Sierpiński carpet - Swing & AWT

Fill in the dotted fields
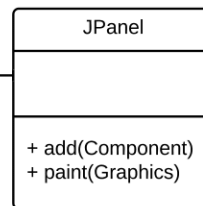
Pattern: Composite ....

(10)
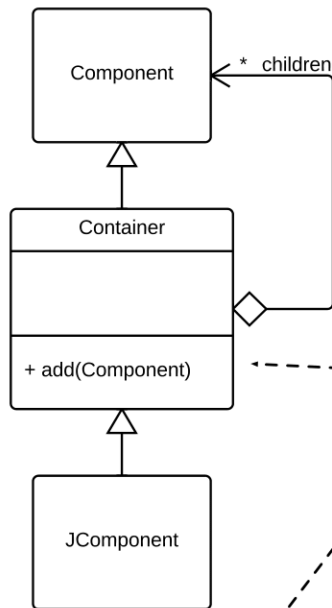
```
┌─────────────────────┐
│     Component       │ ◄──── *  children
│                     │
└─────────────────────┘
          △
          │
┌─────────────────────┐
│     Container       │
├─────────────────────┤
│                     │
├─────────────────────┤
│  + add(Component)   │ ◄┄┄┄┄   Role: Nodes in the structure
└─────────────────────┘
          △                                    ( 11 )
          │
┌─────────────────────┐
│    JComponent       │
│                     │
└─────────────────────┘
          △
          │
┌─────────────────────┐
│       JPanel        │
├─────────────────────┤
│                     │
├─────────────────────┤
│  + add(Component)   │
│  + paint(Graphics)  │
└─────────────────────┘
```

```
┌───────────────────────────────────────┐
│               JButton                  │
├───────────────────────────────────────┤
│                                        │
├───────────────────────────────────────┤
│ + add(Component)                       │
│ + paint(Graphics)                      │
│                             MouseListener    ( 14 )
│ + addMouseListener(..................)  │
│ + addActionListener(...ActionListen....)│
│ # fireActionPerformed(ActionEvent)     │
└───────────────────────────────────────┘
          ◇                    ◇
```

Pattern #1
···

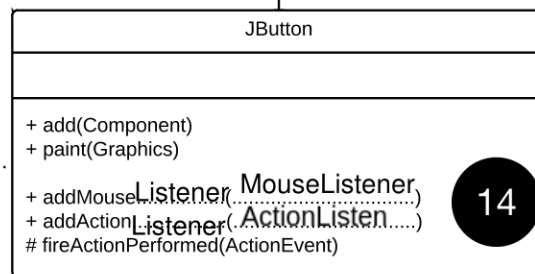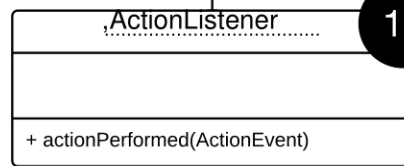**Pattern #2**

Provides operations to
add/remove observers and an
operation to notify them when its
state changes

Role: ....   MouseListener
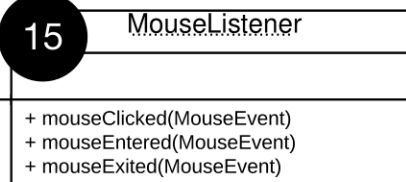
(13)

```
┌─────────────────────────┐        ┌───────────────────────────────┐
│  ,ActionListener         │        │         MouseListener          │
├──────────────( 16 )──────┤  ( 15 )├───────────────────────────────┤
│                          │     *  │                                │
├─────────────────────────┤        │ + mouseClicked(MouseEvent)     │
│ + actionPerformed(ActionEvent) │  │ + mouseEntered(MouseEvent)     │
└─────────────────────────┘        │ + mouseExited(MouseEvent)      │
                                   └───────────────────────────────┘
```

Role: ....

(12)

Pattern: Observer ....

(17)

listens for an event (event listeners)

Streams

Fill in the dotted fields

Interface of objects, that allows for dynamic
and transparent extensions of the functionality

Role: .... **(2)**

Holds a reference to
Component and is a
Component itself

Role: .... **(3)**

InputStream

+ read(): int

\# in
1

FilterInputStream

+ FilterInputStream(.....InputStream.................)   **(4)**
+ read(): int

Checksum

- cksum   1

CheckedInputStream

+CheckedInputStream(..InputStream......, ...Checksum.......)   **(5)**
+ read(): int
+ get.Checksum.................() : ......Checksum..........   **(6)**

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(7) ....File.........**InputStream**

+ read(): int

A concrete object type which
functionality can be dynamically
Role.modified.............   **(8)**

The current interface that we
want to adapt to ours

Role:A concrete decorator   **(9)**

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(1) Pattern: Decorator
....