



University  
of Basel

# Programmieren I

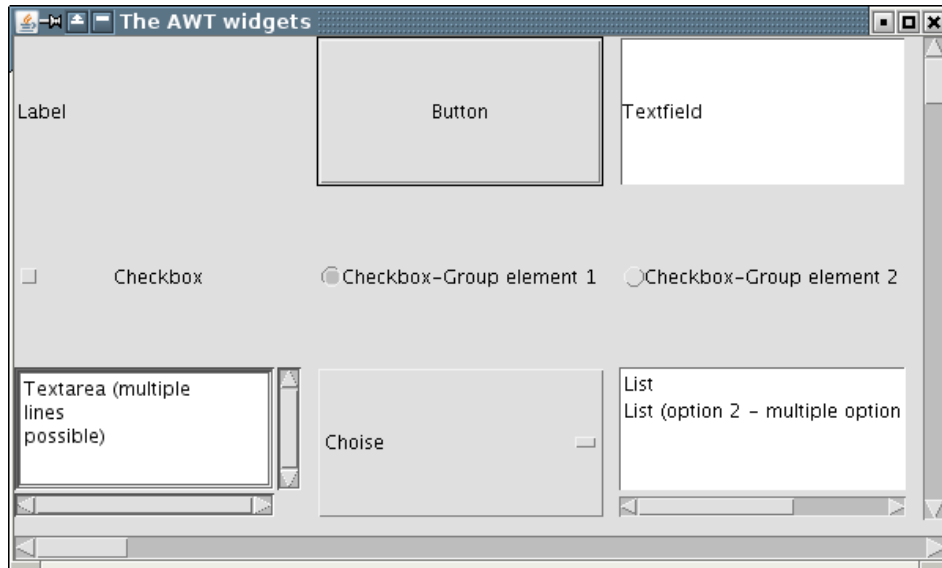
## Woche 5 – Eine einfache Grafische Anwendung

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# Java AWT / Swing

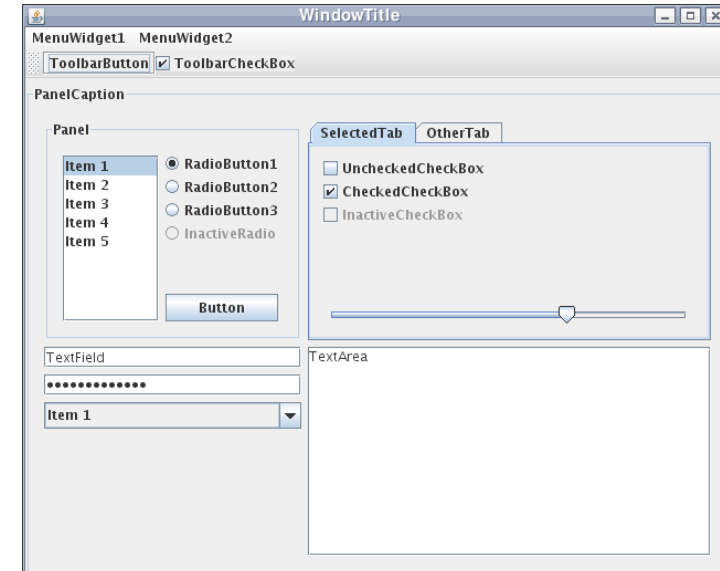
## Abstract Window Toolkit (AWT)

- Erstes Toolkit für Programmierung grafischer Oberflächen
- Langsam – Verstaubtes Look & Feel



## Swing

- Modernisierung von AWT
- Offizieller Bestandteil der Java Runtime seit 1.2 (1998)



*Swing nutzt Funktionalität von AWT*

# Arbeiten mit AWT / Swing

- Riesiger Klassenumfang
- Nicht möglich alle Funktionalität zu kennen

## Ansatz

- Tutorials lesen
- Beispielprogramme suchen und anpassen
- Dokumentation der Klassen anschauen

The screenshot shows the Java Platform Standard Ed. 7 documentation for the `Interface Action`. The left sidebar lists various classes and packages, including `javax.swing` and `javax.swing.plaf`. The main content area displays the following information:

