Internationalization

Programmable Usable Interfaces (PUI)

Spring 2006
Administration

• HW5 due today
• HW4 in 7 days
• HW6 in 9 days
What is Internationalization?

- *Internationalization* is the process of designing an application so that it can be adapted to various languages and regions without engineering changes. Sometimes the term internationalization is abbreviated as *i18n*, because there are 18 letters between the first "i" and the last "n."
Why Internationalization?

• Interface may be used in multiple countries and users may have very different backgrounds
  – Different language background
  – Different cultural background
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Assuming all users are the same and build a one-size-fits-all-interface

→ can lead to unusable and unintuitive interfaces
Goals of Lecture

• Recognize some common problems with internationalization
  – Language Issues
  – Translation Issues
  – Icon Issues
  – etc.

• Know what to do
  – Avoid obvious mistakes
  – Localization
Language Issues

• How many English speakers are there?
  – First language: 380 million
  – Second language: 600 million
  – Learners: Over 1 billion

• British English vs. American English
  – Where is the loo? (restroom)

• Southern English vs. Northern English

• Adult English vs. Teenager English
Example of American English vs. British English
Example of American English vs. British English

What about rubbish?
Translation Issues

• Standard terms for “File”, “Edit”, etc. in each language
  – There are probably hundreds of computer words
• What about “Viewport”, “Canvas”, “Front”
  – Across the industry, and in a company’s other products
  – Keep glossaries of words to be used
• Often need to know the rationale behind why names were chosen
  – E.g. “Find” vs. “Find File” both translated to “Rechercher” in French
• Understand the meanings in local languages/slang
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  – Buick LaCrosse (means masturbating teenagers in Quebec)
Wording Issues

• Currency symbols: $1000 (US, Canada), vs. ¥1000 (Japan) or £1000 (UK)

• Avoid abbreviations and slang
  – “MI” for middle initial
  – “N/A” for not available or not applicable
  – “Under the hood” for how something works

• Ask for child’s age not school grade
Wording Issues

• Holidays can be different
  – Mother’s day, New Year, Easter can be at different times

• People’s names: “First” name, “Last” name
  – Which is which
  – Also, sometimes, First+Last not very unique
    (500 “Smith”s, 12“Roger Smith”s)
    • Email address usually globally unique

• Paper size issues for printing
  – A4 vs. 8.5”x11” vs. ???
Number Issues

• Billion: thousand million or million million?
• Number formats: 4.567 vs. 4,567
  – Ask if ambiguous (not “illegal number”)
• Metric system vs. U.S. customary units:
  – 1 meter versus 1 inch
Number Issues

• Time formats: 2:30 pm vs. 14:30; time zones: EDT
• Date formats: 04/05/07?
  – In US = April 5, 2007
  – In Europe = May 4, 2007
• use April 5, 2004 instead, but also label fields!

_ _ / _ _ / _ _
mm/dd/yy
Number Issues

• Telephone number formats
  – +45 47 17 17 17 vs. (412) 268-5150 vs. 1-412-268-5150
  – Allow +, (), -, . etc.
Types of Icon/Symbols

• Resemblance icons:
  – Looks like physical object
  – But really representational for related concept

• Reference icons:
  – Looks like an object which references another
  – Analogy
  – Also called symbolic icons; index icons

Arbitrary icons
  – Only have meaning by convention
Icon/Symbols Issues

- No icons with fingers or feet or other gestures
- Light switches on or off?
- No visual puns
  - Table of numbers as:
  - (In Danish, use bord and tabel)
- No sports metaphors (“out of left field”) 
- Arbitrary icons are even harder
  - Red cross for help

http://www.lcdf.org/xwrits/GESTURES
Color Issues

• **Red**
  - China: Good luck, celebration, summoning
  - Cherokees: Success, triumph
  - India: Purity
  - South Africa: Color of mourning
  - Russia: Bolsheviks and Communism
  - Eastern: Worn by brides
  - Western: Excitement, danger, love, passion, stop, Christmas
    (with green)

• **Green**
  - China: Green hats indicate a man's wife is cheating on him, exorcism
  - India: Islam
  - Ireland: Symbol of the entire country
  - Western: Spring, new birth, go, Saint Patrick's Day, Christmas (with red)

http://webdesign.about.com/od/color/a/bl_colorculture.htm
E-Commerce Issues

• Make sure that it is clear what areas are served
  – E.g., cars not available in US, different formats, electrical (110v 220v)
  – E.g., Service available?
  – Put on home page, shipping page, “about” page, and help
  – Use keywords: “Shipping” and/or “International”

• Paying in international currency

• Weights and sizes and clothing sizes in metric and U.S. units
IBM ServicePac 3 Year On Site 24x7 4 Hour

Product ID:
CDW Part: 436946
Mfg. Part: 69F9510
UNSPSC: 01111012

Availability:
Call for availability

Overview

Main Features
Service for IBM BladeCenter HS20 (8678)

Protect your investment

Servers are the ideal way to share huge volumes of data among many users. But if the server goes down, many times the business may come to a grinding halt. Idle users. Lost Sales. Missed deadlines. In short, a productivity nightmare. With an easy-to-use IBM ServicePac, your business can have a Service Technician on site as little as four hours. A skilled IBM support specialist, who'll work diligently to minimize downtime and get critical computing resources back up and running.

