University of Asia Pacific (UAP)

Department of Computer Science and Engineering (CSE)

Assignment 2: Shortest Path Algorithm

CSE 208 – Algorithms Lab
Deadline: 12 May 2025
Total Points: 15

Part 1: Bellman-Ford Algorithm

1	Describe the Bellman-Ford algorithm and its primary purpose in finding the shortest path in a weighted graph. Explain the relaxation process and why it is essential in this algorithm.
2	Discuss the key advantage of the Bellman-Ford algorithm compared to Dijkstra's algorithm in terms of the types of graphs it can handle.
3	Apply the Bellman-Ford algorithm to calculate the shortest paths and their distances from a given source vertex to all other vertices in a directed graph. Illustrate the process using your own graph containing at least 10 vertices.
4	Implement Bellman-Ford algorithm using C/C++.

Submission Guidelines:

- Submit a single pdf file containing your complete text, drawings, algorithms and scanned code.
- Only include your own drawings, no figures can be used created by others than you.
- The assignment must be handwritten.
- You have to submit the assignment on your own on **12 May and must attend the viva.**
- Academic dishonesty in any form, including plagiarism, is strictly prohibited and will lead to a score of zero.