IPM 11/12 – P3
Layout Managers

Licenciatura em Ciência de Computadores

Miguel Tavares Coimbra

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

U. PORTO F C

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
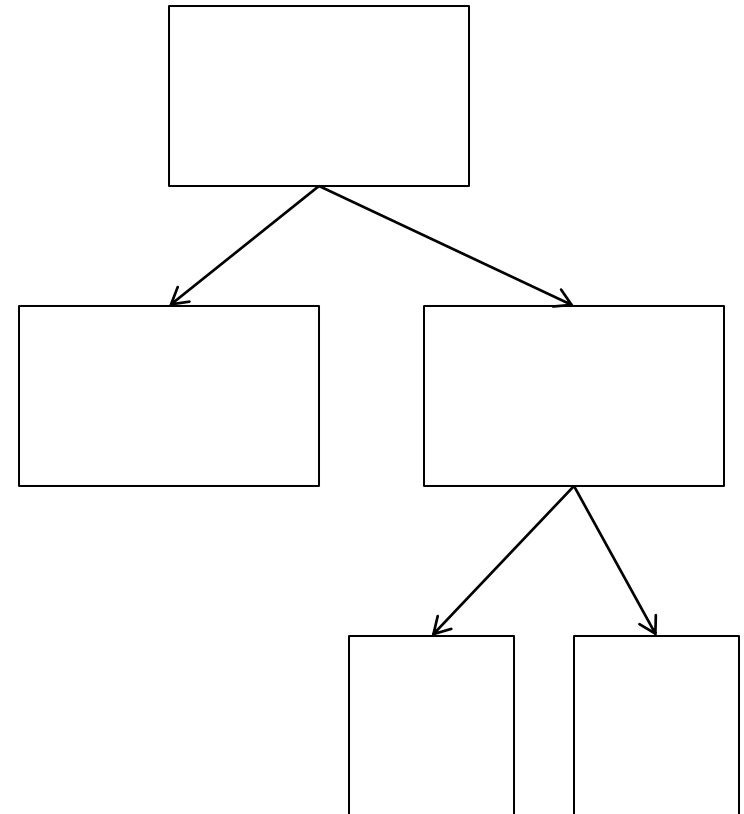
Layout Managers

- Defines an interface for classes that know how to lay out **Containers**.

- Examples:
  - FlowLayout
  - BorderLayout
  - CardLayout
  - GridLayout
  - GridBagLayout

Positioning

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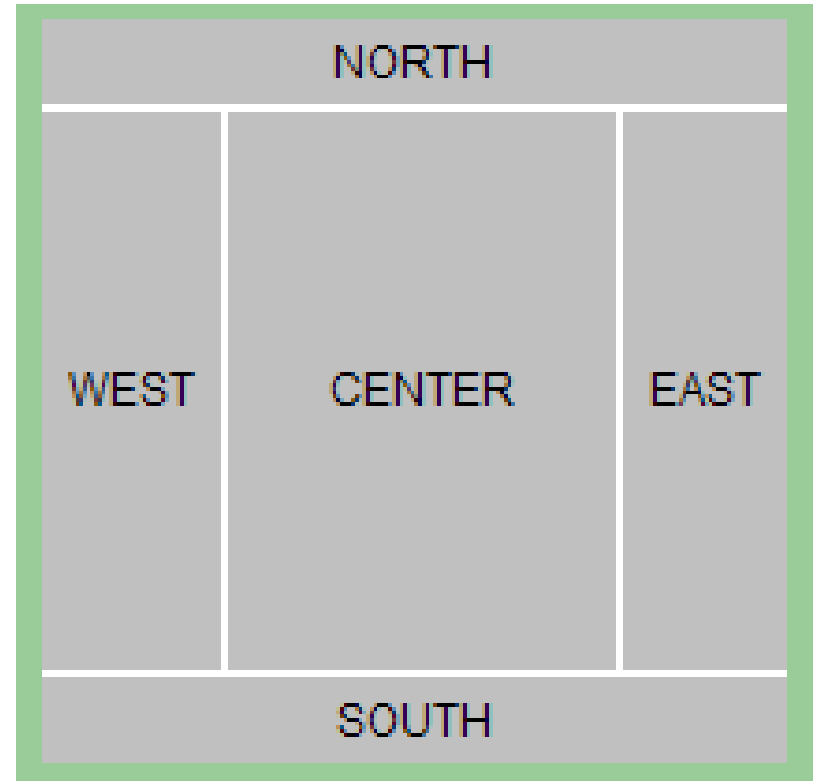   - Positions according to **brother** positions.

