



INTRO TO PYTHON FOR DATA SCIENCE

Customization



Data Visualization

- Science & Art
- Many options
 - Different plot types
 - Many customizations
- Choice depends on:
 - Data
 - Story you want to tell

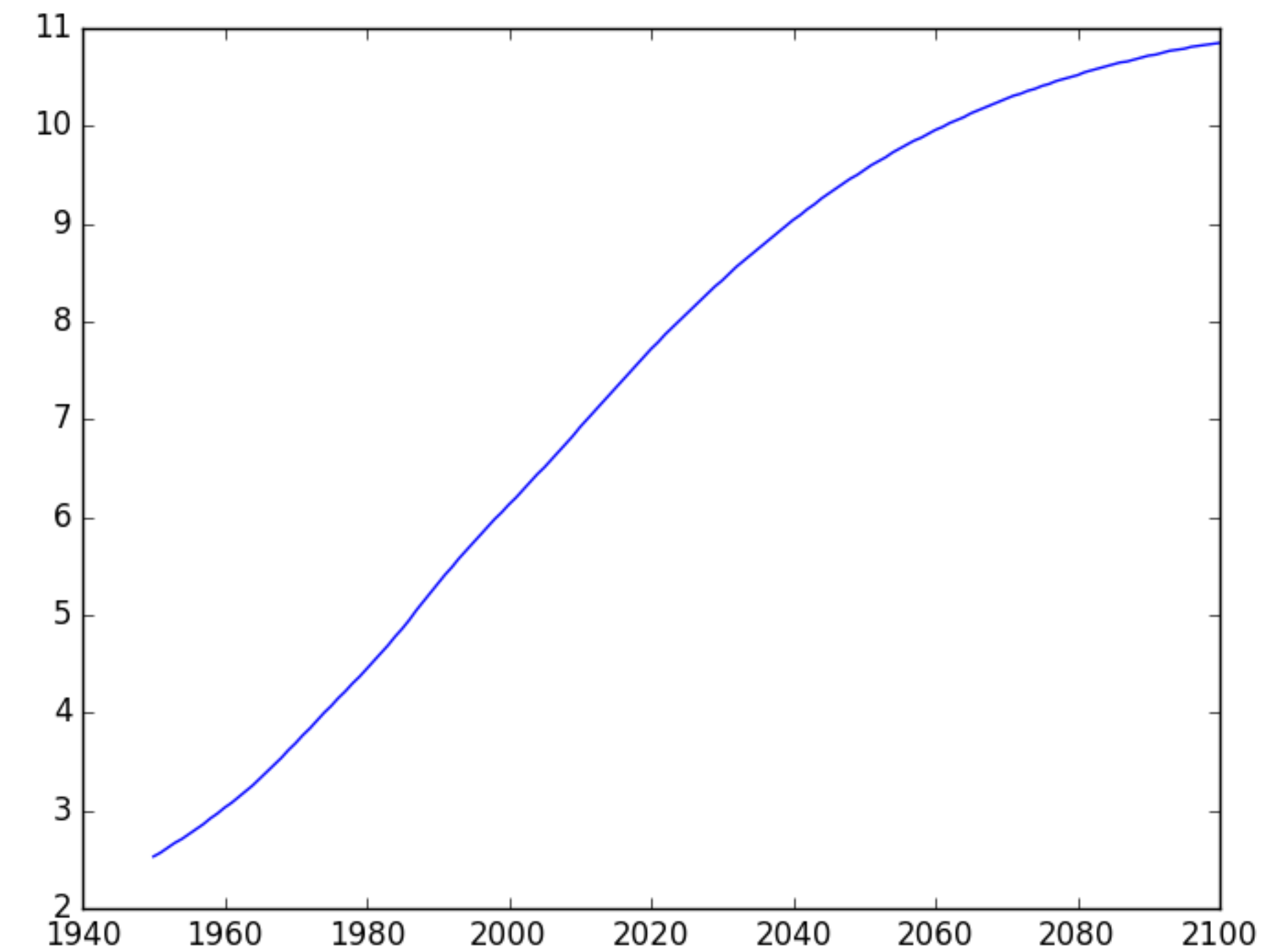


Basic Plot

 my_script.py

```
import matplotlib.pyplot as plt
year = ... # Implementation left out
population = ... # Implementation left out

plt.plot(year, population)
plt.show()
```



