Advanced Tutorial on Implementing Frequent-Pattern Growth Algorithm

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In this tutorial, we explain how the Frequent Pattern-growth (FP-growth) algorithm can be implemented by varying the minimum support values

Step 1: Import the FP-growth algorithm and pandas data frame

In [1]:
```
from PAMI.frequentPattern.basic import FPGrowth  as alg
import pandas as pd
```

Step 2: Specify the following input parameters

In [2]:
```
inputFile = 'transactional_T10I4D100K.csv'
seperator='¥t'
minimumSupportCountList = [100, 150, 200, 250, 300]
#minimumSupport can also specified between 0 to 1. E.g., minSupList = [0.005, 0.006,

result = pd.DataFrame(columns=['Algorithm', 'minSup', 'patterns', 'runtime', 'memory
#initialize a data frame to store the results of FP-growth algorithm
```

Step 3: Execute the FP-growth algorithm using a for loop

In [3]:
```
algorithm = 'FPGrowth'  #specify the algorithm name
for minSupCount in minimumSupportCountList:
    obj = alg.FPGrowth('transactional_T10I4D100K.csv', minSup=minSupCount, sep=seper
    obj.startMine()
    #store the results in the data frame
    result.loc[result.shape[0]] = [algorithm, minSupCount, len(obj.getPatterns()), c
```

```
Frequent patterns were generated successfully using frequentPatternGrowth algorithm
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```

In [4]:
```
print(result)
```

```
  Algorithm  minSup  patterns    runtime     memory
0  FPGrowth     100     27532  11.474215  517918720
1  FPGrowth     150     19126   9.795341  510083072
2  FPGrowth     200     13255  10.240599  503455744
3  FPGrowth     250      7703   9.773888  500404224
4  FPGrowth     300      4552  11.242900  497012736
```

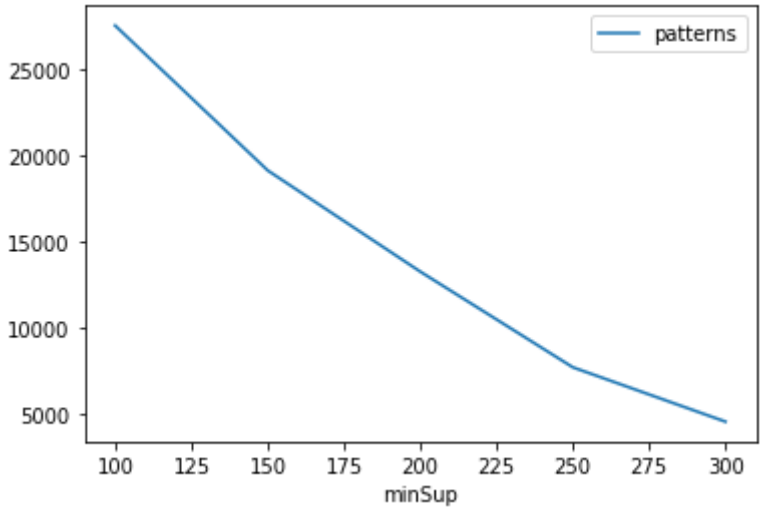
Step 5: Visualizing the results

Step 5.1 Importing the plot library

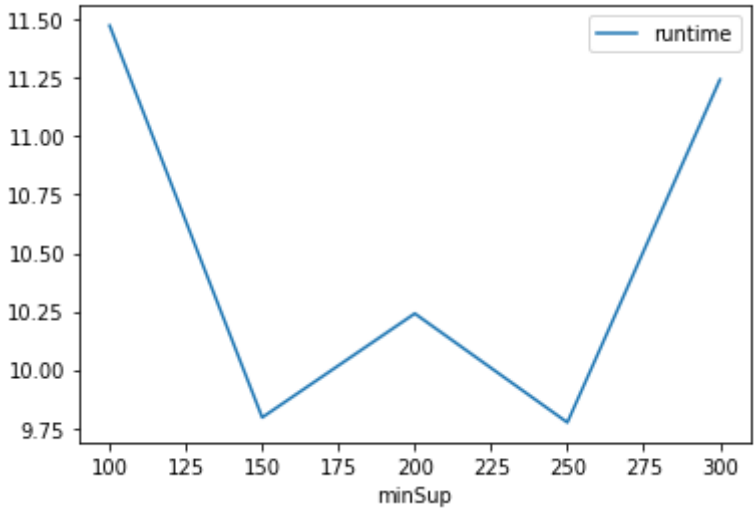
In [5]:
```
from PAMI.extras.graph import plotLineGraphsFromDataFrame as plt
```

Step 5.2. Plotting the number of patterns

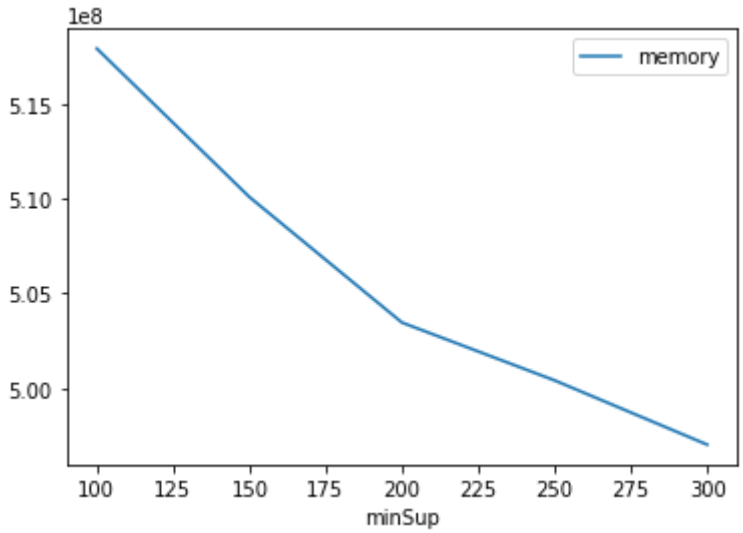
In [6]:
```
ab = plt.plotGraphsFromDataFrame(result)
ab.plotGraphsFromDataFrame() #drawPlots()
```



Graph for No Of Patterns is successfully generated!



Graph for Runtime taken is successfully generated!



Graph for memory consumption is successfully generated!

Step 6: Saving the results as latex files

In [7]:
```
from PAMI.extras.graph import generateLatexFileFromDataFrame as gdf
gdf.generateLatexCode(result)
```

```
---------------------------------------------------------------------------
ValueError                                Traceback (most recent call last)
Input In [7], in <cell line: 2>()
      1 from PAMI.extras.graph import generateLatexFileFromDataFrame as gdf
----> 2 gdf.generateLatexCode(result)

File ~/.local/lib/python3.10/site-packages/PAMI/extras/graph/generateLatexFileFromDa
taFrame.py:8, in generateLatexCode(result)
      6 titles = result.columns.tolist()
      7 titles.remove("minSup")
----> 8 titles.remove("algorithm")
      9 for i in range(0, len(titles)):
     10     legendary = pd.unique(result[['algorithm']].values.ravel())

ValueError: list.remove(x): x not in list
```

In [ ]: