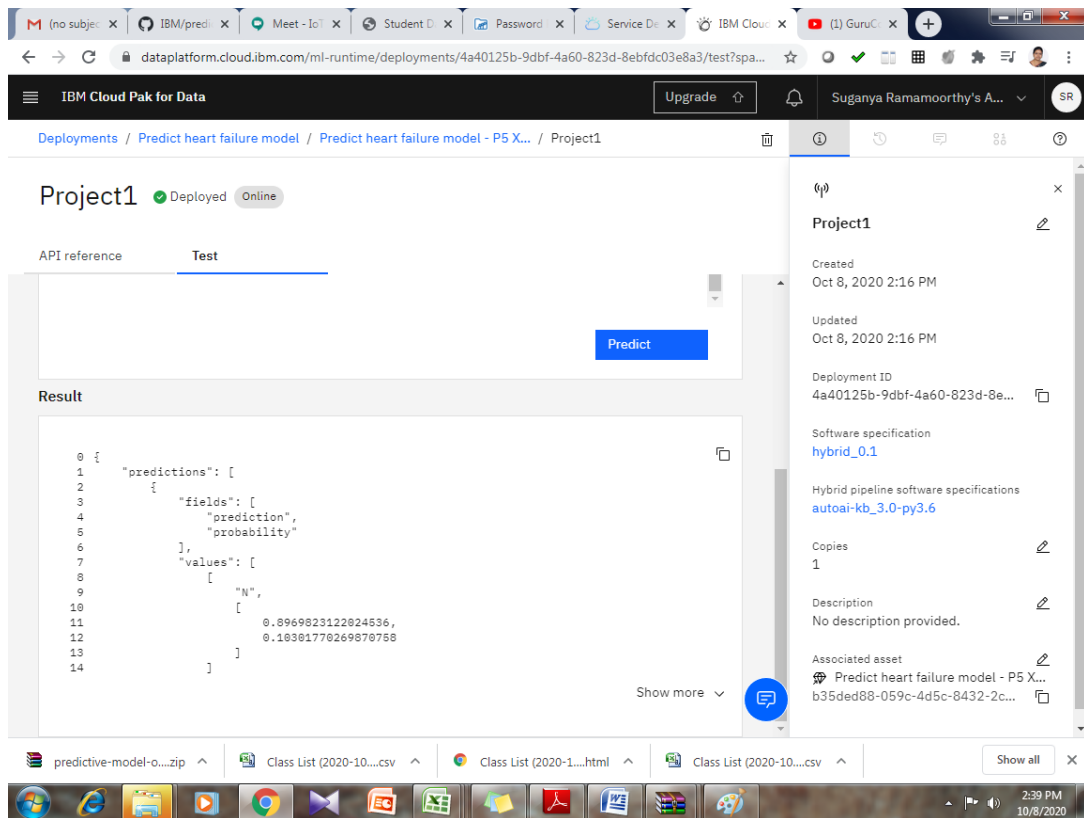


Figure 13: API reference

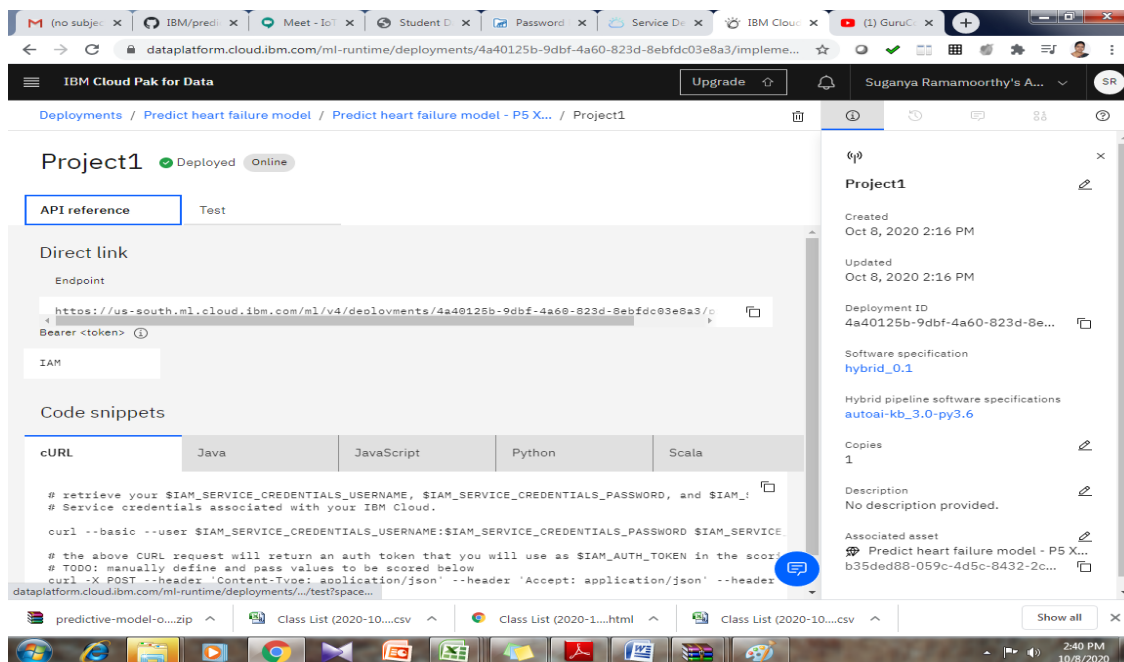


Figure 14: Endpoint from API reference

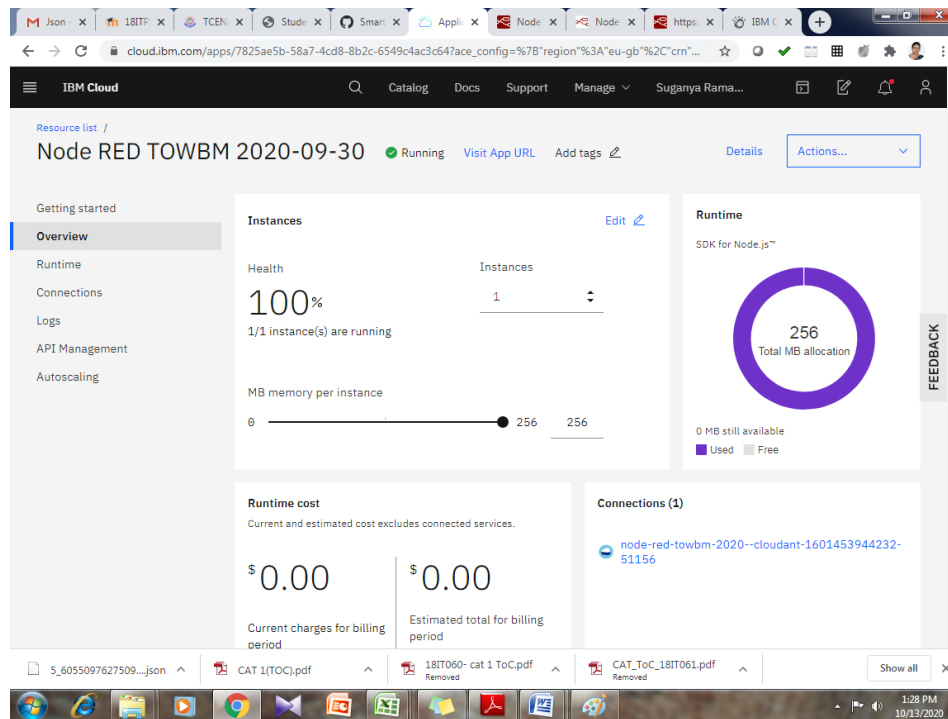


