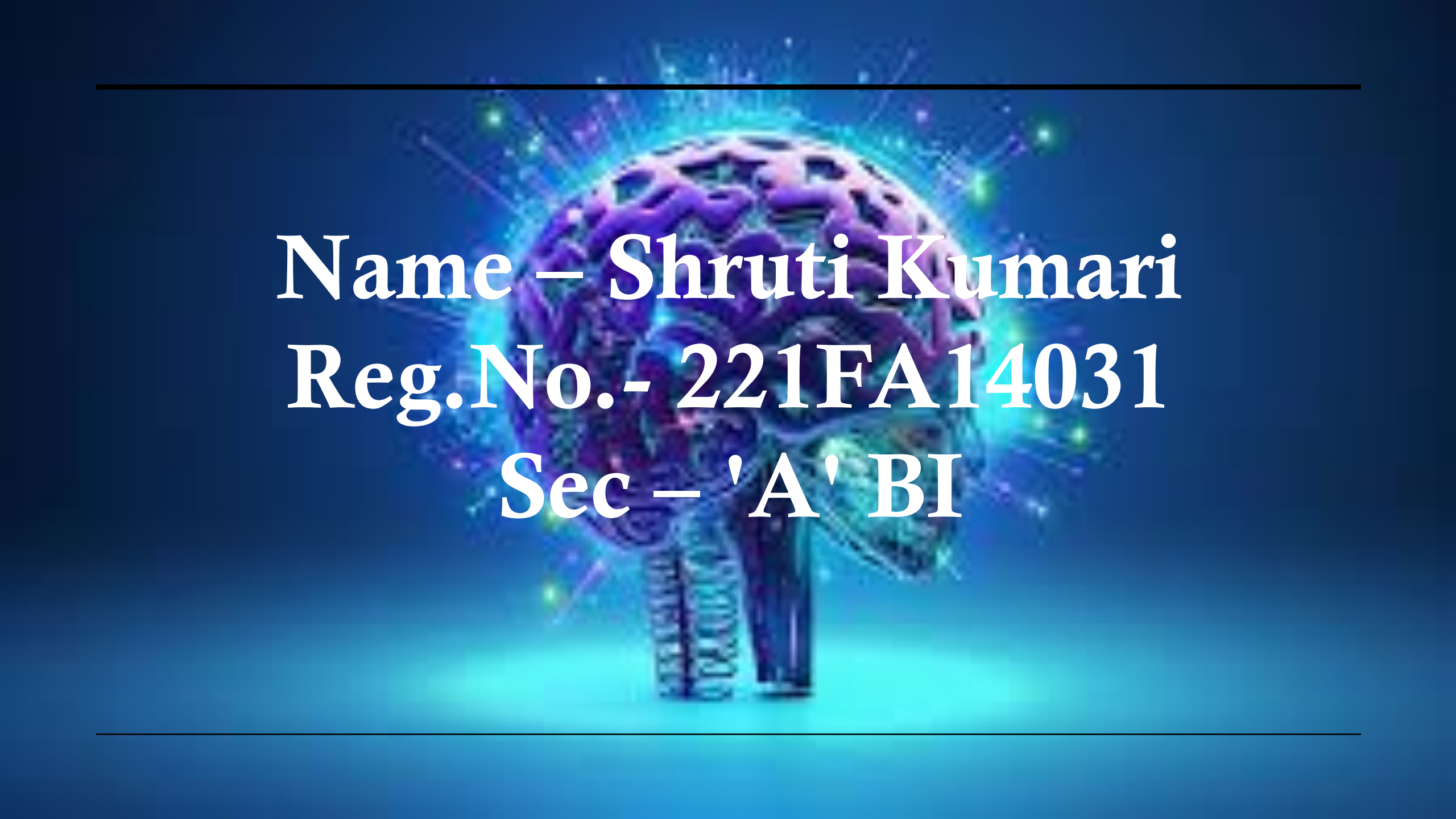


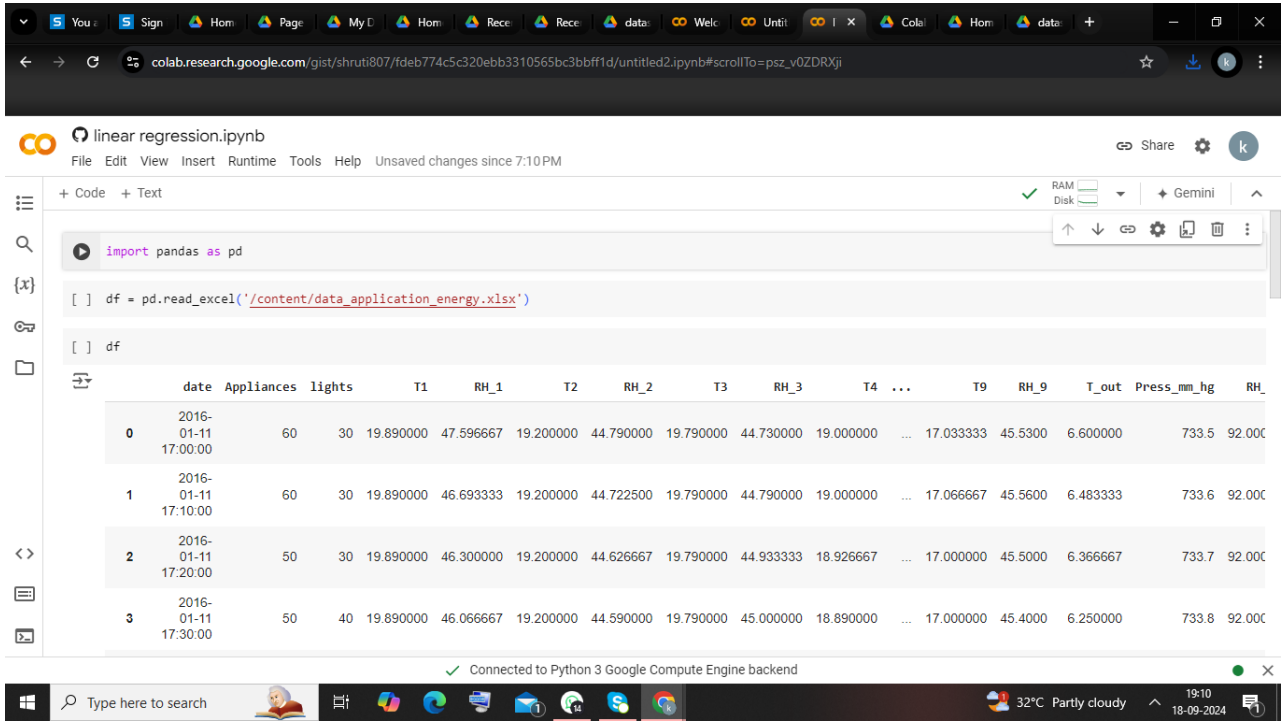
Name – Shruti Kumari
Reg.No.- 221FA14031
Sec – 'A' BI

LINEAR PLOT REGRESSION BETWEEN RV1 AND T1

INTRODUCTION TO LINEAR REGRESSION

- A statistical method used to model the relationship between a dependent variable and one or more independent variables.
- The objective is to find the best-fit line that minimizes the distance between the predicted and actual values.
- In this case, the relationship between rv1 (independent) and T1 (dependent) will be explored.

