Open in Colab

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

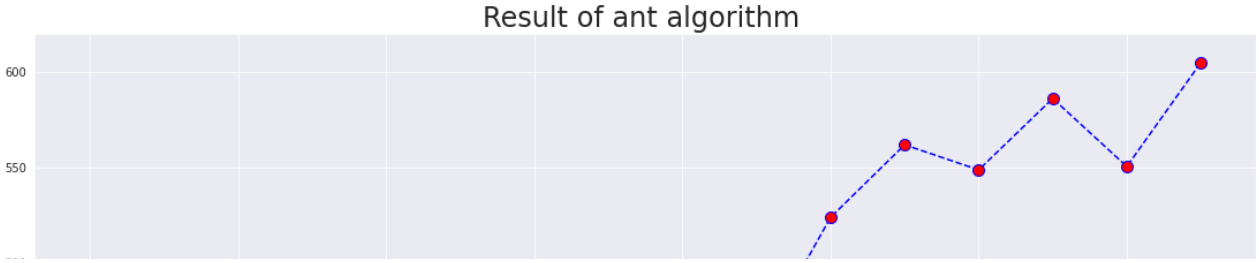
```
_ant_BestScore=[309.9203982274287, 307.54544082371996, 368.5066872087552, 390.807272620497
_ant_Runtime=[0.03410940170288086, 0.14632039070129393, 0.055251359939575195, 0.1045177459
_DP_optimal_cost=[193.34846101909935, 185.87941817689742, 238.9966792327712, 271.625987274
_DP_runtime=[0.0, 0.00019936561584472657, 0.000797891616821289, 0.00280146598815918, 0.00
_relative_error=[0.6029111201294444, 0.6545427344249357, 0.5418904078154473, 0.438769819270
```

ANT

```
sns.set_style('darkgrid')
plt.figure(figsize=(19,10))
plt.plot(range(4,(len(result_ant_BestScore)+4)),result_ant_BestScore,color="blue",linestyle="d
plt.title("Result of ant algorithm ", fontsize=24)
plt.xlabel("Number of points", fontsize=24)

plt.ylabel("Total Weight", fontsize=24)
```

