COMP2010 Lab 7

Create a project called lab7 (if using Visual Studio). Copy the source file that (one of) your team members completed for Lab 6 into lab7.cpp as your starting point.

Your group will add the following member function to your BSTNode<T> class definition:

```
void listify(list<T>&) const;
```

Your listify function may be invoked as follows:

```
BSTNode<int> iroot;
// ...insert data into iroot...
list<int> irootList;
iroot.listify(irootList);
```

The result of the <code>listify</code> member function invocation shown above is to perform an in-order traversal of the BST <code>iroot</code>, inserting the data of each BST node into the list <code>irootList</code> in the proper order.

Additionally, your team will modify the main () driver program by adding the following:

- Create irootList from iroot as above;
- 2. List the elements of irootList using a forward iterator, a reverse iterator, and ranged for loop;
- 3. Repeat steps 1-2 for sroot;
- 4. Create BSTNode<int> iroot4 containing the items 1000, 2000, 3000, 4000, and 5000;
- Create iroot4List from iroot4;
- 6. Create a map instance mi with string as the "first" element type and list<int> as the "second" element type, i.e., map<string, list<int>> mi;
- 7. Assign two elements of mi as in the sample output below;
- 8. Display the contents of mi using ranged for loops; and
- 9. Display the contents of mi using the map index operator.

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The output of your driver program should look like the following:

```
iroot == 10, 20, 100, 200, 300
sroot == Friday, Monday, Saturday, Sunday, Thursday, Tuesday,
Wednesday
Creating irootList via iroot.listify
irootList (forward iterator) == 10 20 100 200 300
irootList (reverse iterator) == 300 200 100 20 10
irootList (ranged for loop) == 10 20 100 200 300
Creating srootList via sroot.listify
srootList (forward iterator) == Friday Monday Saturday Sunday Thursday
Tuesday Wednesday
srootList (reverse iterator) == Wednesday Tuesday Thursday Sunday
Saturday Monday Friday
srootList (ranged for loop) == Friday Monday Saturday Sunday Thursday
Tuesday Wednesday
iroot4 == 1000, 2000, 3000, 4000, 5000
Creating iroot4List via iroot4.listify
Contents of map<string, list<int>> mi (using ranged for loops):
iroot4List: 1000 2000 3000 4000 5000
irootList: 10 20 100 200 300
Using map index operator:
mi["irootList"] == 10 20 100 200 300
mi["iroot4List"] == 1000 2000 3000 4000 5000
W
h
е
n
n
S
h
е
d
0
n
```

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е

m