

**GTU Department of Computer Engineering  
CSE443 Object Oriented Analysis and Design  
Fall 2021 - Homework 3 Report**

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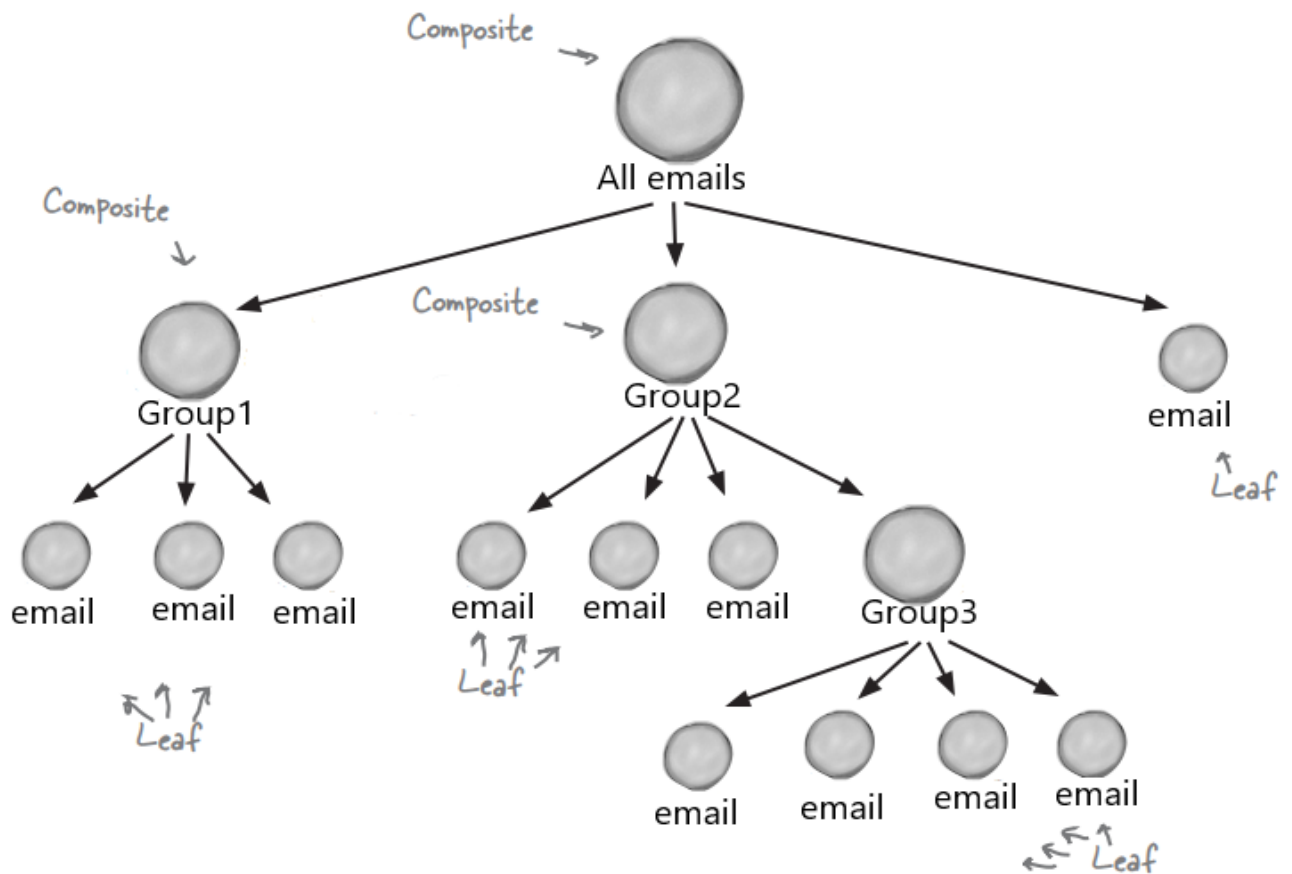
## Question 1

## Question 2 – Composite and Iterator

### Solution

#### 2.1 Understanding the problem

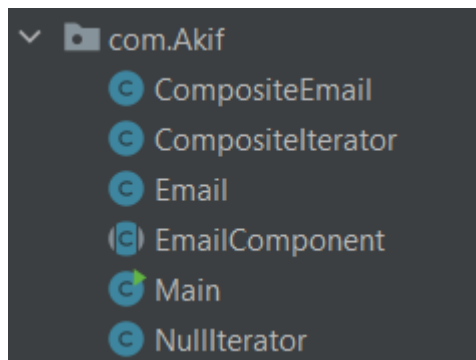
The problem is like the following picture;