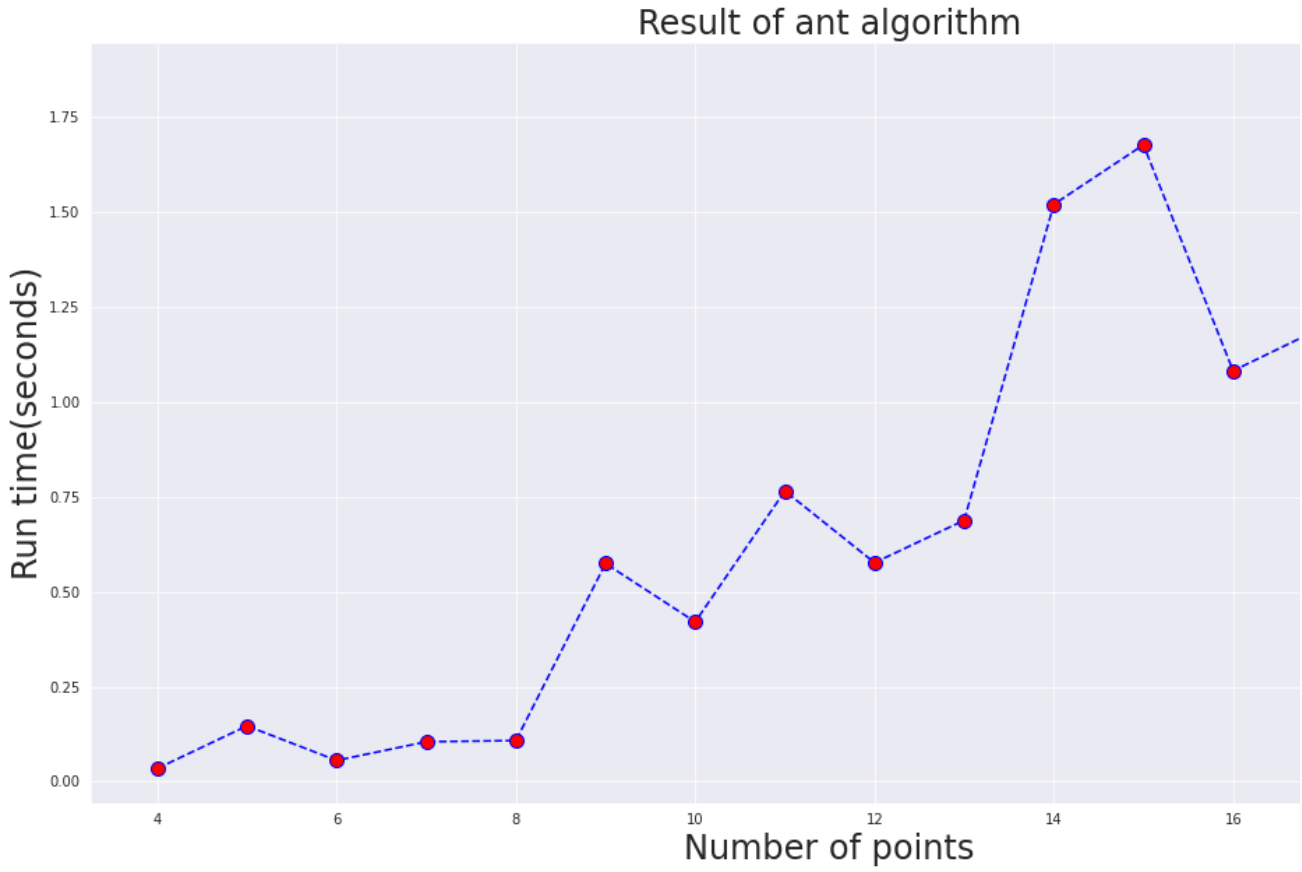
```
Text(0, 0.5, 'Total Weight')
```




```
plt.figure(figsize=(19,10))
plt.plot(range(4,(len(result_ant_BestScore)+4)),result_ant_Runtime,color="blue",linestyle="das
plt.title("Result of ant algorithm", fontsize=24)
plt.xlabel("Number of points", fontsize=24)

plt.ylabel("Run time(seconds)", fontsize=24)
```

```
Text(0, 0.5, 'Run time(seconds)')
```