Figure 15: Node RED running – click Visit App URL

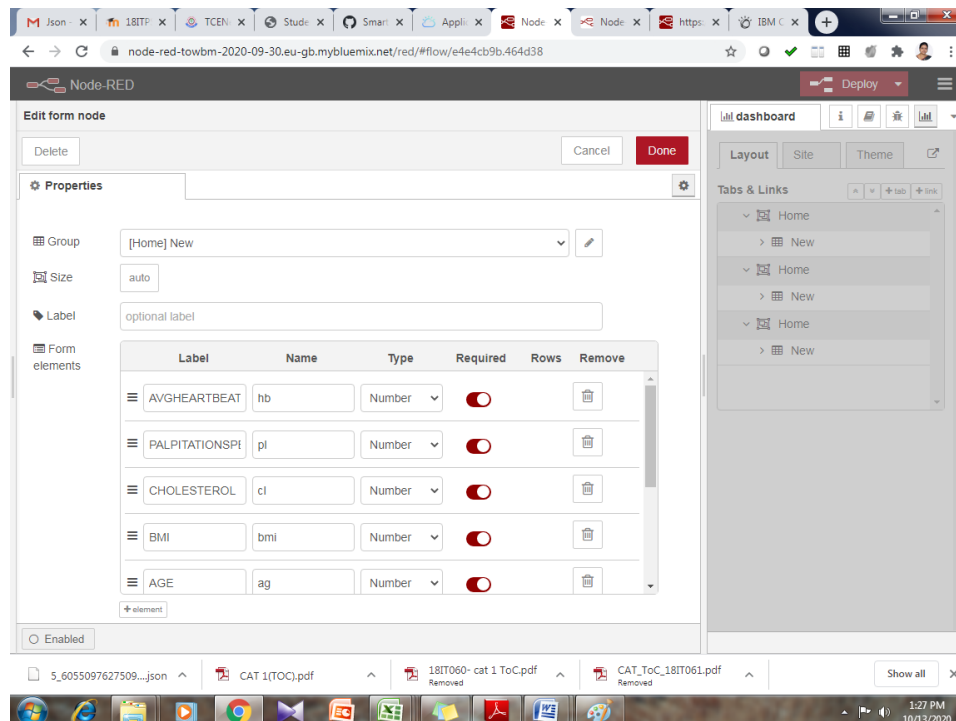


Figure 16: Form properties- add all parameters in the heart failure dataset.

