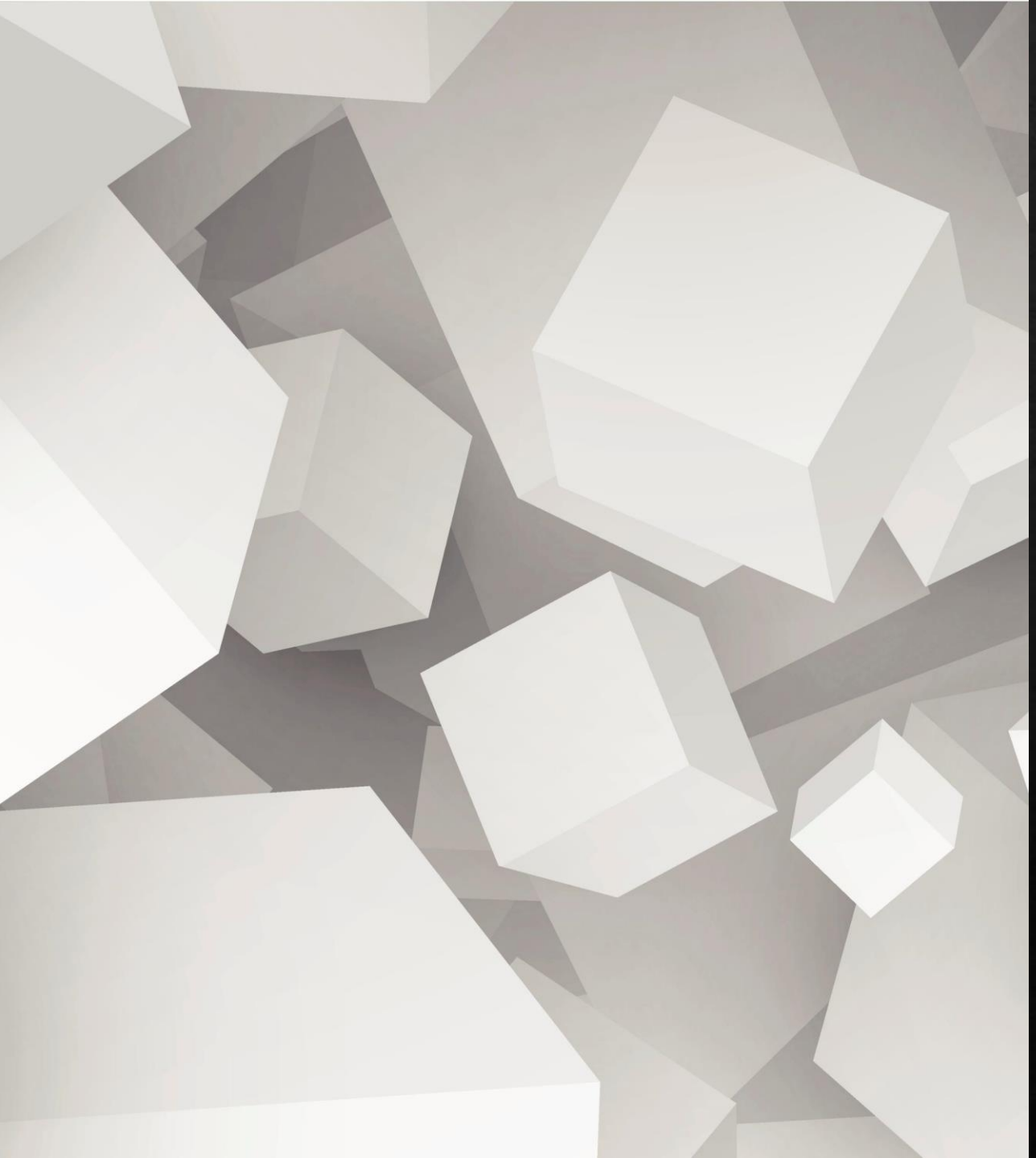
SKILL GEEK

Bringing out the you in you...

TEMPERATURE PREDICTION AND AUTHENTICATING THE CLAIM OF VARIOUS SCIENTISTS

USING THE CLIMATE TEMPERATURE DATA

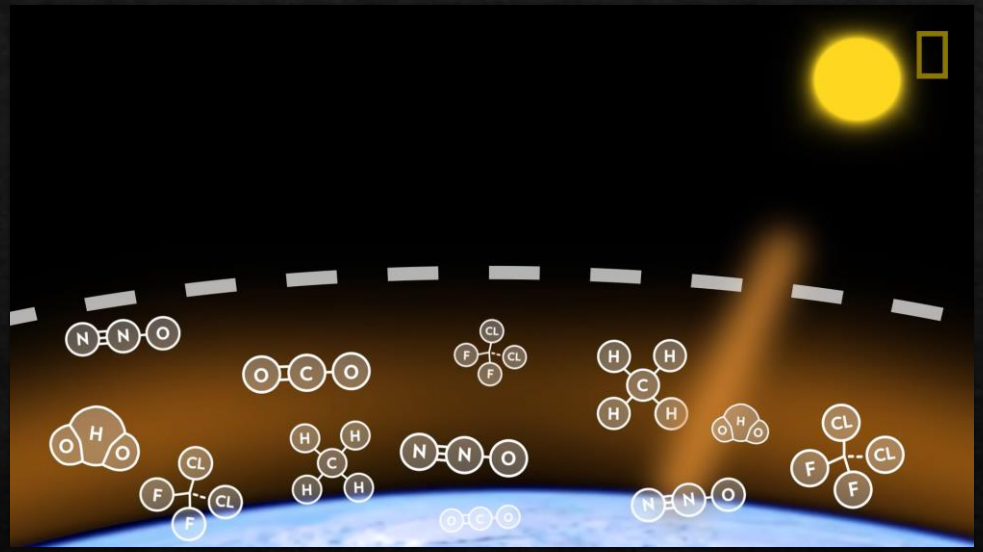


Project Brief

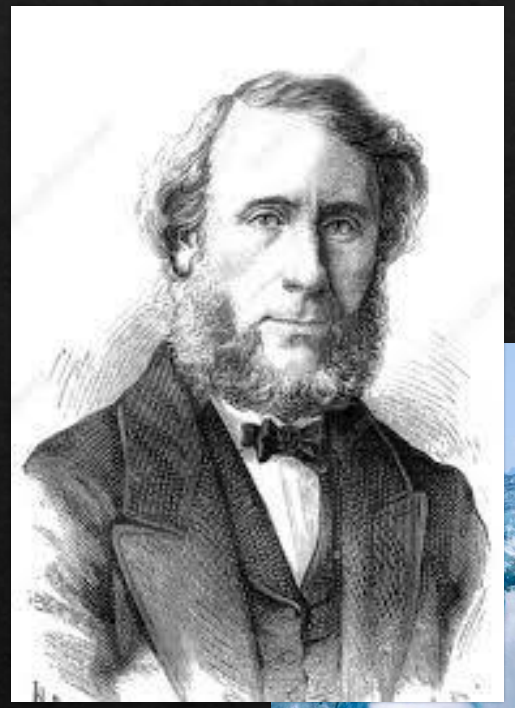
- To understanding the “Climate Change phenomenon”.
- “Authenticating” various claim of Scientist using temperature data.
- Also “Predictions the temperature”.

