UI and HUD Design

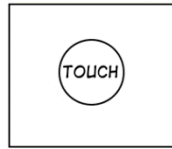## Principles of UI Design

Game Programming Foundations

Last modified 09/02/15 by Sam Cartwright
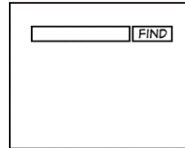
Topics

- Structure

- Simplicity

- Visibility

- Feedback

- Tolerance

- Reuse

- Suitability

Terms

- UI
  - User Interface
  - The space where interactions between humans and machines occur

- GUI
  - Graphical User Interface
  - Interface that allows interaction through graphical icons and visual indicators

- UX
  - User Experience
  - Sometimes (incorrectly) used interchangeably with UI
  - A person's behaviours, attitudes and emotions about using a product, system or device

- HUD
  - Heads-Up Display
  - Information visually relayed to the player as part of a game's GUI

Structure

- Design should be purposeful
- It should be consistent

- Related things Grouped together and unrelated things kept separate

- Differentiate dissimilar things and make similar things resemble one another
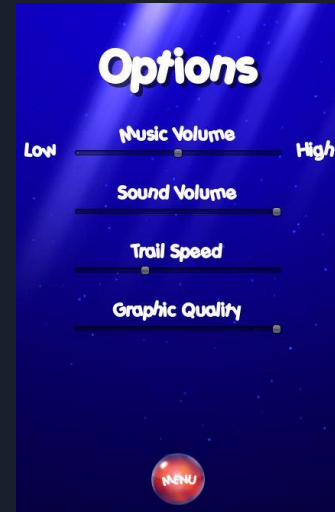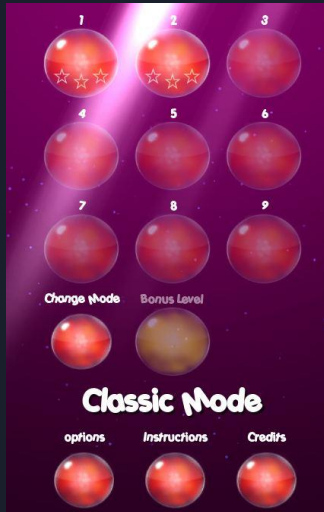

CAN'T YOU DO ANYTHING RIGHT?

Designing a good UI is difficult… We shouldn't need to train our users how to use our UI.

It should be intuitive automatically to the majority of our users

Structure

- Top level access to grouped tasks

- Sub-menus with logically grouped options

Simplicity

- The design should make simple and common tasks easy.

- Communicate complex systems clearly and simply in the users own language

- Providing good shortcuts that are meaningfully related to longer procedures
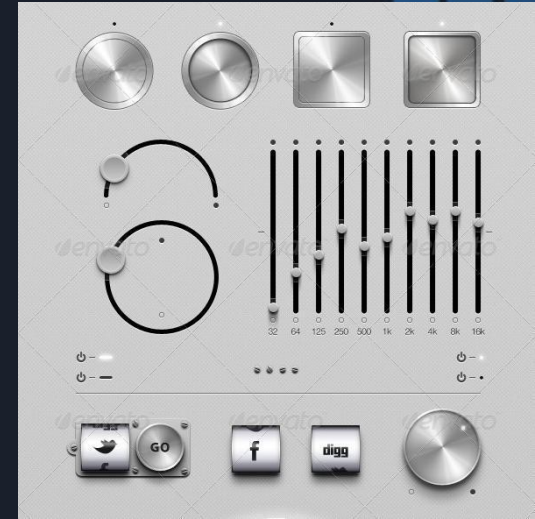
This audio editor has a complex interface, however it uses controls that are familiar with its target audience, and therefore is intuitive for them to use

![aie logo] **aie**
SPECIALIST EDUCATORS IN
GAMES, ANIMATION & FILM VFX

Simplicity

- Good HUD design keeps the screen uncluttered and only displays elements when they are relevant

Visibility

- The design should make all needed options and materials for a given task clearly visible

- Do not distract the user with extraneous or redundant information

- Do not overwhelm users with alternative

REALLY QUIT?

YES

NO

Which is the selection option?

