**ASSIGNMENT 13 – Single Source Shortest Paths**

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| Topics |
| * Single-source shortest paths |
| Readings |
| * CLRS, Chapter 24 |
| Instructions | |
| 1. Select a **partner** and inform instructor who you will work with  2. Do the problems and answer the questions listed in the next section   * Keep in mind Guidelines on plagiarism.   3. Follow instructions for submitting your work. | |

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| Problems and Questions |
| Part A All-pairs shortest-paths by Dijkstra (30 pts) |
| Apply Dijkstra algorithm for the graph shown below. Show steps.  7  5  11  5  4  6  9  4  8  4  8  3  10  9  A close up of a map  Description automatically generated |
| Part B Implementation. (70 pts) |
| Create a Java method dijkstra (WeightedGraph g, int vertexId).  Use the same classes as you had in the Prim’s implementation (Vertex, Edge, WeightedGraph).  For the testing:   * Create a text file containing adjacency lists for the graph shown in Part A; * Fill the graph from file; * Call your method dijkstra; * Output the shortest paths for every vertex (except the source). |

2. **Summary questions:**

a. What concepts did you have trouble with? What still confuses you?

b. Suggestions for improving this assignment in the future?

Help instructor help you

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| Submitting your work |

1. Make sure that your name(s) are in all your files.
2. If you have more than one file for your solution, make a .zip file for your project
3. In Blackboard, attach your solution file to the submission for this assignment.

GUIDELINES ON

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| Guidelines on Plagiarism in Computer Science |

Outlined in the Syllabus