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In [1]: import pandas as pd
import matplotlib.pyplot as plt
from scipy.stats import linregress
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In [14]: # Read data from file
df = pd.read_csv('epa-sea-level.csv')
```

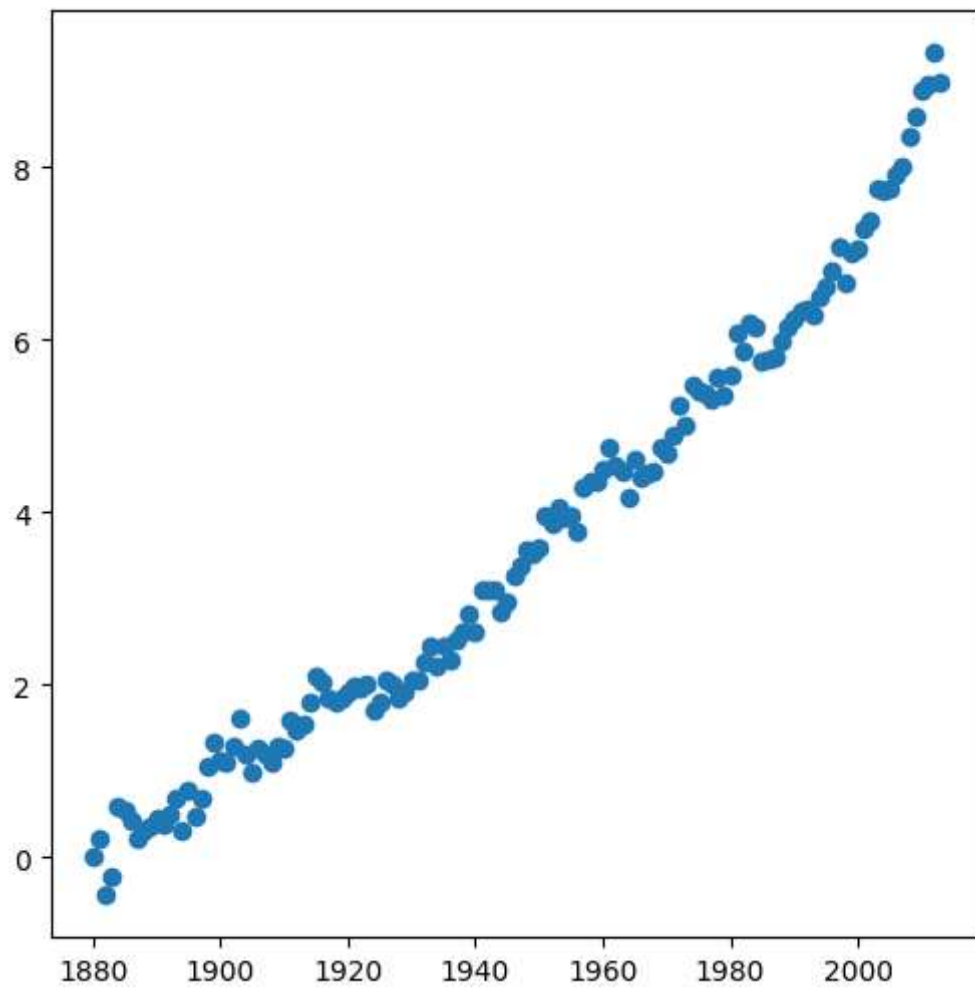
```
In [5]: df
```

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Out[5]:
```

| | Year | CSIRO Adjusted Sea Level | Lower Error Bound | Upper Error Bound | NOAA Adjusted Sea Level |
|-----|------|--------------------------|-------------------|-------------------|-------------------------|
| 0 | 1880 | 0.000000 | -0.952756 | 0.952756 | NaN |
| 1 | 1881 | 0.220472 | -0.732283 | 1.173228 | NaN |
| 2 | 1882 | -0.440945 | -1.346457 | 0.464567 | NaN |
| 3 | 1883 | -0.232283 | -1.129921 | 0.665354 | NaN |
| 4 | 1884 | 0.590551 | -0.283465 | 1.464567 | NaN |
| ... | ... | ... | ... | ... | ... |
| 129 | 2009 | 8.586614 | 8.311024 | 8.862205 | 8.046354 |
| 130 | 2010 | 8.901575 | 8.618110 | 9.185039 | 8.122973 |
| 131 | 2011 | 8.964567 | 8.661417 | 9.267717 | 8.053065 |
| 132 | 2012 | 9.326772 | 8.992126 | 9.661417 | 8.457058 |
| 133 | 2013 | 8.980315 | 8.622047 | 9.338583 | 8.546648 |

