

Name :	ID:	Section:
--------	-----	----------

### Question 1 [15 Points]

You are given a directed, edge-weighted graph represented as an adjacency list. Write a function to calculate the total sum of weights for all outgoing edges from each vertex. Return the vertex with the maximum total outgoing edge weight and the corresponding sum. Complete the task with the adjacency list where you can use only array and linked list. **[However, your graph must have a minimum of 6 vertices and a minimum of 10 edges. Include a picture of your graph into your script].**

**\*\*You have to write two functions one for creating the adjacency list representation and one another one for maximum total outgoing edge weight and the corresponding sum.\*\***

Sample Input:	Sample Output:
<pre> vertices = 6 graph = Graph(vertices)  #add(source, destination, weight) graph.add(0, 1, 3) graph.add(0, 2, 5) graph.add(1, 3, 4) graph.add(2, 3, 6) graph.add(2, 4, 2) graph.add(3, 4, 1) graph.add(0, 4, 8) graph.add(1, 2, 11) graph.add(3, 5, 9) graph.add(4, 5, 10) vertex, sum = graph.max_vertex_sum() </pre>	<pre> vertex=0 sum=16 </pre>