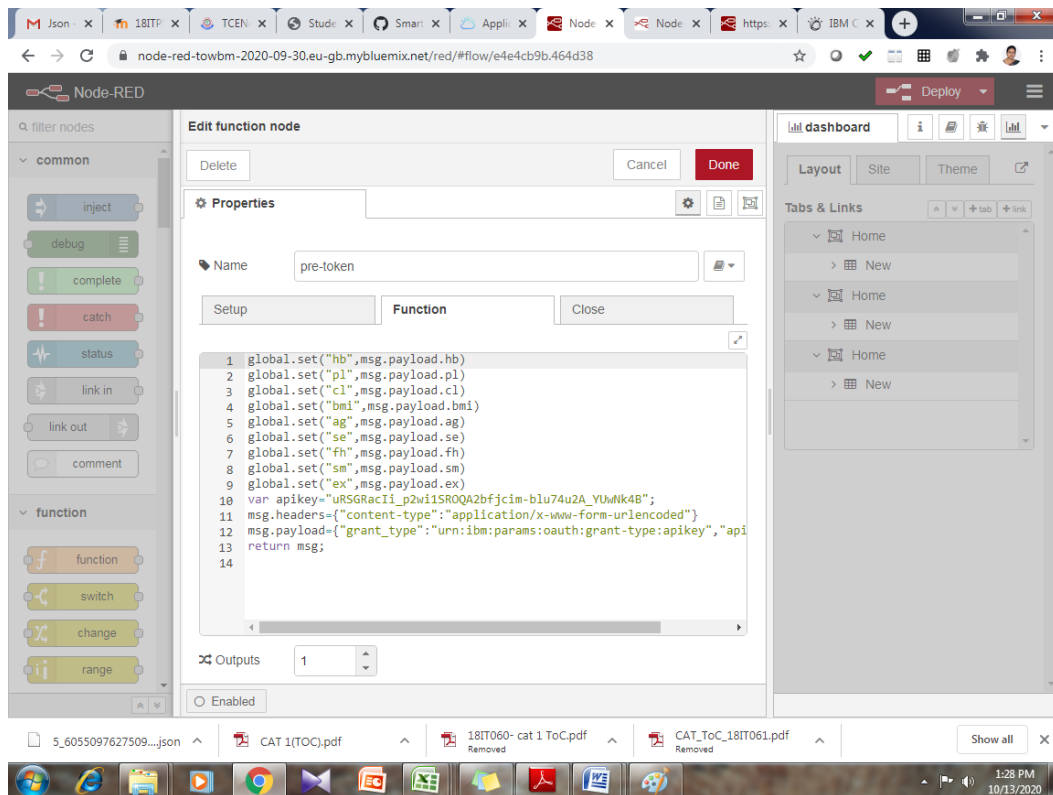


Figure 17: Edit pre-token notation and change all the properties

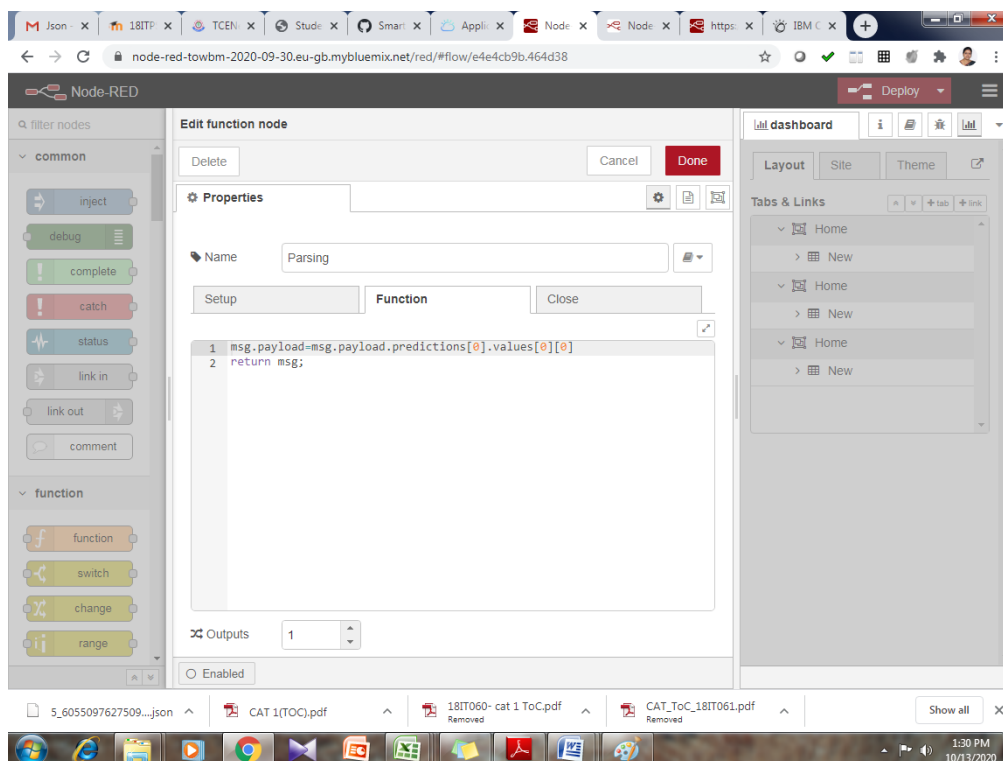


Figure 18: Edit parsing node for prediction value

