1. **Import necessary libraries:**

Code :

```
import numpy as np
import matplotlib.pyplot as plt
```

- `numpy` (`np` alias): A library for numerical operations in Python.
- `matplotlib.pyplot` (`plt` alias): A plotting library that provides a MATLAB-like interface for creating visualizations.

2. **Sample harmonic energy data:**

Code:

```
harmonic_energies = [0.5, 0.8, 0.3, 0.6, 0.9]
harmonic_phases = [30, 150, 240, 60, 120]
```

- These lists represent simple harmonic energy magnitudes and their corresponding phases in degrees.

3. **Convert phases to radians:**

Code:

```
harmonic_phases_radians = np.radians(harmonic_phases)
```

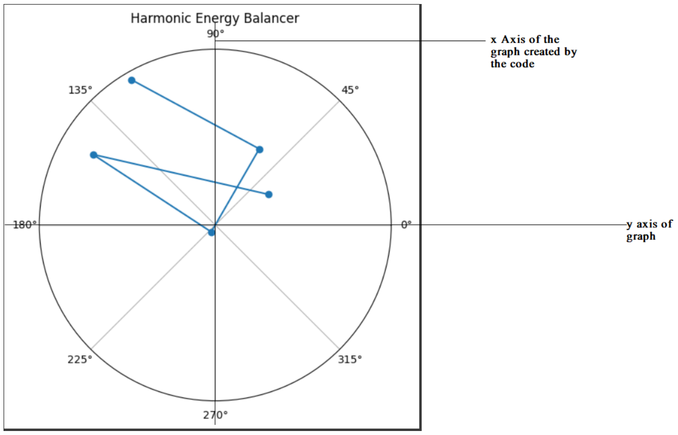
- This line converts the phases from degrees to radians using the `np.radians()` function from the numpy library. Many plotting functions, including those in matplotlib, work with radians for angles.

4. **Create a polar plot:**

Code

```
fig = plt.figure(figsize=(6, 6))
ax = fig.add_subplot(111, projection='polar')
```

- This creates a figure and an axis for a polar plot. The `figsize` parameter sets the size of the figure in inches.



x Axis of the graph created by the code

y axis of graph

5. **Plot harmonic energies:**

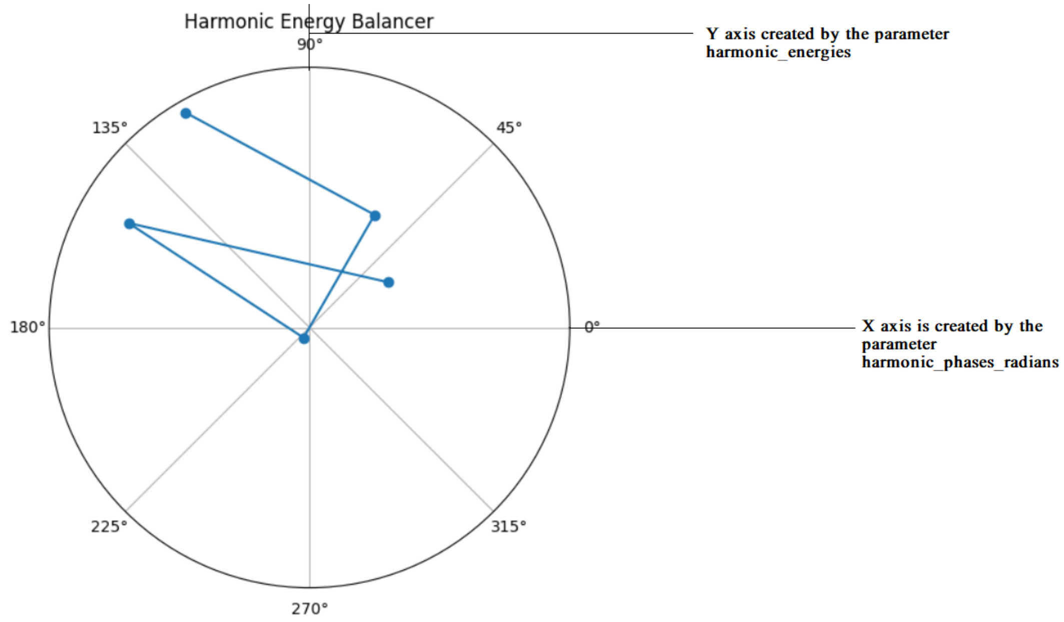
Code

```
ax.plot(harmonic_phases_radians, harmonic_energies, marker='o')
```

