

CSCI 002
Spring 2020

Exam #2
Data Structures using C++

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Please read the questions carefully.

Part I: (True/False, if false provide a short explanation... 10 points)

- False 1. The list sequence container in the STL has an array-based implementation.
It is doubly-linked list based implementation
- True 2. Iterators are generalizations of pointers and provide an alternative way to iterate through a collection of objects in the STL.
- True 3. The following will declare an iterator that can be used with a list of integers: `list<int>::iterator strIter;`
- False 4. The following instantiates a stack of Person pointers:
`stack<Person> *myStackPtr;`
`stack<Person*> myStackPtr;`
- False 5. The key of a map in the STL can only be of type int, which will be unique and used as an index, just like an array.
It can be any data type not just int. but value must be unique
- True 6. If an exception is thrown in a try block of a try-catch statement, there will be an immediate termination in the execution of the program ("a crash").
- True 7. Big O notation is a way of classifying efficiency of algorithms based on the number significant operations.
- True 8. A sequential search is more efficient than an $O(n \log(n))$ search algorithm.
- False 9. Binary search trees are linked node-based data structures where order is not considered.
All the data in its left subtree are less and all the data in its right subtree are bigger
- False 10. Binary search trees that contain the exact same data must always have the same depth.
It depends on the root of the tree. The depth may vary with the same data.