











Do's and Don'ts for Swing Applications

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Founder **JGoodies** www.JGoodies.com

TS-1099

It's Easy to Program Swing...





It's Easy to Program Swing Badly







Goal

Learn how to quickly improve the appearance of your applications





Introduction

Don'ts

Do's

Tips and Tricks





Introduction

Don'ts

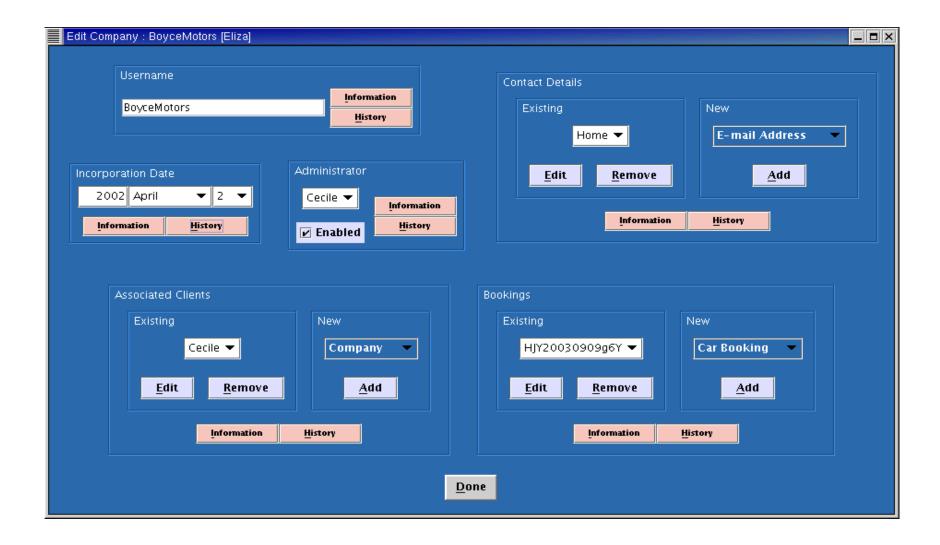
Do's

Tips and Tricks













What's the Problem?

- User interface is poor, ugly or horrible
- Good design is difficult to implement
- Swing is difficult to learn and work with
- Tutorials, manuals, books show poor design
- Hard to find good examples

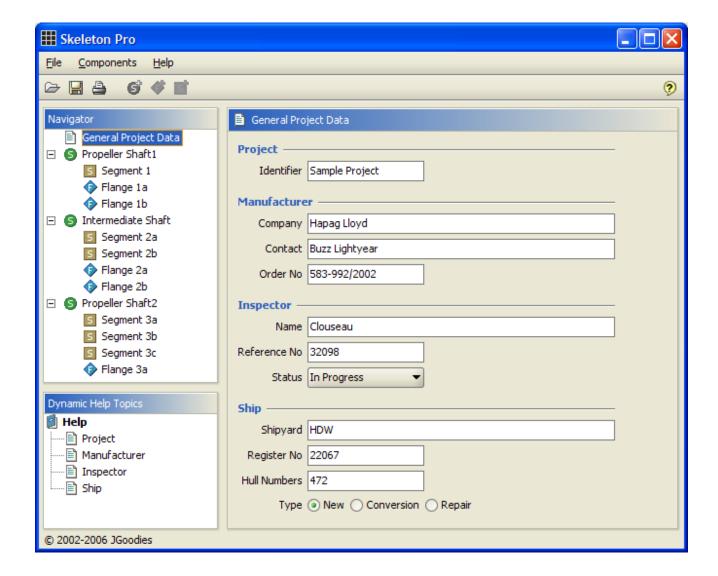




What Is Our Focus?

- Good design you can do
- Things you can improve quickly
- Form-oriented design
- Compete with native apps
- More design fun





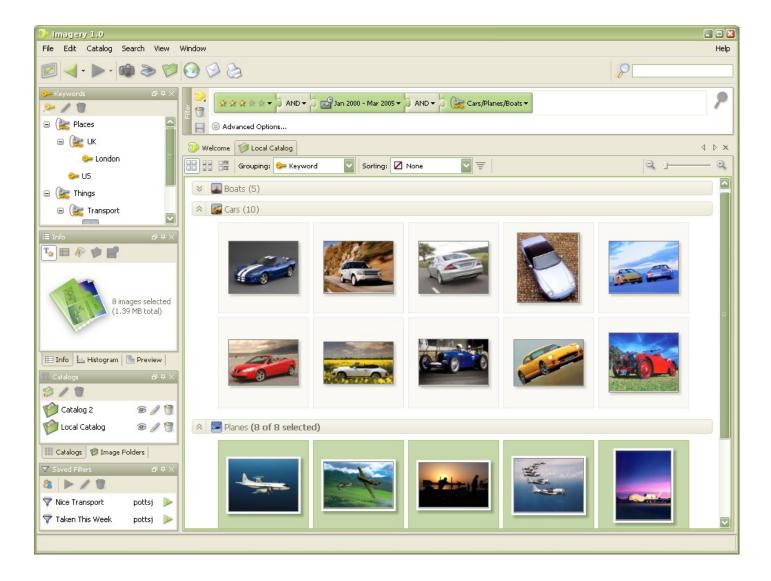




Target

- The "average" desktop project:
 - Developers not trained in visual design
 - Little time for designing the UI
 - No budget for usability tests
 - Customers that don't pay for good design









Principles

- Small changes can break the design balance
- Small things add up
- Direct attention to the content, not the design
- Change only what you understand well!
- Don't touch what you don't understand!





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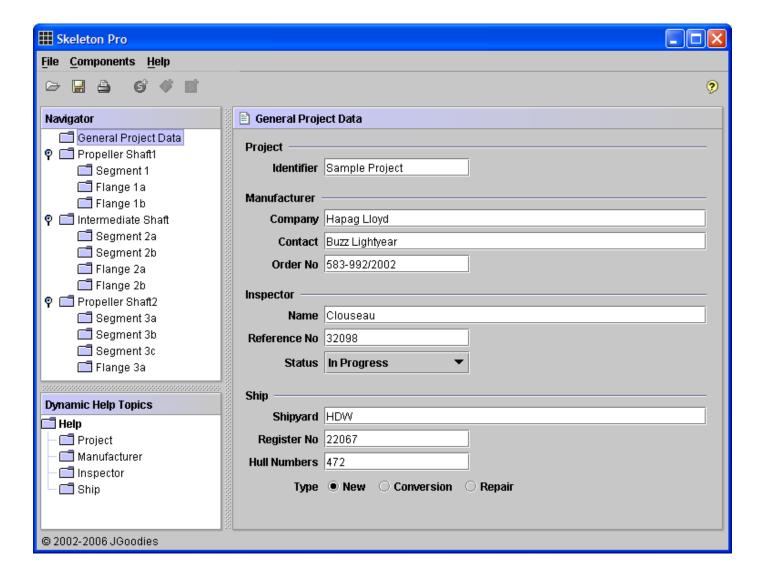




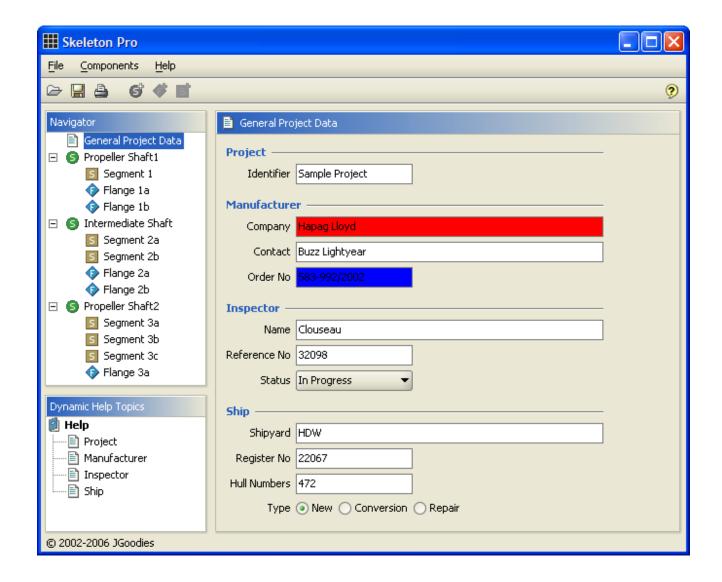
Don't Change Colors!