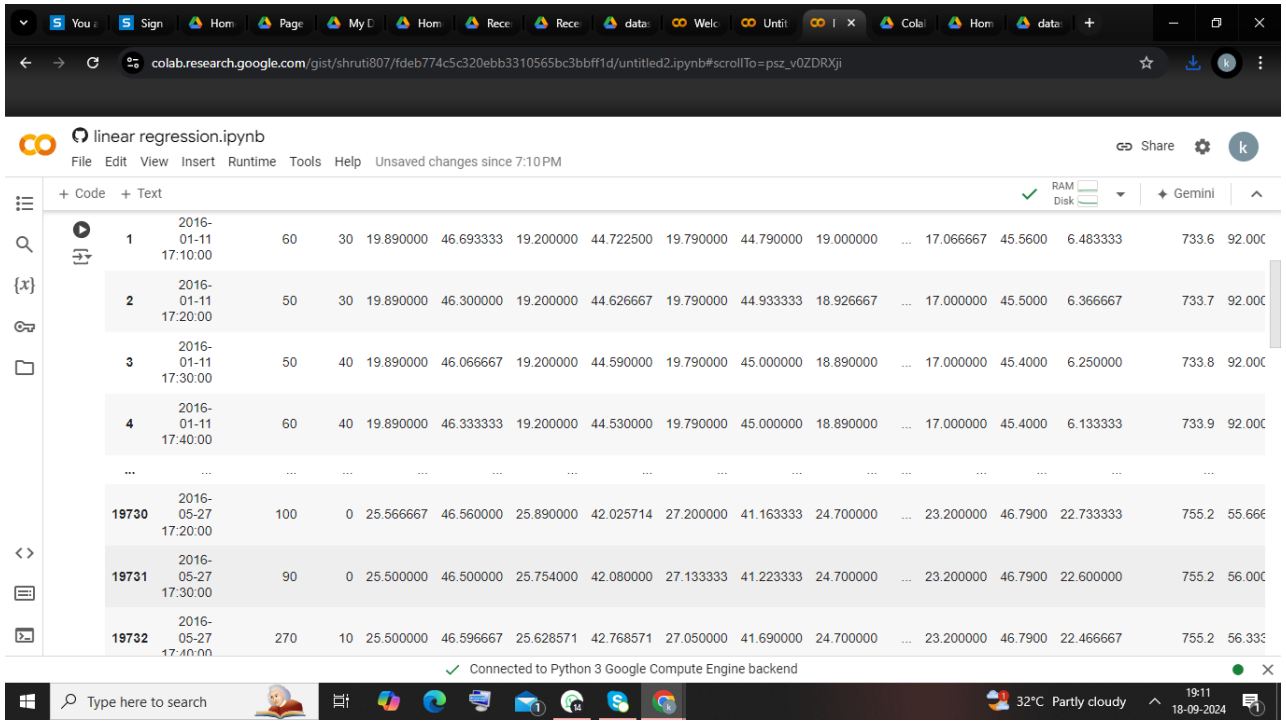
UNDERSTANDING THE DATASET



	date	Appliances	lights	T1	RH_1	T2	RH_2	T3	RH_3	T4	...	T9	RH_9	T_out	Press_mm_hg	RH_
0	2016-01-11 17:00:00	60	30	19.890000	47.596667	19.200000	44.790000	19.790000	44.730000	19.000000	...	17.033333	45.5300	6.600000	733.5	92.00
1	2016-01-11 17:10:00	60	30	19.890000	46.693333	19.200000	44.722500	19.790000	44.790000	19.000000	...	17.066667	45.5600	6.483333	733.6	92.00
2	2016-01-11 17:20:00	50	30	19.890000	46.300000	19.200000	44.626667	19.790000	44.933333	18.926667	...	17.000000	45.5000	6.366667	733.7	92.00
3	2016-01-11 17:30:00	50	40	19.890000	46.066667	19.200000	44.590000	19.790000	45.000000	18.890000	...	17.000000	45.4000	6.250000	733.8	92.00

