

# Discovering Periodic Frequent patterns in Big Data Using EPCPGrowth 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.
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## Basic approach: Executing EPCPGrowth on a single dataset at a particular minimum support value

### Step 1: Import the EPCPGrowth algorithm

```
In [1]: from PAMI.periodicCorrelatedPattern import EPCPGrowth 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=5000
minAllConfCount=0.5
maxPerAllmaxPerConfCount=0.5
seperator='¥t'
```

### Step 3: Execute the EPCPGrowth algorithm

```
In [3]: obj = alg.EPCPGrowth(iFile=inputFile, minSup=minimumSupportCount, minAllConf=minAllCo
obj.startMine() #Start the mining process
```

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[93] 2666 277 1 1  
[92] 2668 543 1 1  
[91] 2680 268 1 1  
[90] 2684 285 1 1  
[89] 2685 276 1 1  
[88] 2687 270 1 1  
[87] 2693 334 1 1  
[86] 2713 269 1 1

[85] 2717 275 1 1  
[84] 2725 244 1 1  
[83] 2732 351 1 1  
[82] 2742 256 1 1  
[81] 2743 323 1 1  
[80] 2767 318 1 1  
[79] 2777 256 1 1  
[78] 2783 283 1 1  
[77] 2791 299 1 1  
[76] 2793 236 1 1  
[75] 2793 280 1 1  
[74] 2794 312 1 1  
[73] 2810 341 1 1  
[72] 2814 302 1 1  
[71] 2835 306 1 1  
[70] 2843 342 1 1  
[69] 2847 263 1 1  
[68] 2847 334 1 1  
[67] 2852 282 1 1  
[66] 2860 381 1 1  
[65] 2883 301 1 1  
[64] 2894 526 1 1  
[63] 2902 320 1 1  
[62] 2943 323 1 1  
[61] 2959 303 1 1  
[60] 2976 284 1 1  
[59] 3012 275 1 1  
[58] 3014 228 1 1  
[57] 3043 257 1 1  
[56] 3044 254 1 1  
[55] 3053 298 1 1  
[54] 3063 407 1 1  
[53] 3069 261 1 1  
[52] 3085 271 1 1  
[51] 3090 355 1 1  
[50] 3103 254 1 1  
[49] 3134 263 1 1  
[48] 3135 294 1 1  
[47] 3151 259 1 1  
[46] 3219 299 1 1  
[45] 3281 290 1 1  
[44] 3361 302 1 1  
[43] 3385 255 1 1  
[42] 3415 237 1 1  
[41] 3420 242 1 1  
[40] 3470 223 1 1  
[39] 3507 231 1 1  
[38] 3605 231 1 1  
[37] 3626 264 1 1  
[36] 3649 223 1 1  
[35] 3667 277 1 1  
[34] 3686 287 1 1  
[33] 3690 219 1 1  
[32] 3710 288 1 1  
[31] 3735 271 1 1  
[30] 3771 228 1 1  
[29] 3864 182 1 1  
[28] 3883 206 1 1  
[27] 3921 190 1 1  
[26] 3982 283 1 1  
[25] 4037 242 1 1  
[24] 4082 229 1 1  
[23] 4132 182 1 1  
[22] 4137 243 1 1

```

[21] 4248 219 1 1
[20] 4258 236 1 1
[19] 4309 327 1 1
[18] 4388 224 1 1
[17] 4438 185 1 1
[16] 4511 232 1 1
[15] 4559 189 1 1
[14] 4629 173 1 1
[13] 4681 201 1 1
[12] 4902 197 1 1
[11] 4973 174 1 1
[10] 4993 143 1 1
[9] 5057 159 1 1
[8] 5102 186 1 1
[7] 5375 204 1 1
[6] 5408 184 1 1
[5] 5835 140 1 1
[4] 5845 136 1 1
[3] 6265 112 1 1
[2] 6810 146 1 1
[1] 7057 133 1 1
[0] 7828 113 1 1

```

Periodic Frequent patterns were generated successfully using PFPGrowth 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: 0

### Step 5.2: Runtime consumed by the mining algorithm

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

Runtime: 5.089999437332153

```
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): 572571648  
Memory (USS): 533786624