

# INTRODUCTION TO USABILITY

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# OUTLINE OF THIS TALK

- Usability
- Measuring Usability
- Usability Heuristics

# WHAT IS USABILITY?

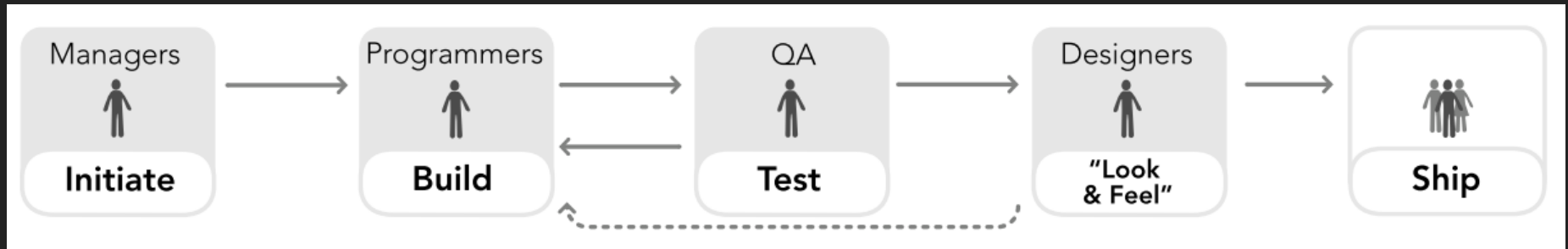
*Usability is like cooking: everybody needs the results, anybody can do it reasonably well with a bit of training, and yet it takes a master to produce a gourmet outcome.*

-- Dr. Jakob Nielsen

## RELATIONSHIP BETWEEN USABILITY AND UX

- Usability concentrates on goal achievement
- UX is a consequence of presentation, functionality, performance, interactive behaviour, etc.

# TYPICAL SOFTWARE PRODUCT CYCLE



# IMPORTANCE OF USABILITY

- Usability makes the user come back to the system
- Users are choosier than ever before
- User-perception can make or break your business

# CLUTTER CAN DISTRACT FROM YOUR TRUE PURPOSE

The screenshot shows the Yahoo! homepage from 1998. At the top, there's a navigation bar with icons for 'What's New', 'Check Email', 'Personalize', and 'Help'. The 'YAHOO!' logo is prominently displayed in the center. Below the logo, there are several advertisements: 'World Cup 98', 'SURPLUS DIRECT' (with a car image and 'WIN A '58 VETTE' text), and 'Yahoo! Mail' (offering free @yahoo.com email). A search bar with a 'Search' button and a link to 'options' is located below the ads. The main content area is filled with a large number of links organized into categories. On the left, there's a list of categories like 'Arts and Humanities', 'Business and Economy', 'Computers and Internet', 'Education', 'Entertainment', 'Government', and 'Health'. On the right, there's another list of categories like 'News and Media', 'Recreation and Sports', 'Reference', 'Regional', 'Science', 'Social Science', and 'Society and Culture'. At the bottom, there's a row of links for 'What's New', 'Weekly Picks', 'Today's Web Events', 'Yahoo! Internet Life', 'Message Boards', 'Yahoo!igans! for kids', 'Seniors' Guide', 'Games', 'Yahoo! Pager', and 'Yahoo! Gear'.

**YAHOO!**

[What's New](#) [Check Email](#) [Personalize](#) [Help](#)

[World Cup 98](#) **SURPLUS DIRECT** WIN A '58 VETTE [CLICK HERE!](#) **Yahoo! Mail** free @yahoo.com email

[Search](#) [options](#)

**Yahoo! Games** - play online chess, backgammon, bridge, blackjack and more...

[Yellow Pages](#) - [White Pages](#) / [People Search](#) - [Maps](#) - [Classifieds](#) - [Personals](#) - [Chat](#) - [Email Shopping](#) - [My Yahoo!](#) - [News](#) - [Sports](#) - [Weather](#) - [Stock Quotes](#) - [more...](#)

- **Arts and Humanities**  
[Architecture](#), [Photography](#), [Literature](#)...
- **Business and Economy** [Xtra!]  
[Companies](#), [Finance](#), [Employment](#)...
- **Computers and Internet** [Xtra!]  
[Internet](#), [WWW](#), [Software](#), [Multimedia](#)...
- **Education**  
[Universities](#), [K-12](#), [College Entrance](#)...
- **Entertainment** [Xtra!]  
[Cool Links](#), [Movies](#), [Music](#), [Humor](#)...
- **Government**  
[Military](#), [Politics](#) [Xtra!], [Law](#), [Taxes](#)...
- **Health** [Xtra!]  
[Medicine](#), [Drugs](#), [Diseases](#), [Fitness](#)...
- **News and Media** [Xtra!]  
[Current Events](#), [Magazines](#), [TV](#), [Newspapers](#)...
- **Recreation and Sports** [Xtra!]  
[Sports](#), [Games](#), [Travel](#), [Autos](#), [Outdoors](#)...
- **Reference**  
[Libraries](#), [Dictionaries](#), [Phone Numbers](#)...
- **Regional**  
[Countries](#), [Regions](#), [U.S. States](#)...
- **Science**  
[CS](#), [Biology](#), [Astronomy](#), [Engineering](#)...
- **Social Science**  
[Anthropology](#), [Sociology](#), [Economics](#)...
- **Society and Culture**  
[People](#), [Environment](#), [Religion](#)...

