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Untitled-1.ipynb

C: > Users > AFZAL > Downloads > honeyproduction > Untitled-1.ipynb > import pandas as pd

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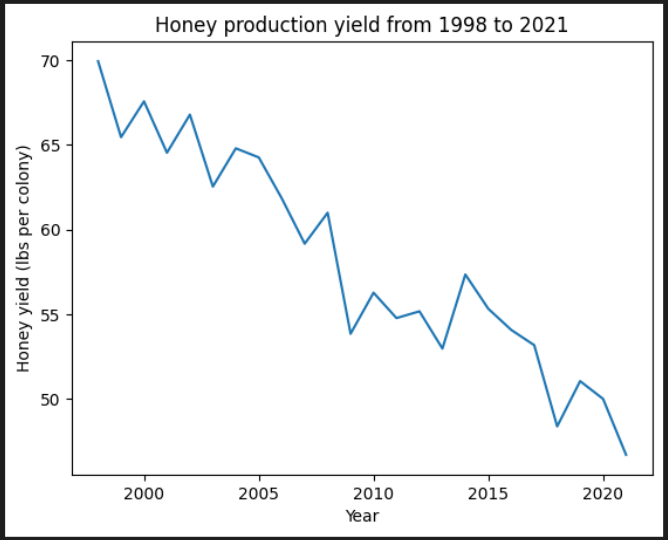
```
import pandas as pd
import matplotlib.pyplot as plt
df = pd.read_csv('honeyproduction 1998-2021.csv')
df = df[df['year'].between(1998, 2021)]
yield_by_year = df.groupby('year')['yieldpercol'].mean()
yield_by_year.plot()
plt.xlabel('Year')
plt.ylabel('Honey yield (lbs per colony)')
plt.title('Honey production yield from 1998 to 2021')
plt.show()
```

[1] ✓ 3.3s Python




```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
data = pd.read_csv('honeyproduction 1998-2021.csv')
data = data[data['year'] >= 1998]
state_data = data.groupby(['State','year'])['totalprod'].mean().reset_index()
```

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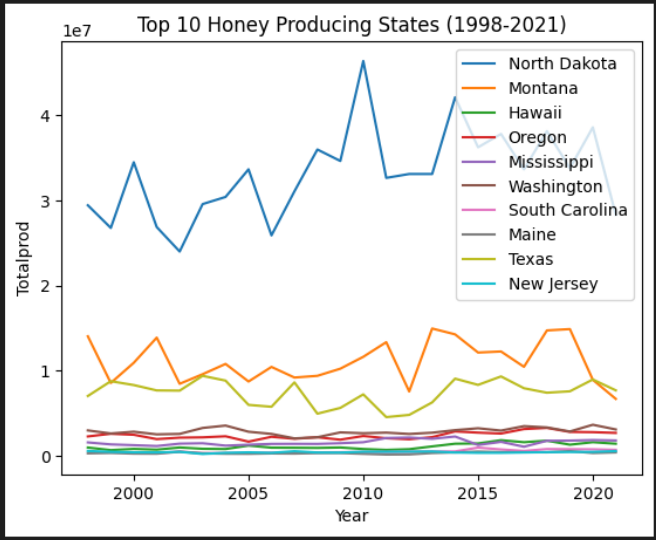
```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
data = pd.read_csv('honeyproduction 1998-2021.csv')
data = data[data['year'] >= 1998]
state_data = data.groupby(['State','year'])['totalprod'].mean().reset_index()
state_trends = {}
for state in state_data['State'].unique():
    state_subset =state_data[state_data['State']==state]
    trend=np.polyfit(state_subset['year'],state_subset['totalprod'],deg=1)[0]
    state_trends[state]=trend
sorted_states=sorted(state_trends,key=state_trends.get,reverse=True)
for state in sorted_states[:10]:
    state_subset=state_data[state_data['State']==state]
    plt.plot(state_subset['year'],state_subset['totalprod'],label=state)
plt.xlabel('Year')
plt.ylabel('Totalprod')
plt.title('Top 10 Honey Producing States (1998-2021)')
plt.legend()
plt.show()
```