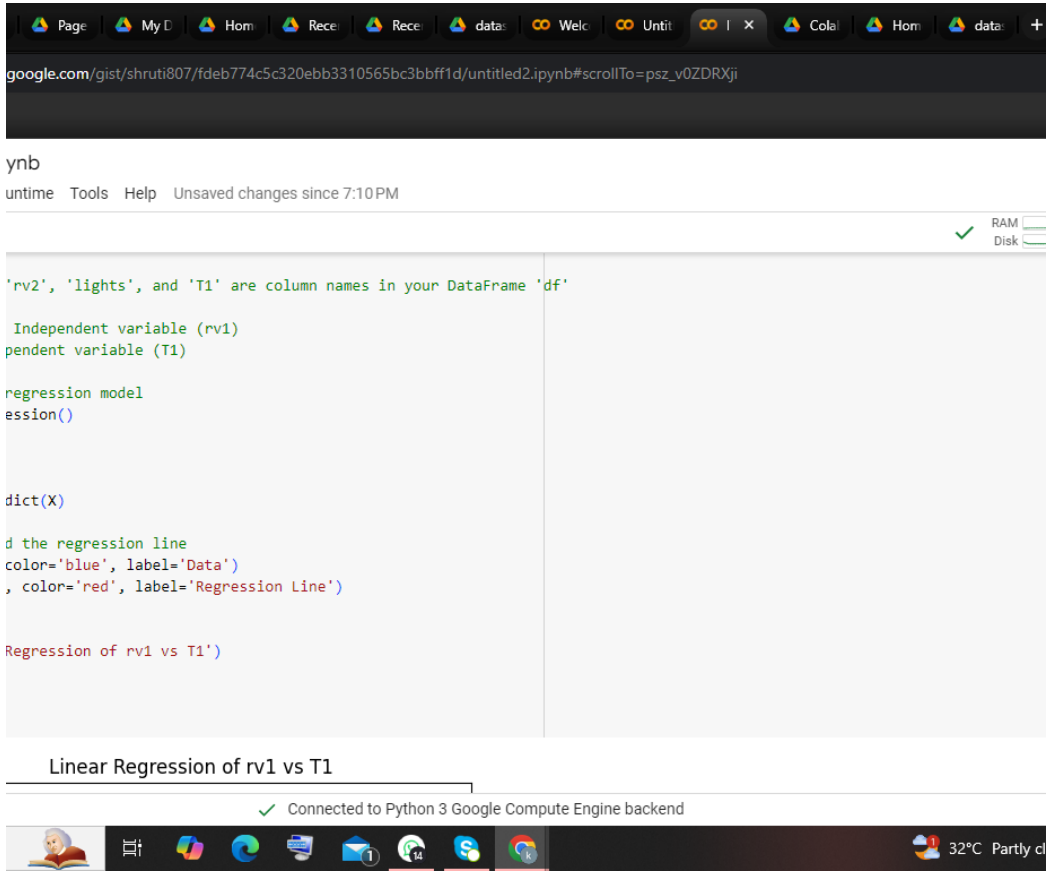
- Columns in focus:
- rv1: Independent variable (X)
- T1: Dependent variable (y)
- We're interested in finding how rv1 affects T1.