Axis labels

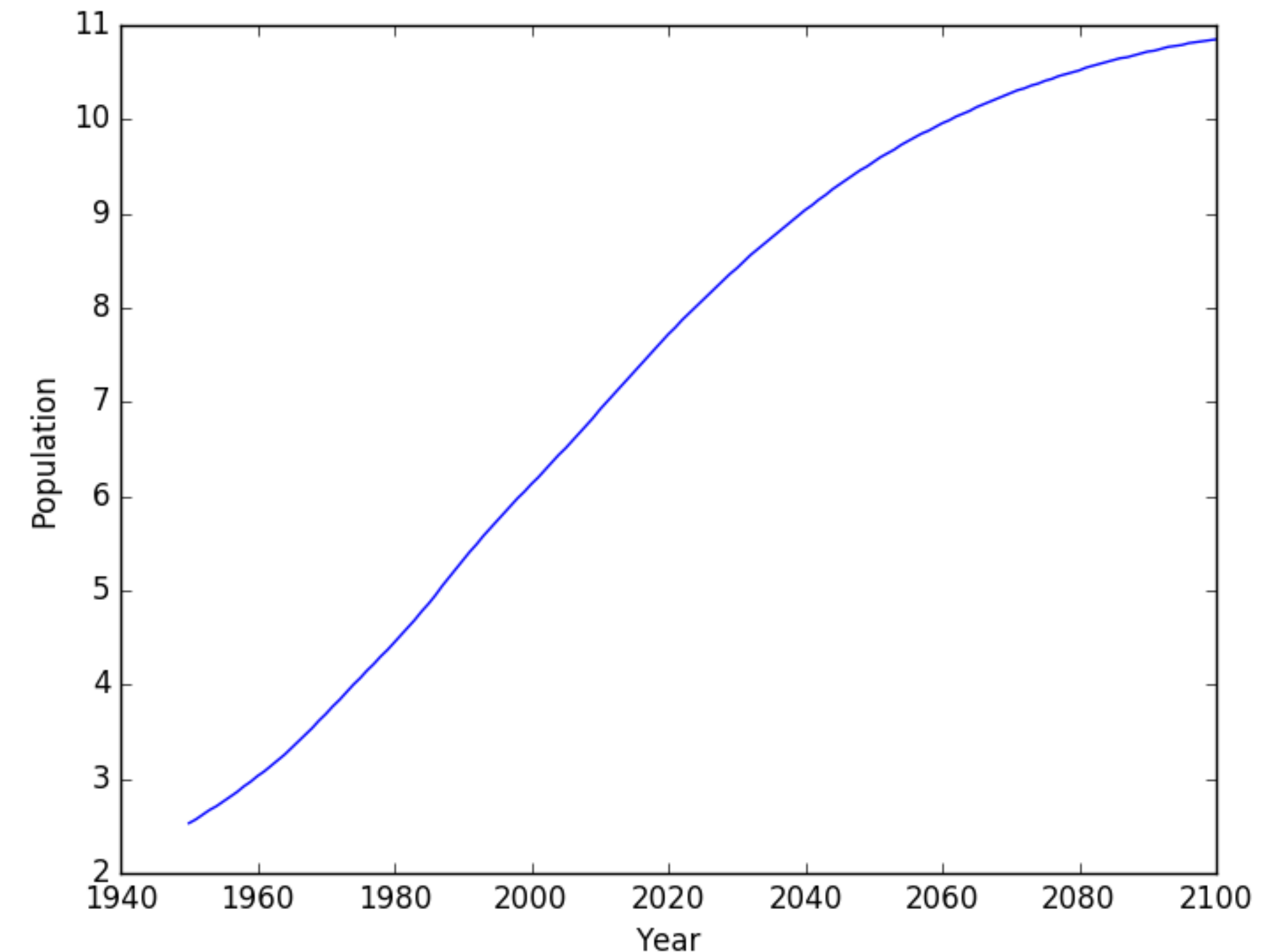
 my_script.py

```
import matplotlib.pyplot as plt
year = ... # Implementation left out
population = ... # Implementation left out

plt.plot(year, population)

plt.xlabel('Year')
plt.ylabel('Population')

plt.show()
```





