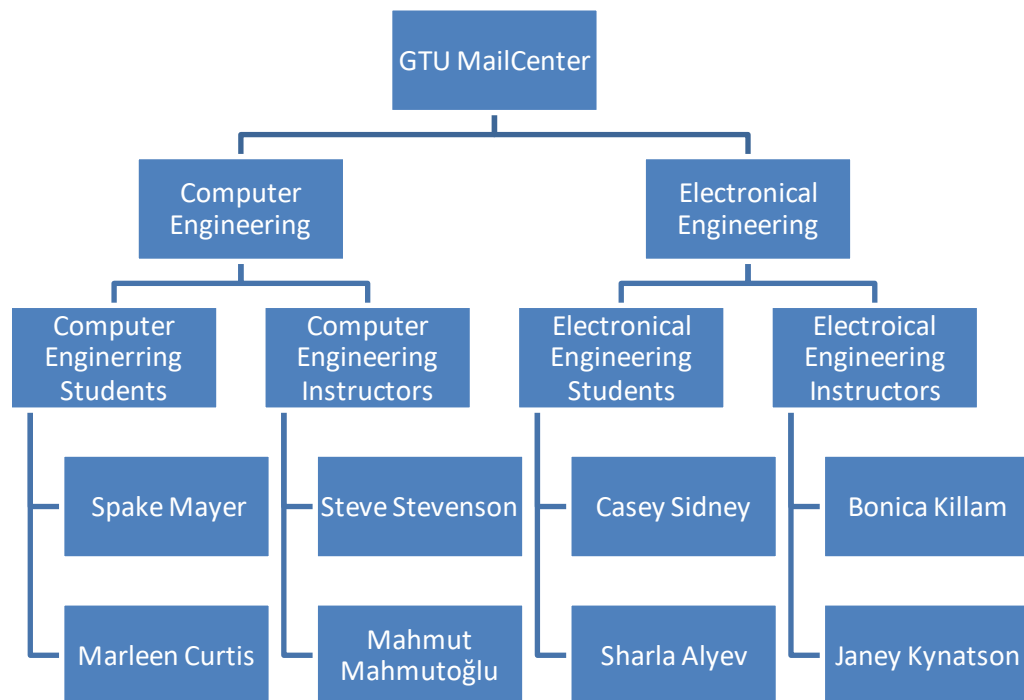
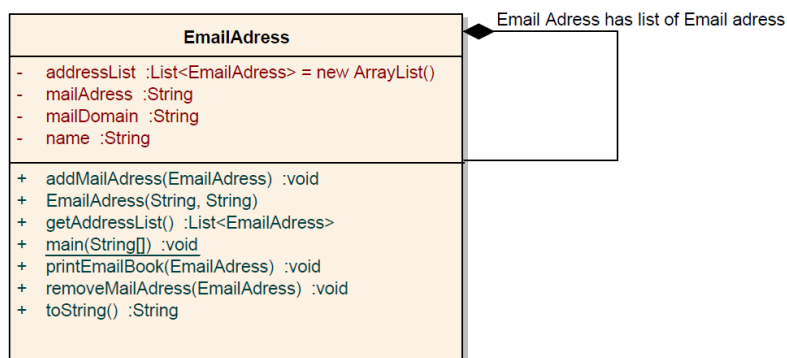


GEBZE TECHNICAL UNIVERSITY
CSE443 OBJECT ORIENTED PROGRAMMING
HOMEWORK – 2 REPORT
ALPER MÜLAYİM 121044030

Answer 1 :

