
IPM 12/13 – P3

Layout Managers

Licenciatura em Ciência de Computadores

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Summary

- Containers and Layout Managers

Containers

- **java.awt.Container**

A generic Abstract Window Toolkit(AWT) container object is a **component** that can **contain other AWT components**.

- We can have containers inside containers.
- Helps us create adaptable interfaces.
- Uses LayoutManagers

Types of containers

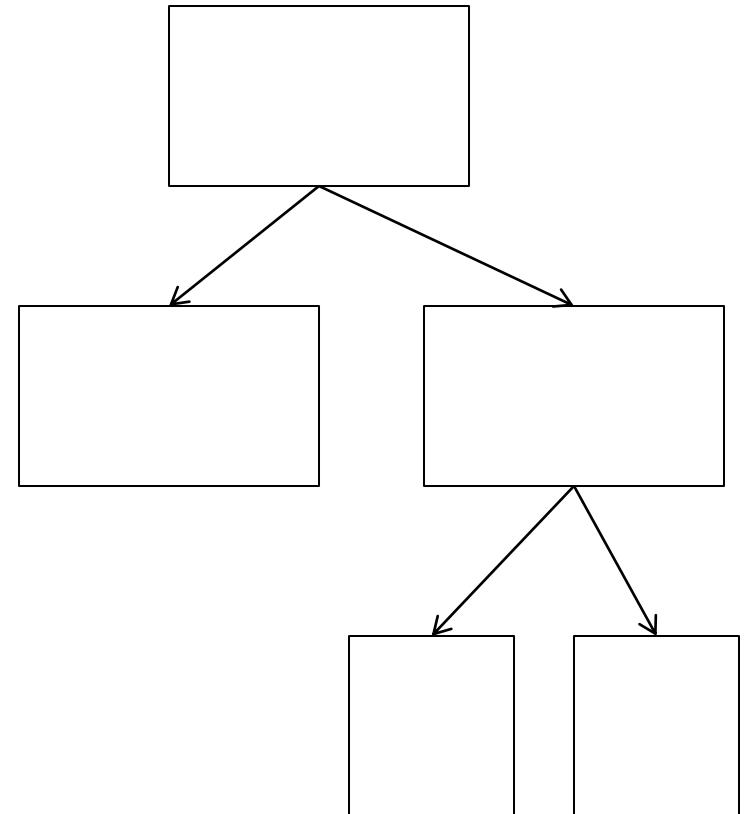
- **Applet**
 - Top container for embedded graphical applications.
- **Panel**
 - Groups objects in an inner window.
- **Frame**
 - Groups objects in a top window.
- **Window**
 - Top borderless window.
- **Other**
 - ScrollPane
 - Dialog

Layout Managers

- Defines an interface for classes that know how to lay out **Containers**.
- Examples:
 - FlowLayout
 - BorderLayout
 - CardLayout
 - GridLayout
 - GridBagLayout

Positioning

- Hierarchical
 - Multi-level.
 - *Master* and *Slave* components.
 - Bottom-up evaluation.
 - Dimensions according to **child** dimensions.
 - Positions according to **brother** positions.



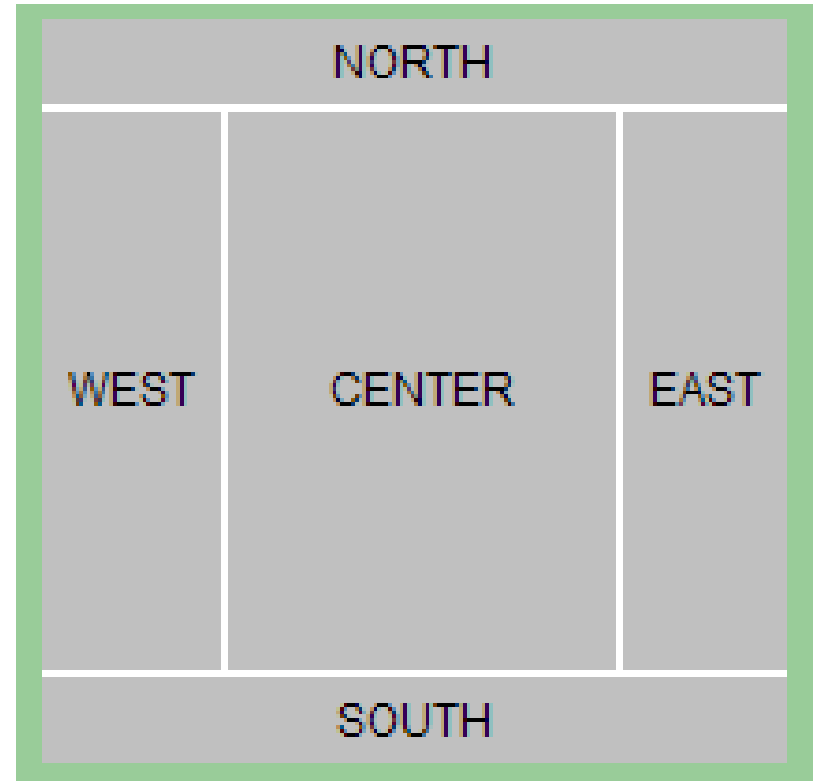
LM: BorderLayout

- **Strategy**

- Divide the container in 5 areas: north, south, east, west, center.
- Associate a component to the center area.
- Associate a position to all the other ones.

