

f. Explain the advantage and/or disadvantage of the design of part d and part e.

Whenever we have a tree structure it is best if we use a composite design pattern.

#### Advantage

- It enables hierarchical structures to be traversed and manipulated uniformly, promoting flexibility and easy to maintain.
- It makes it simple.
- Decouples the client code from the specific implementations of components and composites, making the system more flexible and easier to maintain.

#### Disadvantages

- Depending on the implementation, it may reduce type safety. For instance, if the component interface is too generic, clients may need to perform type checks and casts, which can lead to runtime errors.
- The pattern can introduce additional complexity, especially when dealing with large and deeply nested composite structures.