Assignment 4

- 1. Assist an architect in drawing the skyline of a city given the locations of the buildings in the city. All buildings are rectangular in shape and they share a common bottom (a flat surface). A building is specified by an ordered triplet (L_i, R_i, H_i) where L_i and R_i are the left and right (x) coordinates, respectively, of the building i (0 < L_i < R_i) and H_i is the height of the building.
 - For example, the input can be as follows.

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(33, 41, 5)
(4, 9, 21)
(30, 36, 9)
(14, 18, 11)
(2, 12, 14)
(34, 43, 19)
(23, 25, 8)
(14, 21, 16)
(32, 37, 12)
(7, 16, 7)
(24, 27, 10)
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The pseudocode/program should give the minimum number of points on graph (coordinates) as output to assist the architect in drawing the skyline.

- 1.1. (T) Write a pseudocode (using an incremental/conventional approach) to find the skyline. Analyze the time complexity.
- 1.2. (L) Write a program using an incremental (conventional) approach to find the skyline.
- 1.3. (T) Write a pseudocode to find the skyline using the divide and conquer approach. Analyze the time complexity.
- 1.4. (L) Write a program using the divide-and-conquer approach to find the skyline.
- 2. Given two matrices A and B, answer the following questions.
 - 2.1. (T) Write a pseudocode (using an incremental/conventional approach) to multiply the given matrices. Analyze the time complexity.

- 2.2. (L) Write a program using an incremental (conventional) approach to multiply the given matrices.
- 2.3. (T) Write a pseudocode to multiply the given matrices using the divide and conquer approach. Analyze the time complexity.
- $2.4.\,$ (L) Write a program using the divide-and-conquer approach to multiply the given matrices.