Title

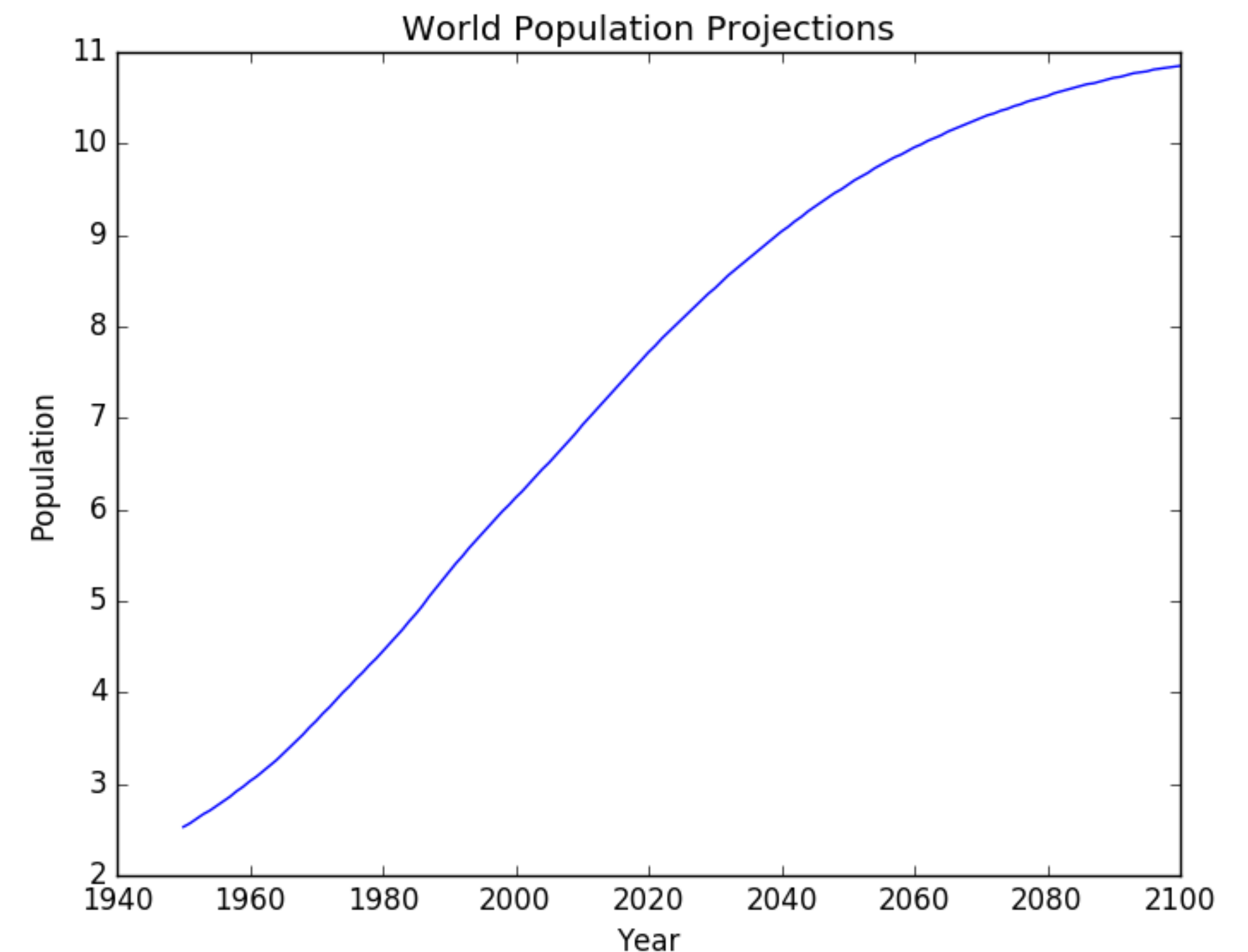
 my_script.py

```
import matplotlib.pyplot as plt
year = ... # Implementation left out
population = ... # Implementation left out

plt.plot(year, population)

plt.xlabel('Year')
plt.ylabel('Population')
plt.title('World Population Projections')

plt.show()
```





