



## JMorph Adaptation Toolkit

### Overview

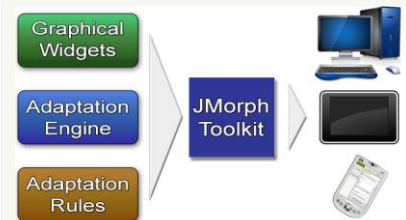
JMorph Widget Toolkit is an adaptation development toolkit for building **accessible** and **self-adapted user interfaces** -in terms of context of use and user requirements- which can achieve **personalized accessibility and usability**.

To simplify the design and development of self-adapted JAVA-based user interfaces, the JMorph Adaptation Toolkit reduces adaptation-related complexity for designers and developers by:

- Embedding design knowledge directly in enhanced common interaction widgets (e.g., buttons, sliders, date pickers, etc.) capable of adapting themselves according to an externally-encoded adaptation logic
- Making them available through the NetBeans GUI Builder as graphical elements that allow designers to define and preview alternative adaptations, and create adaptable user interfaces within their normal workflow.

JMorph facilitates the design and development of adaptable user interfaces suitable for diverse target user groups without requiring in-depth design knowledge regarding the specific target user population. In particular, the toolkit:

- facilitates the development of interactive applications and services for different platforms
- provides various accessibility components that can be used across a range of interaction devices
- enables the personalization of interactions, as well as automatic tailoring to device capabilities and characteristics
- facilitates the rapid prototyping of adaptable interfaces for a range of supported devices.



*JMorph Toolkit integrates facilities to support adaptation in a wide range of devices*



*Alternative User Interfaces can support adaptation across various dimensions (color themes, sizing, component layout, etc.)*

### Target Applications

The JMorph Adaptation Toolkit can be used to implement JAVA-based interactive applications that integrate Graphical User Interface in various domains. Indicatively it has been already used in applications that offered AAL facilities for the elderly (including users that suffered from chronic conditions).

## Description

JMorph practically supports developers by ensuring:

- ❑ **maintainability**, as a single point modification can automatically affect the entire user interface system without the need for manual propagation
- ❑ **scalability**, as extensions can be added as plug-ins
- ❑ **usability**, as decision-making complexity and adaptation mechanism are encapsulated into every widget, whereas logic modifications can be implemented either before use or during use

Each widget in the Adaptable Widget Library inherently supports adaptation in a way transparent to developers, who can use them as “traditional” UI building blocks. To do so, each widget encloses a list of its adaptation attributes and when instructed to adapt itself, it evaluates each attribute and applies the corresponding decision.

User interface adaptation is achieved at run-time, but also previewed at design-time, thus making it possible for designers and developers to view different user interface instances before completing the development.

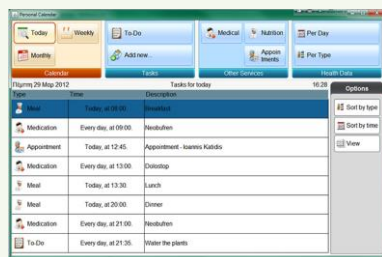
## Examples of adaptable applications developed with the JMorph Adaptation Toolkit



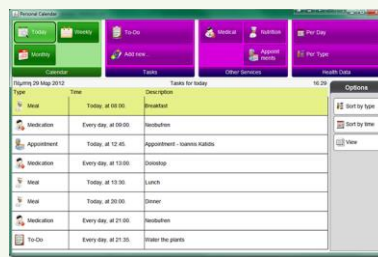
*Poker for the Elderly  
(advanced player)*



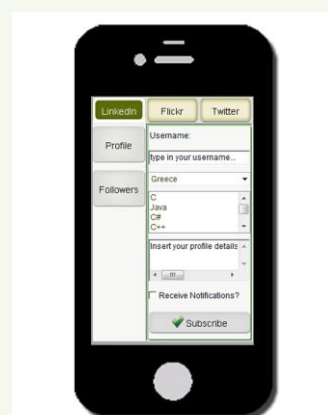
*Poker for the Elderly  
(simplified version)*



*Personal Calendar (normal version)*



*Personal Calendar (vision defects)*



*Adaptable UI for mobile devices*

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