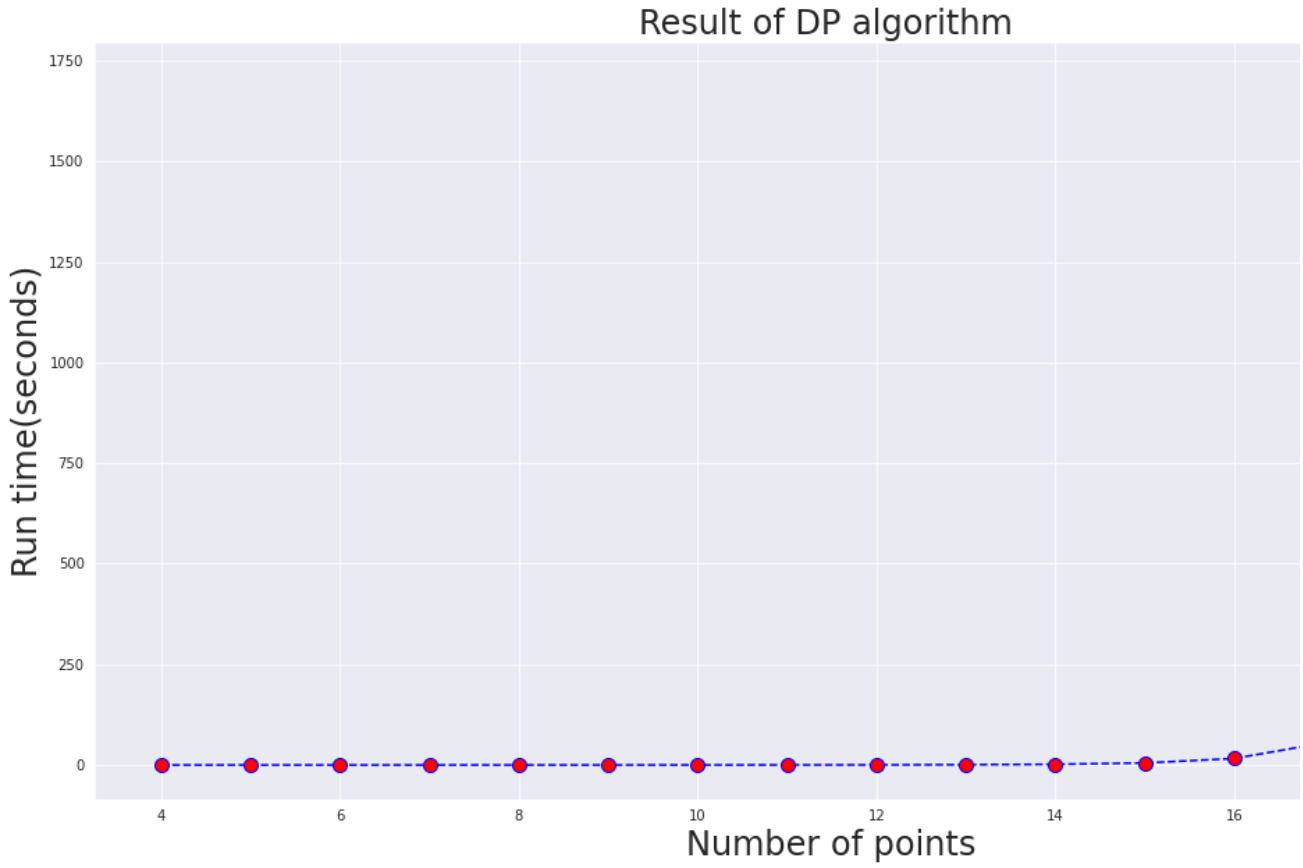


DP

```
plt.figure(figsize=(19,10))
plt.plot(range(4,(len(result_ant_BestScore)+4)),result_DP_runtime,color="blue",linestyle="dash
plt.title("Result of DP algorithm ",fontsize=24)
plt.xlabel("Number of points",fontsize=24)

plt.ylabel("Run time(seconds)",fontsize=24)
```