Ticks

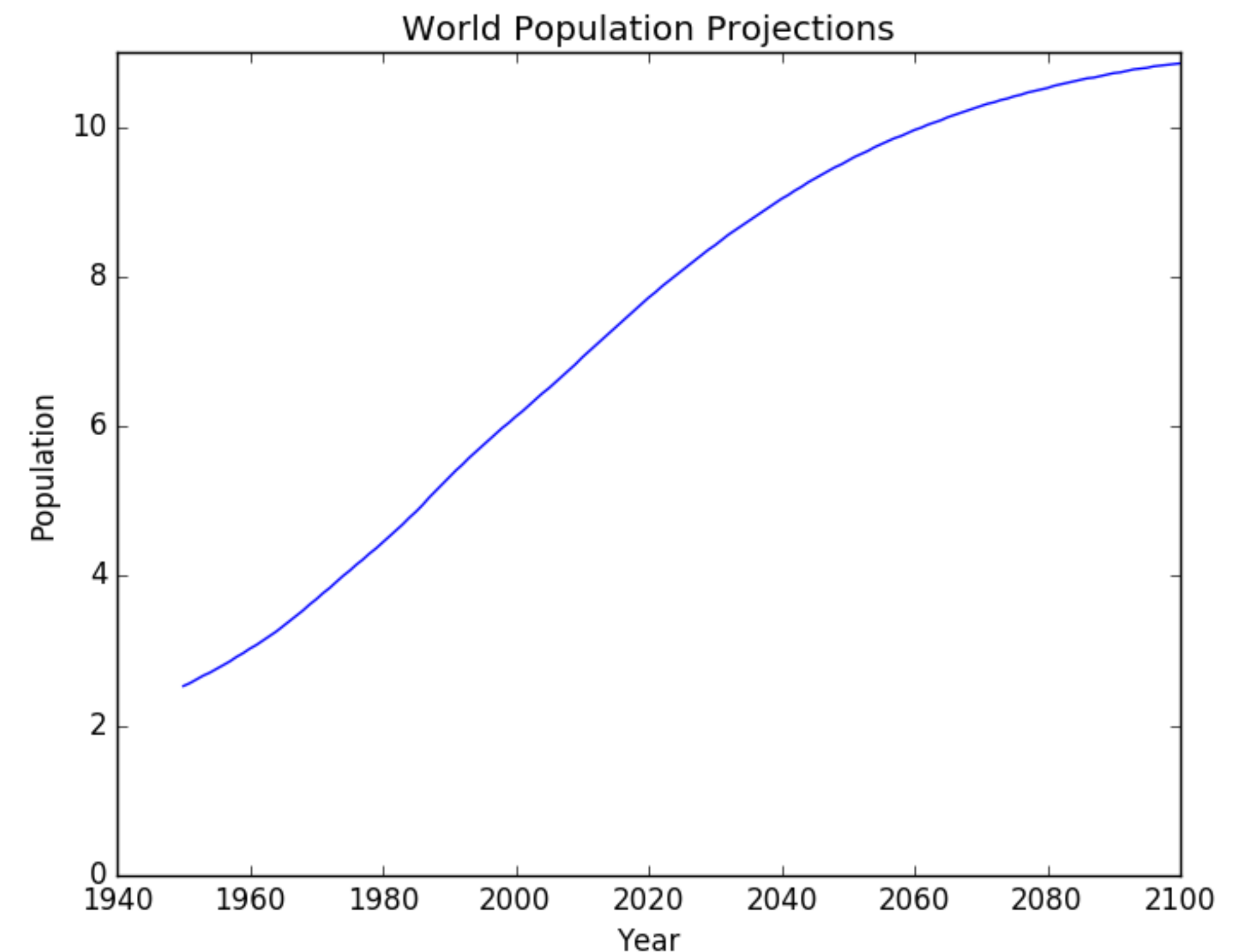
 my_script.py

```
import matplotlib.pyplot as plt
year = ... # Implementation left out
population = ... # Implementation left out

plt.plot(year, population)

plt.xlabel('Year')
plt.ylabel('Population')
plt.title('World Population Projections')
plt.yticks([0, 2, 4, 6, 8, 10])

plt.show()
```



Ticks (2)