This conundrum can easily be fixed by making one of the options stand out more than the other. For example: adding an arrow or pulsating animation.

aie
SPECIALIST EDUCATORS IN
GAMES, ANIMATION & FILM VFX

Visibility

- Always provide the user with visual feedback when interacting with intractable components

- Use appropriate controls

- Use pop-ups carefully
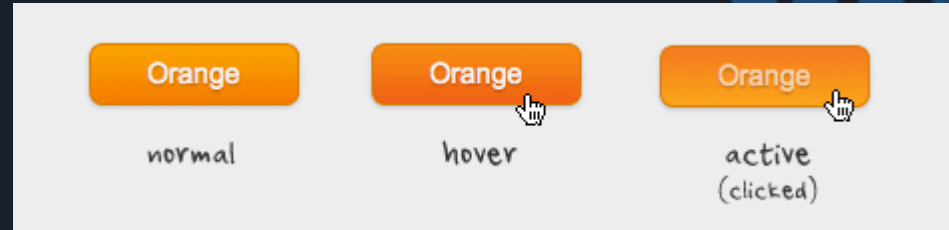
Visibility

- Try to keep everything consistent and simple

- Keep a consistent look and feel through out your application
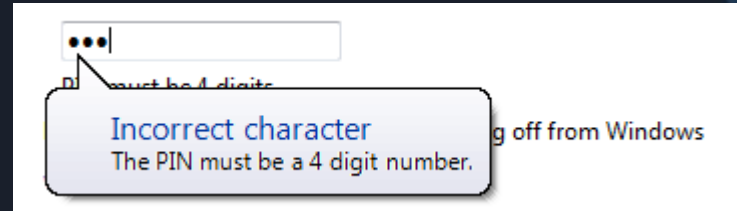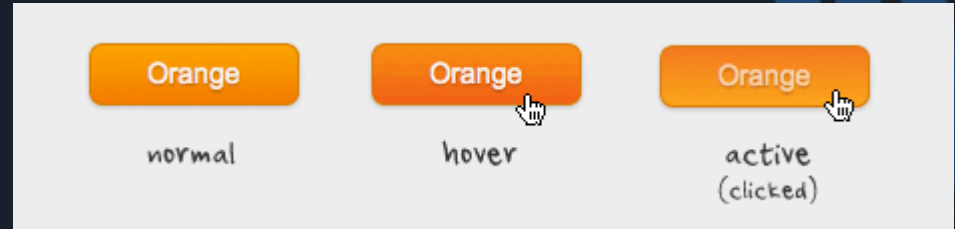

When there is too much information, allow the user to customize

Feedback

- Keep users informed of actions or changes of state

- Report errors that are relevant and of interest to the user

- Use clear, concise, and unambiguous language familiar to users

Tolerance

- Your UI should be flexible

- Should never crash based on invalid information entered by the user

- Do not provide the means for entering invalid data
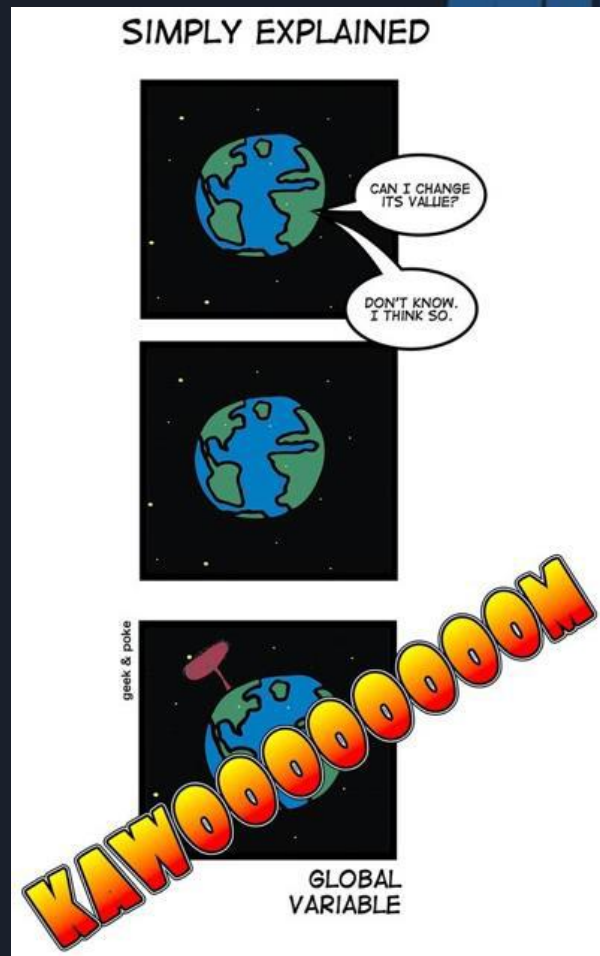
Tolerance