[What's New](#) - [Weekly Picks](#) - [Today's Web Events](#) - [Yahoo! Internet Life](#) - [Message Boards](#)  
[Yahoo!igans! for kids](#) - [Seniors' Guide](#) - [Games](#) - [Yahoo! Pager](#) - [Yahoo! Gear](#)

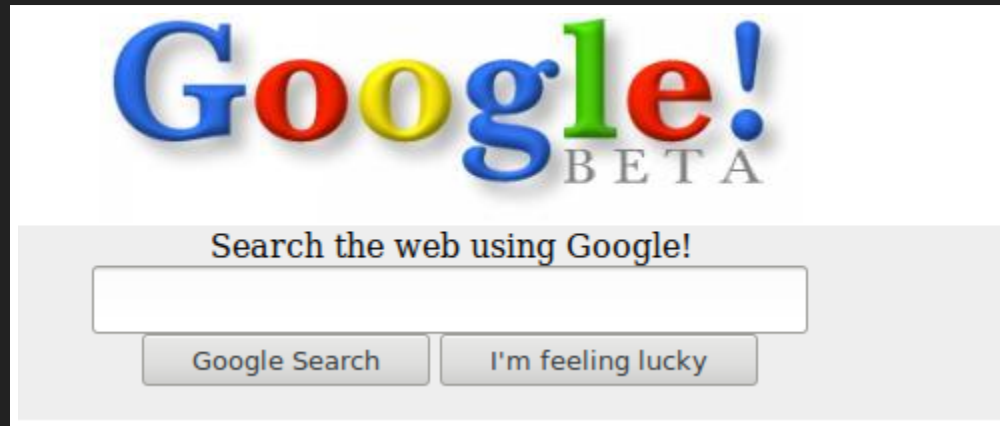
**World Yahoos** [Asia](#) - [Australia & NZ](#) - [Canada](#) - **[Chinese](#)** - [Denmark](#) - [France](#)  
[Germany](#) - [Italy](#) - [Japan](#) - [Korea](#) - [Norway](#) - [Sweden](#) - [UK & Ireland](#)  
**Yahoo! Metros** [Atlanta](#) - [Austin](#) - [Boston](#) - [Chicago](#) - [Dallas / Fort Worth](#) - [Los Angeles](#)  
**[Get Local](#)** [Miami](#) - [Minneapolis / St. Paul](#) - [New York](#) - [S.F. Bay](#) - [Seattle](#) - [Wash D.C.](#)  
[Smart Shopping with](#)

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# KEEPING IT SIMPLE



## CHARACTERISTICS OF USABILITY

Effective	Completeness and accuracy with which users achieve their goals
Efficient	Speed with which users complete their tasks
Error Tolerant	Ability of an interface to prevent errors or recover from errors

## CHARACTERISTICS OF USABILITY - II

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Engaging	Is the interface pleasant or satisfying?
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Easy	Supports initial learning and continued learning
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Strike a balance between all 5, depending on task

# BAD ERROR MESSAGES



The COM+ Event System caught an access violation at address 0x00213BC8 within the method SaveCompleted of interface IPersistFile. The method attempted to access address 0x00000000.

OK

## BAD ERROR MESSAGES - II



# GOOD ERROR MESSAGES

- Use human-readable language
- Give constructive advice on how to fix the problem
- Prevent loss of data, even if temporary or small
- If possible, guess correct action and let user choose from a list

# USABILITY TESTING

- User
  - Demographics: Skill-level of user, age, dexterity
  - Number: One, two, group?
- *Tasks*: An actual user's tasks
- *Time*: Time spent on, and with, each user

## USABILITY TESTING - II

- *Role Allocation*: How many testers per user?
- *Methods of Recording*: Paper, audio, video, screen-grabs



# MEASURING USABILITY

- *Task Time*: Measures efficiency, ease of learning, mental processing time
- *Number of Problems*: Think-aloud and record list of problems.
- *Emotional state of users*: If the user is upset, something is wrong!

## MEASURING USABILITY - II

- *User Opinions*: Surveys, questionnaires on a simple scale (both, pre-test and post-test)
- *Expert Opinions*: Usability experts and guidelines
- *Report Analysis*: Categorize above on severity, and areas of focus

# DESIGN VALUES FOR USABILITY

Good design of a product will minimize the following types of work:

- *Cognitive*: Comprehension of product behaviour (text, images, structures)
- *Memory*: Recall of behaviour, data locations, control and relationship between objects
- *Physical*: Keystrokes, mouse movements, gestures

# COMMON MISTAKES (ON WEBSITES)

- Readability: Four categories of web-safe fonts
  - Serif
  - Sans serif
  - Cursive
  - Monospace
- Blinkenlichten: Just say 'NO' to flash/splash/anything spinning/blinking
- Don't make the user think!

# CROSS-BROWSER COMPATIBILITY

- CSS is (still) rendered differently on different browsers
- Use CSS reset
- Use <http://browsershots.org/>

## IN CONCLUSION

*Don't make your users think!*

## RECOMMENDED READING

- Jakob Nielsen's column: <http://www.useit.com/alertbox/>
- Common web-page mistakes and how to fix them:  
<http://www.webpagemistakes.ca/>
- <https://uxmag.com/articles/>
- *About Face - Interaction Design*. By Alan Cooper, Robert Reimann, and David Cronin

## BEFORE YOU GO

- The next assignment will be up (this morning)
- Deadline: 2-Nov-2016, 10:00 a.m.
- Testcases for Assignment 1 are up



**THAT'S ALL, FOLKS!**

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Questions? Comments?