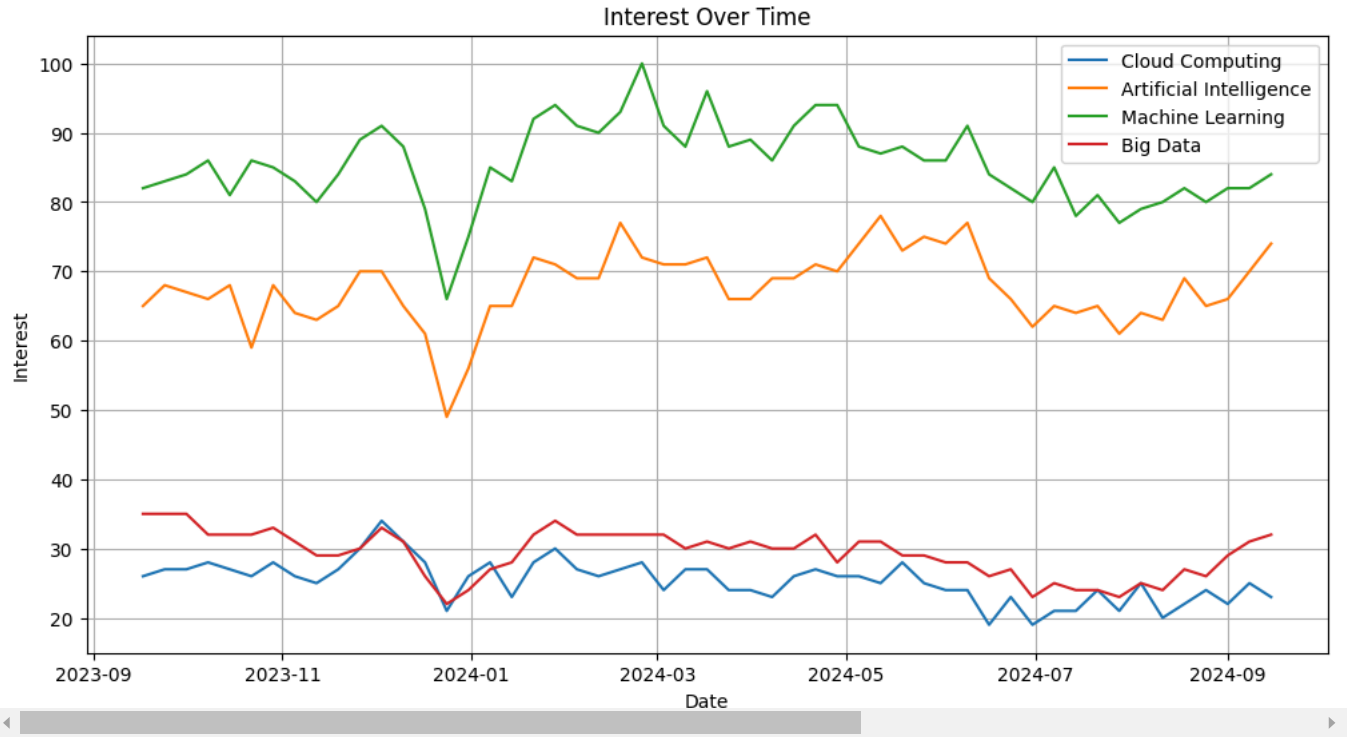
```
import pandas as pd
from pytrends.request import TrendReq
import matplotlib.pyplot as plt
import seaborn as sns
import time

# Initialize the TrendReq object
Trending_topics = TrendReq(hl='en-US', tz=360)


# Define keywords to analyze
kw_list = ["Cloud Computing", "Artificial Intelligence", "Machine Learning", "Big Data"]

# Fetch interest over time for the last 12 months
Trending_topics.build_payload(kw_list, cat=0, timeframe='today 12-m')
time.sleep(5)  # Wait for 5 seconds
data = Trending_topics.interest_over_time()

# Display the fetched data
data.head()
```

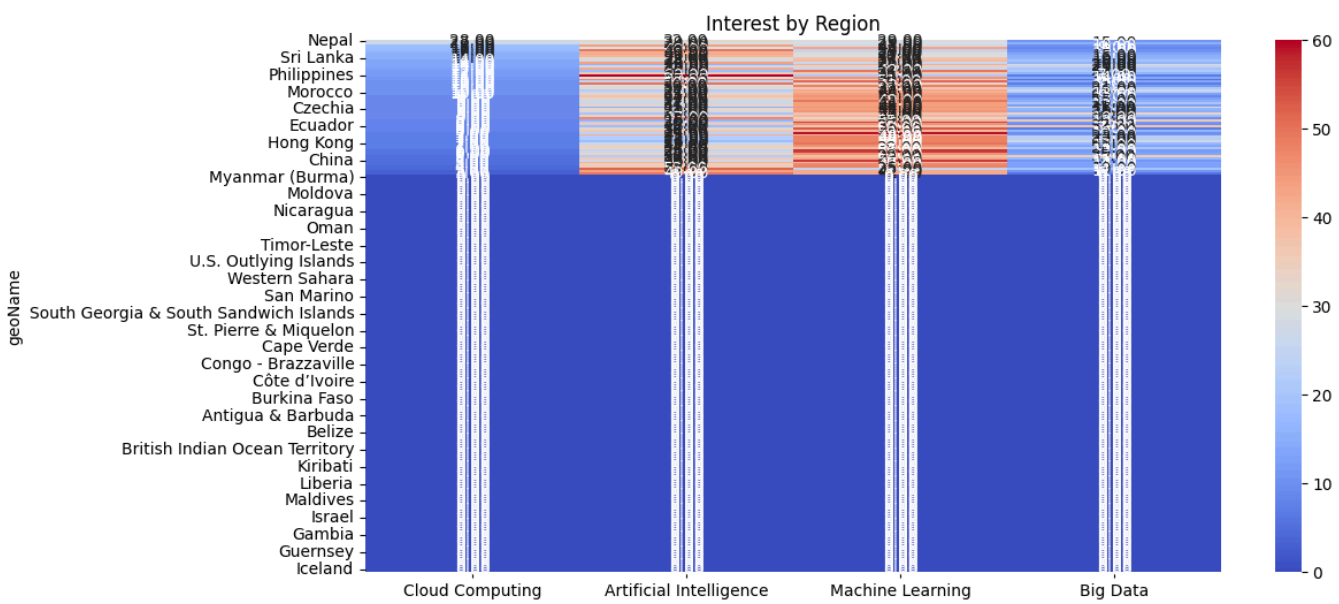
date	Cloud Computing	Artificial Intelligence	Machine Learning	Big Data	isPartial
2023-09-17	26	65	82	35	False
2023-09-24	27	68	83	35	False
2023-10-01	27	67	84	35	False
2023-10-08	28	66	86	32	False
2023-10-15	27	68	81	32	False

Next steps: Generate code with `data` View recommended plots New interactive sheet

```
# Plot interest over time for multiple keywords
plt.figure(figsize=(12, 6))
for keyword in kw_list:
    plt.plot(data.index, data[keyword], label=keyword)
plt.title('Interest Over Time')
plt.xlabel('Date')
plt.ylabel('Interest')
plt.legend()
plt.grid()
plt.savefig('interest_over_time.png')  # Save the figure
plt.show()
```



```
# Fetch interest by region
data_region = Trending_topics.interest_by_region()
data_region = data_region.sort_values(by="Cloud Computing", ascending=False)

# Plot interest by region as a heatmap
plt.figure(figsize=(12, 6))