- Do not add colors to the desktop
- Do not add colors to the Swing L&F
- Avoid heavily saturated colors

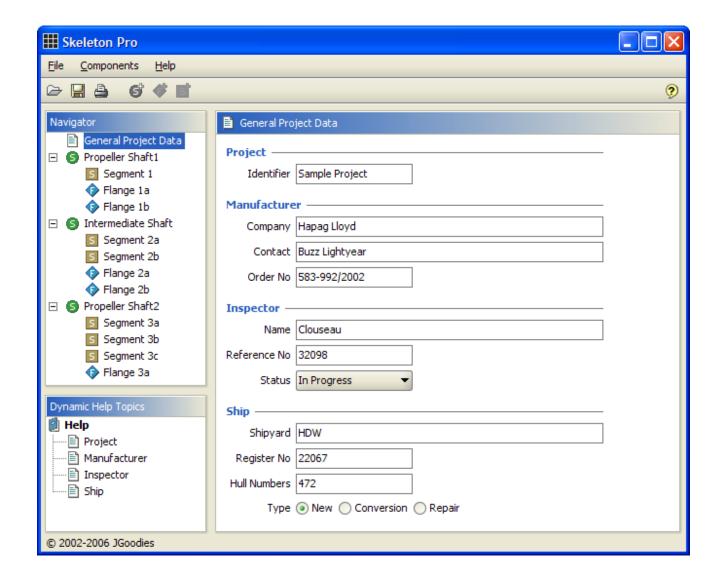




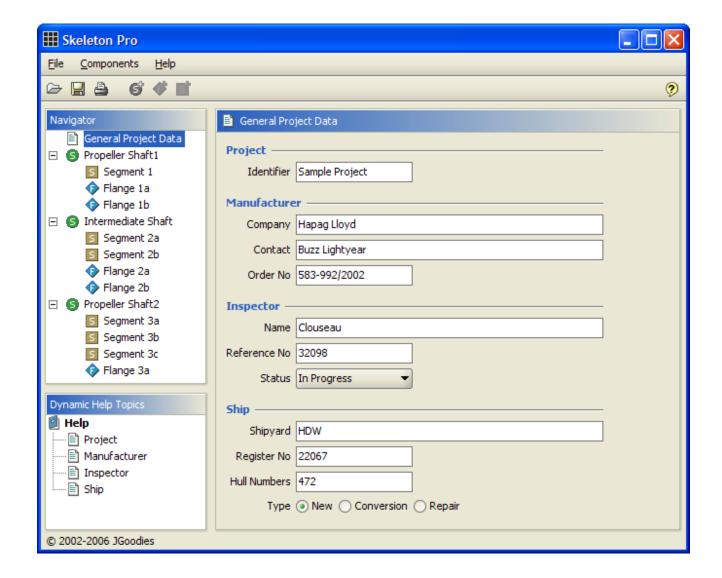




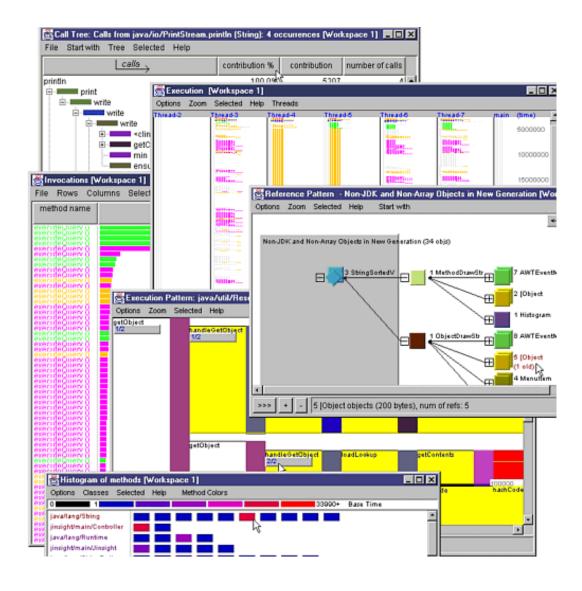














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aths Table					
Call Stack Prefix	Access	Table Access	Depth	Count	Clock Total 🔻
				21,381	1,161,153,679
deliverPO	- Read-Write		16	*4,548	*145,503,24
⊗ scheduleWorkOrder ■ S	🔡 Read-Write	70 mm	34	113	141,970,94
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🕙 🕶 scheduleWorkOrder	Read-Write	m_parts	34	615	128,048,28
🖲 💌 scheduleWorkOrder	🔡 Read-Write	T	37	81	90,492,22
🔃 🕙 🕶 scheduleWorkOrder	Read-Write	46.00	30	279	68,705,33
ScheduleWorkOrder	🔡 Read-Write	70 mm	38	54	48,657,11
ScheduleWorkOrder	Read-Write	46.00	33	189	45,416,50
□ updateWorkOrder	- Read-Write	-	5	4,002	40,284,44
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	- Read-Write		12	1,997	32,633,31



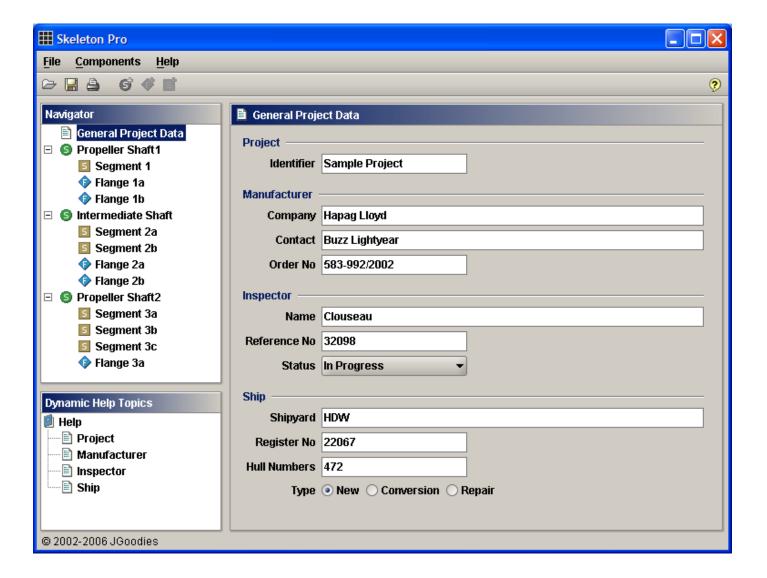


Don't Change Fonts!

- Use native fonts
- Use native font sizes
- Use native font weights (normal vs. bold)
- Raster fonts like the native rasterizer (pixel, anti-aliased, subpixel-AA)

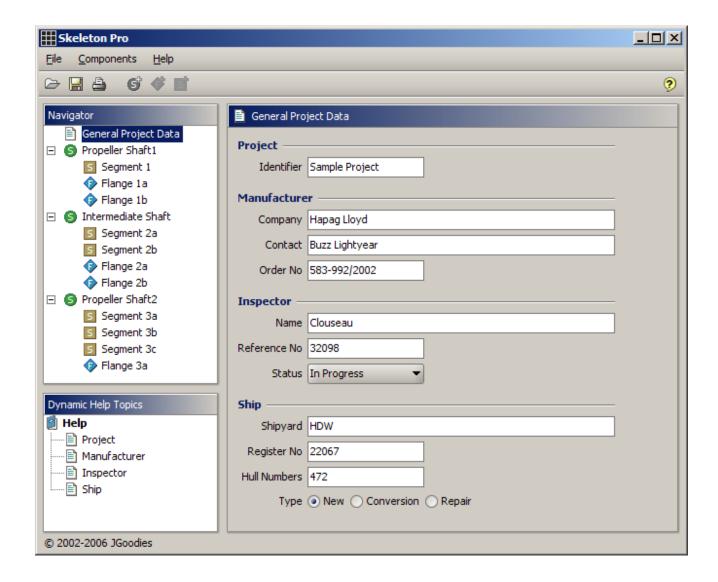












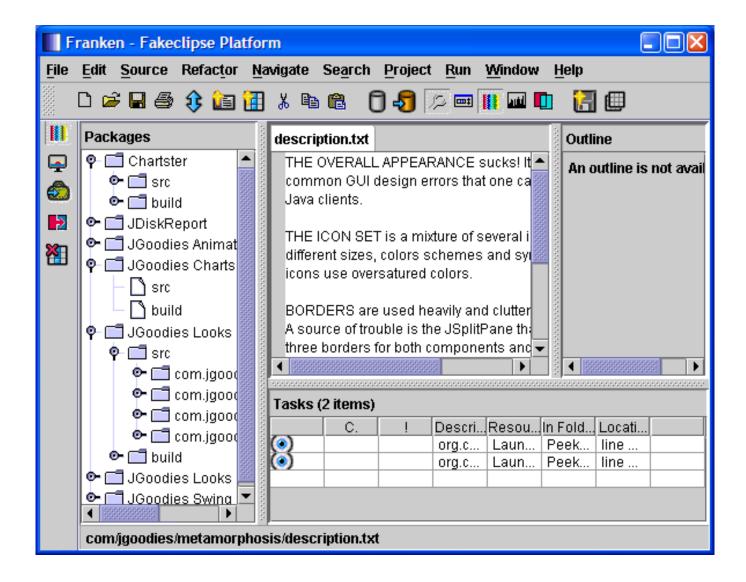




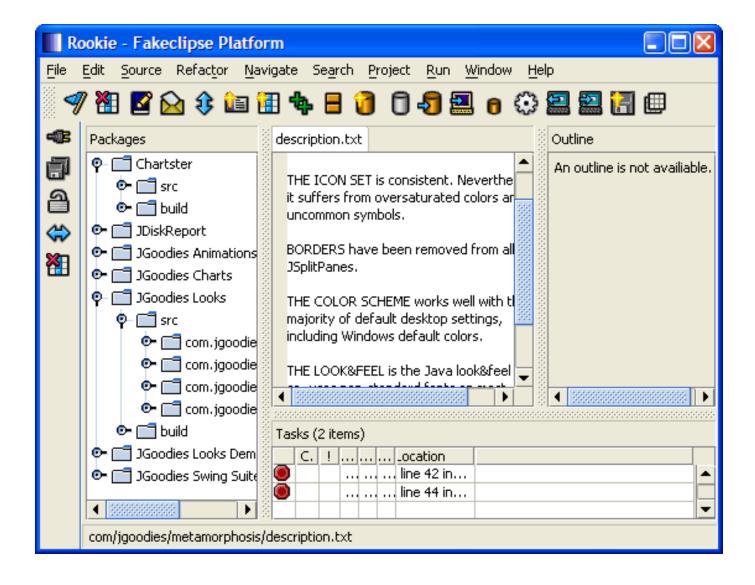
Don't Break the Icon Design!