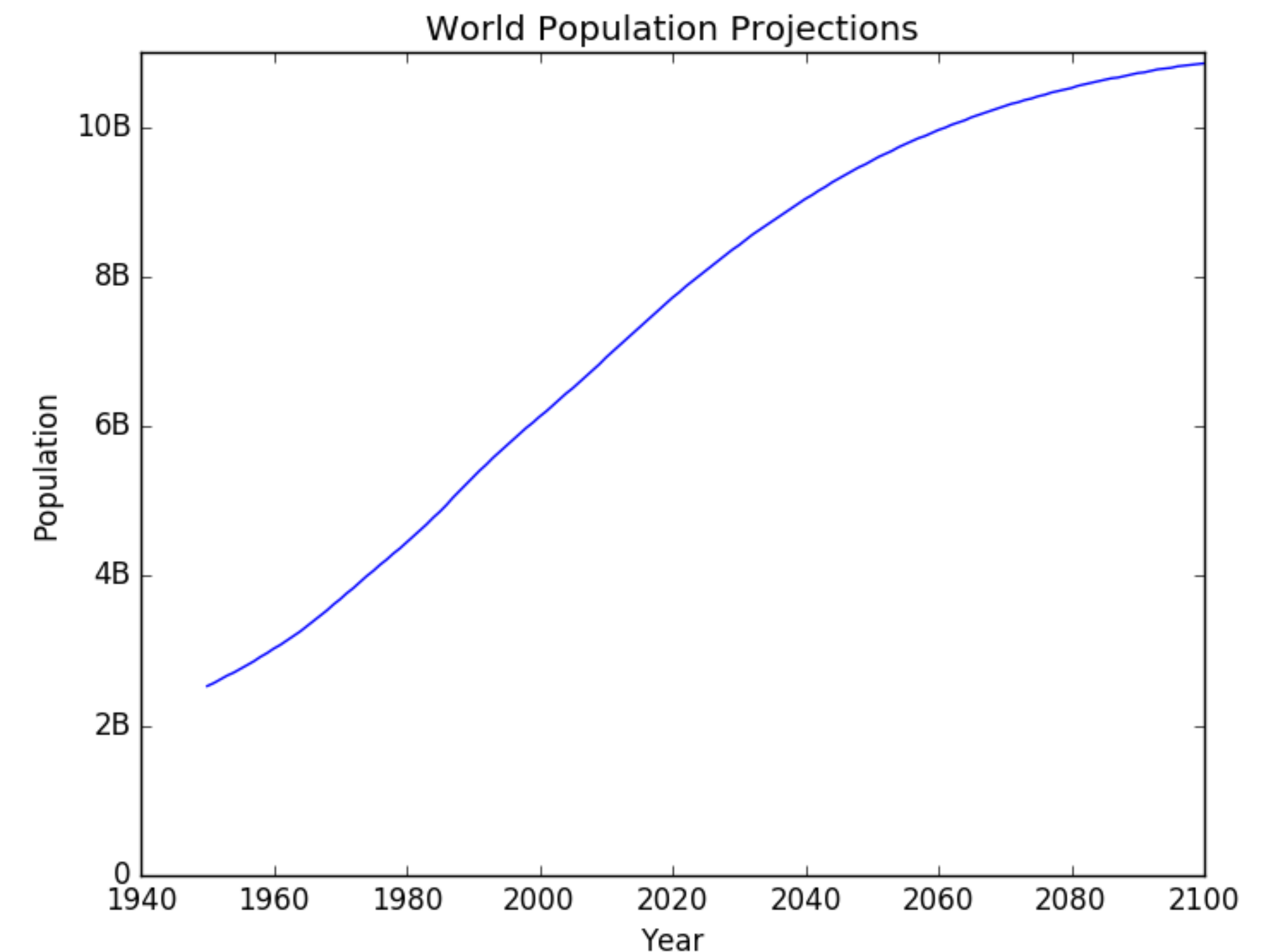
 my_script.py

```
import matplotlib.pyplot as plt
year = ... # Implementation left out
population = ... # Implementation left out

plt.plot(year, population)

plt.xlabel('Year')
plt.ylabel('Population')
plt.title('World Population Projections')
plt.yticks([0, 2, 4, 6, 8, 10],
           ['0', '2B', '4B', '6B', '8B', '10B']))

plt.show()
```





Add historical data

 my_script.py

