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1 import pandas as pd
2 import matplotlib.pyplot as plt
3 from statsmodels.tsa.arima.model import ARIMA

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1 # Load dataset
2 file_path = 'HP.csv'
3 data = pd.read_csv(file_path, header=0, names=['Sales']) # Assuming the column name is 'Sales'

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1 # Visualize the time series data
2 plt.figure(figsize=(12, 6))
3 plt.plot(data)
4 plt.title('Monthly Sales Over Time')
5 plt.xlabel('Month')
6 plt.ylabel('Sales')
7 plt.show()

```

```

1 # Fit ARIMA model
2 order = (5, 1, 2) # You need to specify values for p, d, and q based on your data
3 model = ARIMA(data, order=order)
4 results = model.fit()

```

```

1 # Forecast the next 12 months (3 years)
2 forecast_steps = 12
3 forecast = results.get_forecast(steps=forecast_steps)
4 forecast_values = forecast.predicted_mean

```

```

1 # Generate index for the forecast
2 last_month = data.index[-1]
3 forecast_index = pd.date_range(last_month, periods=forecast_steps + 1, freq='M')[1:] # Adjust the frequency as needed

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```

1 # Visualize the forecast
2 plt.figure(figsize=(12, 6))
3 plt.plot(data, label='Historical Data')
4 plt.plot(forecast_index, forecast_values, color='red', label='Forecast')
5 plt.title('ARIMA Forecast for Monthly Sales')
6 plt.xlabel('Month')
7 plt.ylabel('Sales')
8 plt.legend()
9 plt.show()

```