Introduction

- In this modern world increase in “Climate Temperature” is the main problem.
- Increase in temperature rapidly is because of “Greenhouse Gases”.
- Firstly, Greenhouse gases are Carbon Dioxide, Methane, Nitrous Oxide, Fluorinated Gases, ozone.
- If the Greenhouse gases are in limit there will be no problem in climate.



- But in 1859, according to “Irish physicist John Tyndall” after the industrial revolution more amount of Carbon dioxide is emitting by industries.
- That leads to “Global Warming”
- Seasonal Affective Disorder
- Glacier Melting increase water level and decrease the percentage of land



But, most of the “industrialist and some other scientists” says that the Co_2 released by industrials are in limit it not leads to danger to life on earth.

Project Goal

- Study the Climate change Phenomena and dataset.
- Predict the temperature.
- "Authenticate" various claim of Scientist using temperature data.
- Means we want to prove one of the scientist theory is true.

ARCHITECTURE PATTERN USED

ARCHITECTURE PATTERN USED STEPS

- Stage 1: Planning and Requirement Analysis
- Stage 2: Defining Requirements
- Stage 3: Designing the Product Architecture
- Stage 4: Building or Developing the Product
- Stage 5: Testing the Product
- Stage 6: Deployment in the Market and Maintenance

IMPLEMENTATION METHODOLOGY

IDE:

Python IDLE, Kaggle Notebook(python)

Technologies:

Python

Dataset size:

1 Crores

Dataset:

Climate Change: Earth Surface Temperature Data

Algorithms:

Linear Regression

Random Forest Regression

Decision Tree

Feedforward Neural Networking

User Interface:

Python Compiler

PROGRAM IMPLEMENTATION

- Firstly, We want to read and check the dataset weather there is any missing values errors etc,
- Fill the missing with this three methods mean, medium, mode.
- Split the data training and testing.
- Know do the
  1. Linear Regression
  2. Random Forest Regression
  3. Feedfarward Neural Network
  4. Feedbackward Neural Network
- Visualize Outputs (Bar Graph)

COMPARISON

DATASET	ALGORITHMS	BEFORE PREDICTION	AFTER PREDICTION
Avg Temp of City	Linear regression	26.544	19
Avg Temp of City	Random forests	26.544	26
Average Temp of City	Decision tree	26.544	26
Avg Temp of Country	Linear regression	26.864	19
Avg Temp of Country	Random forests	26.864	18
Avg Temp of Country	Decision tree	26.864	24
Avg Tempe of Major City	Linear regression	26.612	19
Avg Temp of Major City	Random forests	26.612	26
Avg Temp of Major City	Decision tree	26.612	26
Avg Temp of State	Linear regression	18.402	10
Avg Temp of State	Random forests	18.402	9
Avg Temp of State	Decision tree	18.402	8

DATASET	ALGORITHMS	BEFORE PREDICTION	AFTER PREDICTION
Avg Temp of Global	Linear regression	13.293	9
Avg Temp of Global	Random forests	13.293	15
Avg Temp of Global	Decision tree	13.293	25
Land min temp of global	Linear regression	-1.139	0
Land min temp of global	Random forests	-1.139	1
Land min temp of global	Decision tree	-1.139	-1
Land max temp of global	Linear regression	19.753	14
Land max temp of global	Random forests	19.753	19
Land max temp of global	Decision tree	19.753	19
Land and Ocean Avg temp of global	Linear regression	15.005	15
Land and Ocean Avg temp of global	Random forests	15.005	15
Land and Ocean Avg temp of global	Decision tree	15.005	15