- **Notes**

- Works well for a small number of components.
- Explores spatial relationships between components.
- Not all positions need to be filled.



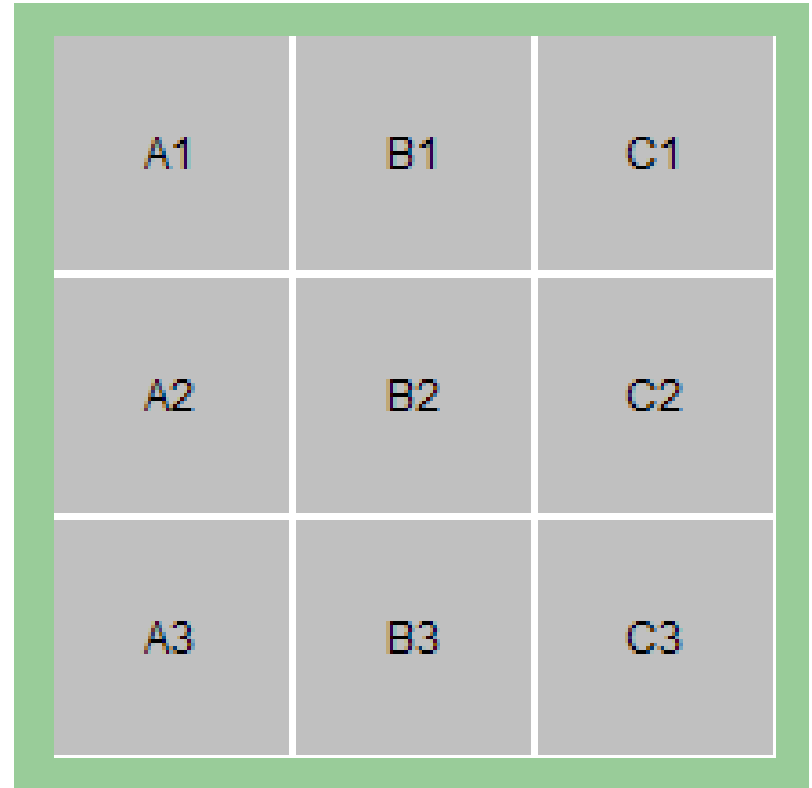
LM: GridLayout

- **Strategy**

- Divide the container in lines and columns.
- Place components sequentially on each cell.

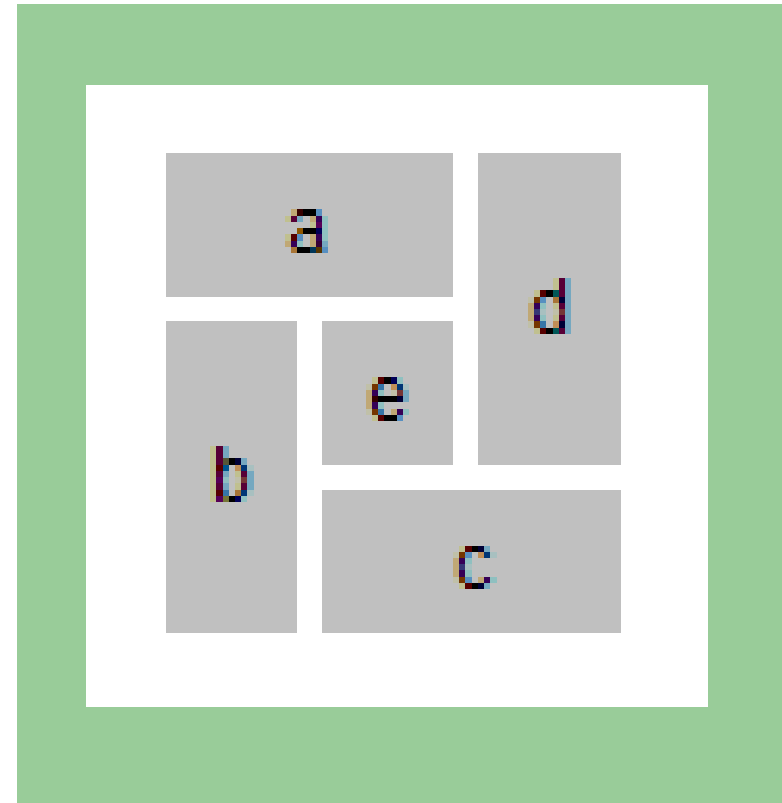
- **Notes**

- Can work with a large number of components.
- Very simple organization.
- Can't have empty slots.



LM: GridBagLayout

- **Strategy**
 - Divide the container in lines and columns.
 - Apply restrictions to containers.
- **Notes**
 - Can work with a large number of components.
 - High degree of control over grid positioning.
 - More complex to use.



Resources

1. Developer Resources for Java
Technology

<http://java.sun.com/>

2. Essentials of the Java programming
language

<http://java.sun.com/developer/onlineTraining/Programming/BasicJava1/>