- Overview**: Package, Class, Use, Tree, Deprecated, Index, Help
- Prev Class**, **Next Class**, **Frames**, **No Frames**
- Summary**: Nested | Field | Constr | Method | **Detail**: Field | Constr | Method
- Interface Action**
- All Superinterfaces**: `ActionListener`, `EventListener`
- All Known Implementing Classes**: `AbstractAction`, `BasicDesktopPaneUI.CloseAction`, `BasicDesktopPaneUI.MaximizeAction`, `BasicDesktopPaneUI.MinimizeAction`, `BasicDesktopPaneUI.NavigateAction`, `BasicDesktopPaneUI.OpenAction`, `BasicFileChooserUI.ApproveSelectionAction`, `BasicFileChooserUI.CancelSelectionAction`, `BasicFileChooserUI.ChangeToParentDirectoryAction`, `BasicFileChooserUI.GoHomeAction`, `BasicFileChooserUI.NewFolderAction`, `BasicFileChooserUI.UpdateAction`, `BasicInternalFrameTitlePane.CloseAction`, `BasicInternalFrameTitlePane.IconifyAction`, `BasicInternalFrameTitlePane.MaximizeAction`, `BasicInternalFrameTitlePane.MoveAction`, `BasicInternalFrameTitlePane.RestoreAction`, `BasicInternalFrameTitlePane.SizeAction`, `BasicSliderUI.ActionScroller`, `BasicTreeUI.TreeCancelEditingAction`, `BasicTreeUI.TreeHomeAction`, `BasicTreeUI.TreeIncrementAction`, `BasicTreeUI.TreePageAction`, `BasicTreeUI.TreeToggleAction`, `BasicTreeUI.TreeTraverseAction`, `DefaultEditorKit.BeepAction`, `DefaultEditorKit.CopyAction`, `DefaultEditorKit.CutAction`, `DefaultEditorKit.DefaultKeyTypedAction`, `DefaultEditorKit.InsertBreakAction`, `DefaultEditorKit.InsertContentAction`, `DefaultEditorKit.InsertTabAction`, `DefaultEditorKit.PasteAction`, `HTMLToolkit.HTMLTextAction`

# Guter Startpunkt

## The Java™ Tutorials

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### Using Swing Components

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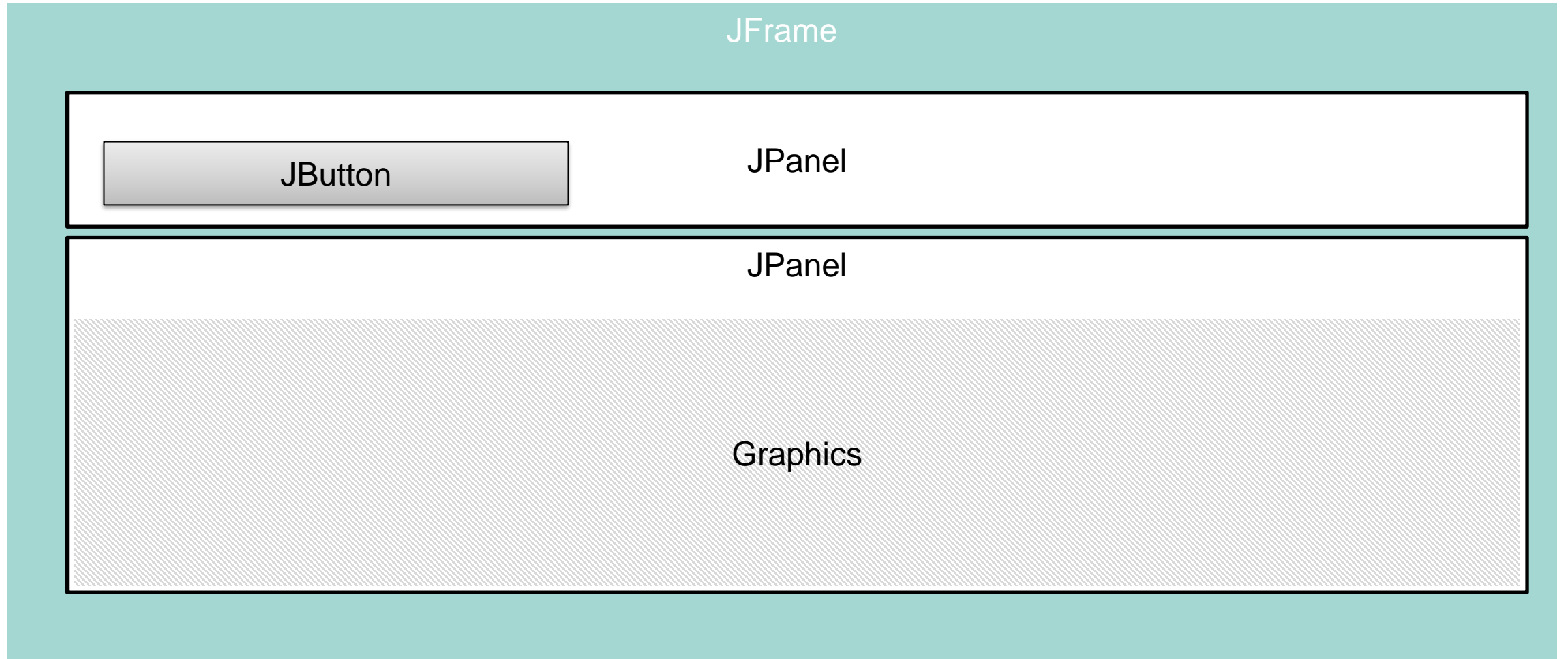
*The Java Tutorials have been written for JDK 8. Examples and practices described in this page don't take advantage of improvements introduced in later releases and might use technology no longer available. See [JDK Release Notes](#) for information about new features, enhancements, and removed or deprecated options for all JDK releases.*