SCREEN SHOTS

Fig 1.1: Graph plotted between Year and average Temperature

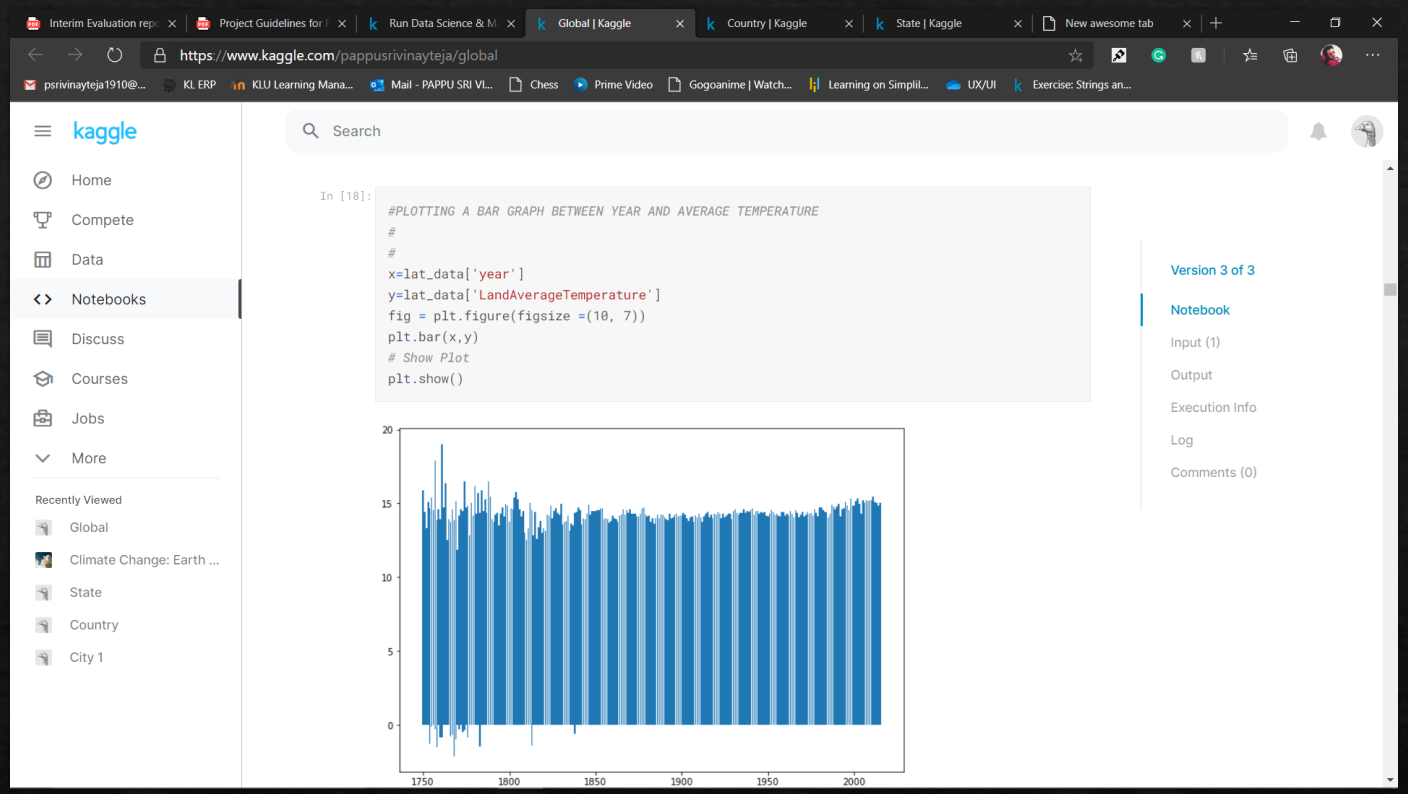


Fig 1.2: Bar Graph plotted between Year and average Temperature

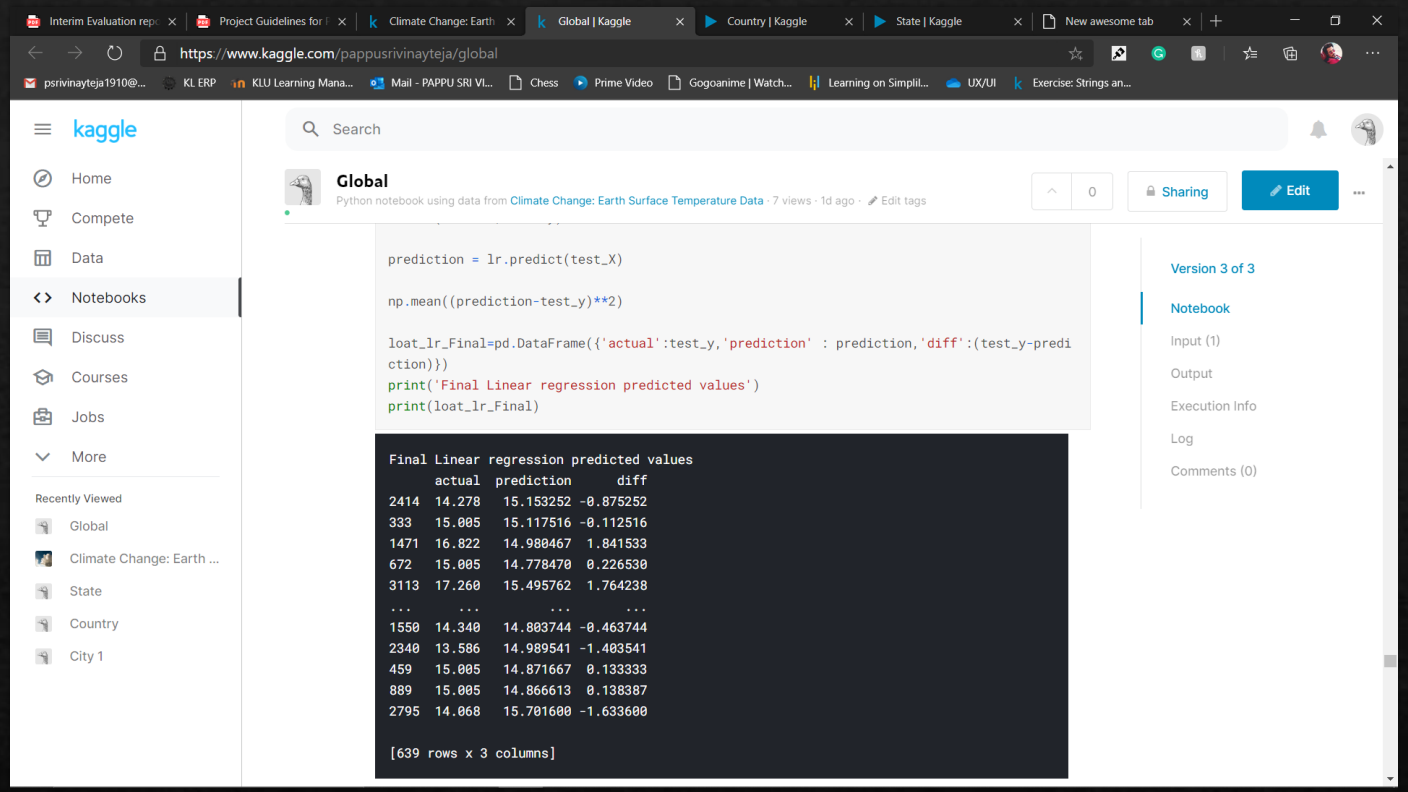


Fig 1.3: Using Linear Regression for prediction for Land and Ocean Avg Temperature

In [98]:

```
#PLOTTING BAR GRAPH OF LINEAR REGRESSION  LAND OCEAN AVERAGE TEMPERATURE
loat_lr_Final.plot.bar()
```

