Data Structure:
Homework for vectors and lists

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- Deadline: 11:00 PM on Saturday, December 7, 2024.
- Answer the questions in Section 1 in a PDF file. Implement your source code for the programming assignment in .h, .cpp, or .ipynb files. Submit both the PDF and code files to the course e-learning platform.

1 Question and answer

1. (30 points) Draw a representation of an initially empty vector A after performing the following sequence of operations: insert(0,4), insert(0,3), insert(0,2), insert(2,1), insert(1,5), insert(1,6), insert(3,7), insert(0,8). Simply provide vector A.
2. (30 points) Suppose that we have made kn total accesses to the elements in a list L of n elements, for some integer $k \geq 1$. What are the minimum and maximum number of elements that have been accessed fewer than k times?.

2 Programming assignment

To demonstrate the correctness of your code, ensure that your source code includes test cases within the main function.

1. (40 points) Give a templated C++ function sum(v) that returns the sum of elements in an STL vector v. Use an STL iterator to enumerate the elements of v. Assume that the element type of v is any numeric type that supports the + operator. Be sure to demonstrate your code's functionality with appropriate test cases or scenarios.