- This line plots the harmonic energy magnitudes against their corresponding phases on the polar plot. The `marker='o'` argument adds circular markers at the data points.

In this line, the `ax.plot()` function is used to create the plot. This function takes two main arguments:

harmonic_phases_radians: This is the list of phases (in radians) for the harmonic energies. It serves as the x-axis values for the plot.
harmonic_energies: This is the list of magnitudes for the harmonic energies. It serves as the y-axis values for the plot.

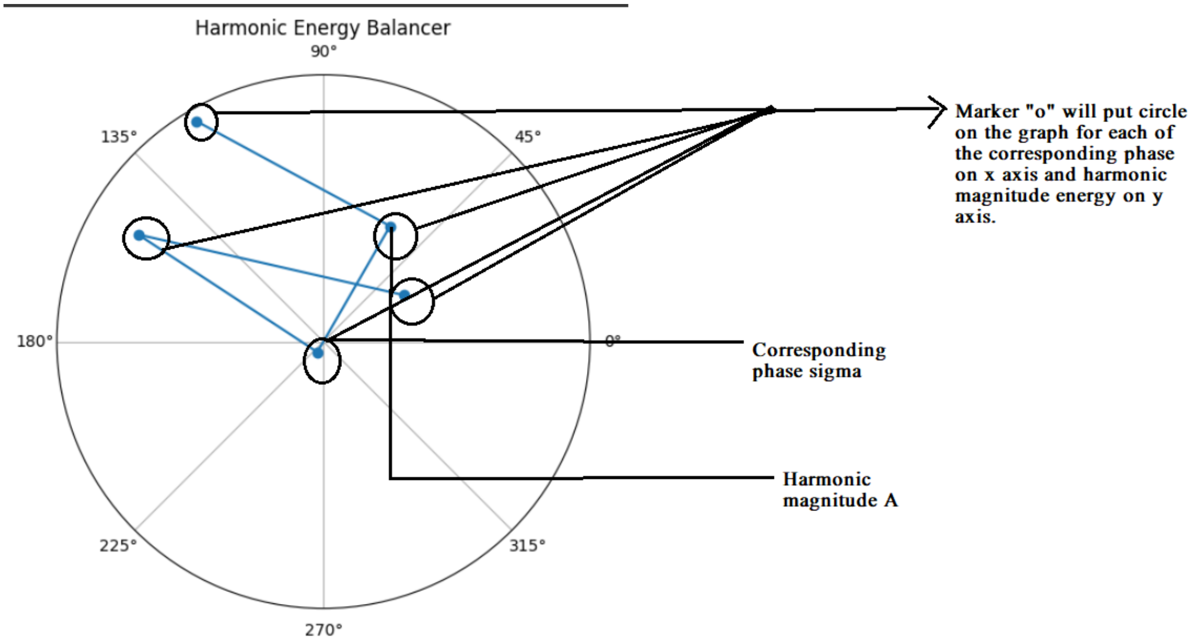


Y axis created by the parameter harmonic_energies

X axis is created by the parameter harmonic_phases_radians

The `marker='o'` argument specifies that circular markers (dots) should be placed at each data point on the plot. These markers help visually distinguish the individual data points.

When you use the 'marker='o'` argument, matplotlib will automatically add a circular marker at each (phase, energy) data point. The position of the marker corresponds to the phase on the x-axis and the energy magnitude on the y-axis.