Out[98]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f6175e02950>
```

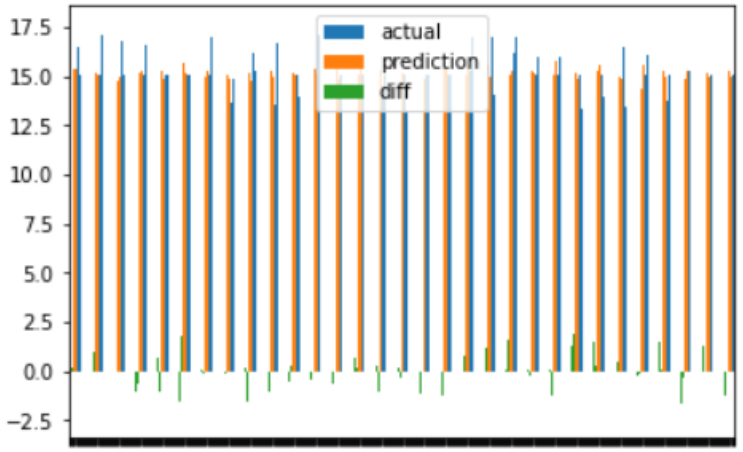


Fig 1.4: Bar graph of actual, prediction and diff of Land and Ocean Avg temperature (LR)

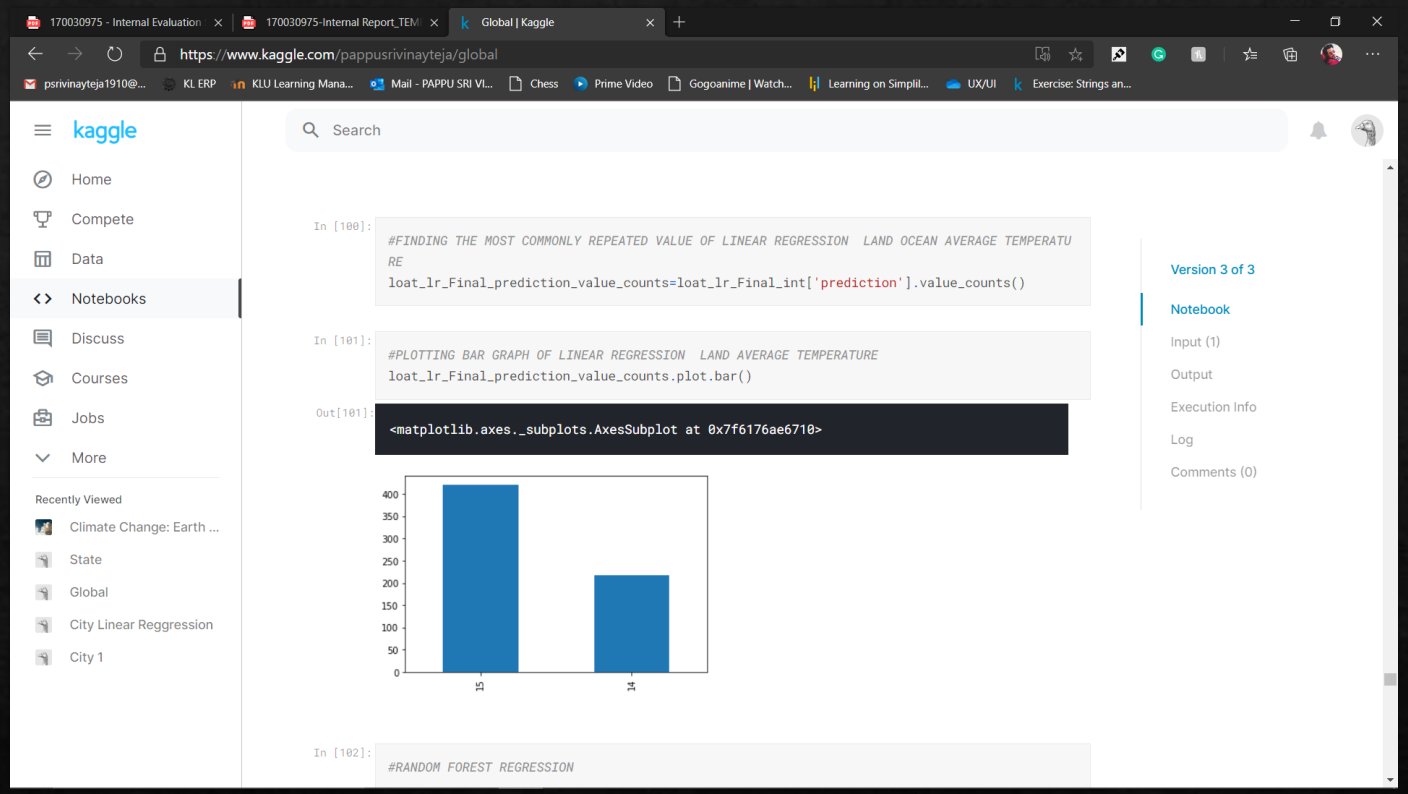


Fig 1.5: Predicted Land and Ocean average temperature (LR)

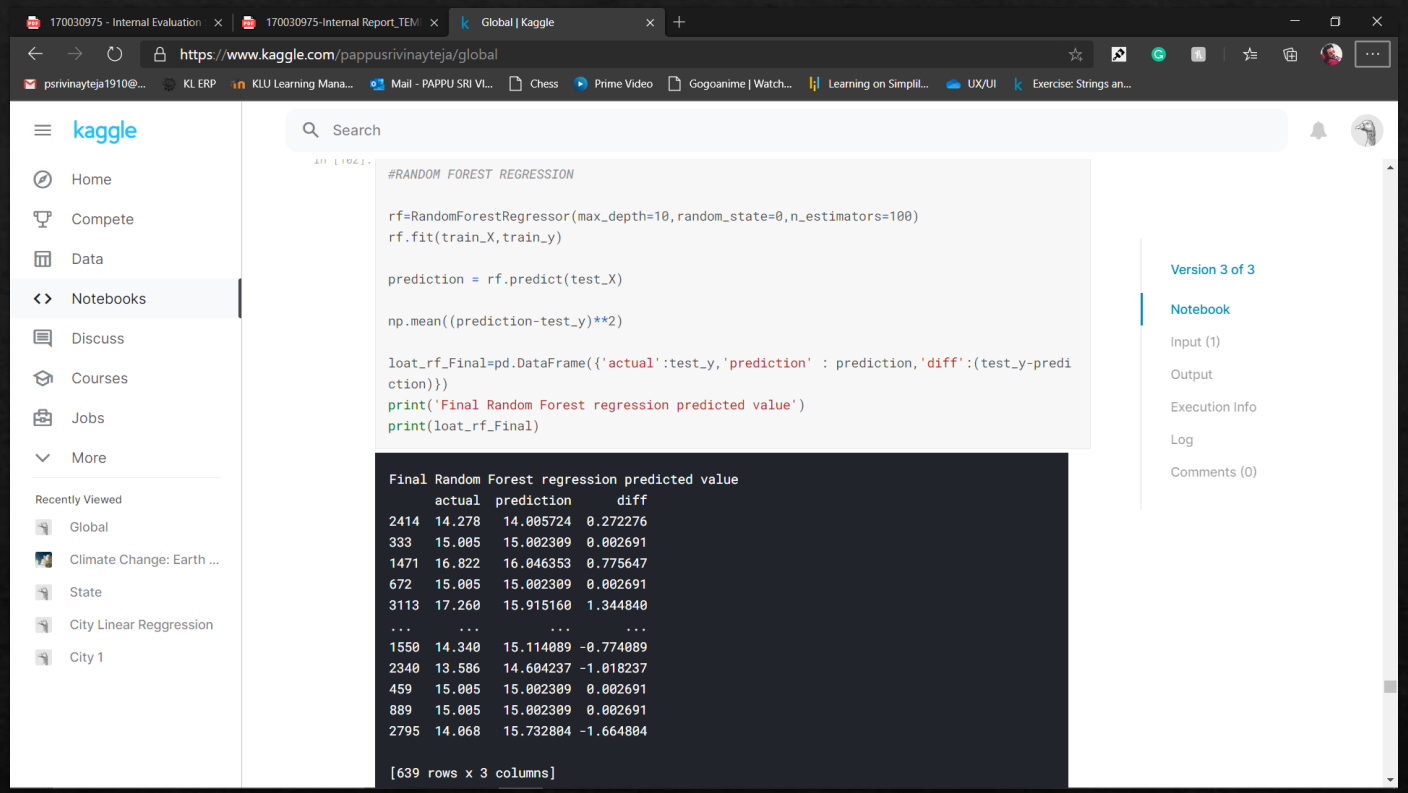


Fig 1.6: Using Random Forest for prediction for Land and Ocean Avg Temperature

