Practical Object oriented design (Decorator & Adapter)

Solve the following problems.

Problem1: Clothing variations

The following program fragment implements variations in clothing by enumerating many possible combinations.

```
class Clothing { }
class Dress extends Clothing { }
class Costume extends Clothing { }
class VestAndCostume extends Costume { }
class TieAndCostume extends Costume { }
class TieAndVestAndCostume extends Costume { }
class BlouseAndDress extends Dress { }
```

The list is not exhaustive, many more combinations are possible, which gives an unmanageable and unmaintainable set of classes. How do you fix this by reorganizing the class structure? Provide the modified design.

Problem2: HTML expressions

We wish to have a way to create an HTML expression composed of some plain text, and any combination(allows repeating) of following HTML tags: , <a>,<u></u>,,. Botha <a> and tags require extra information, namely a value for "href" and "style" parameters respectively. Design a simple application that allows us to create proper HTML expressions using the above tags only. Here is some sample expression that could be created:

<u><span href= www.abc.com" style= "margin-left">hello html</u>

Problem3: Logger

You have a simple logger class that is used as a utility class by various programmers that work on your project. This class logs a text string to a file. As your project grows you anticipate adding different types of behaviors to the logger class dynamically during runtime as different programmers require different types of additional functionality, e.g., they could add a timestamp to a log message, change the case of the message, translate the log message into a different language or any combinations of these behaviors. What design pattern is useful to model this requirement? Give the resulting design.