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.
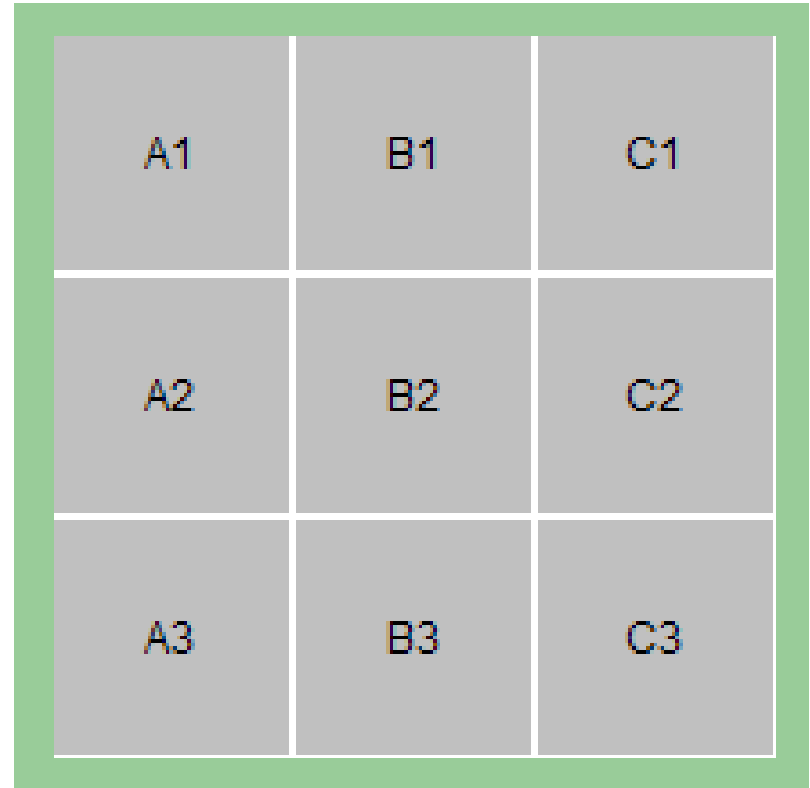 - Not all positions need to be filled.

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.
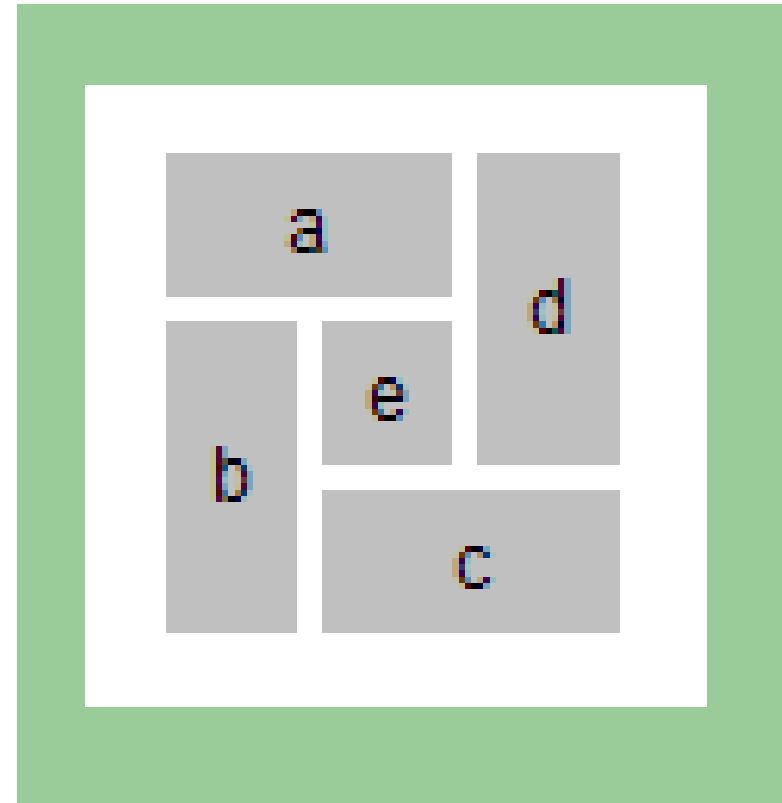 - Very simple organization.
  - Can't have empty slots.

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/