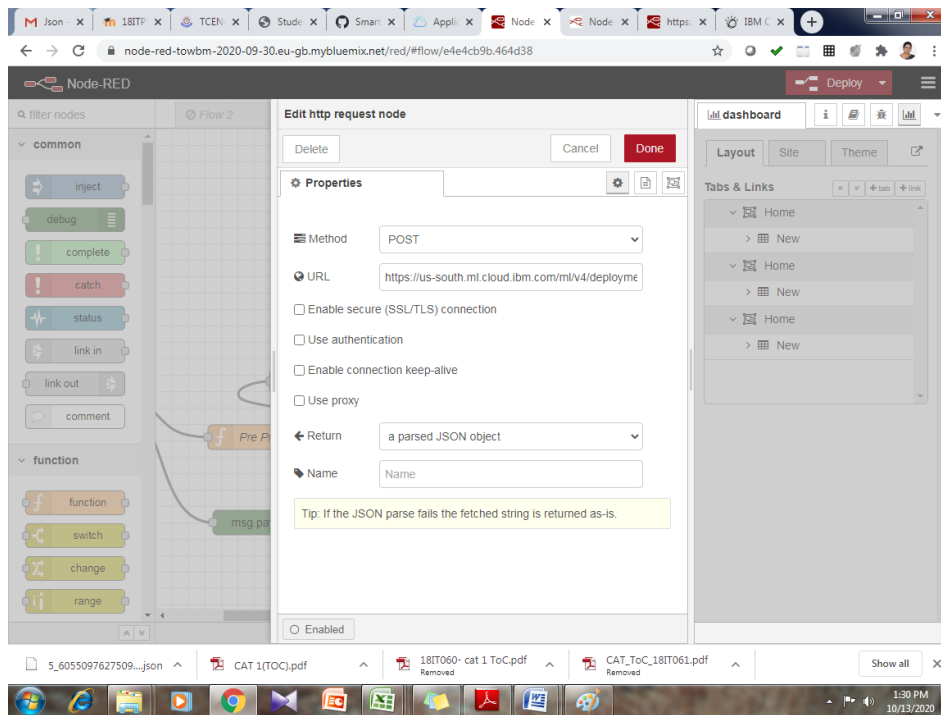


Figure 19: Add endpoint in 2<sup>nd</sup> httprequest

**`https://us-south.ml.cloud.ibm.com/ml/v4/deployments/b437aefd-41af-4a72-9590-17102431f8e1/predictions?version=2020-09-01`**