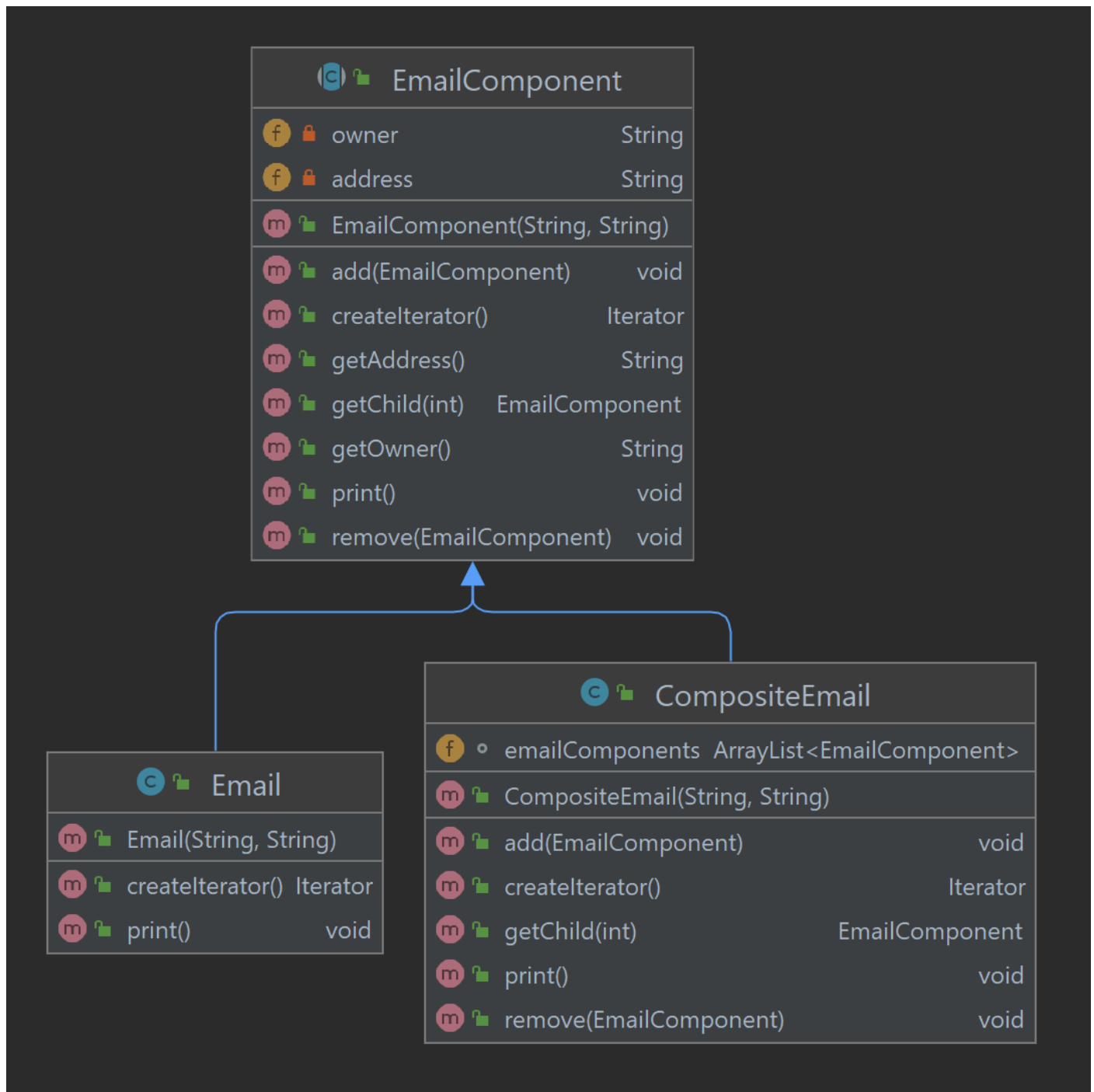
Here, emails contains both address and name of its owner, groups contains an arbitrary number of personal or group addresses also **groups are composite, emails are leaf**.