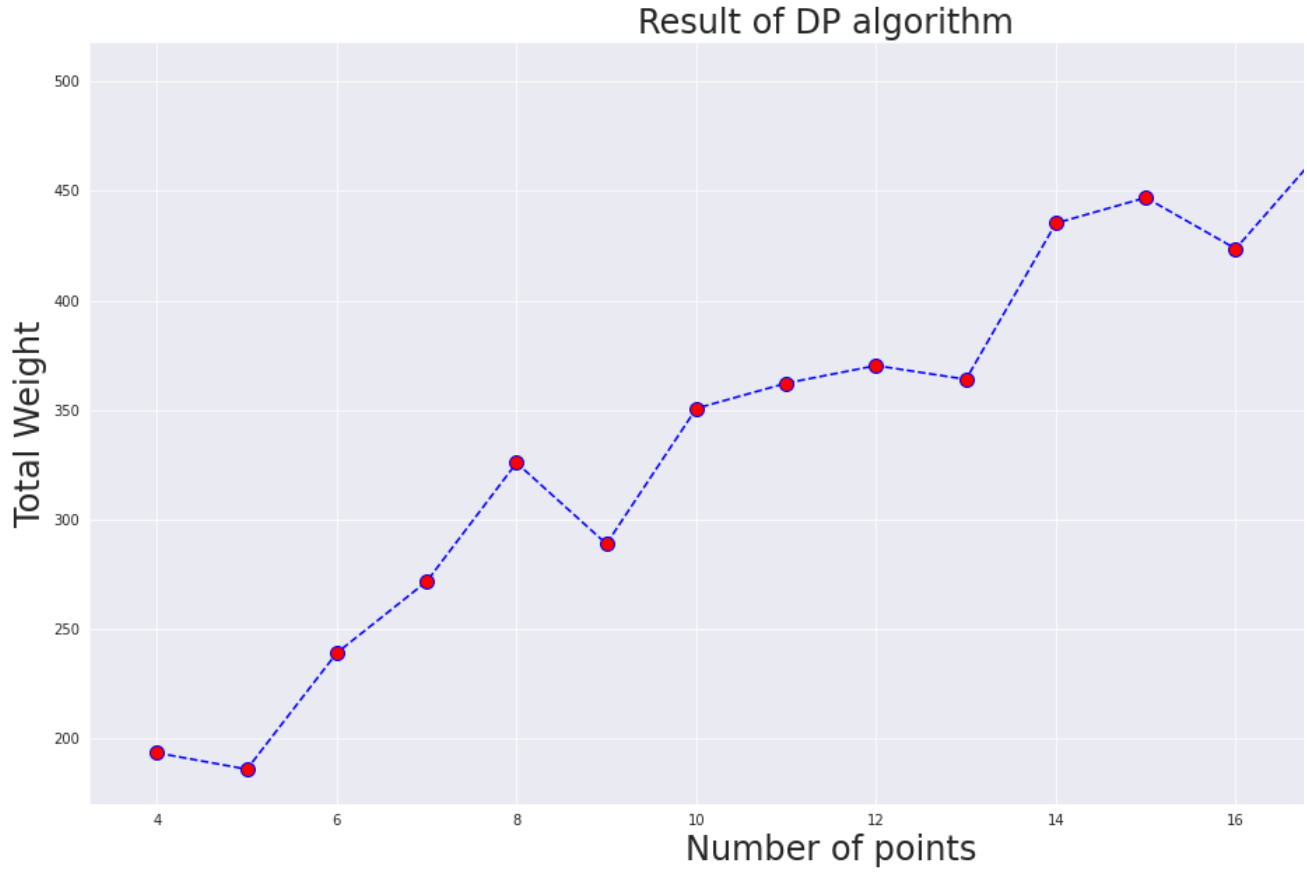
```
Text(0, 0.5, 'Run time(seconds)')
```




```
plt.figure(figsize=(19,10))
plt.plot(range(4,(len(result_ant_BestScore)+4)),result_DP_optimal_cost,color="blue",linestyle=
plt.title("Result of DP algorithm ", fontsize=24)
plt.xlabel("Number of points", fontsize=24)

plt.ylabel("Total Weight", fontsize=24)
```

