

Web Usability

1

What Makes Web Applications Development Hard?

- Target audience can be difficult to define.
- Diversity in end user configurations
- Short development schedules
- User has not made an investment in a particular site

2

Usability

- Extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use
 - ISO 9241 Specification: Ergonomic Requirements for Office Work with Visual Display Terminals
- A usable Web interface is one that is accessible, appealing, consistent, clear, simple, navigable and forgiving of user blunders.
 - Murray and Costanzo, Usability and the Web: An Overview, August 1999
- Usability problems refer to aspects that make the application ineffective, inefficient, and difficult to learn and use.

3

Why Usability Matters?

- Web users are notoriously impatient and fickle
- Bad usability may result in
 - loss of clients or reduced revenues due to unsuccessful transactions.
 - users being unable to find the information they need.
- Acceptance of a web application by users relies on the application's usability
 - Easily find useful information
 - Organized in a way that facilitates access and navigation
 - Presented according to a well-structured layout

4

Usability Principles [Nielsen'93]

- Learnability
- Efficiency
- Memorability
- Few errors
- User satisfaction

- Criteria can be verified through evaluation methods.

5

Design Dimensions

- Data/content
- Hypertext links/navigation
- Presentation (UI)

- Focus on information finding, browsing, and user orientation

6

Content Visibility

- Core information concepts
 - Identification core content objects and classes
 - Answers to users' information requests
- Hypertext modularity
 - Helps users identify location of core concepts
 - Organize hypertext into areas, i.e., group pages that publish homogeneous content.
 - Define areas as *global landmarks* accessible through links, grouped in *global navigation bars* display on all pages of the application.
 - Within each area, define most representative pages as local landmarks, reachable over *local navigation bars* displayed in pages within the area.
 - Landmarks: highlight content, and enhance user orientation, learnability, memorability, and error recovery.

7



8

Navigation

- Definition of usable navigation and orientation mechanisms for content access and browsing
- Navigational access
 - Access paths
 - Multi-level index: navigate from pages with high visibility (e.g., home page) to pages with core concepts
 - Should match conceptual content hierarchy.
- Direct access
 - Keyword-based search mechanisms
 - One step jump to desired information

9

Nielsen's "Golden Rules"

- Visibility of system status
- Match between system and the real world
- User control and freedom
- Consistency and standards
- Error prevention
- Recognition rather than recall
- Flexibility and efficiency of use
- Aesthetic and minimalist design
- Help users recognize, diagnose, and recover from errors
- Help and documentation

10

Accessibility

- Universal access by any class of users and technology
 - Properties of markup that make page "readable" by technologies assisting impaired users.
 - Also cross-modality/device access, e.g., text to voice.
- Rules of thumb
 - Separating presentation from content and navigation design.
 - Augmenting multimedia content with textual descriptions.
 - Creating documents that can be accessed by different types of hardware devices. For example, page should work for hw without a pointing device.

11

Top Ten Web Design Mistakes [Nielsen, 2005]

- Legibility problems
- Non-standard links
- Excessive use of Flash
- Content that is not written for the web
- Bad search features
- Browser incompatibility
- Cumbersome forms
- No contact information or other company info
- Frozen layouts with fixed page widths
- Pop-ups
- Inadequate Photo Enlargement

12

Good Design Guidelines

- Text users can read
- Content that answers their questions
- Navigation and search that help them find what they want
- Short and simple forms (streamlined registration, checkout, and other workflow)
- No bugs, typos, or corrupted data; no linkrot; no outdated content.

13

Iterative Design Process

- Iterate
 - Iterate
 - 1 Design
 - Guidelines for how to organize the application by means of usable solutions
 - Prevent designers from adopting solutions that can lead to unusable applications.
 - 2 Prototype implementation
 - 3 Evaluation
 - Benchmarks for usability assessment
 - 4 Deployment

14

Evaluations Categories

- Formative
 - Takes place during design stage
 - Checks design team's understanding of user requirements.
 - Test design choices quickly and informally.
- Summative
 - Takes place after product release
 - Identify user difficulties using the application, and help improve the final product or prototype.

15

User Test Steps

- Define goal of the test. (e.g., evaluate the effectiveness of a navigation bar, or the readability of labels).
- Define user sample. Should be representative of user population. About 5 users are enough to find 90% of usability problems.
- Select tasks and scenarios. Tasks need to be realistic.
- Define how you plan to measure usability. Metrics can be qualitative (e.g., user satisfaction, difficulty to use), or quantitative (e.g., task completion time, number and type of errors, rate of successfully accomplished tasks, number of times users required help).
- Prepare material and experimental environment. Conduct pilot to check and refine test procedure.
- Other issues:
 - Guarantee participant anonymity
 - Provide participants with test results

16

Data Gathering Techniques

- Observation
 - Experimenter notes, also audio and video recording
- Think aloud
 - Subject is asked to talk while performing task, and explain the action they are performing
- Co-discovery
 - Two participants execute task together helping each other
- Active intervention
 - Investigator asks participants to reflect upon the events of the test session.
- Surveys
 - Questionnaires and interviews

17