24x7 4 Hour: A service technician is scheduled to arrive at your location within four hours after problem determination in completed. Service is provided around the clock, every day, including IBM holidays.

Service Contracts and Warranty Extensions

Service Contract - Response Time: 4 hour same day
Service Contract - Service Hours: Twenty-four hours, seven days a week (24X7)
Service Contract - Service Length: 3 year(s)
Service Contract - Service Level: On-site

Price:
$456.99

Qty: 1
Add to Cart
Hey kids, only grownups can buy stuff on Disney.com

FREE SHIPPING on your shipment of $80 or more

For the Home
Ends Tomorrow!
Spent some time with good friends, just outside your door!
Spring Savings
Up to 60% Off

FREE SHIPPING on your shipment of $80 or more

Disney Rewards® Visa® Card
SAVE 25% INSTANTLY
When you are approved online

Savings - Up to 40% Off!
- Power Rangers Swim Trunks
  Sales: $12.99 Was: $19.95
- Tinker Bell Crossbody Swimsuit
  Sales: $14.99 Was: $24.95
- Ariel Personalized Beach Towel
  Sales: $13.99 Was: $19.95
- Eeyore One-Piece Swimsuit for Men
  Sales: $19.99 Was: $34.95
- Cars Beach Towel Set
  Sales: $12.99 Was: $19.95
- Princess Swim Skirt
  Sales: $11.99 Was: $14.95
- Pirates Board Shorts for Him
  Sales: $19.99 Was: $34.95
- More Swim Shop Savings...
Shipping Issues

• Shipping charges and options for overseas
  – Sales taxes?
• Accept entry of non-US characters in fields
  – May be an issue for sorting, etc.
• Consider have separate US and overseas shipping pages
• Otherwise:
  – Use “zip / postal code” as prompt
  – Different organization of postal address (postal code after city or after state?)
  – In “state/province” field,
    • Full-length state names
    • Option for “other countries” in state field
URL Issues

• Use www.company.com for english version
• Use www.company.co.xx (uk, de, kr, cn) for foreign sites
• Use local (country specific) URL also for sites of only local interest
What Can We Do?

• Should always know your users

• Different designs customized to different languages/cultures (similar to marketing, product development)
Localization of Honda
Localization

• Not just translating the interface
  – Web sites may have different content
    • e.g. German yahoo (used to) has soccer on front page, but not US Yahoo
  – Different sizes of language may require redesign
    • But automatic layout can help
  – Make sure translation of terms is consistent with industry standards
Localization

• When there is a choice of language
  – Don’t use flags to indicate language
    • US vs. Canada vs. England
  – Use language’s own name for itself (ENGLISH, ESPAÑOL, 한국어 )
  – Good place for pictures of text
    • In case fonts aren’t loaded
International User testing

- Localized interface can have new and different usability problems
  - Not sufficient to test one version and then translate
- Should perform heuristic analysis by usability specialists familiar with target culture and language
- Should test with native speakers in different countries
- Use international or national usability consultants
International Programming Issues

• Layout issues
  – These type of changes must be done manually.
  – Macromedia's recommendation (Flash) is to make text boxes 25% wider than English.
More Programming Issues

• Representation of characters
  – Unicode (UTF) vs. bytes
    • UTF is encoding for Unicode in 8 bits, 16 bits, 32 bits, (UTF-8)
  – “char” in C, C++ is same as byte = 8 bits
  – All Unicode formats and fonts are directly supported in Flex and Flash (8-bit UTF, 16-bit big and little endian UTF).
  – Typically, lots of helper classes for converting among formats

• Sorting of characters
  – o vs. õ vs. ö
More Programming Issues

• Left-to-right vs. right-to-left text
  – Flash: supports vertical and horizontal text box layouts, as well as right to left font rendering (but not entry). However, their right-to-left algorithms was apparently broken

  – VB: Control has RightToLeft property, but may have to mirror layout
More Programming Issues

• Mechanisms for printing currency, dates, etc.
  – call ToString() on the object, and optionally pass in a format specification, such as "d" (short date).
  
  • List of formats
  • Currency: myVar.ToString("c"), where myVar is a numeric type
Resource Files

• Store all text strings in separate files so don’t necessarily need to recompile to translate, or fix translations
• Prompts, labels, pop-up messages
• But also error messages, other text generated by a program
• Often must be parameterized at run-time
  – Ordering of parameters may be different
Internationalization

• Other issues?

• Solutions?
Assistive Technology
Universal Design

• Universal design is the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design.

• The intent of universal design is to simplify life for everyone by making products, communications, and the built environment more usable by as many people as possible at little or no extra cost.

• Universal design benefits people of all ages and abilities.
Questions?

Don’t Despair!
Better to provide *some* flexibility even if support for *all* cannot be achieved
References

- http://java.sun.com/docs/books/tutorial/i18n/index.html