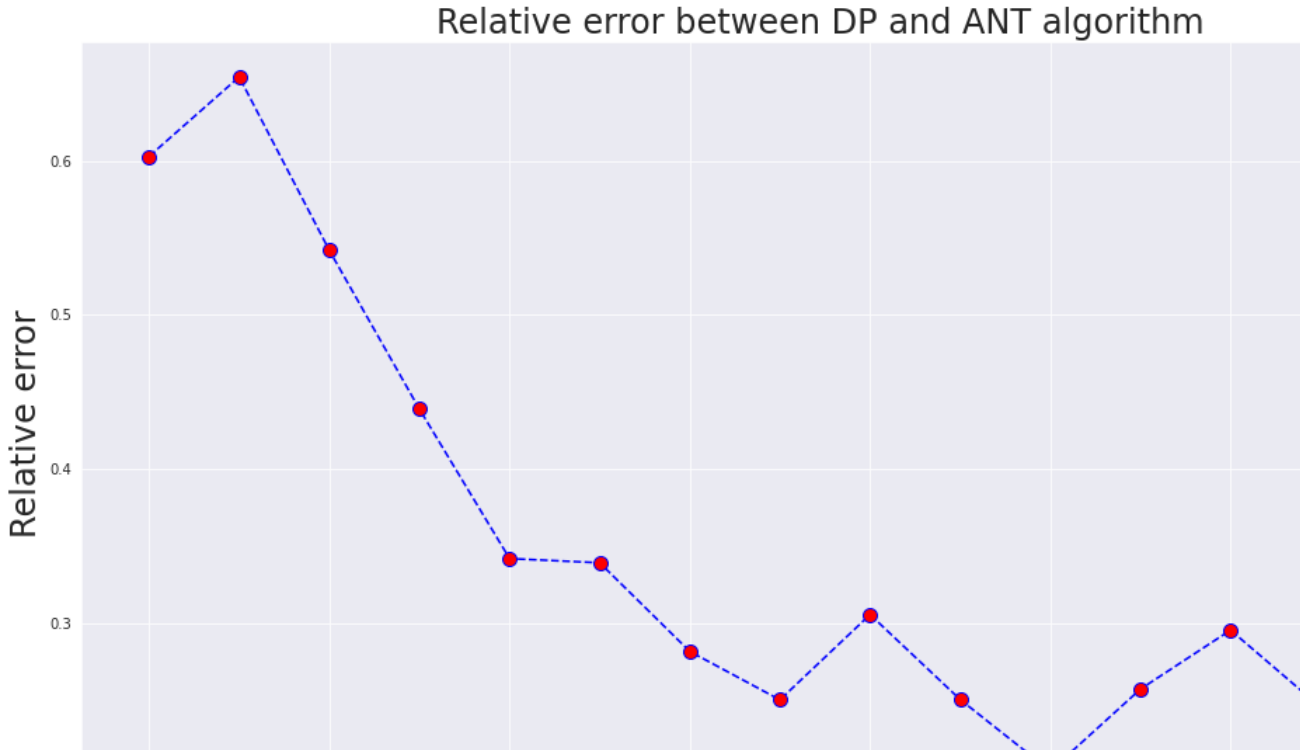
```
Text(0, 0.5, 'Total Weight')
```



Comparison

```
1  plt.figure(figsize=(19,10))
2  plt.plot(range(4,(len(result_ant_BestScore)+4)),result_relative_error,color="blue",linestyle='
3  plt.title("Relative error between DP and ANT algorithm ", fontsize=24)
4  plt.xlabel("Number of points", fontsize=24)
5  plt.ylabel("Relative error", fontsize=24)
```

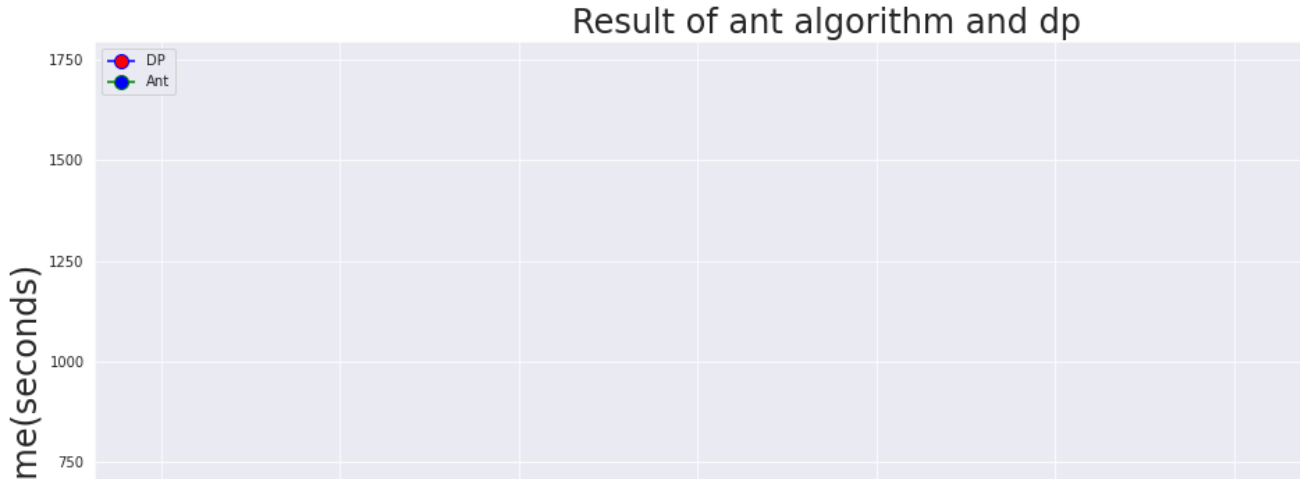
```
Text(0, 0.5, 'Relative error')
```



Comparison

```
plt.figure(figsize=(19,10))
plt.plot(range(4,(len(result_ant_BestScore)+4)),result_DP_runtime,color="blue",linestyle="dash
plt.plot(range(4,(len(result_ant_BestScore)+4)),result_ant_Runtime,color="green",linestyle="da
plt.title("Result of ant algorithm and dp ", fontsize=24)
plt.xlabel("Number of points", fontsize=24)
plt.legend(loc='best')
plt.ylabel("Run time(seconds)", fontsize=24)
```