- Use icons that work well with the OS, w.r.t.
 - Design, size, color scheme
- Use a consistent icon set
- Remove questionable icons

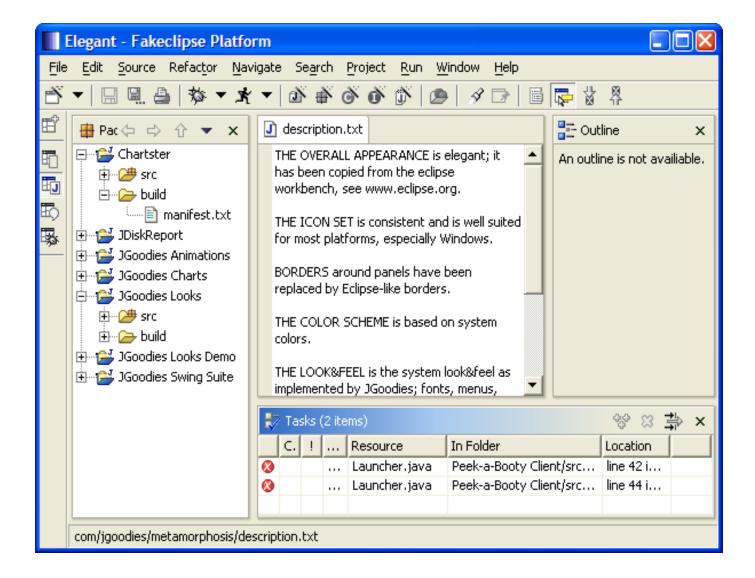
















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Remove Clutter!

- Remove clutter and visual noise
- Remove duplicate borders
- Favor separators over (titled) borders
- Write short texts



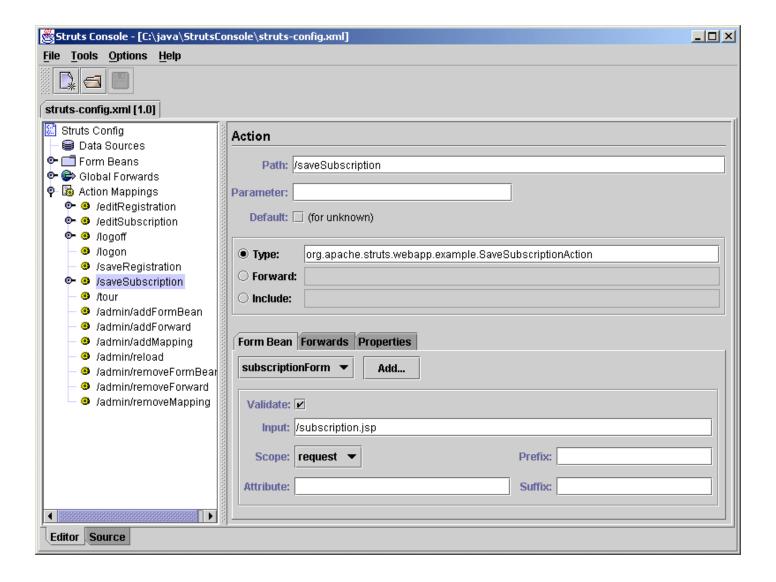


Reduce Design to Its Essence!

- Does it add information?
- Check every
 - Pixel
 - Line
 - Border
 - Element
 - Panel
 - Dialog

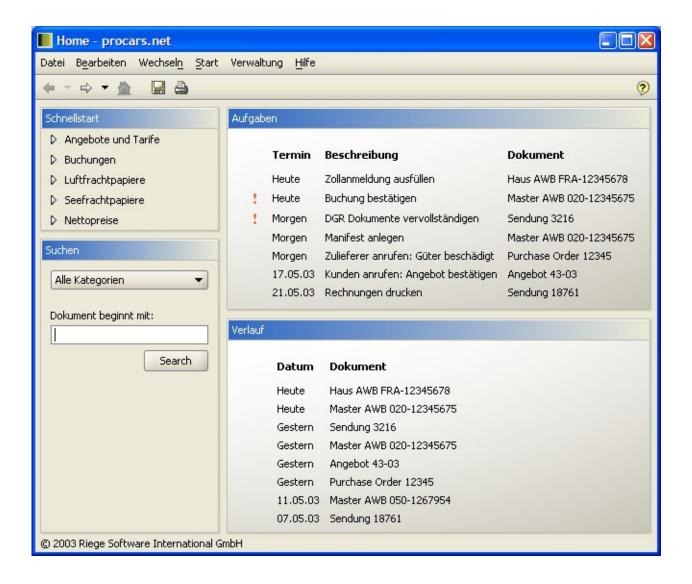














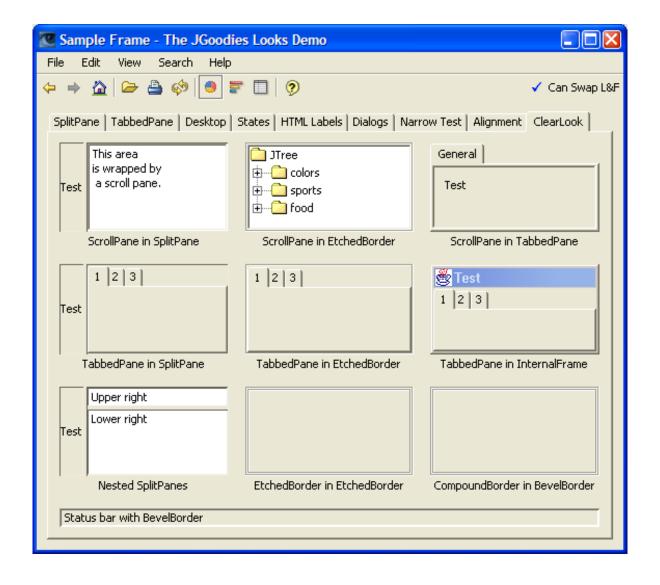


Critical Components

- Remove unnecessary JSplitPane borders
- Remove unnecessary JScrollPane borders
- Avoid nested borders
- Avoid BevelBorders
- Avoid TitledBorders

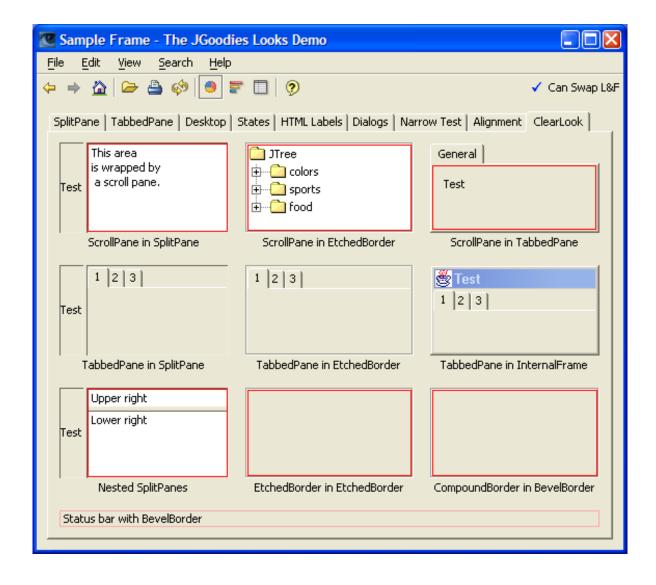












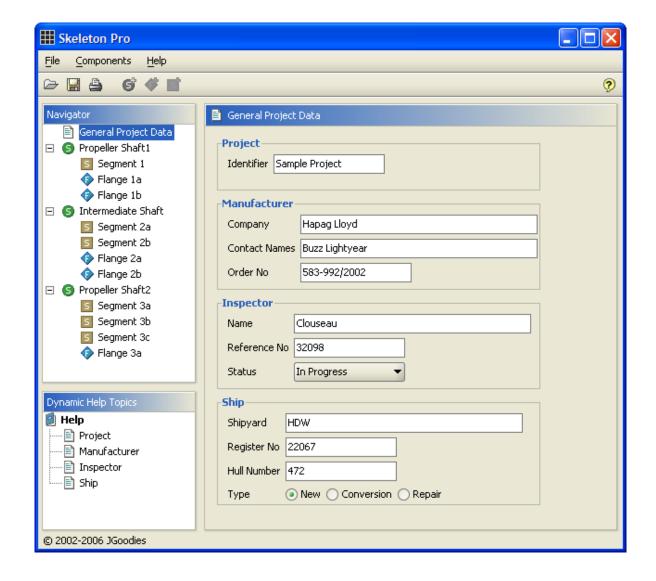




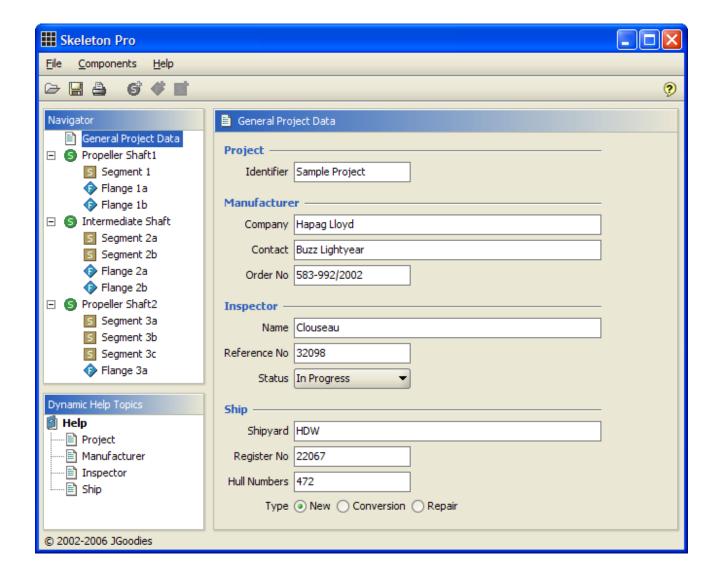
Use TitledBorder Carefully!

- Often has 3 unnecessary lines
- Difficult to align
- Difficult to align its content
- Favor separators over TitledBorders
- If you need TitledBorders, don't nest them!

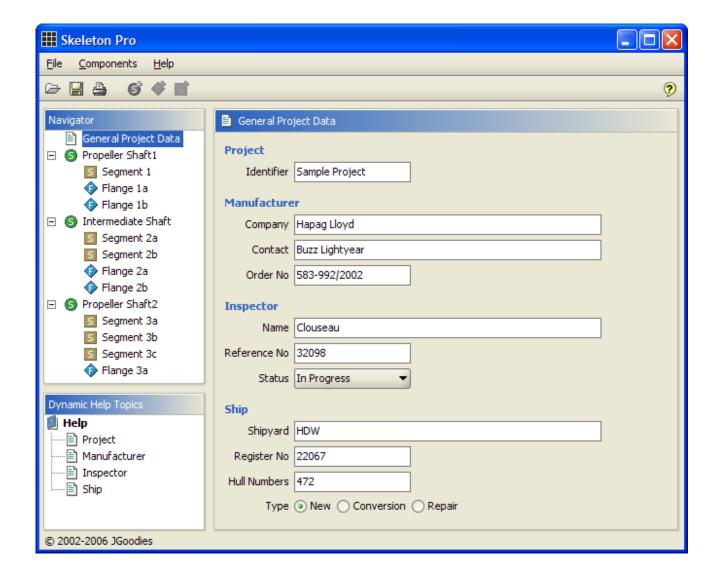




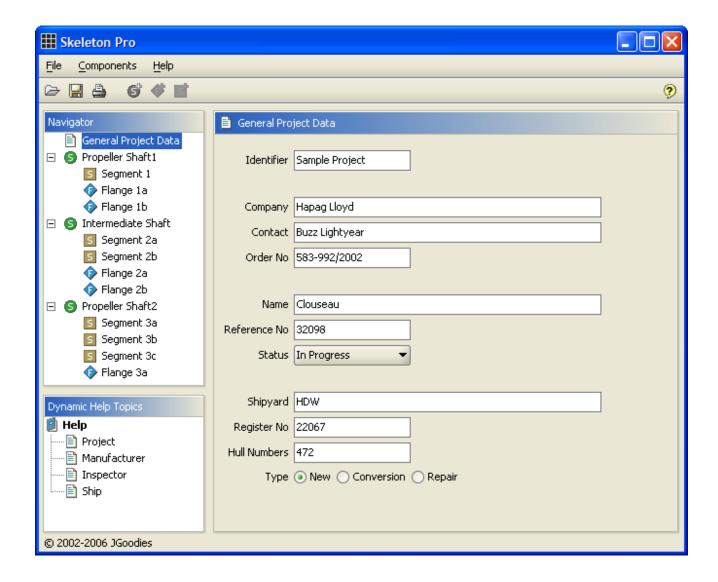






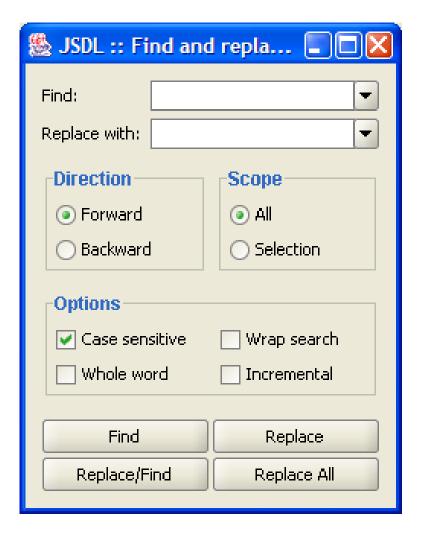












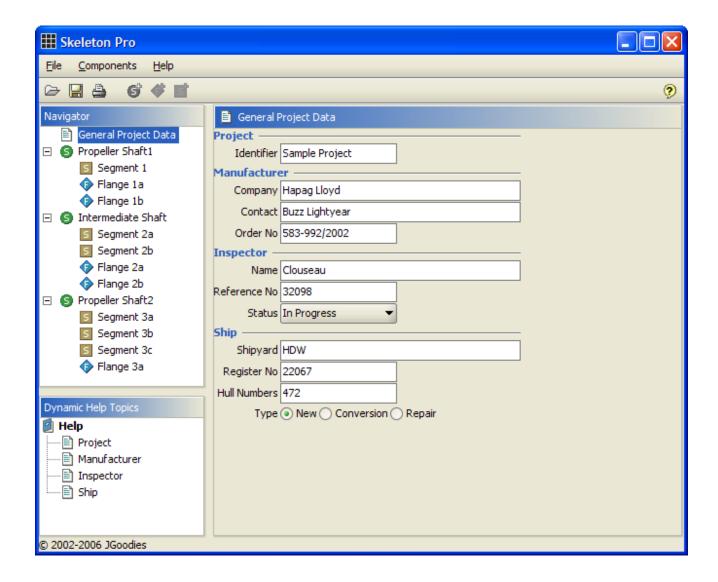
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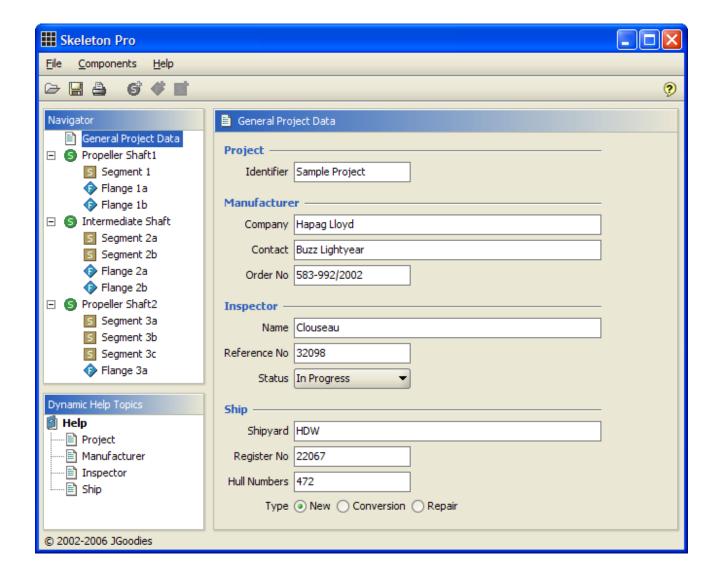
Add Negative Space!

- White space is not wasted space
- It's a powerful tool for design
- Isolate and separate groups
- Wrap components with white space
- Favor white space over separators













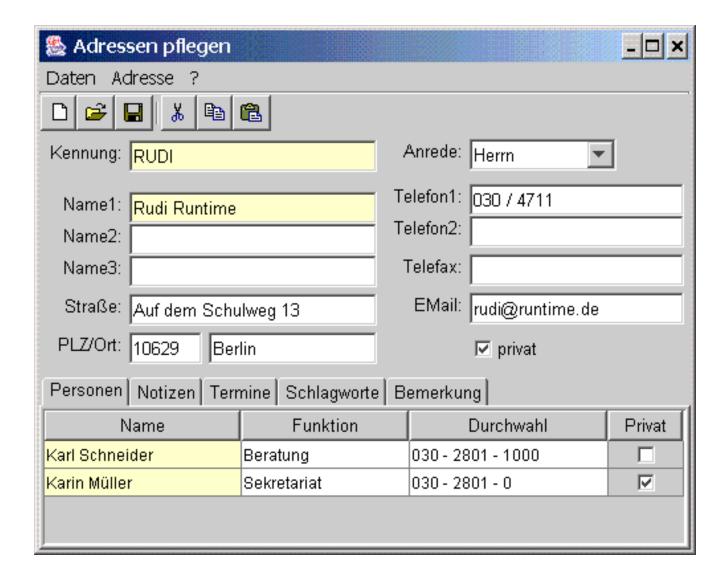
Align!

- Align component bounds
- Consider using a grid and grid system

Difficult

- Align fonts along the baseline
- Align component bounds and the baseline











Segment 1					
Segment —					
Identifier	Segment 1				
PTI [kW]		Power [kW]			
len [mm]					
Diameters					
da [mm]		di [mm]			
da2 [mm]		di2 [mm]			
R [mm]		D [mm]			
Criteria —————					
Location	Propeller nut thread 🔻	k-factor			
Connection	C45E, ReH=600 ▼				
Holes	✓ Has radial holes				
Slots	Has longitudinal slots				



Beware Inconsistent Micro Design

- Inconsistent component sizes
- Inconsistent component insets
- Font baselines not aligned, or component bounds
- Poor or wrong pseudo 3D effects







.Net 2.0

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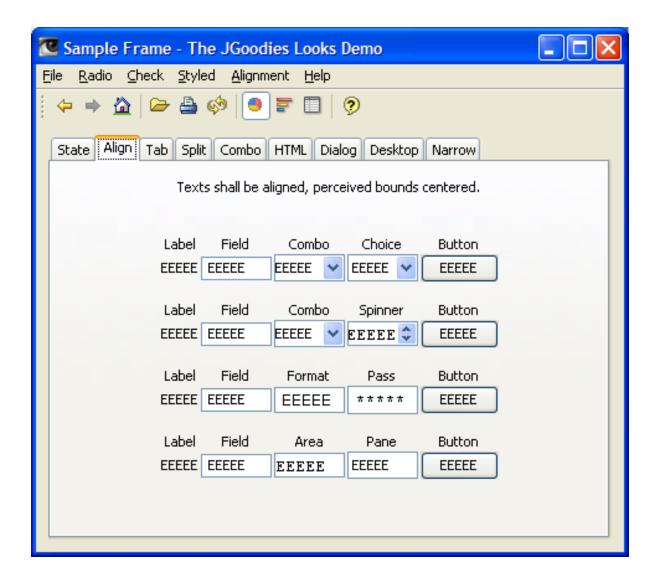


Java (Font baselines aligned with Matisse)

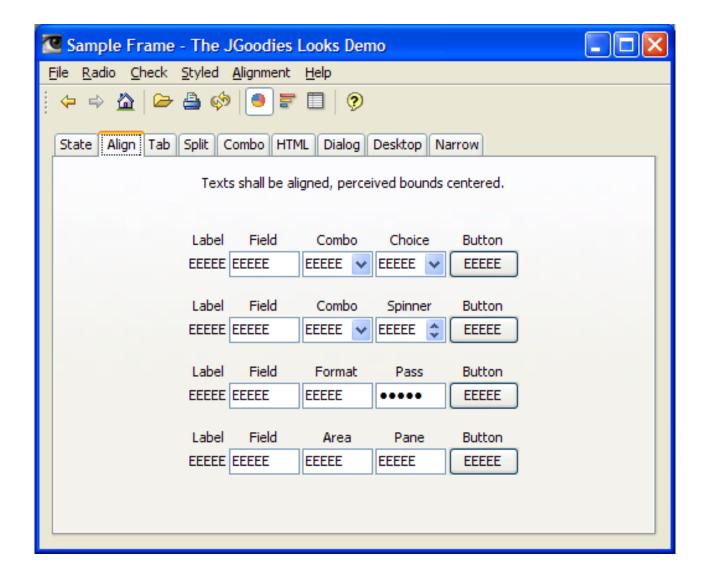












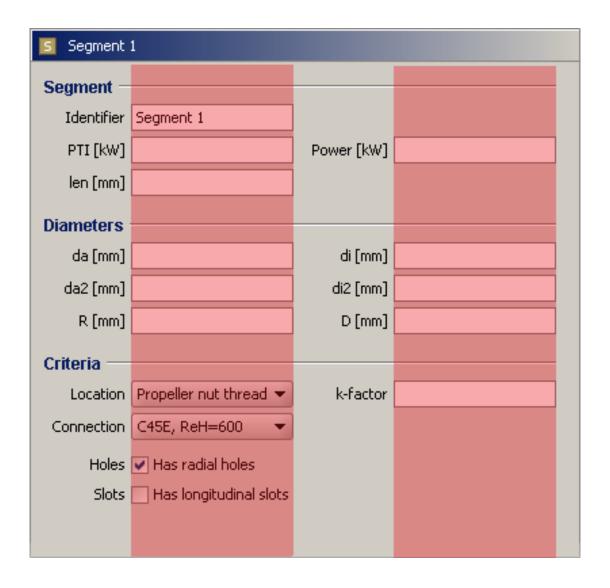




Group and Relate!

- Learn to group
- Make similar content equally wide
- Make similar content equally high
- But again: avoid the TitledBorder











Segment 1					
Segment —					
Identifier	Segment 1				
PTI [kW]		Power [kW]			
len [mm]					
Diameters					
da [mm]		di [mm]			
da2 [mm]		di2 [mm]			
R [mm]		D [mm]			
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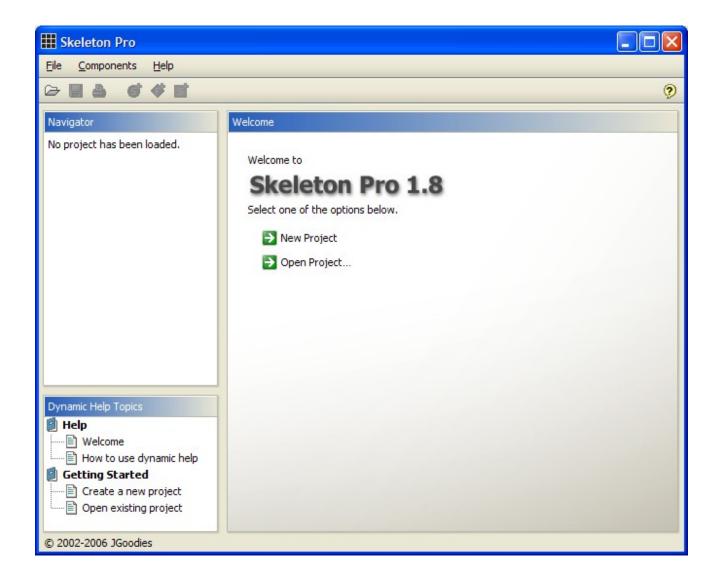


Balance the Design!

- Learn about perceived axes and visual weight
- Find the optical balance point
- Consider to center a single view
- Consider to use symmetry











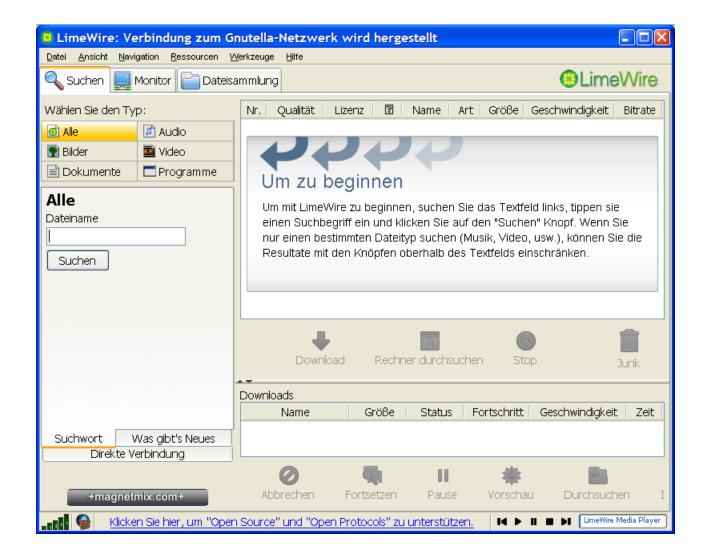




Be Consistent!

- Button sizes, order, gaps
- Design of dialogs, panels, button bars
- Micro design of the L&F components
- Use icons that 'work' with the L&F colors
- Use a few fonts and font sizes only

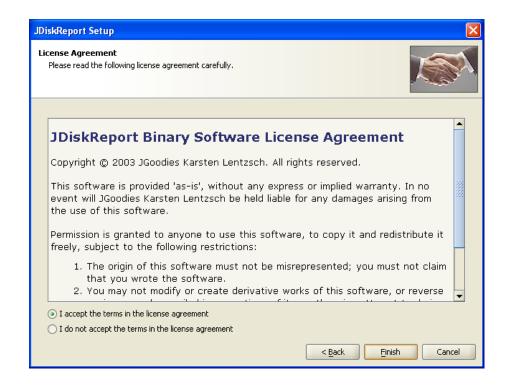


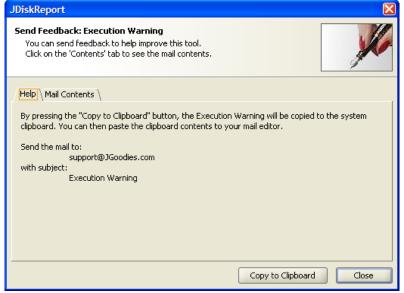








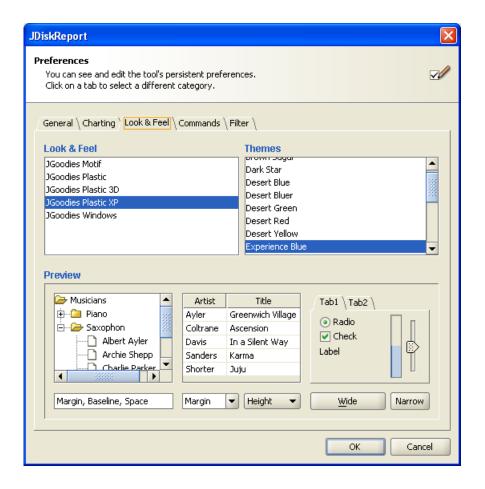


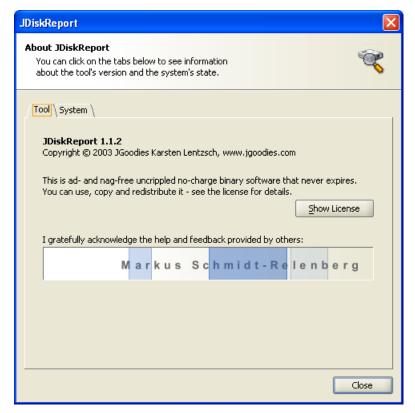


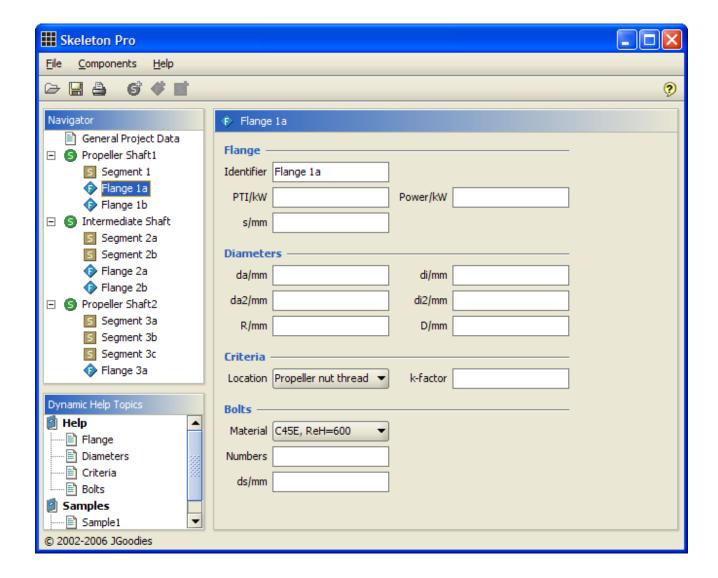




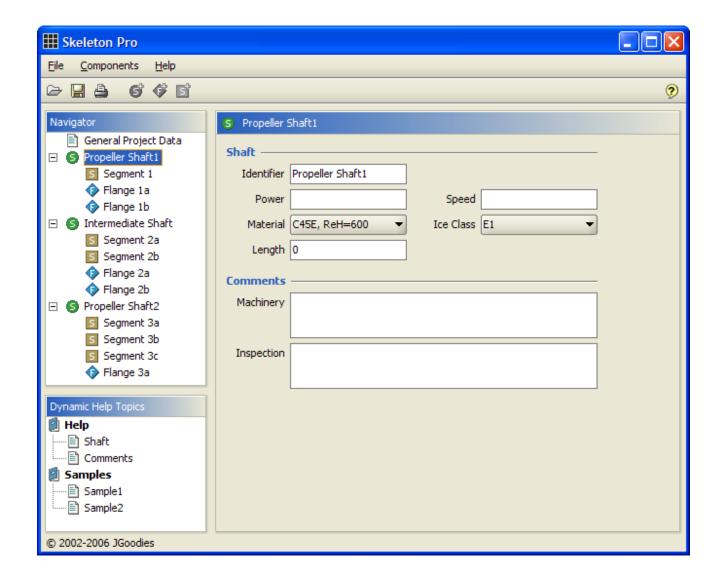




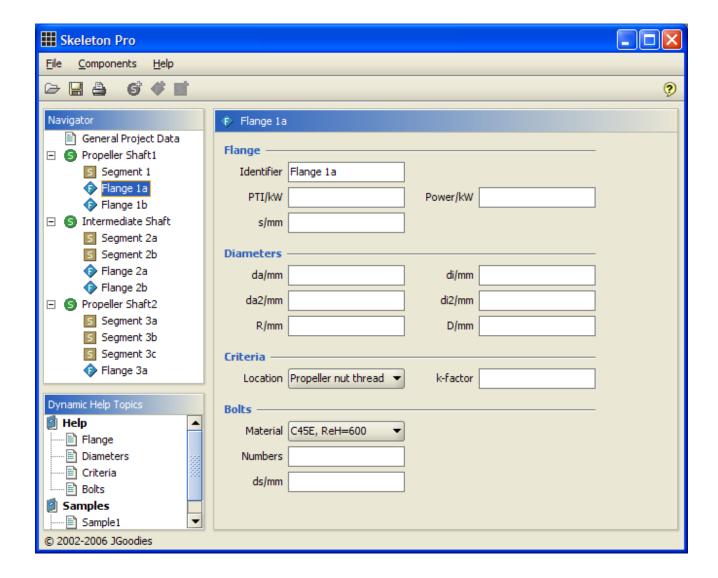








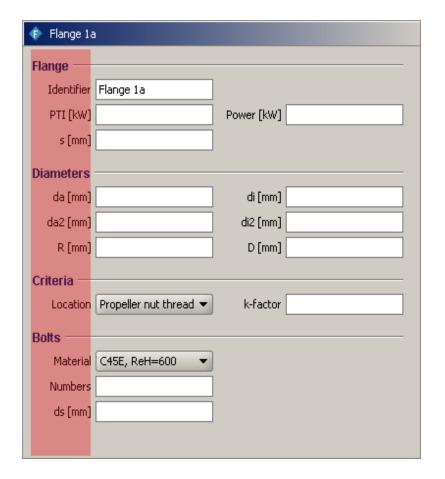




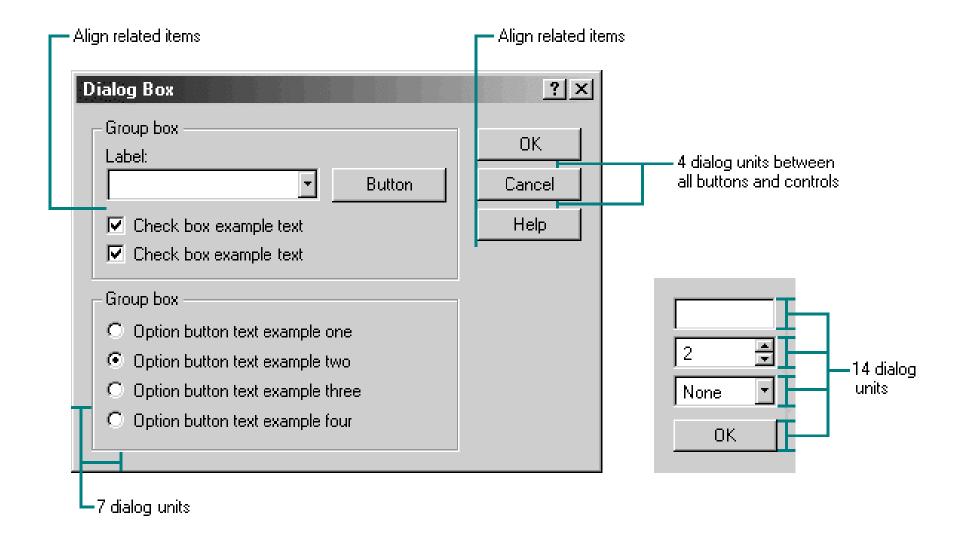








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	R [mm]		D [mm]		
	Criteria —				
	Location	Propeller nut thread 🔻	k-factor		
	Connection	C45E, ReH=600 ▼			
	Holes	✓ Has radial holes			
	Slots				







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Before and After





Use Contrast Effectively

- Equalize contrasts
- Add white space where necessary
- Avoid large dark areas
- Use large white panels judiciously (otherwise the user gets tired)
- Learn the squint test



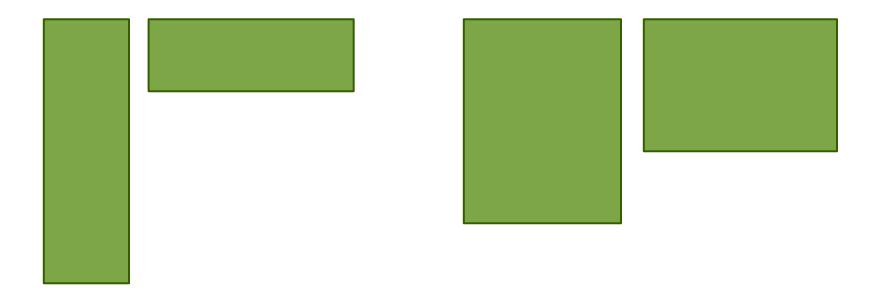


Use Aesthetic Aspect Ratios

- Stable aspect ratios
 - 1:1
 - 4:5
 - 4:3
 - 16:9
- Consistency: use a few aspect ratios







Unstable

Stable

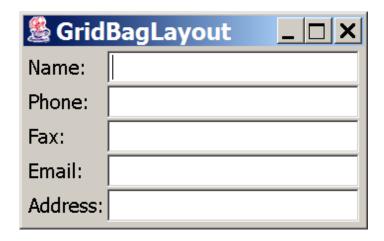




Scale with Font and Resolution (dpi)

Otherwise layout does not retain proportions









Static vs. Flexible Design

- Again: reduce the design to its essence
- Prefer static to flexible design
- Use static design where possible
- Add flexibility where necessary
- Static, splitted, multi-splitted, docking, windows



