PROJECT

Ice Cream Sales Prediction Using Machine Learning

Problem Description

- Ice cream sales depend heavily on temperature.
  As temperature increases, people tend to buy more ice cream.
- This project predicts the number of ice creams sold based on the daily temperature using a machine learning regression model.

Type of Machine Learning

- Supervised Learning
- Regression Problem
- Algorithm: Linear Regression

Input and Output

Input

- Temperature (in degree Celsius)

Output

- Ice cream sales (number of units sold)

Dataset Used (Sample Data)

Temperature (°C)	Sales
20	120
22	150
25	180
28	210
30	240
35	300

Python code

```
# Import necessary libraries
    import numpy as np
    import matplotlib.pyplot as plt
    from sklearn.linear_model import LinearRegression
# Create input data (Temperature)
    temperature = np.array([20, 22, 25, 28, 30, 35]).reshape(-1, 1)
# Create output data (Ice cream sales)
    sales = np.array([120, 150, 180, 210, 240, 300])
# Create Linear Regression model
    model = LinearRegression()
# Train the model
    model.fit(temperature, sales)
# New temperature value for prediction
    new_temperature = np.array([[32]])
# Predict ice cream sales
    predicted_sales = model.predict(new_temperature)
    print("Predicted Ice Cream Sales:", predicted_sales[0])
# Plot the data and regression line
    plt.scatter(temperature, sales)
    plt.plot(temperature, model.predict(temperature))
    plt.xlabel("Temperature (°C)")
    plt.ylabel("Ice Cream Sales")
    plt.title("Ice Cream Sales Prediction”)
    plt.show()
```

Conclusion

This project demonstrates how **Linear Regression** can be used to predict ice cream sales based on temperature. The model shows a **positive linear relationship**, meaning sales increase as temperature increases.

Google collab code and scatter plot graph

https://colab.research.google.com/drive/1Y9GJHO2MlKLXzhYMdjRgJIK0Y_MBfjjq?usp=sharing