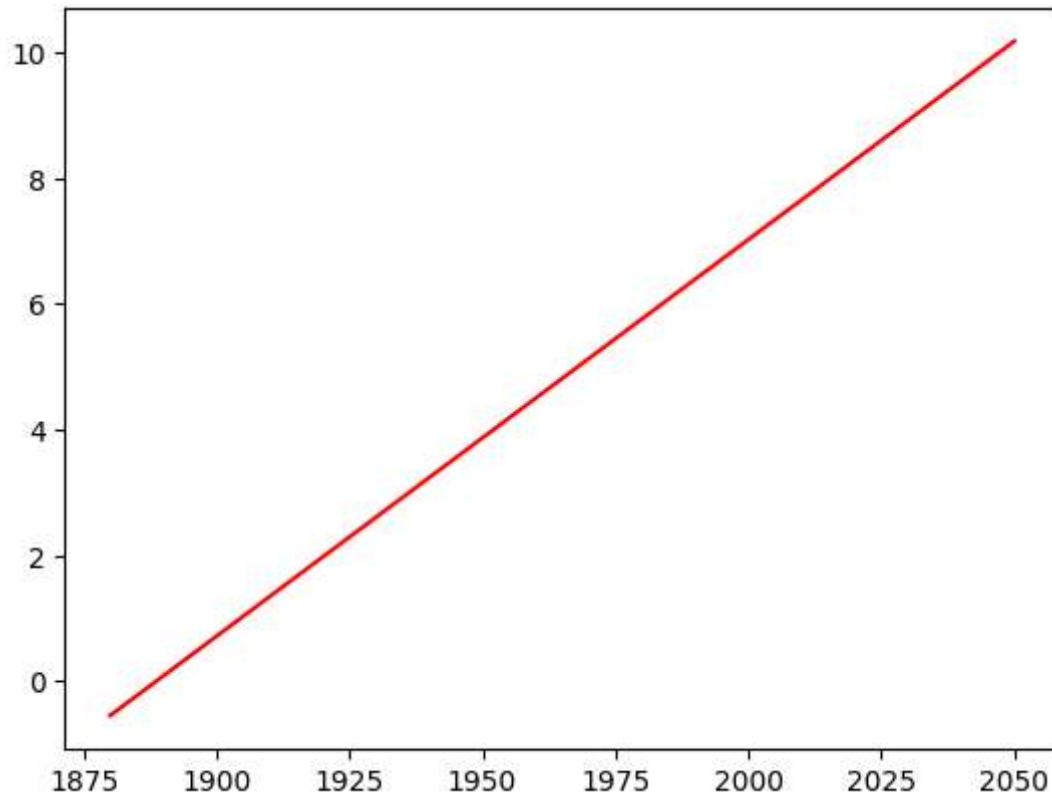
134 rows × 5 columns

```
In [16]: # Creating scatter plot  
x = df['Year']  
y = df['CSIRO Adjusted Sea Level']  
fig, ax = plt.subplots(figsize=(6,6))  
ax = plt.scatter(x, y)
```



```
In [17]: # Creating first line of best fit
slope, intercept, r_value, p_value, stderr = linregress(x, y)
x_pred = pd.Series([i for i in range(1880, 2051)])
y_pred = slope*x_pred + intercept
plt.plot(x_pred, y_pred, 'r')
```

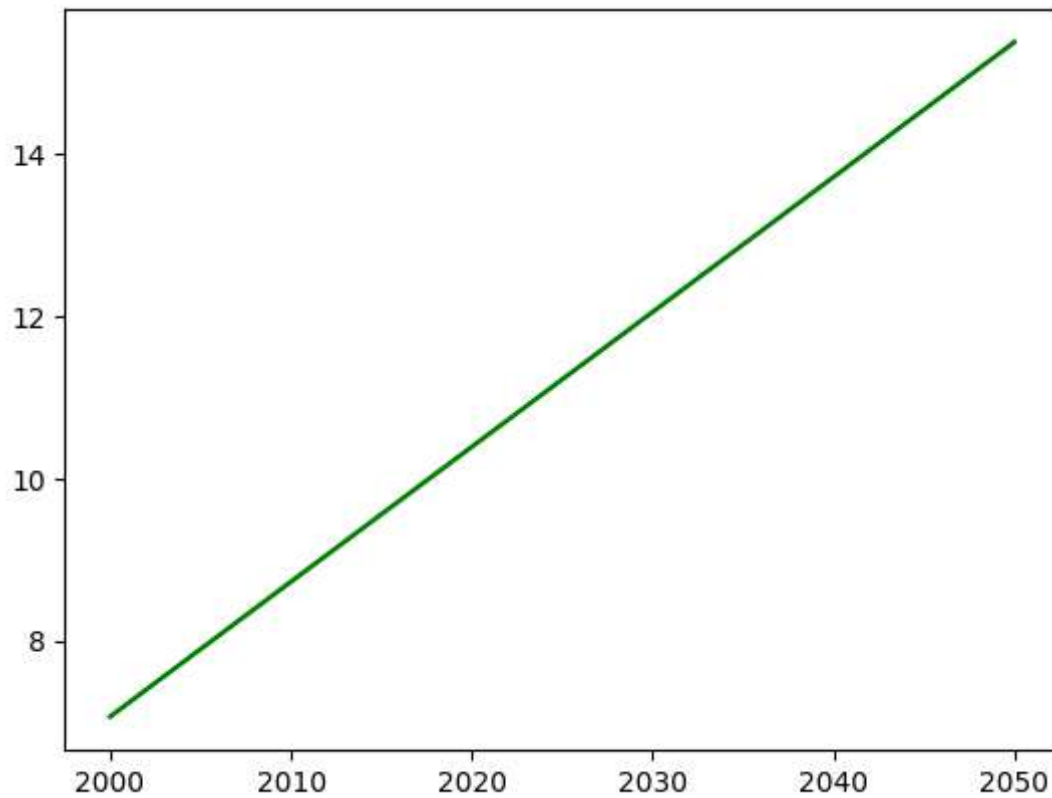
Out[17]: [<matplotlib.lines.Line2D at 0x2c1aba51cf0>]