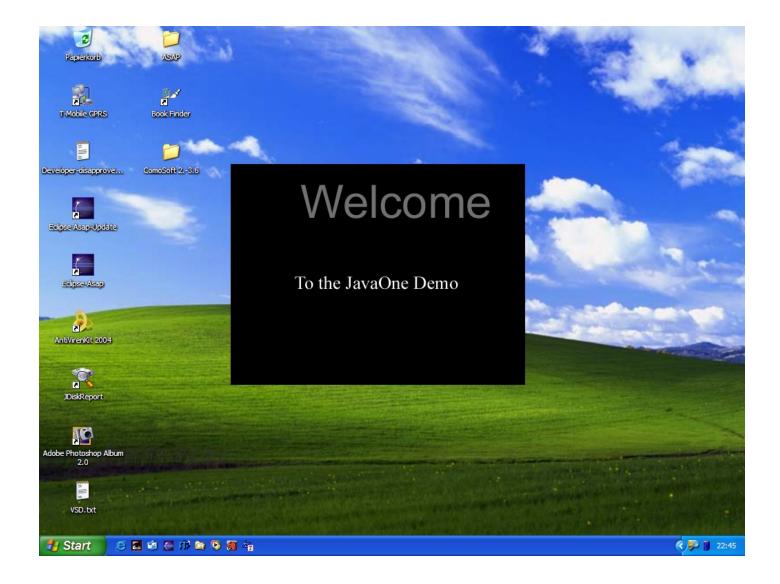


Let Users Enjoy Your Application

- Until now we've only reduced the UI
- Now you can carefully add
 - Color
 - Advanced typography
 - Images
 - Animation

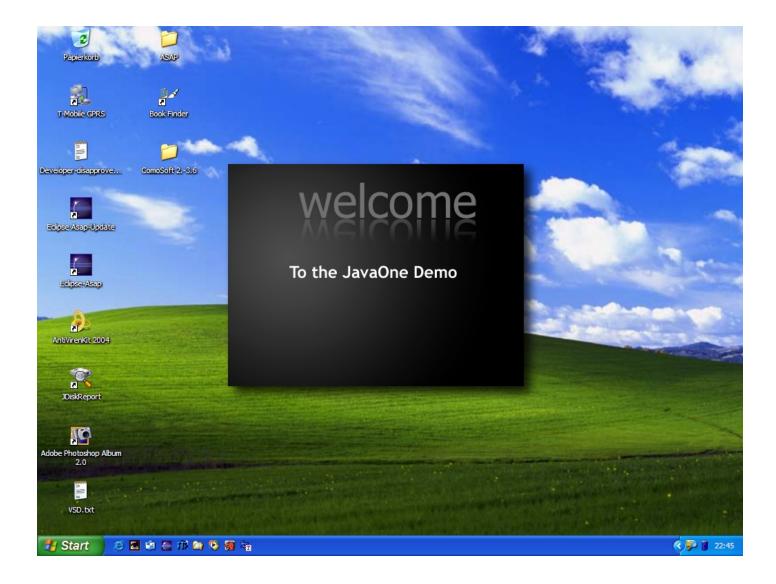












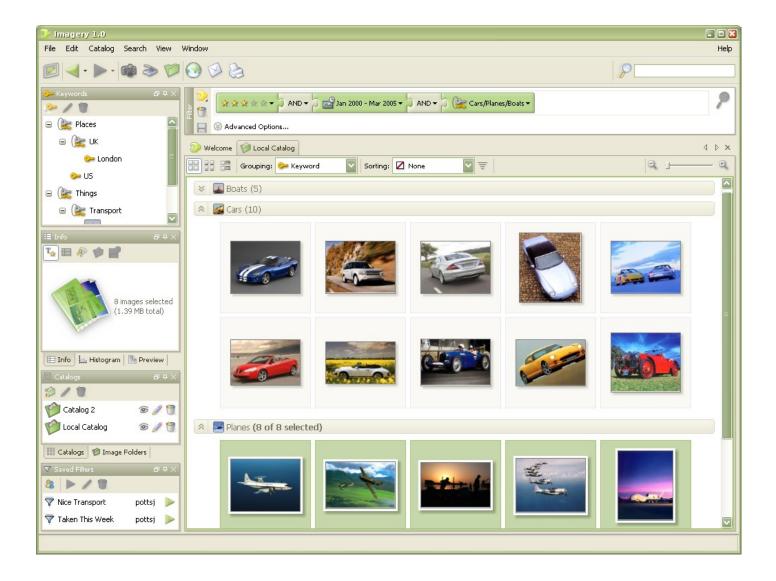




Benefit From the Powerful JFC

- Advanced graphics operations (Java 2D[™])
- Translucency
- Glasspane
- Pluggable look and feel
- Enables high-level abstractions









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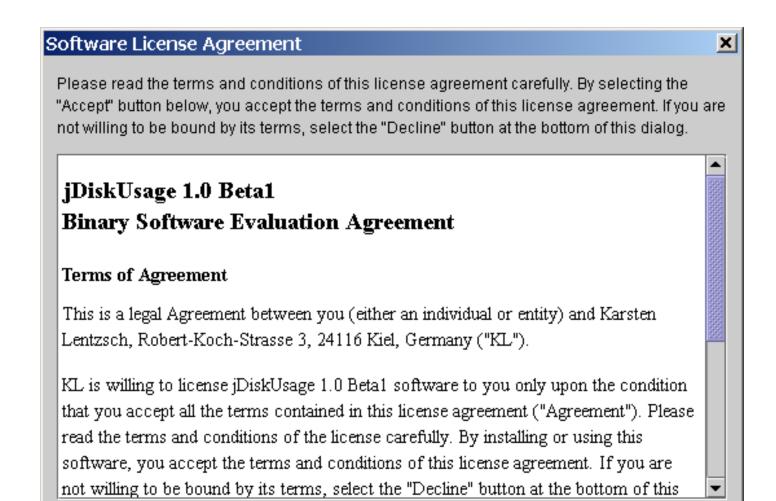
Do's

Tips and Tricks

Before and After









Accept

Print

Decline



jDiskReport Setup



License Agreement

Please read the following license agreement carefully. Press the PAGE DOWN key to see the rest of the agreement.



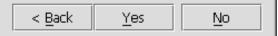
jDiskReport Binary Software License Agreement

Terms of Agreement

This is a legal Agreement between you (either an individual or entity) and Karsten Lentzsch, Wilhelmshavener Str. 25, 24105 Kiel, Germany ("KL").

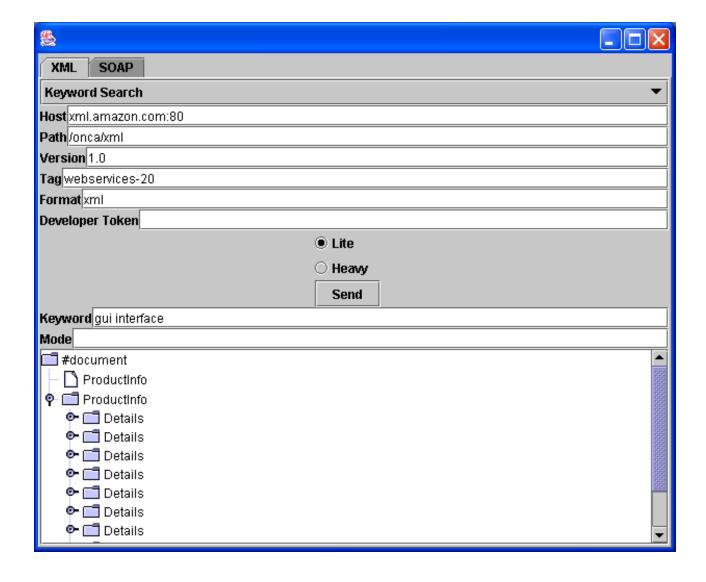
KL is willing to license jDiskReport 1.0 Final software to you only upon the condition that you accept all the terms contained in this license agreement ("Agreement"). Please read the terms and conditions of the license carefully. By installing or using this software, you are acknowledging that you have read this Agreement, that you understand it, and that you are agreeing to be legally bound by its terms and conditions. If you do not accept all the terms of this Agreement, you may not install or use the software.

Do you accept all the terms of the preceding License Agreement? If you choose "No", the setup will close. To install jDiskReport, you must accept this agreement.