I use different way for implementing composite pattern on the book. For books leaf items i use the empty list.



```

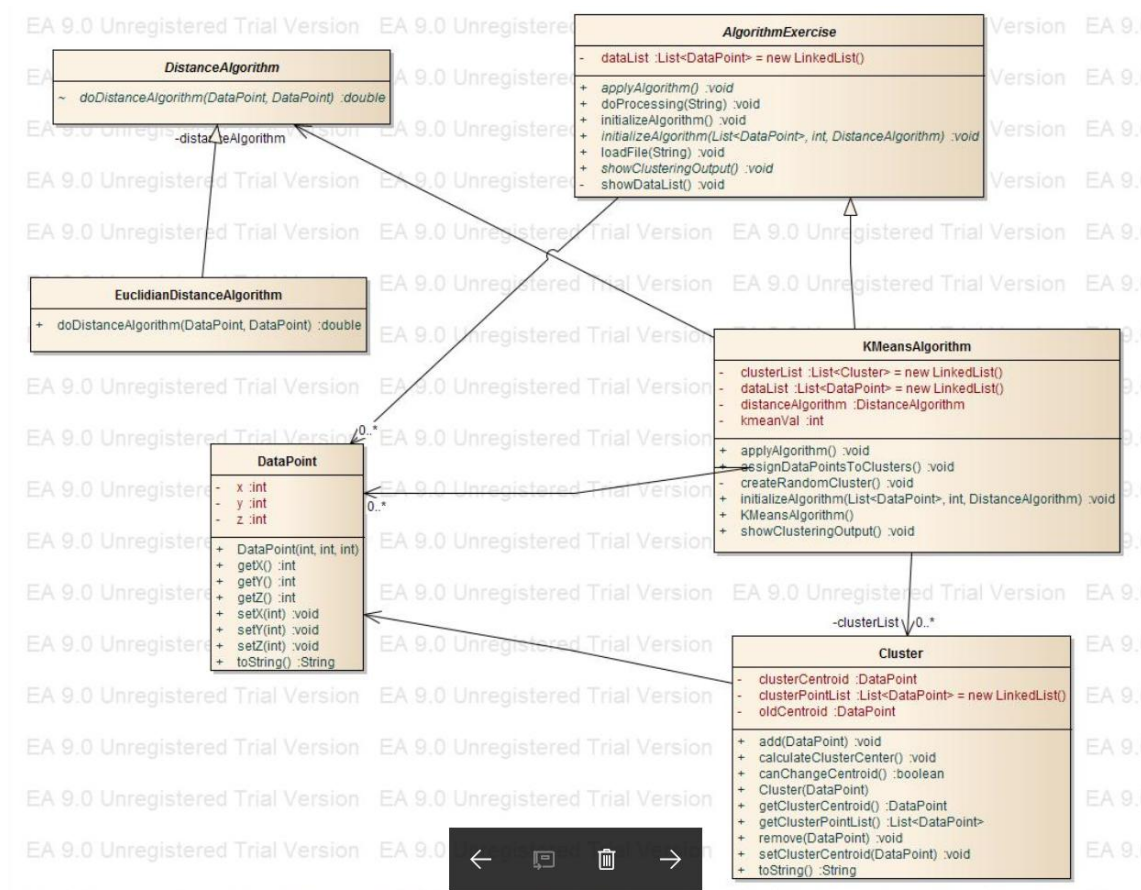
Run Main
"C:\Program Files\Java\jdk1.8.0_111\bin\java" ...
gtumailcenter@gtu.edu.tr GTU Mail Center
computerengineering@gtu.edu.tr Computer Engineering
computerstudents@gtu.edu.tr Computer Students
spakemayer@gmail.com Spake Mayer
marleencurtis@live.com Marleen Curtis
computerinstructors@gtu.edu.tr Computer Instructors
stevestevenson@gtu.edu.tr Steve Stevenson
mahmutmahmutoglu@gmail.com Mahmut Mahmutoglu
electronicengineering@gtu.edu.tr Electronic Engineering
electronicstudents@gtu.edu.tr Electronic Students
caseysidney@gmail.com Casey Sidney
sharlaalvey@live.com Sharla Alvey
electronicinstructors@gtu.edu.tr Electronic Instructors
bonitakillam@hotmail.com Bonita Killam
janeykynaston@gtu.edu.tr Janey Kynaston

Process finished with exit code 0

```

Screen Shot for composit pattern.

Answer 2 :



```
Run Main
"C:\Program Files\Java\jdk1.8.0_111\bin\java" ...
RANDOM CLUSTERS
x : 157 y : 30 z : 206
x : 135 y : 214 z : 225
x : 5 y : 31 z : 154
x : 206 y : 99 z : 73
x : 34 y : 34 z : 68

Cluster Centroid : x : 139 y : 90 z : 146
Cluster Centroid : x : 228 y : 193 z : 174
Cluster Centroid : x : 5 y : 31 z : 154
Cluster Centroid : x : 199 y : 103 z : 101
Cluster Centroid : x : 96 y : 25 z : 66

Process finished with exit code 0
```