#### 2.2 Class Diagram

##### 2.2.1 Classes in my solution



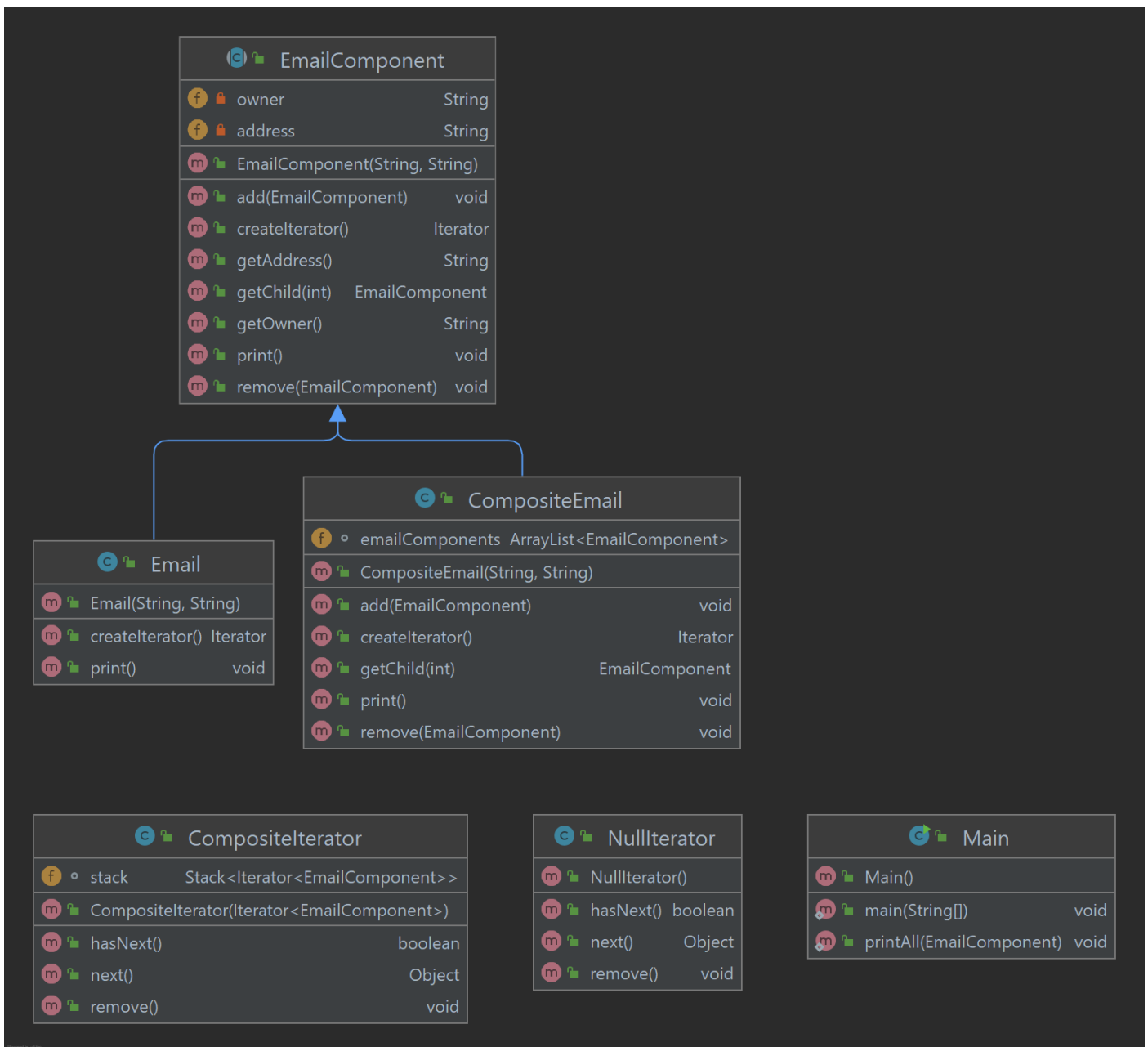
### 2.2.2 Composite Pattern Class Diagram



Here, EmailComponent class is abstract class, Email is leaf class and CompositeEmail is a composite class with add, remove and get methods.

### 2.2.3 Full Class Diagram

Here, we will see full diagram note that I used iterator design pattern to traverse all tree easily as expected in homework pdf file.



Here, Composite iterator implements java.util iterator interface to use in composite email class. NullIterator class is used in Email leaf class. Main class is for test purpose.

## 2.3 Test Results

Check Main.java class and run to see results. A part of result is following;

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Owner: GTU Ceng ALL
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akif.kartal2017@gtu.edu.tr Akif Kartal
djuro2017@gtu.edu.tr Djuro RADUSINOVIC
mustafa.tokgoz2017@gtu.edu.tr Mustafa TOKGÖZ
m.karakaya2018@gtu.edu.tr Muhammed Emin KARAKAYA
m.kurtcebe2018@gtu.edu.tr Mehdi KURTCEBE
sinan.sari2016@gtu.edu.tr Sinan SARI
hboubati@gtu.edu.tr Alp Eser
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