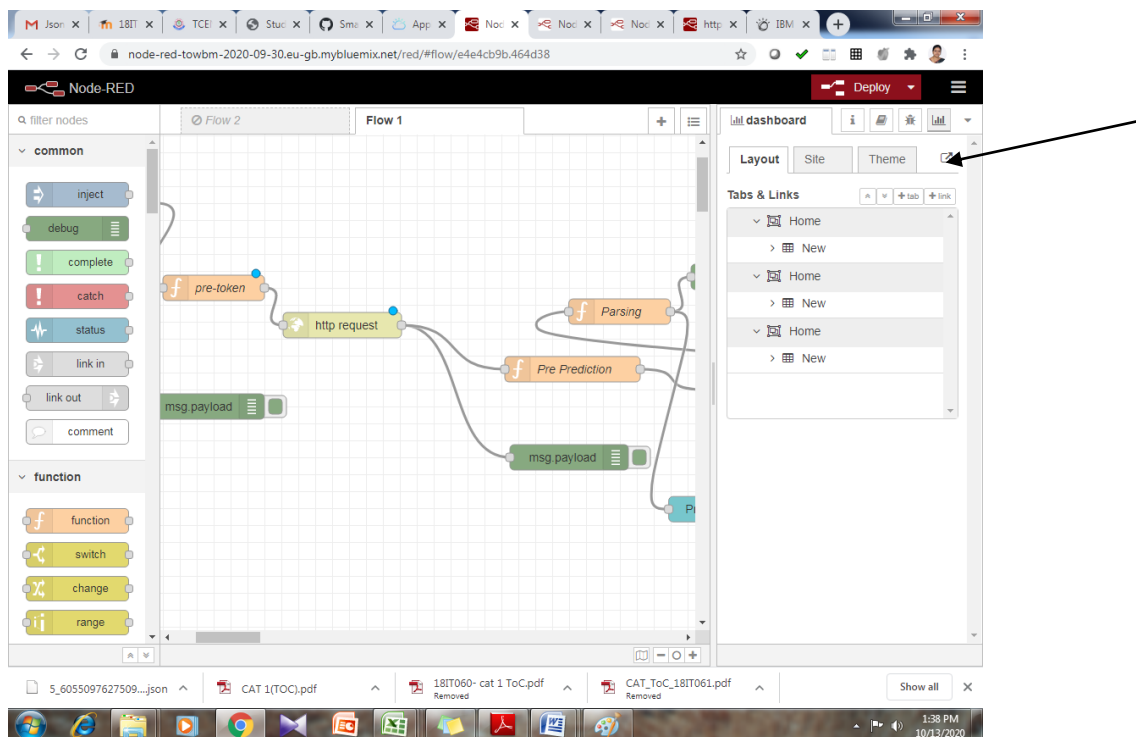


Figure 20: click top left corner to run node RED

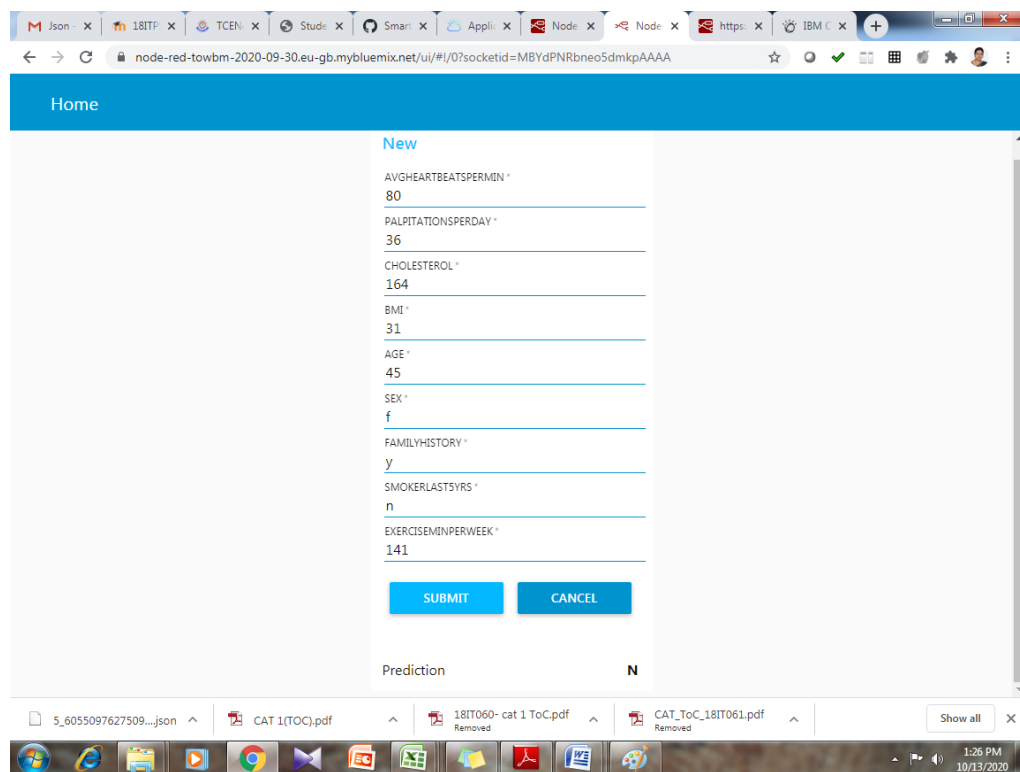


Figure 21: Output of the project – Prediction results

