



Atılım University
Department of Software Engineering

SE461 Software Design Patterns
Fall, 2021-2022

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Assignment 2

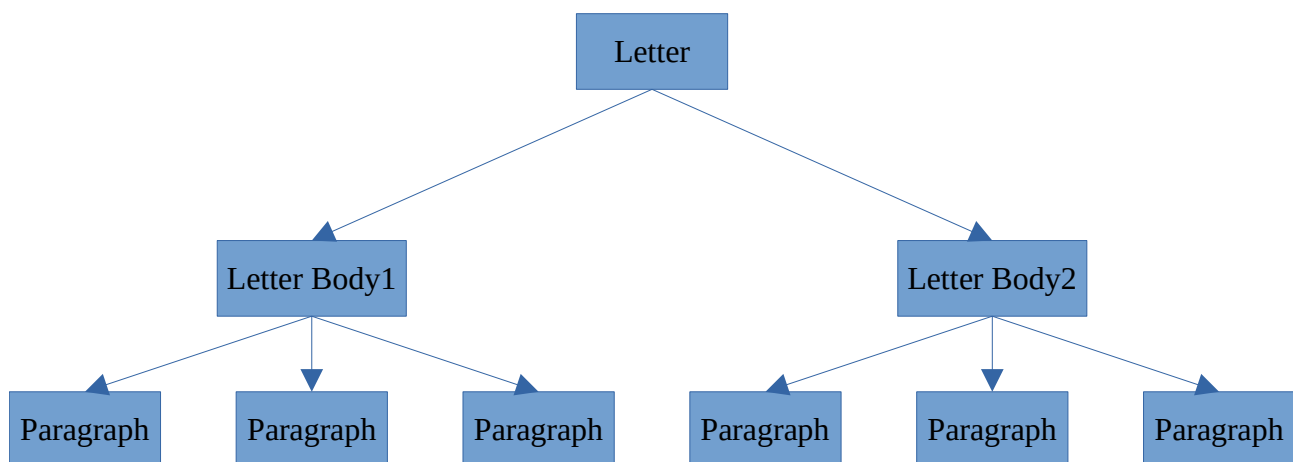
Due Date: November 30, 2021 23.59

Duration: 7 Days

WARNINGS

- Students who either cheat, attempt to cheat or provide a help to other(s) in cheating, get 0 (zero) grade from assignment. Also, based on the regulations, a disciplinary action will be taken.
- For every late hour, 10 points will be cut.
- Assignments sent by e-mail will not be accepted.

In this assignment, you will create a letter (or email) from several sub-components. The sub-components are reside in a hierarchy as follows.



Given the main program in the attachment (and below), create the necessary interfaces and classes to implement the rest of the program with the **Composite** design pattern.

```
public class Main {
    public static void main(String[] args) {
        String paragraph1 = "Lorem ipsum dolor sit... (long strings are shortened)";
        String paragraph2 = "Curabitur eu laoreet ... (long strings are shortened)";
        String paragraph3 = "Mauris eu mauris moll... (long strings are shortened)";

        Paragraph par1 = new Paragraph(paragraph1);
        Paragraph par2 = new Paragraph(paragraph2);
        Paragraph par3 = new Paragraph(paragraph3);

        LetterBody letterBody = new LetterBody();
        letterBody.addComponent(par1);
        letterBody.addComponent(par2);
        letterBody.addComponent(par3);

        Letter letter = new Letter("Test Letter", "Tolga Üstüncök", "Test User");
        letter.addComponent(letterBody);

        letter.print();
    }
}
```

At the end, the output of the program should look like below when you run the `print` method of the `Letter` class. Each line on each paragraph are wrapped at 80th column. If you are writing it in Java you can use `WordUtils` from Apache.

Sun Nov 21 14:38:38 TRT 2021

Dear Test User,

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Pellentesque varius quam vel purus tristique, sit amet sodales nulla pulvinar. Morbi tincidunt erat elit, in bibendum est sodales vitae. Ut varius massa nec dolor sodales, in interdum mauris luctus. Phasellus mollis, risus iaculis congue posuere, nunc diam posuere quam, vitae pellentesque ex nunc in eros. Aenean eleifend maximus sem, a semper lacus tempus at. Class aptent taciti sociosqu ad litora torquent per conubia nostra, per inceptos himenaeos. Proin molestie eros eu justo iaculis consequat. Maecenas gravida aliquam nunc vel feugiat. Vivamus a nisl eros. Suspendisse turpis augue, mollis sed augue nec, ullamcorper cursus ipsum. Donec arcu justo, varius quis dolor at, eleifend pretium massa. Fusce ullamcorper cursus felis id ultricies. Donec ut aliquam mauris. Suspendisse potenti.

Curabitur eu laoreet ex. Aenean ullamcorper nulla sed malesuada sollicitudin. Duis non nulla elementum justo pellentesque placerat. In varius odio eget est viverra tempus. Orci varius natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Mauris sit amet dui nunc. Sed varius ipsum felis, sit amet rhoncus mauris dapibus vitae. Aenean non ex vitae lacus cursus pellentesque. Nullam posuere odio eget laoreet rutrum. Donec tempus tempus vehicula. Proin eget placerat turpis. Curabitur ac massa felis. Mauris vitae lorem ante. Ut nisi nunc, feugiat eu vehicula eget, dapibus semper ipsum. Aenean est sapien, luctus sit amet risus ut, ullamcorper varius neque.

Mauris eu mauris mollis risus sagittis tempus ut in dui. In ornare convallis velit, ac sagittis massa. Integer vulputate a magna non elementum. Etiam at tincidunt orci. Sed efficitur velit diam. Nullam eu massa eu lectus convallis blandit vel sit amet sem. Proin iaculis, dui nec laoreet consequat, augue dui tempor augue, eget iaculis dui eros sit amet diam. Vivamus auctor vulputate scelerisque. Phasellus placerat lectus dui, vel varius nisl maximus a. Etiam sollicitudin augue eu neque finibus, vitae dignissim elit aliquet. Duis tellus turpis, scelerisque eget tincidunt a, ornare sed nisl. Class aptent taciti sociosqu ad litora torquent per conubia nostra, per inceptos himenaeos. Fusce finibus nisl sed tortor viverra commodo.

Best regards,
Tolga Üstünkök