Discovering Fuzzy Frequent Spatial Pattern in Big Data Using FFSPMiner Algorithm

In this tutorial, we will discuss two approaches to find Fuzzy Frequent Spatial Pattern in big data using FFSPMiner algorithm.

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

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

Step 1: Import the FFSPMiner algorithm

In [1]:

```
from PAMI.fuzzyFrequentSpatialPattern.basic import FFSPMiner  as alg
```

Step 2: Specify the following input parameters

In [2]:

```
inputFile = 'T10_utility.txt'

minimumSupportCount=100  #Users can also specify this constraint between 0 to 1.
neighborFile='T10_utility_neighbour.txt'
seperator=' '
```

Step 3: Execute the FFSPMiner algorithm

In [3]:

```
obj = alg.FFSPMiner(iFile=inputFile, nFile=neighborFile, minSup=minimumSupportCount,
obj.startMine()              #Start the mining process
```

Step 4: Storing the generated patterns

Step 4.1: Storing the generated patterns in a file

In [4]:

```
obj.savePatterns(outFile='frequentPatternsMinSupCount1000.txt')
```

Step 4.2. Storing the generated patterns in a data frame

In [5]:

```
frequentPatternsDF= obj.getPatternsAsDataFrame()
```

Step 5: Getting the statistics

Step 5.1: Total number of discovered patterns

In [6]:

```
print('Total No of patterns: ' + str(len(frequentPatternsDF)))
```

```
Total No of patterns: 797
```

Step 5.2: Runtime consumed by the mining algorithm

In [7]:

```
print('Runtime: ' + str(obj.getRuntime()))
```

```
Runtime: 7.619616985321045
```

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): 457887744
Memory (USS): 419237888
```