GIT Department of Computer Engineering
CSE 222/505 - Spring 2023
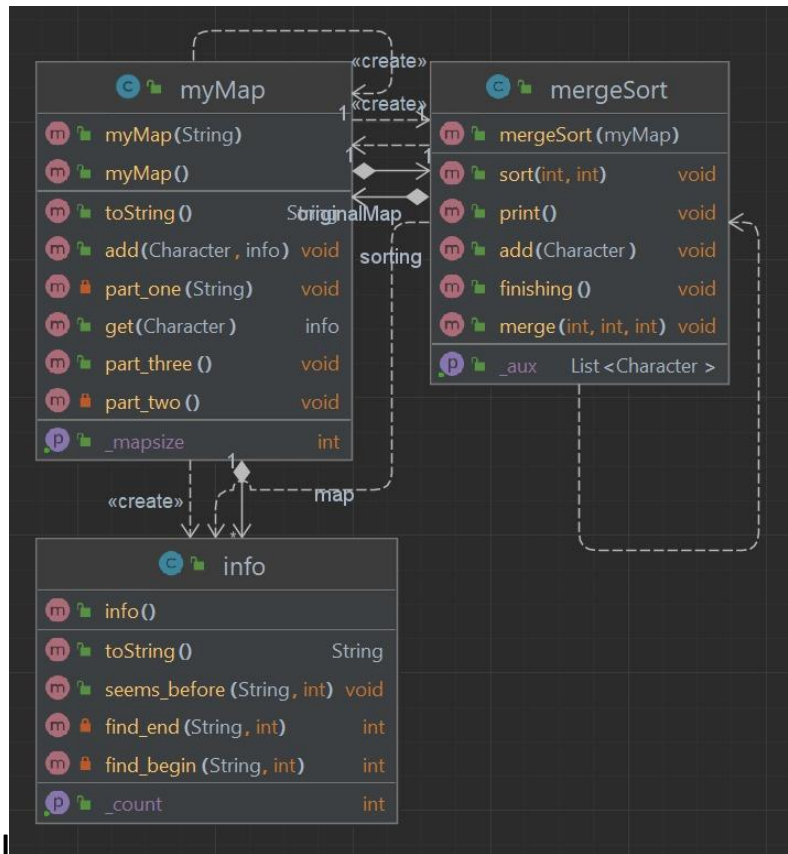## Homework # Report

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1. **SYSTEM REQUIREMENTS**

   In this homework we wanted to use a custom Map structure and then sort it using Merge Sort. Firstly, string manipulation, because it must includes spaces and letters. Then occurances of letters and the Word of that occured printed. After this part it was sorted by occurances. Simply, that's we wanted to do.

2. **USE CASE AND CLASS DIAGRAMS**

3. **OTHER DIAGRAMS**

   no

4. **PROBLEM SOLUTION APPROACH**

   In this homework assignment, string manipulation is done. If a letter is a capital one, it was added with 32 which means small letter. After the first part, every char search one by one. When there is more than one, it is not going to add it. It just increment the count

field. In third part, Aux field is sorted with merge sort algorithm. It is casual merge sort, it recursively splits array than it merges them while sorting them. Complexity O(nlogn). After sorting aux array with merge sort, sorted array created with datas which is in aux array.

5. TEST CASES

```
String input = "Buzzing bees buzz.";
System.out.println("Original string is "+ input);
myMap yunus = new myMap(input);
```

```
String input = "'Hush, hush!' whispered the rushing wind.";
System.out.println("Original string is "+ input);
myMap yunus = new myMap(input);
```

6. RUNNING AND RESULTS

```
Original string is Buzzing bees buzz.
Preprocessed string is buzzing bees buzz
{b=Counted =3  [buzzing, bees, buzz]
, u=Counted =2  [buzzing, buzz]
, z=Counted =4  [buzzing, buzzing, buzz, buzz]
, i=Counted =1  [buzzing]
, n=Counted =1  [buzzing]
, g=Counted =1  [buzzing]
, e=Counted =2  [bees, bees]
, s=Counted =1  [bees]
}
--------
{i=Counted =1  [buzzing]
, n=Counted =1  [buzzing]
, g=Counted =1  [buzzing]
, s=Counted =1  [bees]
, u=Counted =2  [buzzing, buzz]
, e=Counted =2  [bees, bees]
, b=Counted =3  [buzzing, bees, buzz]
, z=Counted =4  [buzzing, buzzing, buzz, buzz]
}
[i, n, g, s, u, e, b, z]
```

```
Original string is 'Hush, hush!' whispered the rushing wind.
Preprocessed string is hush hush whispered the rushing wind
{h=Counted =7  [hush, hush, hush, hush, whispered, the, rushing]
, u=Counted =3  [hush, hush, rushing]
, s=Counted =4  [hush, hush, whispered, rushing]
, w=Counted =2  [whispered, wind]
, i=Counted =3  [whispered, rushing, wind]
, p=Counted =1  [whispered]
, e=Counted =3  [whispered, whispered, the]
, r=Counted =2  [whispered, rushing]
, d=Counted =2  [whispered, wind]
, t=Counted =1  [the]
, n=Counted =2  [rushing, wind]
, g=Counted =1  [rushing]
}
--------
{p=Counted =1  [whispered]
, t=Counted =1  [the]
, g=Counted =1  [rushing]
, w=Counted =2  [whispered, wind]
, r=Counted =2  [whispered, rushing]
, d=Counted =2  [whispered, wind]
, n=Counted =2  [rushing, wind]
, u=Counted =3  [hush, hush, rushing]
, i=Counted =3  [whispered, rushing, wind]
, e=Counted =3  [whispered, whispered, the]
, s=Counted =4  [hush, hush, whispered, rushing]
, h=Counted =7  [hush, hush, hush, hush, whispered, the, rushing]
}
[p, t, g, w, r, d, n, u, i, e, s, h]
```