

CCSCI Assignment Week 9

Due: Saturday 4/2/22

Late: Saturday 4/9/22 (5 point penalty)

Worth: 60 points

This program practices with STL and the algorithm library. A **bag** is a data structure that stores a group of unordered items. To the user, there is no concept of position.

Think of a paper bag that holds pieces of Halloween candy.

You can insert a candy into the bag.

There is no concept of position or layout of the candy.

You just drop in a piece and it joins the other pieces already in the bag.



You can remove an item from the bag.

Imagine reaching in your hand and drawing out a piece of candy.

You do not know which piece you will get.



1. Template Class **Bag.h** is partially written for you and you will fill in the function bodies. The bag data structure uses a vector object in its private data. Code should use **vector** public functions or functions from the **algorithm** library where possible.

2. Write a Secret Santa application. Each person draws a name from the bag and buys a holiday gift for that person. File **bangor.txt** contains the names of people who work at the Bangor store and **brewer.txt** contains the names of people who work at the Brewer store. Some people work at both stores. Assume there are no duplicate names.

a. Read the names from the Bangor store and store in a **vector<string>** object **employees** and also add them to a **Bag<string>** object.

b. Read the names from the Brewer store. If the name is not found in the **employees** object, add the name to the **employees** object and also to the **Bag<string>** object.

c. Sort the names in the **employees** object into alphabetical order.

d. Make a report of the employee names and the person for whom a gift is purchased. A person cannot buy a gift for themselves. If the person draws their own name, repeat until a different name is drawn.

Sample Output:

```
Enter first store name: bangor.txt
Enter second store name: brewer.txt

Name      Giftee
Amy        Hannah
Barbara    Xavier
Charlie    Erin
Dave       Violet
Erin       Kyle
Frank      Barbara
George     Oscar
Hannah    Wayne
Isaac      Maria
Jemia      Ned
Kyle       Jemia
Lynn       Ursala
Maria      Rosa
Ned        Lynn
Oscar      Amy
Penny      Zoe
Quincy     Penny
Rosa       George
Sam        Tina
Tina       Dave
Ursala     Quincy
Violet     Isaac
Wayne      Sam
Xavier     Frank
Yvonne     Charlie
Zoe        Yvonne
```

Submission:

Upload the completed **Bag.h** template class and the main application to Brightspace. Note: Code is not accepted that does not compile.

Need Help?

1. Email your question with your attached .java source code file. Do not attach an image or a pdf. Do not paste your code into the email body. I would like to download your code so I can test it as needed.

2. Use the scheduling software on the left side of Brightspace to schedule a Zoom meeting with me. If you cannot make the listed times, email me a list of your free times.