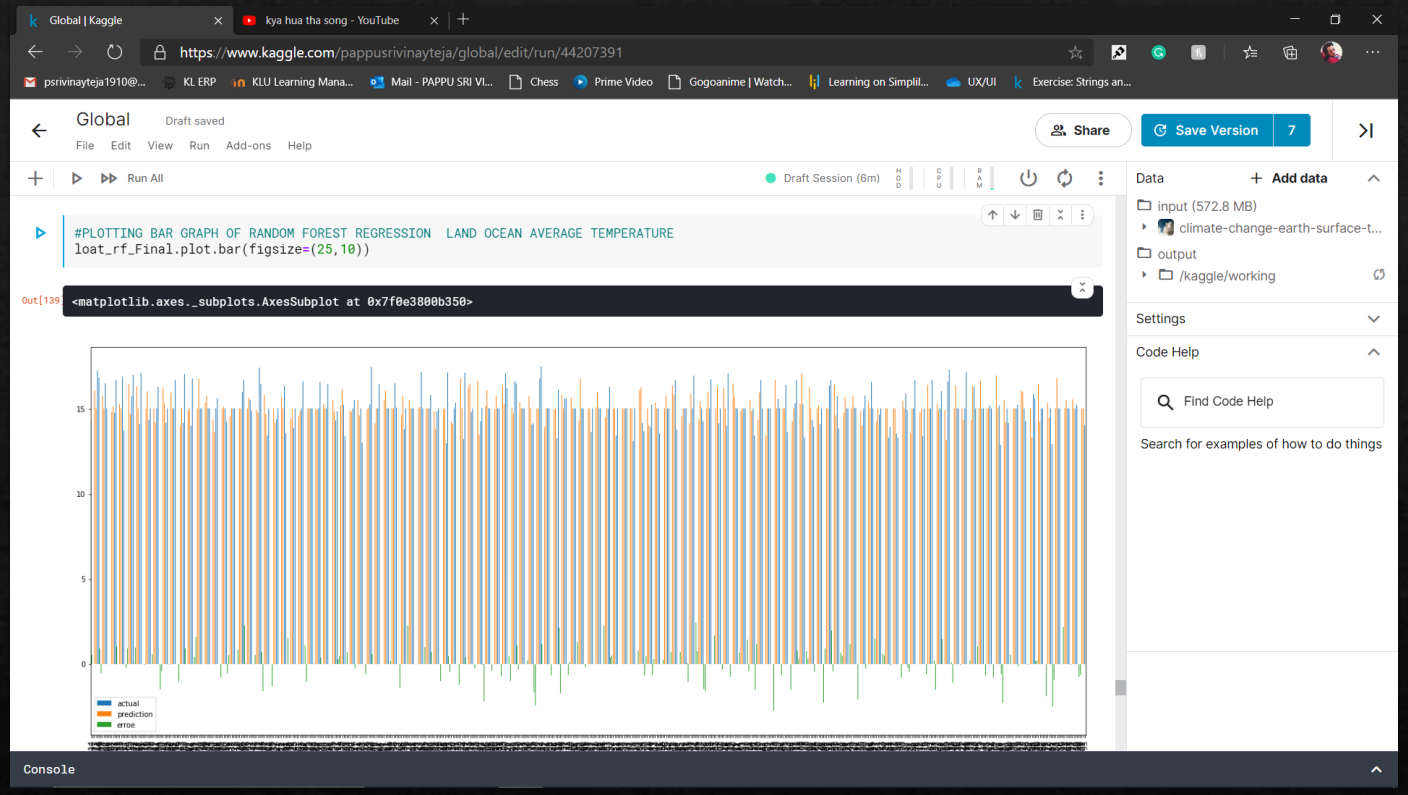


Fig 1.7: Bar graph of actual, prediction and diff of global temperature (RF)

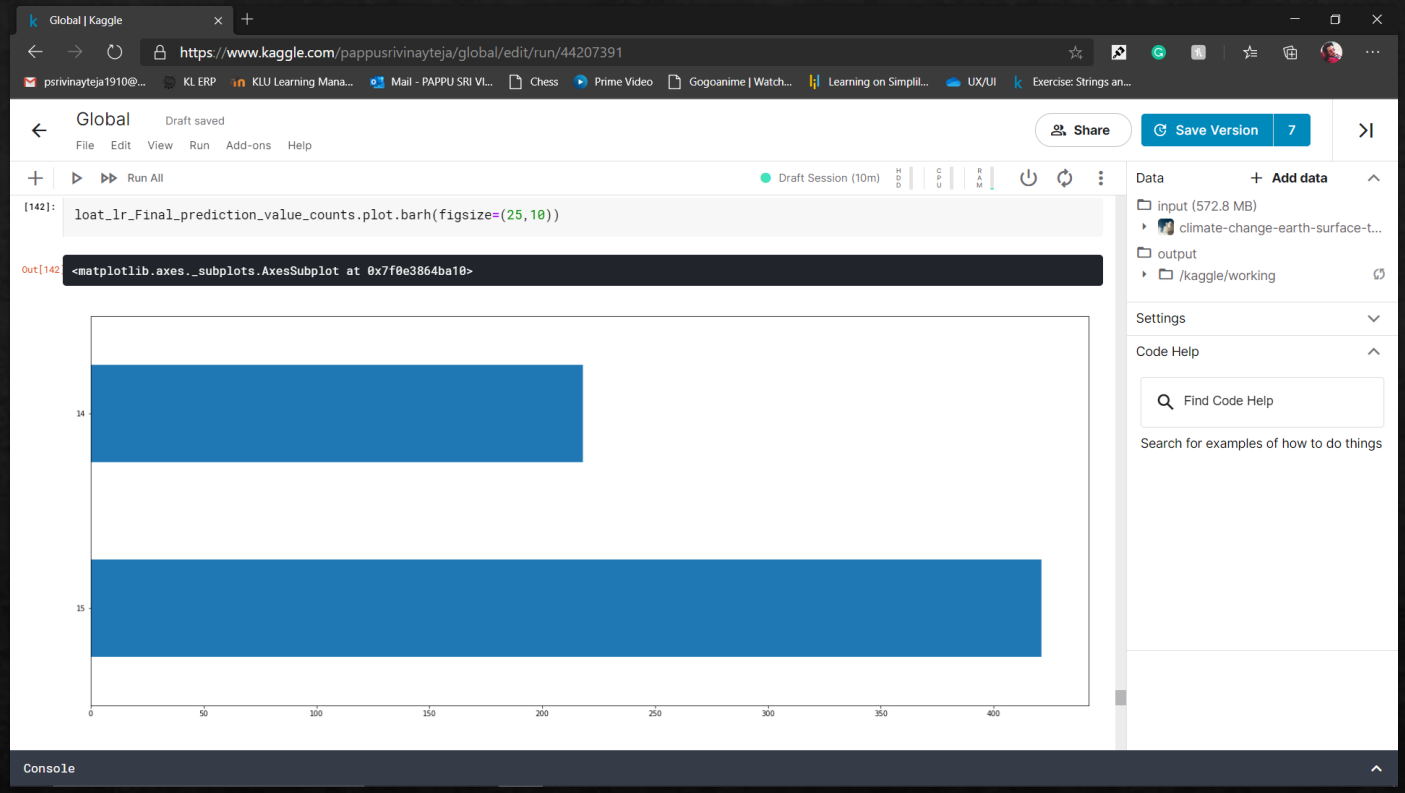


Fig 1.8: Predicted Land and Ocean average temperature (RF)

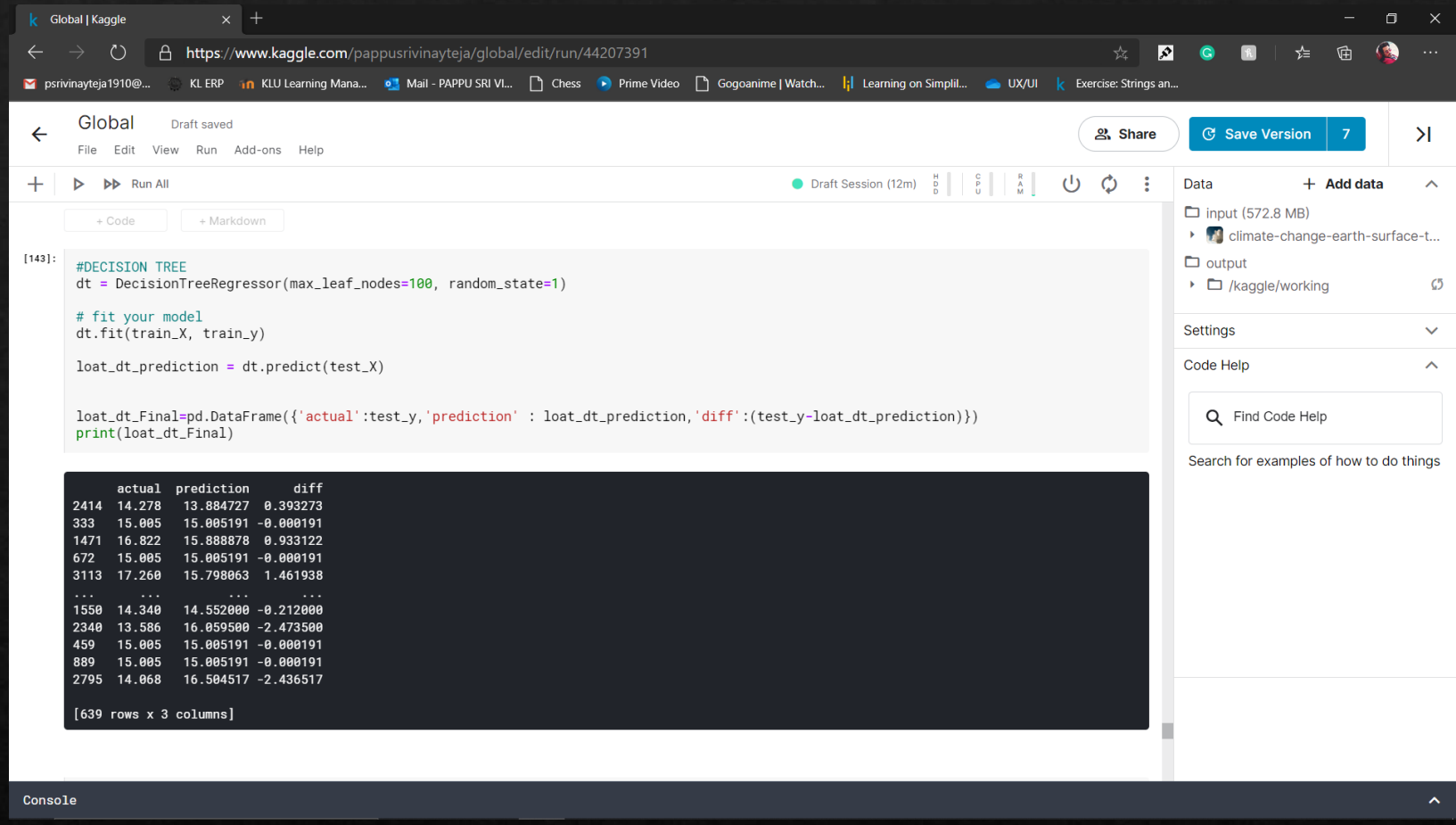


Fig 1.9: Using Decision Tree for prediction for Land and Ocean Avg Temperature

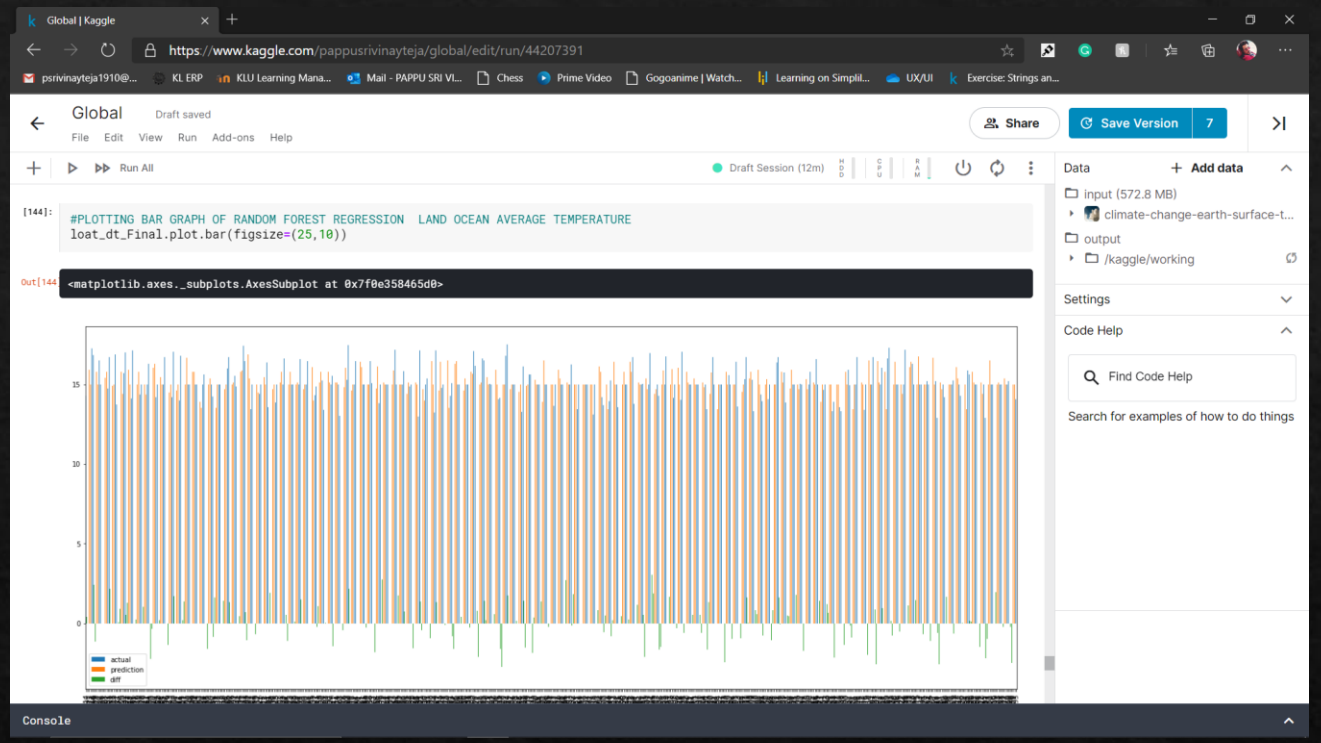