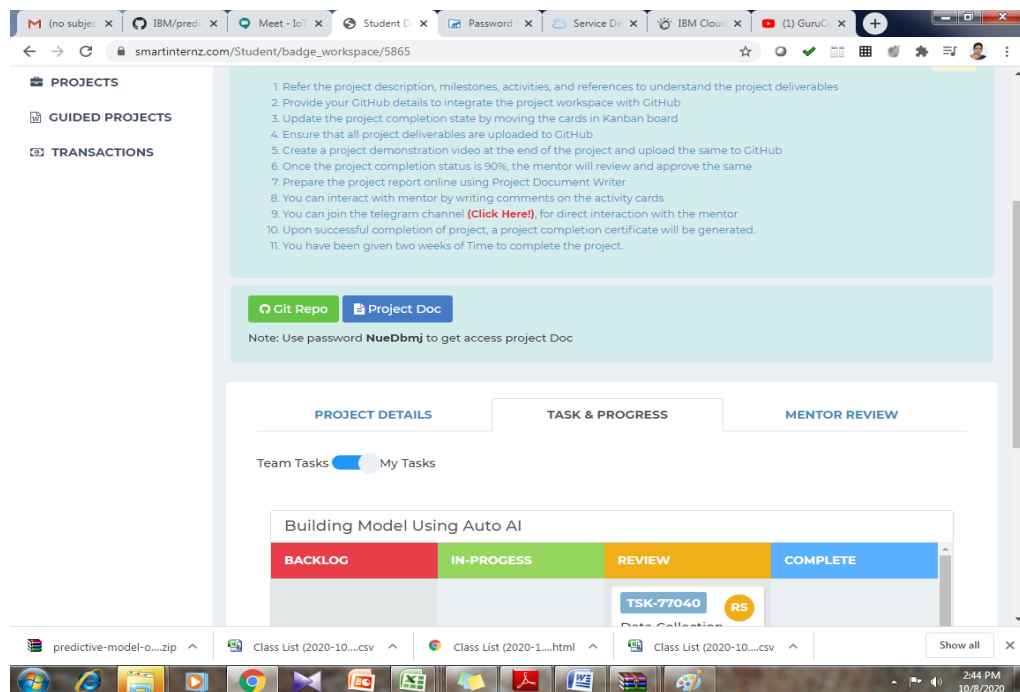


Figure 22: [https://smartinternz.com/Student/badge\\_workspace/5865](https://smartinternz.com/Student/badge_workspace/5865)