sns.heatmap(data_region, annot=True, fmt=".2f", cmap='coolwarm')
plt.title('Interest by Region')
plt.savefig('interest_by_region.png')  # Save the heatmap
plt.show()
```




```
# Fetch top charts for 2020
top_charts = Trending_topics.top_charts(2020, hl='en-US', tz=300, geo='GLOBAL')
print(top_charts.head(10))

# Fetch related queries
try:
    Trending_topics.build_payload(kw_list=['Cloud Computing'])
    related_queries = Trending_topics.related_queries()
    print(related_queries)
except (KeyError, IndexError):
    print("No related queries found for 'Cloud Computing'")
```

```
                  title exploreQuery
0           Coronavirus
1      Election results
2           Kobe Bryant
3                  Zoom
4                   IPL
5  India vs New Zealand
6    Coronavirus update
7  Coronavirus symptoms
8             Joe Biden
9      Google Classroom
No related queries found for 'Cloud Computing'
```

```
# Fetch keyword suggestions
keywords = Trending_topics.suggestions(keyword='Cloud Computing')
df_keywords = pd.DataFrame(keywords)
df_keywords.drop(columns='mid', inplace=True)
print(df_keywords)
```

```
                      title   type
0           Cloud computing  Topic
1           Cloud computing  Topic
2  Cloud computing security  Topic
```

```
# Save results to CSV files
data.to_csv('cloud_computing_trends.csv')
data_region.to_csv('cloud_computing_interest_by_region.csv')
```

```
df_keywords.to_csv('cloud_computing_keywords_suggestions.csv')

print("Data exported successfully.")
```

```
Data exported successfully.
```