[2] ✓ 0.4s Python



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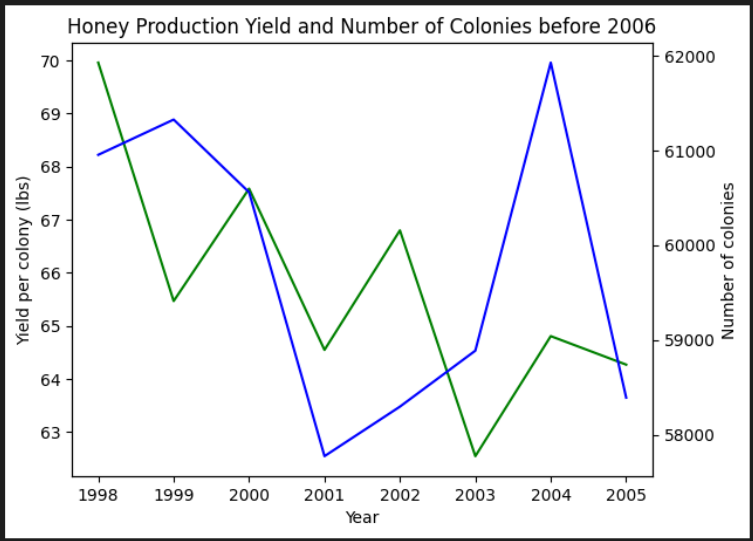
```
import pandas as pd
import matplotlib.pyplot as plt
df = pd.read_csv('honeyproduction 1998-2021.csv')
df = df[df['year'] < 2006]
yield_by_year = df.groupby('year')['yieldpercol'].mean()
colony_by_year = df.groupby('year')['numcol'].mean()
fig, ax1 = plt.subplots()
ax2 = ax1.twinx()
ax1.plot(yield_by_year.index, yield_by_year.values, 'g-')
ax2.plot(colony_by_year.index, colony_by_year.values, 'b-')
ax1.set_xlabel('Year')
ax1.set_ylabel('Yield per colony (lbs)')
ax2.set_ylabel('Number of colonies')
plt.title('Honey Production Yield and Number of Colonies before 2006')
plt.show()
```

[3] ✓ 0.4s Python



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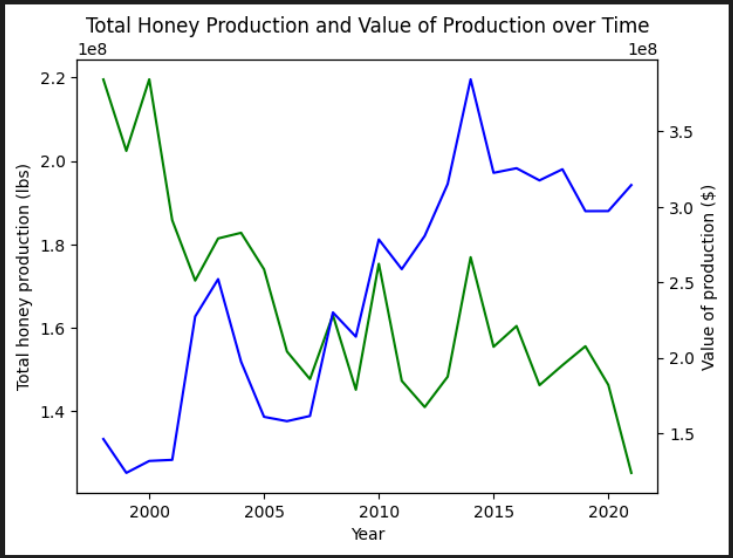
```
import pandas as pd
import matplotlib.pyplot as plt
df = pd.read_csv('honeyproduction 1998-2021.csv')
production_by_year = df.groupby('year')['totalprod'].sum()
value_by_year = df.groupby('year')['prodvalue'].sum()
fig, ax1 = plt.subplots()
ax2 = ax1.twinx()
ax1.plot(production_by_year.index, production_by_year.values, 'g-')
ax2.plot(value_by_year.index, value_by_year.values, 'b-')
ax1.set_xlabel('Year')
ax1.set_ylabel('Total honey production (lbs)')
ax2.set_ylabel('Value of production ($)')
plt.title('Total Honey Production and Value of Production over Time')
plt.show()
```