- Reduce the cost of mistakes and misuse by allowing undoing and redoing

- Tolerating varied inputs and sequences and by interpreting all reasonable actions
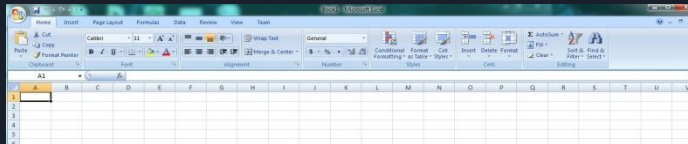
Reuse

- The design should reuse internal and external components and behaviours

- Maintaining consistency with a purpose, rather than merely arbitrary consistency

- Reduce the need for users to re-think and remember

- Helps make interfaces intuitive

Reuse

- Reuse technology and familiar metaphors
  - Microsoft products have very similar interfaces
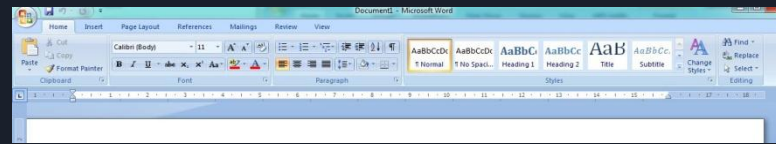
Suitability for input devices

- Design for the target hardware and platform

- A touch device will suit a subtly different UI to a PC with mouse. A Game pad is different again

- Don't produce one UI and assume it works on all devices

The PC version of Skyrim received a lot of criticism for its console centric interface

Tips

- Grouping
  - Too many options confuse, group related options together into sub-menus

- Feedback
  - Always give feedback when users perform actions

- Layout
  - Use a layout that users are familiar with

- The 2-Click Rule
  - If an option/setting is more than 2 clicks away, its probably too convoluted
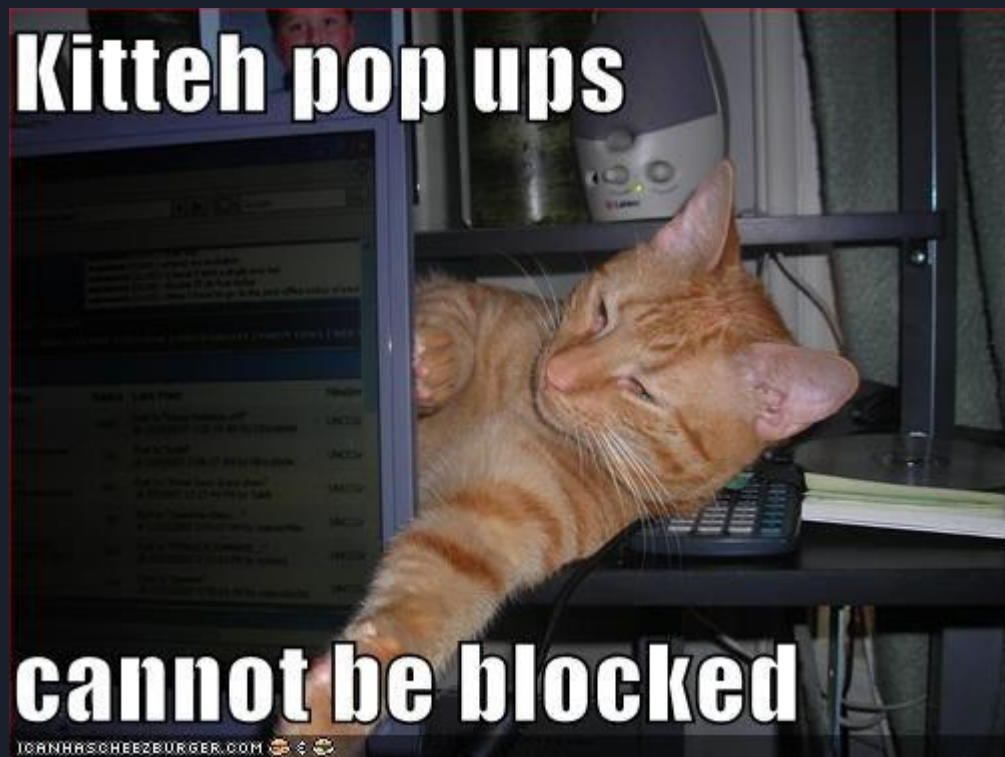
Example HUDs

- Make sure you submit 2 (different) HUD designs with your assignment

Summary

- Always give users feedback when they perform an action

- Use a layout with which the users are familiar

- Too many options may confuse – group related ones into sub menus

- Note that complex nested menus are difficult for users to navigate

Questions

References

- http://www.gizmodo.com.au/2014/01/14-design-trends-for-2014/

- http://gamedevelopment.tutsplus.com/tutorials/game-ui-by-example-a-crash-course-in-the-good-and-the-bad--gamedev-3943