

Discovering Periodic Frequent patterns in Big Data Using PSGrowth Algorithm

In this tutorial, we will discuss two approaches to find Periodic Frequent patterns in big data using top algorithm.

1. **Basic approach:** Here, we present the steps to discover Periodic Frequent patterns using a single minimum support value
2. **Advanced approach:** Here, we generalize the basic approach by presenting the steps to discover Periodic Frequent patterns using multiple minimum support values.

Basic approach: Executing PSGrowth on a single dataset at a particular minimum support value

Step 1: Import the PSGrowth algorithm

```
In [1]: from PAMI.periodicFrequentPattern.basic import PSGrowth as alg
```

Step 2: Specify the following input parameters

```
In [2]: inputFile = 'temporal_T10I4D100K.csv'

minimumSupportCount=100 #Users can also specify this constraint between 0 to 1.
maxmunPeriodCount=500
seperator='¥t'
```

Step 3: Execute the PSGrowth algorithm

```
In [3]: obj = alg.PSGrowth(iFile=inputFile, minSup=minimumSupportCount, maxPer=maxmunPeriodCo
obj.startMine() #Start the mining process
```

Periodic-Frequent patterns were generated successfully using PS-Growth algorithm

Step 4: Storing the generated patterns

Step 4.1: Storing the generated patterns in a file

```
In [4]: obj.savePatterns(outFile='periodicFrequentPatternsMinSupCount100.txt')
```

Step 4.2. Storing the generated patterns in a data frame

```
In [5]: periodicFrequentPatternsDF= obj.getPatternsAsDataFrame()
```

Step 5: Getting the statistics

Step 5.1: Total number of discovered patterns

```
In [6]: print('Total No of patterns: ' + str(len(periodicFrequentPatternsDF)))
```

Total No of patterns: 229

Step 5.2: Runtime consumed by the mining algorithm

```
In [7]: print('Runtime: ' + str(obj.getRuntime()))
```

Runtime: 1660193781.311943

```
In [8]: ##### Step 5.3: Total Memory consumed by the mining algorithm
```

```
In [9]: print('Memory (RSS): ' + str(obj.getMemoryRSS()))  
print('Memory (USS): ' + str(obj.getMemoryUSS()))
```

Memory (RSS): 327327744

Memory (USS): 289001472