[4] ✓ 0.3s Python



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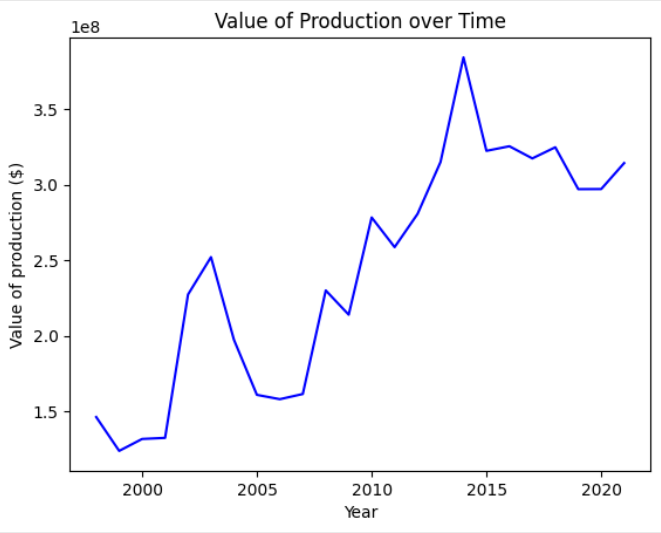
```
import pandas as pd
import matplotlib.pyplot as plt
df = pd.read_csv('honeyproduction 1998-2021.csv')
value_by_year = df.groupby('year')['prodvalue'].sum()
plt.plot(value_by_year.index, value_by_year.values, 'b-')
plt.xlabel('Year')
plt.ylabel('Value of production ($)')
plt.title('Value of Production over Time')
plt.show()
```

[5] ✓ 0.2s Python




```
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt
df = pd.read_csv('honeyproduction 1998-2021.csv')
df_by_year = df.groupby('year').agg({'totalprod': 'sum', 'prodvalue': 'sum'}).reset_index()
fig, (ax1, ax2) = plt.subplots(1, 2, figsize=(12, 6))
sns.lineplot(data=df_by_year, x='year', y='totalprod', ax=ax1)
```

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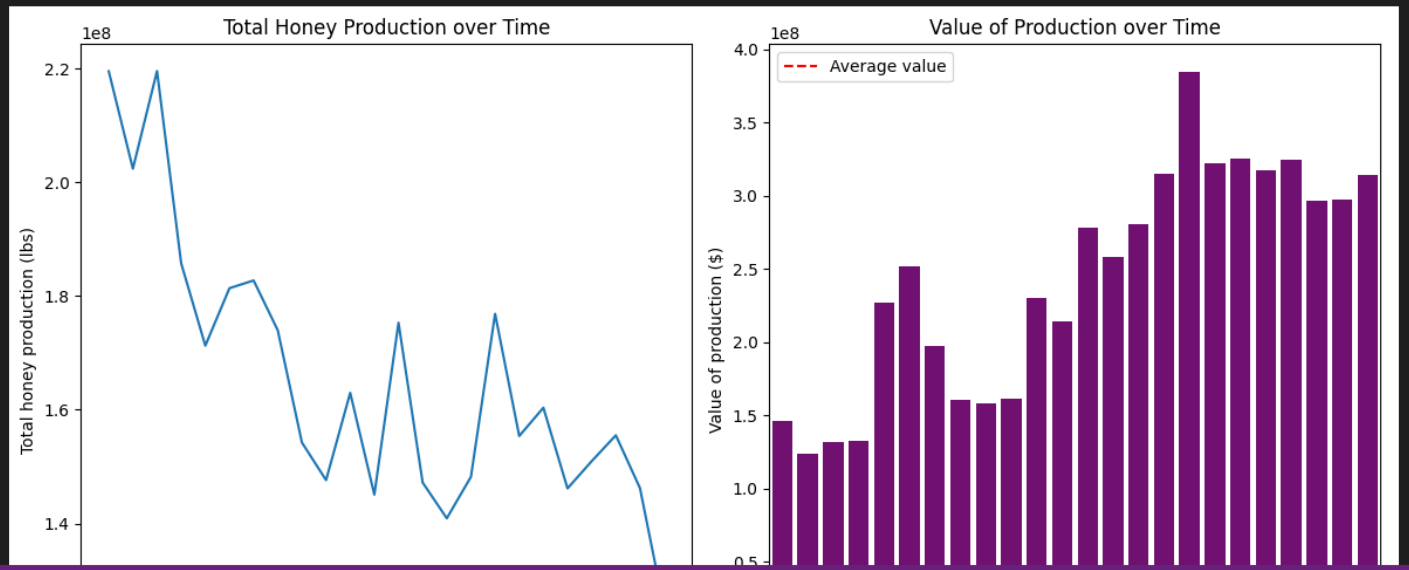
```
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt
df = pd.read_csv('honeyproduction 1998-2021.csv')
df_by_year = df.groupby('year').agg({'totalprod': 'sum', 'prodvalue': 'sum'}).reset_index()
fig, (ax1, ax2) = plt.subplots(1, 2, figsize=(12, 6))
sns.lineplot(data=df_by_year, x='year', y='totalprod', ax=ax1)
ax1.set_xlabel('Year')
ax1.set_ylabel('Total honey production (lbs)')
ax1.set_title('Total Honey Production over Time')
sns.barplot(data=df_by_year, x='year', y='prodvalue', ax=ax2, color='purple')
ax2.set_xlabel('Year')
ax2.set_ylabel('Value of production ($)')
ax2.set_title('Value of Production over Time')
avg_value = df['prodvalue'].mean()
ax2.axhline(avg_value, color='red', linestyle='--', label='Average value')
ax2.legend()
plt.tight_layout()
plt.show()
```

[6] ✓ 0.7s Python



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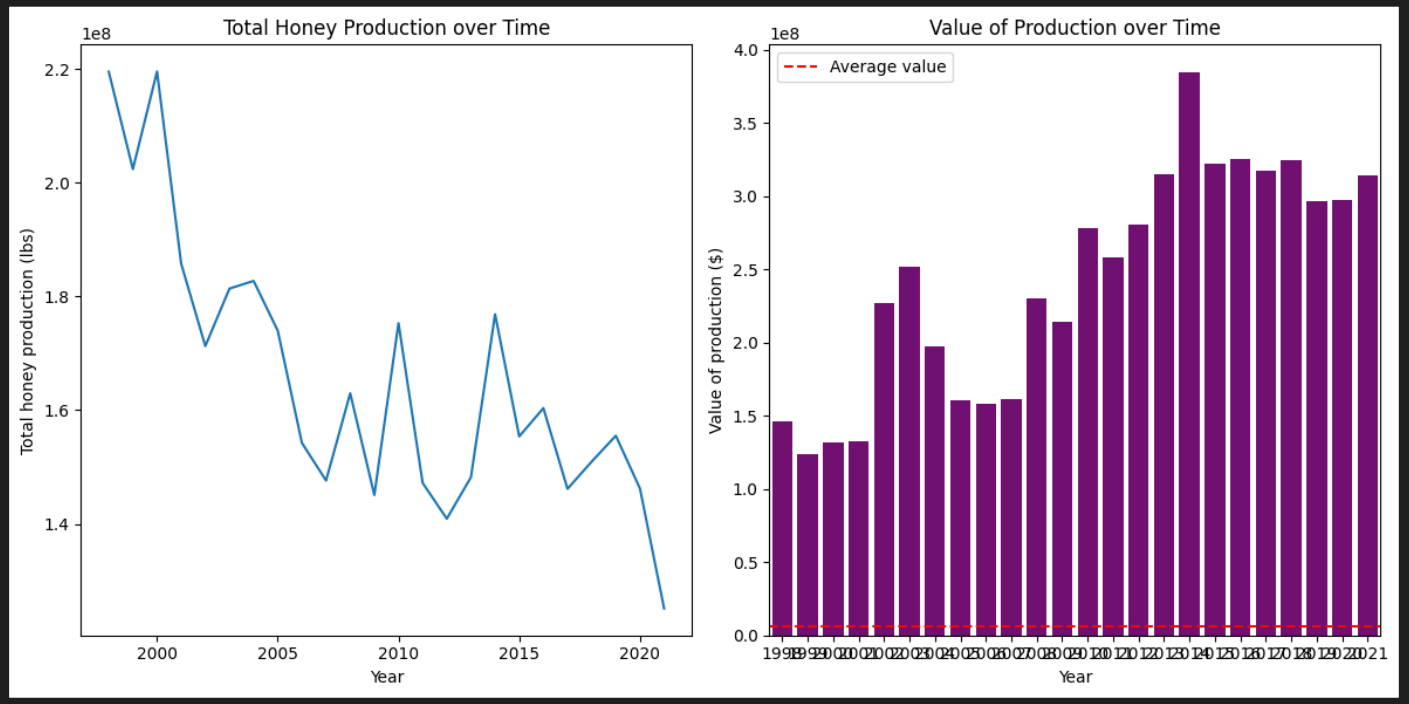
[6] ✓ 0.7s Python


Total Honey Production over Time
1e8
Total honey production (lbs)
Year
Value of Production over Time
1e8
Average value
Value of production ($)
Year