PYTHON CODE BREAKDOWN



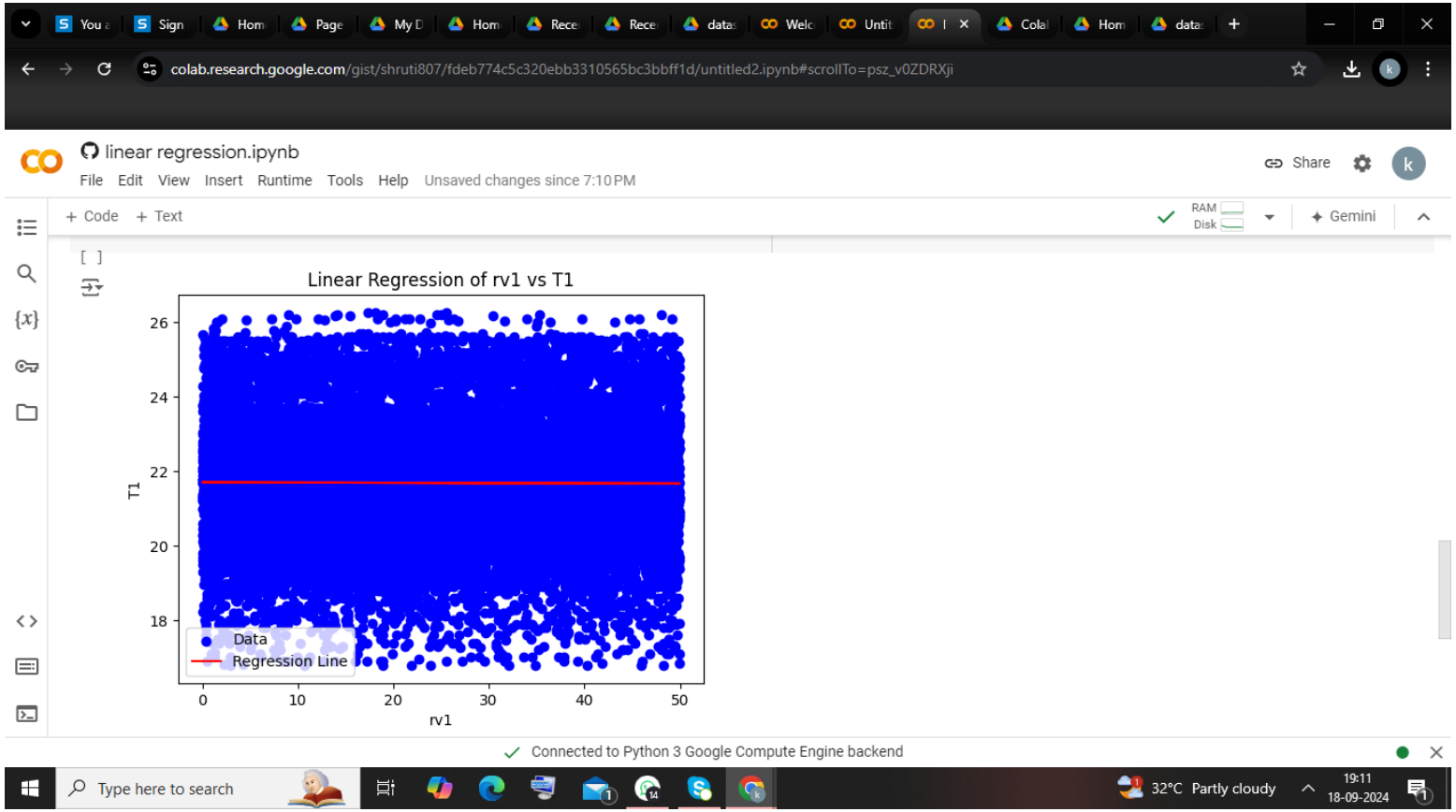

```
import matplotlib.pyplot as plt

import numpy as np

from sklearn.linear_model import LinearRegression

# Create a linear regression model

model = LinearRegression()

model.fit(X, y)

# Make predictions

y_pred = model.predict(X)
```

PYTHON CODE FOR VISUALIZATION




```
# Plot the data and the regression line

plt.scatter(X, y, color='blue', label='Data')

plt.plot(X, y_pred, color='red', label='Regression Line')

plt.xlabel('rv1')

plt.ylabel('T1')

plt.title('Linear Regression of rv1 vs T1')

plt.legend()

plt.show()
```

RESULTING PLOT



- Insert the generated plot here, showing the data points and the regression line.
- Explain that the blue points represent actual data, and the red line represents the best-fit linear model.

CONCLUSION

- Linear regression helps us visualize the relationship between rv1 and T1.
- Python's libraries such as Matplotlib and scikit-learn make it easy to implement and visualize linear regression models.
- This approach is valuable in understanding trends and making predictions based on data.