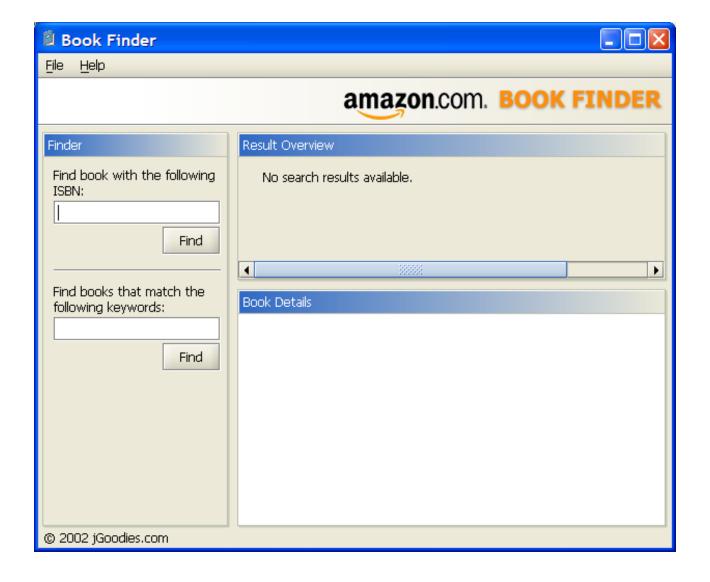




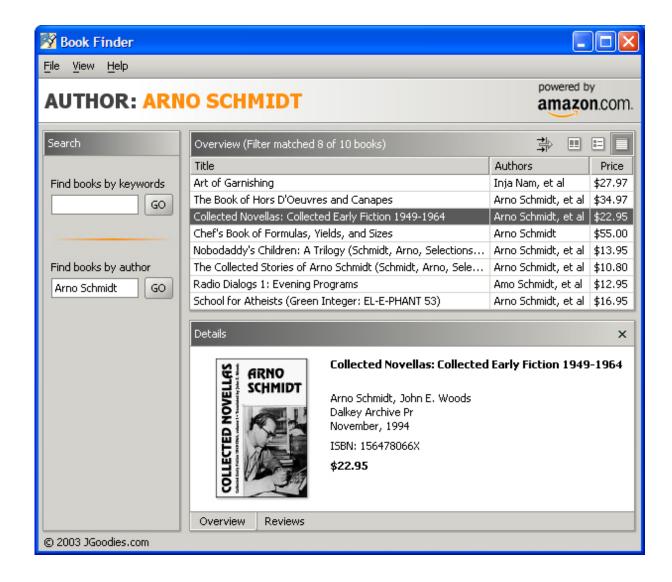










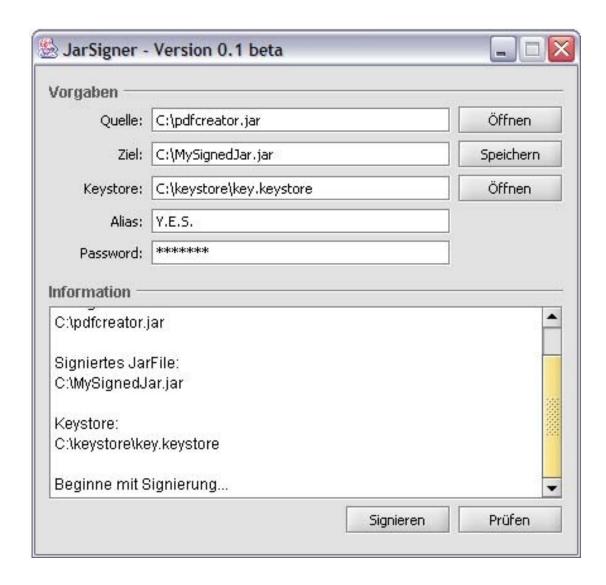


















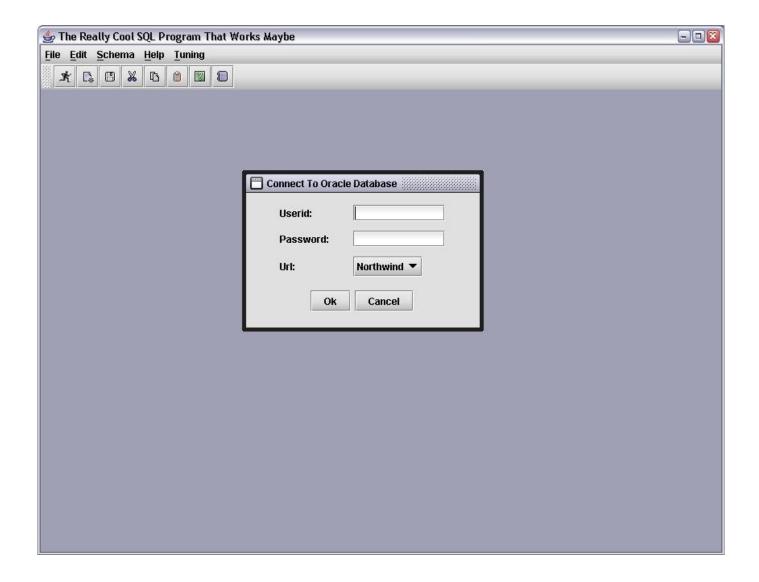
















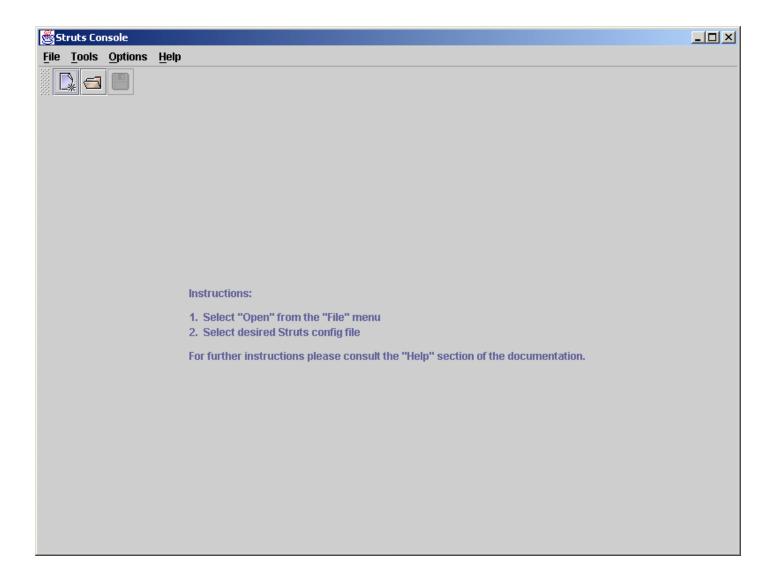






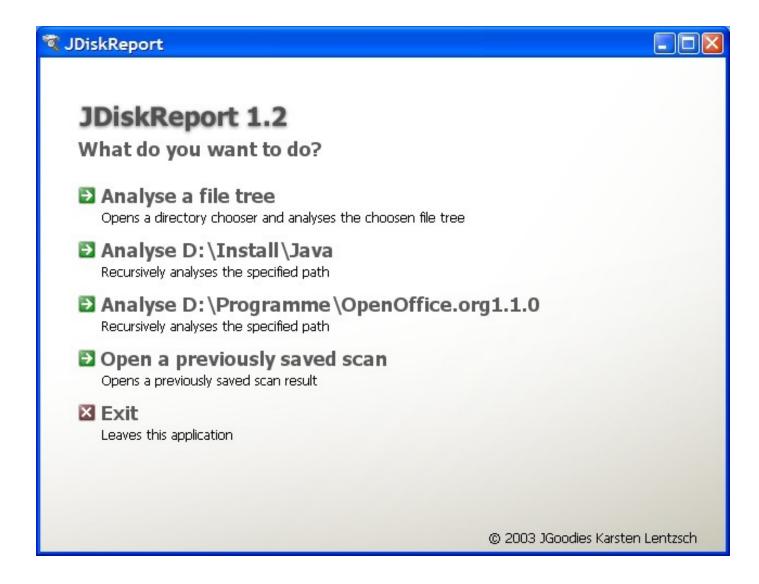












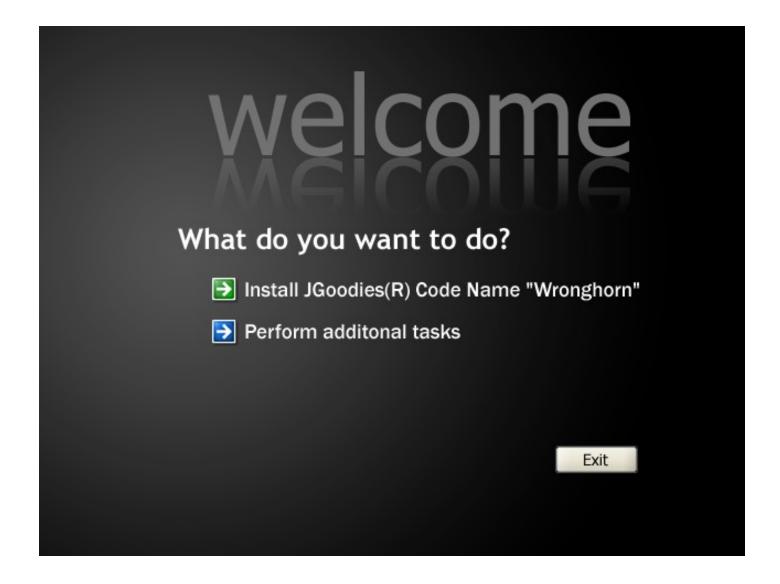
















Summary

- Use appropriate fonts, colors, icons
- Remove clutter—reduce to its essence
- Align, group, relate, balance
- Be consistent





For More Information

Sessions and BOFs

- TS-1548 Extreme GUI Makeover: Lookin' Better
- BOF-0139 Advanced Layout Techniques
- BOF-0425 Designing Elegant Desktop Applications





For More Information

Web Resources

- Alloy Look&Feel—www.incors.com
- JGoodies Looks—looks.dev.java.net
- Tango icons—www.tango-project.org
- Eclipse icons—www.eclipse.org
- Matisse visual designer—www.netbeans.org
- JGoodies Forms—forms.dev.java.net





For More Information

Books

- Scott Delap: Desktop Java Live
- Mullet & Sano: Designing Visual Interfaces
- Jeff Johnson: GUI Bloopers

Presentations

JGoodies Articles—www.JGoodies.com/articles



A&Q













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