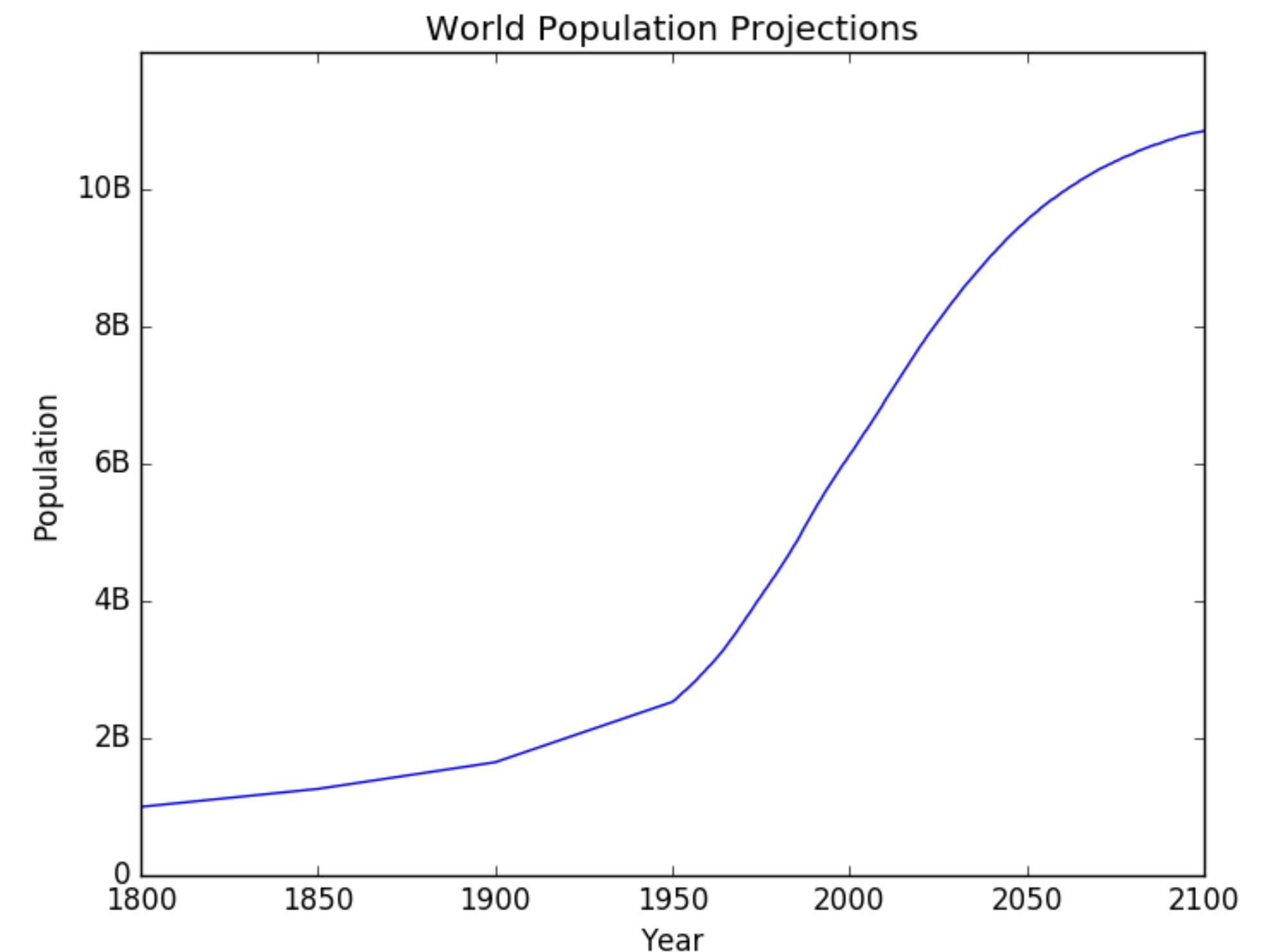
```
import matplotlib.pyplot as plt
year = ... # Implementation left out
population = ... # Implementation left out
population = [1.0, 1.262, 1.650] + population
year = [1800, 1850, 1900] + year

plt.plot(year, population)

plt.xlabel('Year')
plt.ylabel('Population')
plt.title('World Population Projections')

plt.yticks([0, 2, 4, 6, 8, 10],
           ['0', '2B', '4B', '6B', '8B', '10B'])

plt.show()
```