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In [18]: # Creating second line of best fit
df_forecast = df.loc[df['Year'] >= 2000]
x_forecast = df_forecast['Year']
y_forecast = df_forecast['CSIRO Adjusted Sea Level']
```

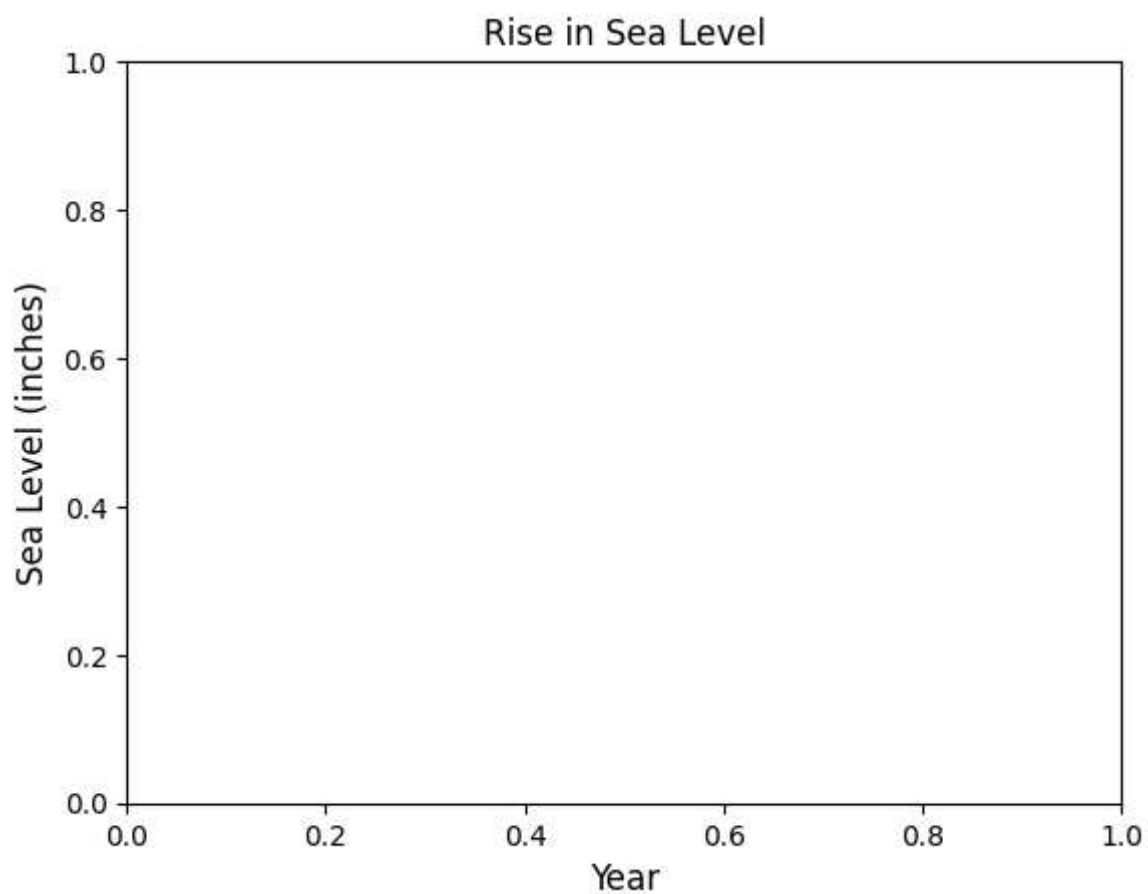
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In [19]: # getting new slope + intercept
slope, intercept, r_value, p_value, stderr = linregress(x_forecast, y_forecast)
x_pred2 = pd.Series([i for i in range(2000, 2051)])
y_pred2 = slope*x_pred2 + intercept
plt.plot(x_pred2, y_pred2, 'green')
y_pred2 = slope*x_pred2 + intercept
plt.plot(x_pred2, y_pred2, 'green')
```

Out[19]: [



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In [20]: # Add labels and title
plt.title('Rise in Sea Level')
plt.xlabel('Year', fontsize = 12)
plt.ylabel('Sea Level (inches)', fontsize = 12)
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Out[20]: Text(0, 0.5, 'Sea Level (inches)')
```



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In [ ]:
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