Fig 2.1: Bar graph of actual, prediction and diff of global temperature (DT)

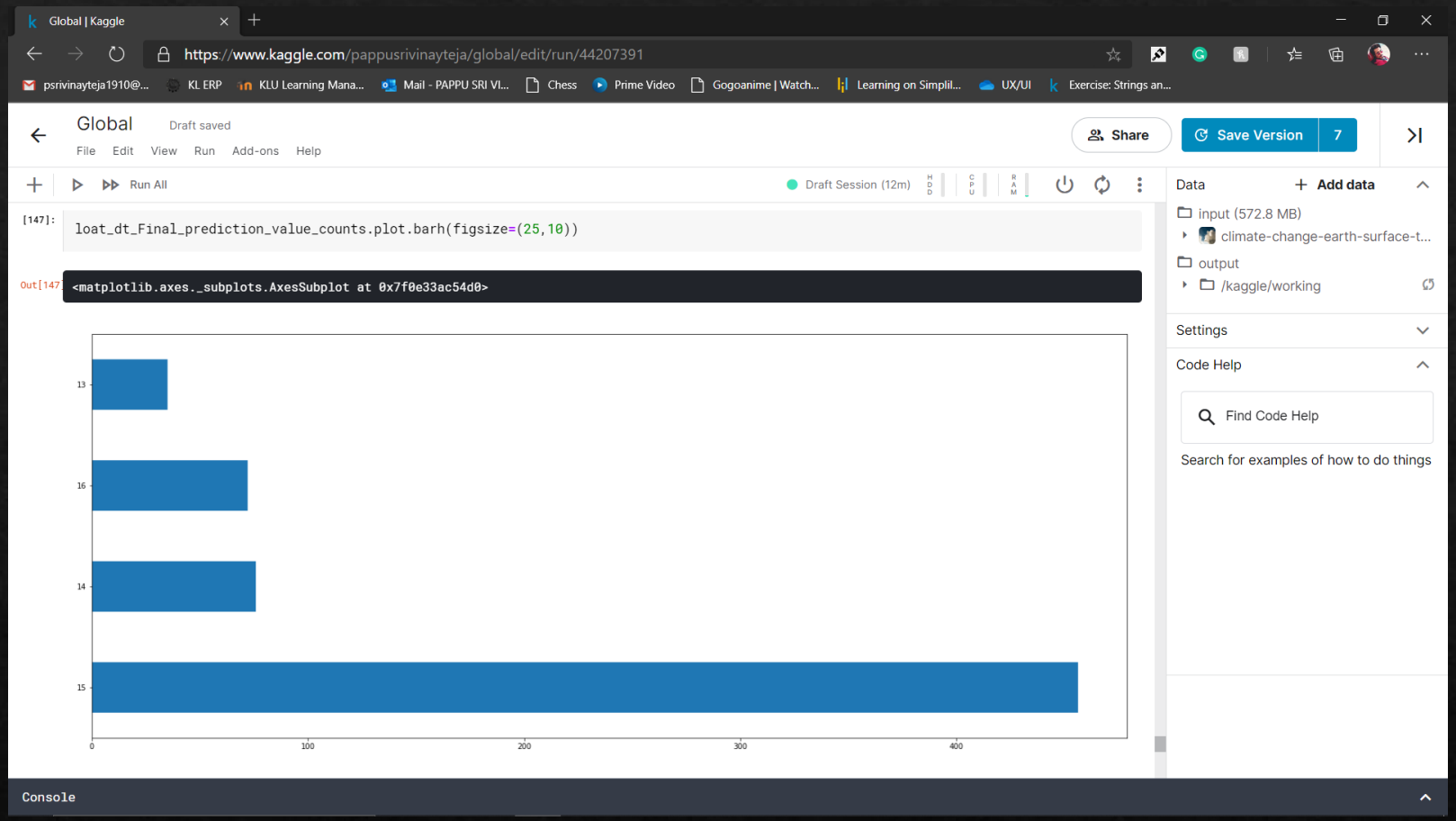


Fig 2.2: Predicted Land and Ocean average temperature (DT)

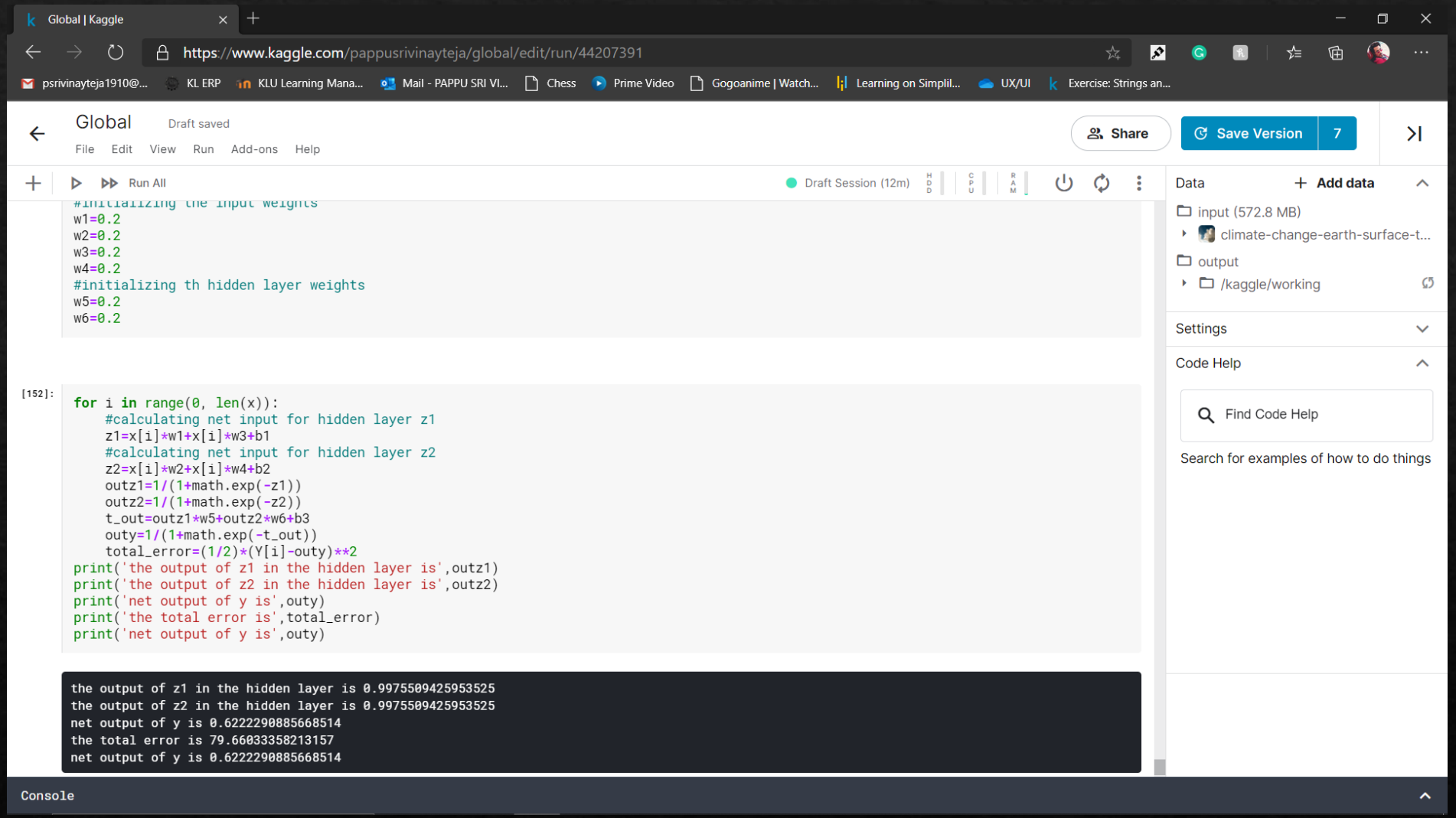
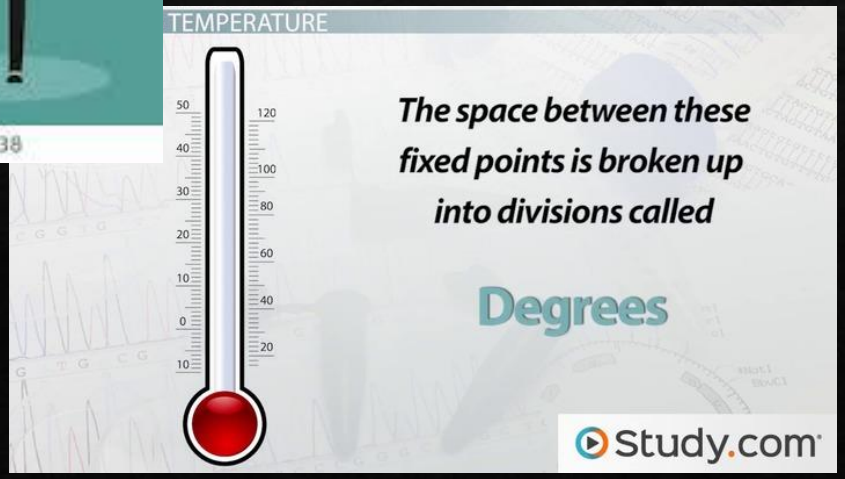


Fig 2.3: Using Feed Forward Neural Network for prediction for Land and Ocean Avg Temperature

Use Case

- This algorithm is used in
  - Weather Forecasting
  - Study of Temperature and its effects
  - Temperature Prediction



DRAW BACKS

- This project can’t handle huge data at same time.
  - Required more time for predict.
- This project is only for study of prediction not for weather cast.

CONCLUSION

- According to the records the global average temperature is 13.8 C^0 before 1700 and the global average temperature is 15 C^0 in 2016.
- In the pandemic situation 50% of car transport, 75% of air transport and 35% industrials works was stop for few months due to this lockdown 17% of CO_2 decreased.
- When we get the predicted data the value are nearly 15 C^0 – 16 C^0.
- I conclude that the temperature was increasing it leads to danger to life on earth.
- I also conclude that the Greenhouse effect and its effect theory given by “Irish physicist John Tyndall” is true.

THANK YOU

BY

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