Add historical data

 my_script.py

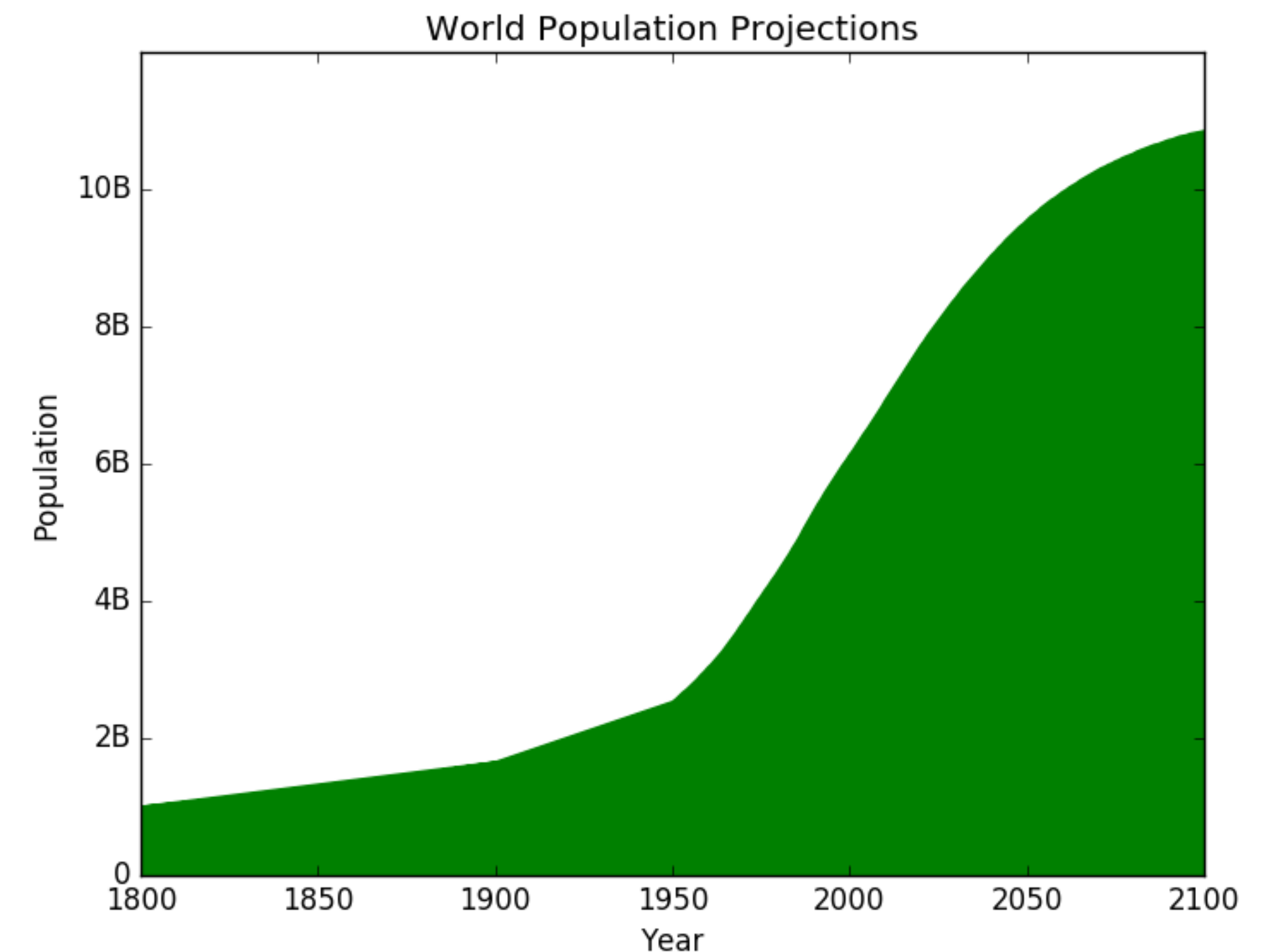
```
import matplotlib.pyplot as plt
year = ... # Implementation left out
population = ... # Implementation left out
population = [1.0, 1.262, 1.650] + population
year = [1800, 1850, 1900] + year

plt.fill_between(year, population, 0, color='green')

