<Description of this Folder>

In this homework, we will do comparison and analysis between three algorithms for calculating the Minimum Spanning Tree problem given below:

1. Prim's Algorithm implemented with a Heap

2. Naive Kruskal's Algorithm having O(MN) complexity

3. Efficient Kruskal's Algorithm based on Union-Find

You can find HW1\_Report.pdf in the Report folder.

The report summarizes the result in following way:

• Visualize the result using matplotlib one-by-one

• Comparing the result of one algorithm with other one and vice versa

• Conclude the result

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<For running Code>

Before running make sure that dir address(in each file) points to your dataset folder:

dir\_folder='D:/University Data/PADUA/2nd Semester/Adv Algo/HomeWork/1/mst\_dataset'

Then run the file just click dubug button.

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<For running visualize file>

There's a file named "Visualize\_MST.ipynb"

To compute asymptotic complexity and visualize and compare the results of our work. Please open this file at:

.\Complexities and Output\Visualize\_MST.ipynb

Make sure that each output file from algorithms is in the same folder as Visualize\_MST.

Output Files for the result are named as

1. output\_kruskal\_n

2. output\_kruskal\_uf

3. output\_prim

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<For Report>

.\Report\HW1\_Report.pdf

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