Lab 8: Template Method Pattern

The template method is used in the UI component. The UI component extends the "JFrame" abstract class. JFrame uses update() as a template method, where subclasses of JFrame uses paint(Graphics graphics) as their hook method and does not need to be overridden.

Task: Write a program to implement JFrame as a Template Method using Java swing Library. The **UI component of your project** overrides the paint method and displays an image based on the type of user (**Clinician or Patient**) that is logged in which it gets from the "User" class. Please add **UI** functionality for **your health monitoring system** (by simply inheriting the bult-in JFrame class and modifying the paint () method; sending messages and setting an Image as JTextField background)

Assignments Evaluation Criteria:

- Evaluation of UML models and modification according to a design pattern (15%)
- Code Implementation of design patterns (50%)
- Comments for code - must contain JavaDoc comments (15%)
- **Complete written report** (20%): Please describe
    - **when the Template pattern should be used,**
    - **why it should be used,**
    - **how should it be used in terms of this project - a basic implementation of it**
- Late assignment is subjected to 10% deduction per day if there is no valid reason

Note: override the paint method of superclass

```
public void paint(Graphics graphics){
…
ImageIcon img=new ImageIcon("BkgndImg.jpg");
 Image i=img.getImage();
 graphics.drawImage(i,0,0,this);
 super.paint(graphics);
…
}
```

Template Method Pattern Class Diagram

- The AbstractClass contains the template method.
- The template method makes use of the primitiveOperations to implement an algorithm. It is decoupled from the actual implementation of these operations.
- There may be many ConcreteClasses, each implementing the full set of operations required by the template method.

This pattern is all about creating a template for an algorithm. A template is a method that defines an algorithm as a set of steps. One or more of these steps is defined to be abstract and implemented by a subclass. This ensures the algorithm's structure stays unchanged, while subclasses provide some part of the implementation.