

In one brief paragraph, describe your representation. For at least the three representations above and your representation (if it is not one of the ones above), explain an advantage of that representation in a sentence. For example, do certain representations have advantages of efficiency in search or ease of implementation. Given these advantages, briefly explain why you chose the representation you did.

The representation I used in Edge class is just three attributes: start node, end node, and weight.

The representation I used in Graph class is a HashMap which has all nodes as keys and the ArrayList of Edge pointing to children of corresponding nodes as values.

The advantage of using HashMap is that it is straightforward to see all connections between parents and children. There's no duplicate in the keys of HashMap. The access time of HashMap is just $O(1)$. Besides, using ArrayList as a value makes the length known and easier to sort. Also, both HashMap and ArrayList are mutable.