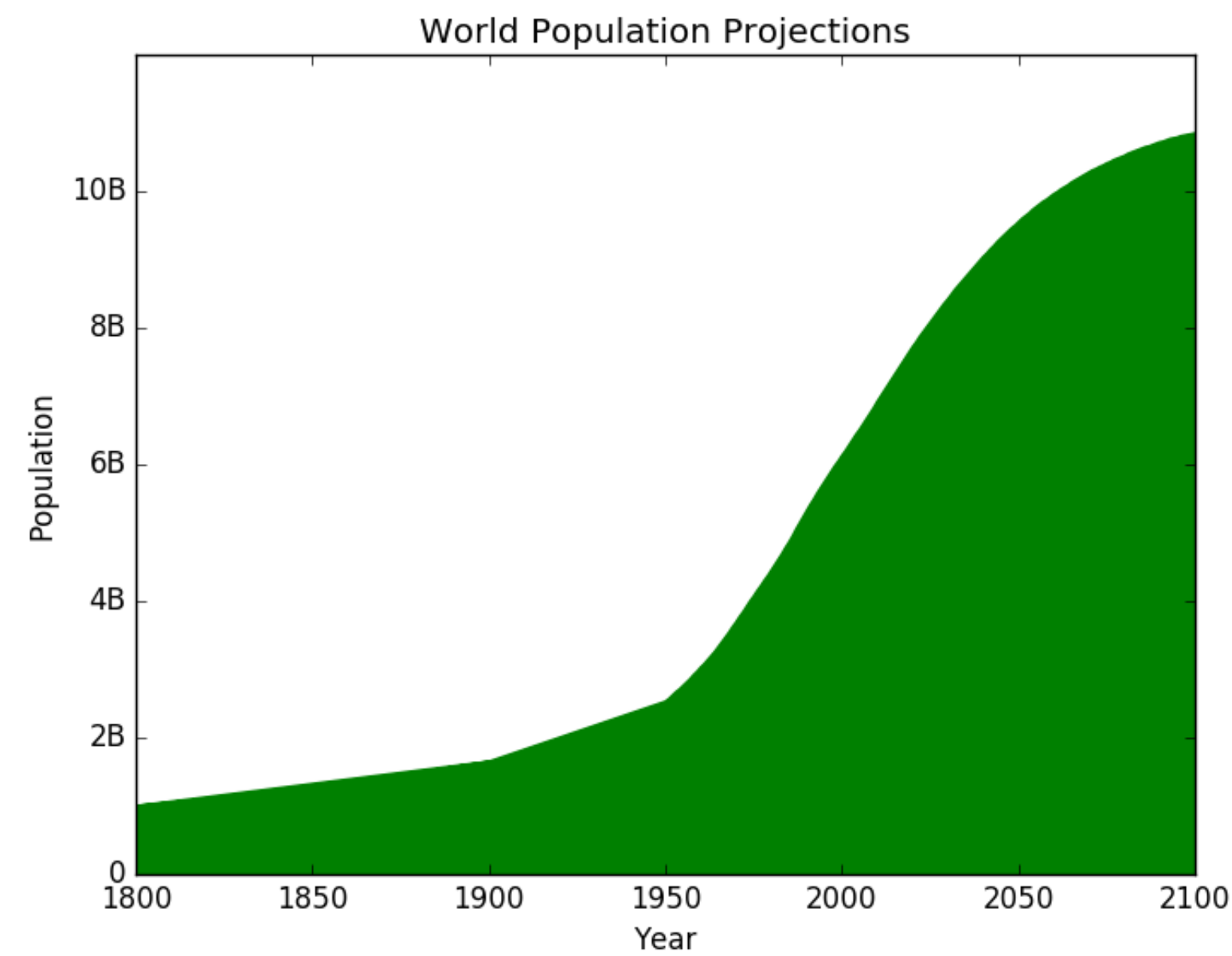
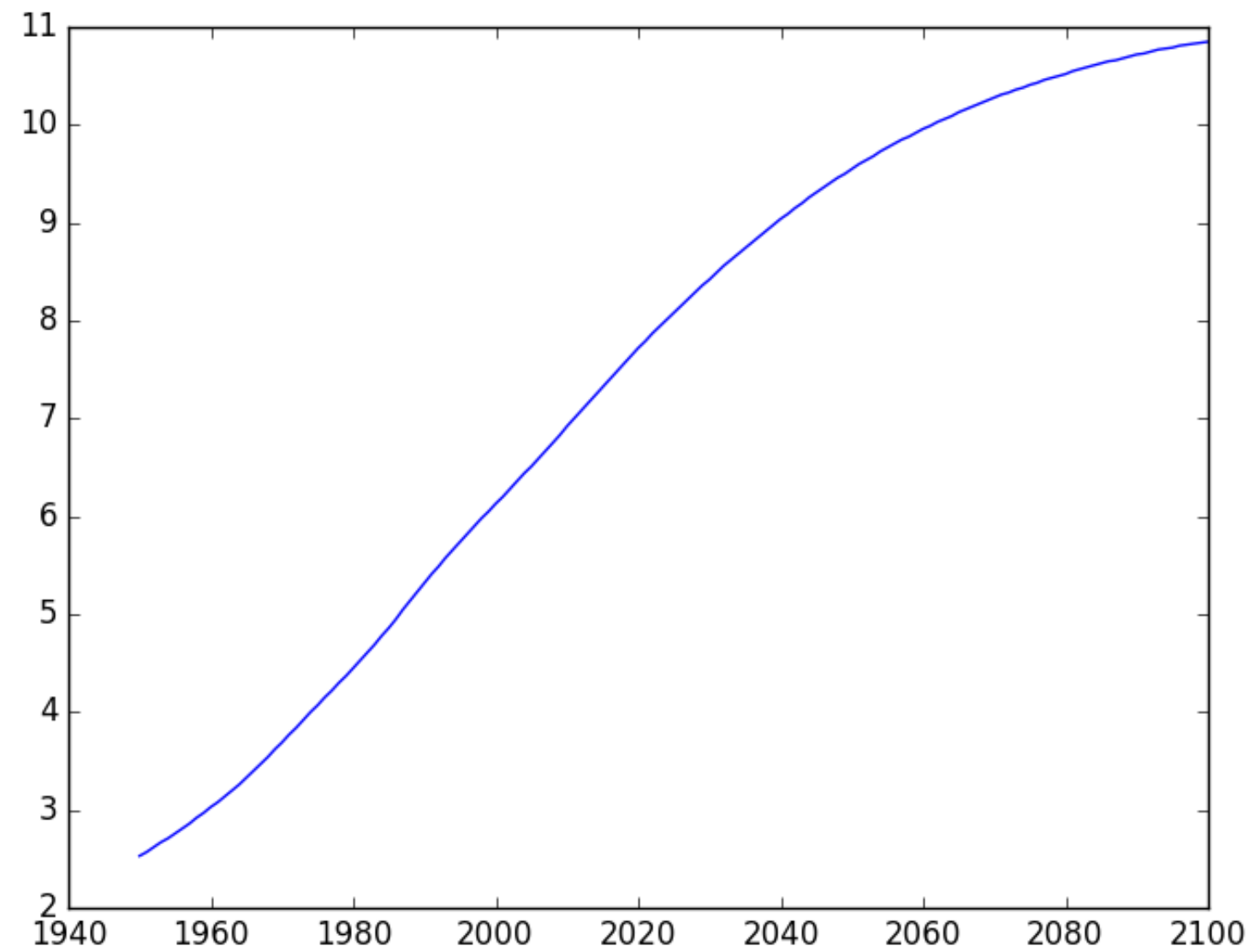
plt.xlabel('Year')
plt.ylabel('Population')
plt.title('World Population Projections')

plt.yticks([0, 2, 4, 6, 8, 10],
           ['0', '2B', '4B', '6B', '8B', '10B'])

plt.show()
```



Before vs After





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Let's practice!