Marker "o" will put circle on the graph for each of the corresponding phase on x axis and harmonic magnitude energy on y axis.

Corresponding phase sigma

Harmonic magnitude A

Here's a breakdown of how the line works:
- For each (phase, energy) pair in your data, a circular marker will be placed on the polar plot.
- The position of the marker will be determined by the corresponding phase (angle in radians) on the x-axis and the harmonic energy magnitude on the y-axis.
- The circular marker will visually represent each data point, making it easier to identify the corresponding phase and energy magnitude.

In summary, the `ax.plot()` line with the `marker='o'` argument is responsible for creating data points with circular markers on the polar plot. This helps visualize the relationship between harmonic energy magnitudes and their corresponding phases in a circular representation.

6. **Set radial gridlines:**

Code

```
ax.set_rticks([])
```

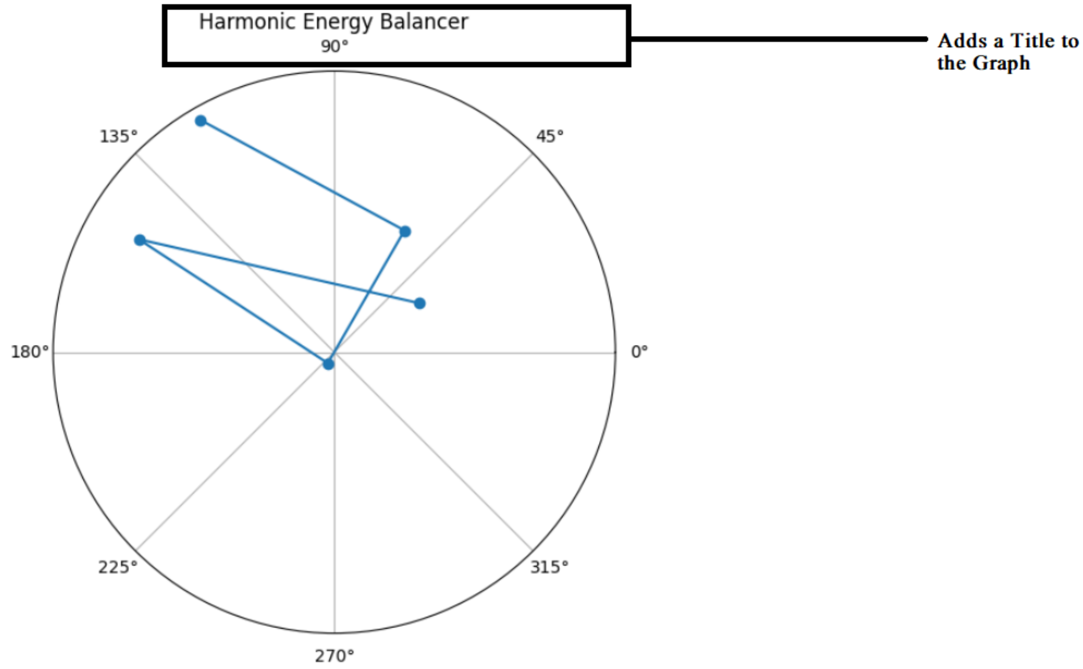
- This line removes the radial tick labels (distance from the center) from the polar plot, leaving only the circular data points.

7. **Set title:**

Code

```
ax.set_title("Harmonic Energy Balancer")
```

- Adds a title to the polar plot.



Adds a Title to the Graph

8. **Show the plot:**

Code

```
plt.show()
```

- This displays the polar plot on the screen. The `plt.show()` function is used to render the plot that you've created using matplotlib.

This code example demonstrates how to create a simple polar plot to visualize harmonic energy data. You can adapt and modify this code to suit your specific requirements and data. The main idea is to provide a visual representation of harmonic energy magnitudes and phases in a circular manner, which is common for harmonic energy analysis.