Layout Managers:

The Layout Managers are used to arrange components in a particular manner. Layout Manager is an interface that is implemented by all the classes of layout managers. There are

1. java.awt.BorderLayout
2. java.awt.FlowLayout
3. java.awt.GridLayout
4. java.awt.CardLayout
5. javax.swing.BoxLayout

Border Layout:

The Border Layout is used to arrange the components in five regions: north, south, east, west and center. Each region (area) may contain one component only. It is the default layout of frame or window. The Border Layout provides five constants for each region:

1. **public static final int NORTH**
2. **public static final int SOUTH**
3. **public static final int EAST**
4. **public static final int WEST**
5. **public static final int CENTER**

Constructors :

* **BorderLayout():** creates a border layout but with no gaps between the components.
* **JBorderLayout(int hgap, int vgap):** creates a border layout with the given horizontal and vertical gaps between the components.

GridLayout

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| The GridLayout is used to arrange the components in rectangular grid. One component is displayed in each rectangle. |

Constructors:

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| 1. **GridLayout():** creates a grid layout with one column per component in a row. 2. **GridLayout(int rows, int columns):** creates a grid layout with the given rows and columns but no gaps between the components. 3. **GridLayout(int rows, int columns, int hgap, int vgap):** creates a grid layout with the given rows and columns alongwith given horizontal and vertical gaps. |

FlowLayout

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| The FlowLayout is used to arrange the components in a line, one after another (in a flow). It is the default layout of applet or panel. |

Fields of FlowLayout:

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| 1. **public static final int LEFT** 2. **public static final int RIGHT** 3. **public static final int CENTER** 4. **public static final int LEADING** 5. **public static final int TRAILING** |

Constructors:

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| 1. **FlowLayout():** creates a flow layout with centered alignment and a default 5 unit horizontal and vertical gap. 2. **FlowLayout(int align):** creates a flow layout with the given alignment and a default 5 unit horizontal and vertical gap. 3. **FlowLayout(int align, int hgap, int vgap):** creates a flow layout with the given alignment and the given horizontal and vertical gap. |

# BoxLayout class:

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| The BoxLayout is used to arrange the components either vertically or horizontally. For this purpose, BoxLayout provides four constants. They are as follows: |

#### Note: BoxLayout class is found in javax.swing package.

### Fields of BoxLayout:

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| 1. **public static final int X\_AXIS** 2. **public static final int Y\_AXIS** 3. **public static final int LINE\_AXIS** 4. **public static final int PAGE\_AXIS** |

### Constructor:

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| 1. **BoxLayout(Container c, int axis):** creates a box layout that arranges the components with the given axis. |

CardLayout

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| The CardLayout class manages the components in such a manner that only one component is visible at a time. It treats each component as a card that is why it is known as CardLayout. |

Constructors:

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| 1. **CardLayout():** creates a card layout with zero horizontal and vertical gap. 2. **CardLayout(int hgap, int vgap):** creates a card layout with the given horizontal and vertical gap. |

methods of CardLayout class:

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| * **public void next(Container parent):** is used to flip to the next card of the given container. * **public void previous(Container parent):** is used to flip to the previous card of the given container. * **public void first(Container parent):** is used to flip to the first card of the given container. * **public void last(Container parent):** is used to flip to the last card of the given container. * **public void show(Container parent, String name):** is used to flip to the specified card with the given name. |