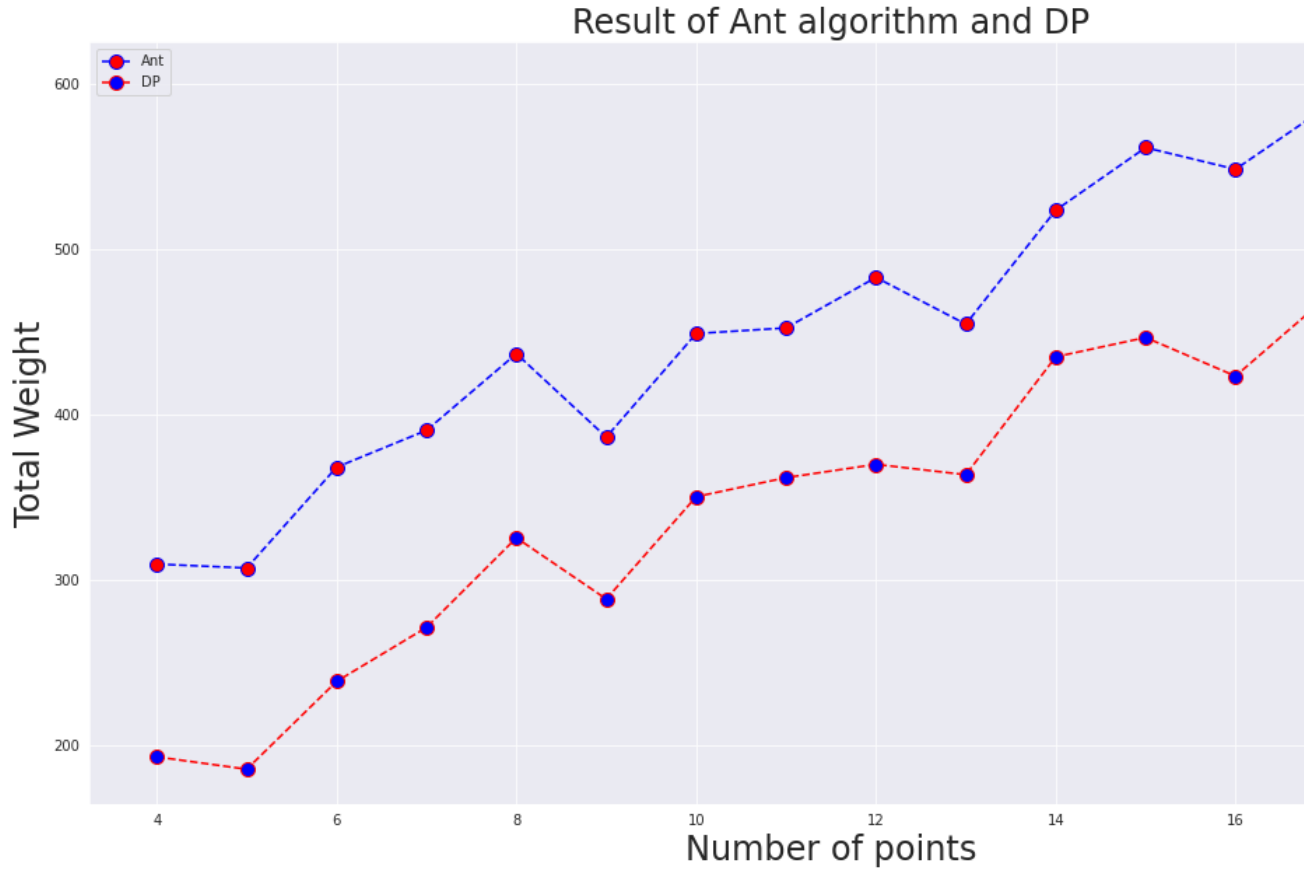
```
Text(0, 0.5, 'Run time(seconds)')
```




```
plt.figure(figsize=(19,10))
plt.plot(range(4,(len(result_ant_BestScore)+4)),result_ant_BestScore,color="blue",linestyle="d
plt.plot(range(4,(len(result_ant_BestScore)+4)),result_DP_optimal_cost,color="red",linestyle="

plt.title("Result of Ant algorithm and DP", fontsize=24)
plt.xlabel("Number of points", fontsize=24)
plt.legend(loc='best')
plt.ylabel("Total Weight", fontsize=24)
```

```
Text(0, 0.5, 'Total Weight')
```



✓ 0 秒 完成時間：下午9:13

無法連至 reCAPTCHA 服務。請檢查你的網際網路連線，並重新載入頁面以取得 reCAPTCHA 驗證問題。