## Lesson: Using Swing Components

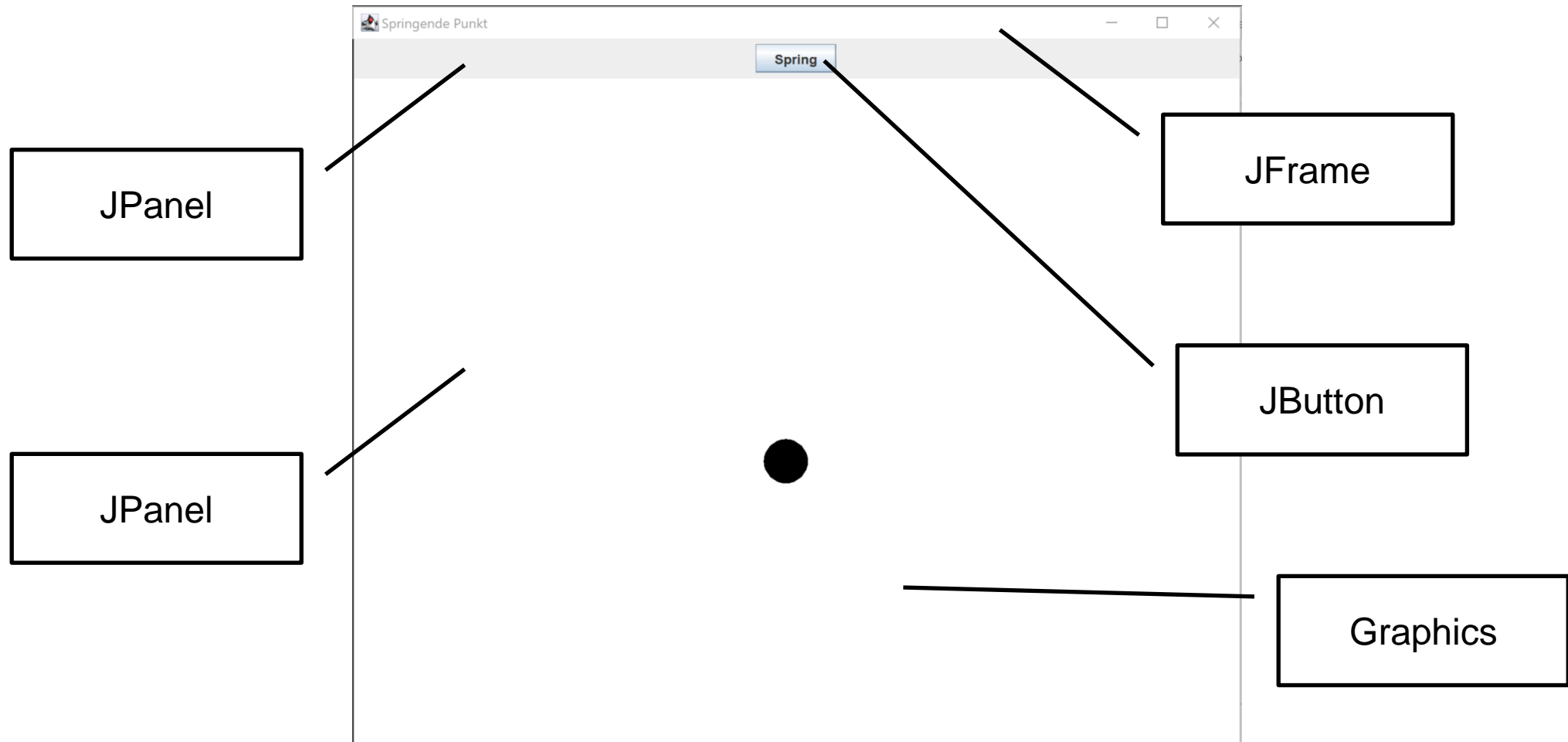
[Examples Index](#)

This lesson gives you the background information you need to use the Swing components, and then describes every Swing component. It assumes that you have successfully compiled and run a program that uses Swing components, and that you are familiar with basic Swing concepts. These prerequisites are covered in [Getting Started with Swing](#) and [Learning Swing with the NetBeans IDE](#).

# Unsere Grafische Anwendung



# Unsere Beispielanwendung



# Event-handling

Reaktionen auf Eingaben von Nutzer via Event

- Komponente ruft EventListener mit aufgerufenem Event auf
- EventListener reagiert auf Event

```
interface ActionListener {  
    void actionPerformed(ActionEvent e)  
}  
  
class JButton {  
    ...  
    void addActionListener(ActionListener l)  
    void fireActionPerformed(ActionEvent event)  
    ...  
}
```

---

# Randnotiz: Import Statement

AWT und Swing Komponenten leben in eigener Bibliothek

- Müssen vor Gebrauch mittels `import` verfügbar gemacht werden

Beispiel:

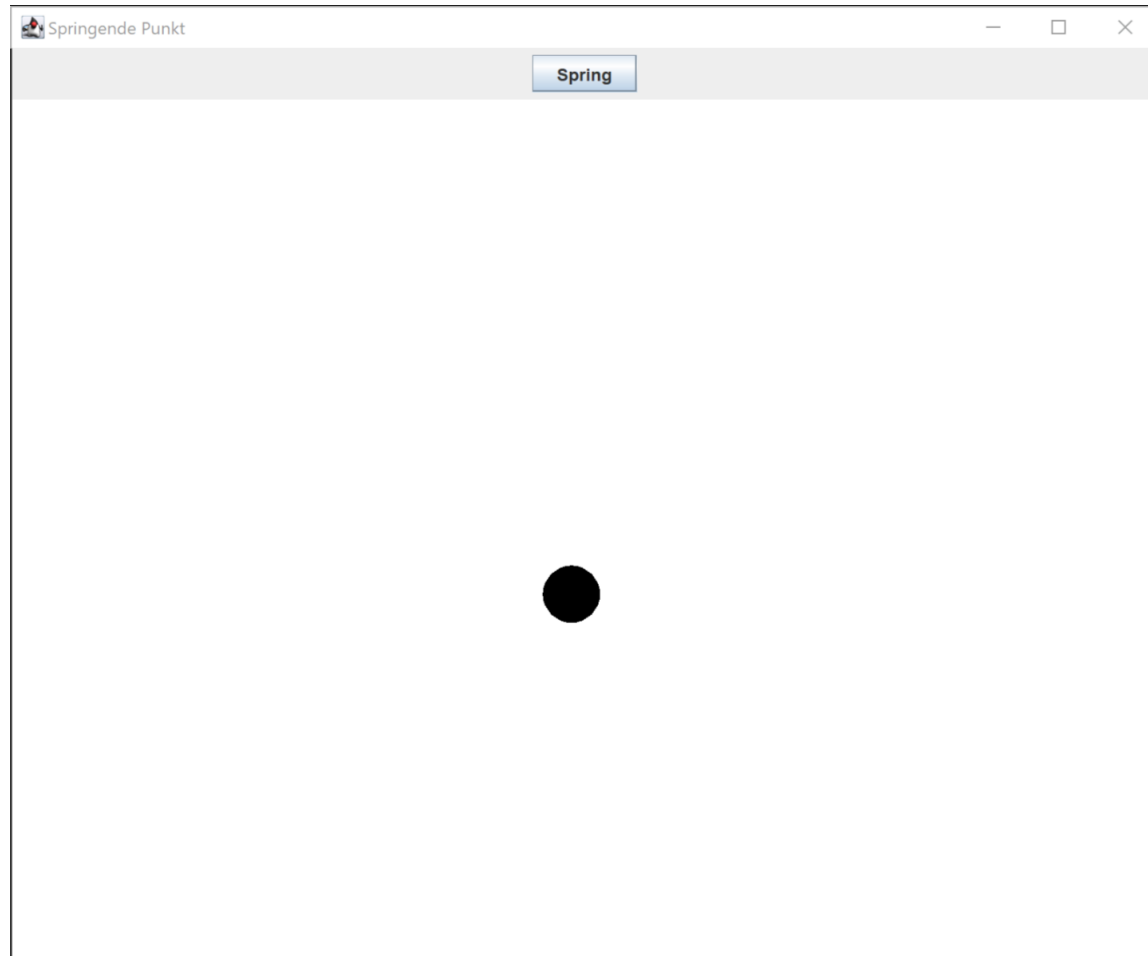
```
// Klasse JFrame aus Bibliothek importieren  
import javax.swing.JFrame;
```

```
// Nutzung  
JFrame frame = new JFrame();
```

---



# Beispielanwendung: Der Springende Punkt



Einfaches Gerüst für eigene Anwendungen

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