Human Computer Interaction

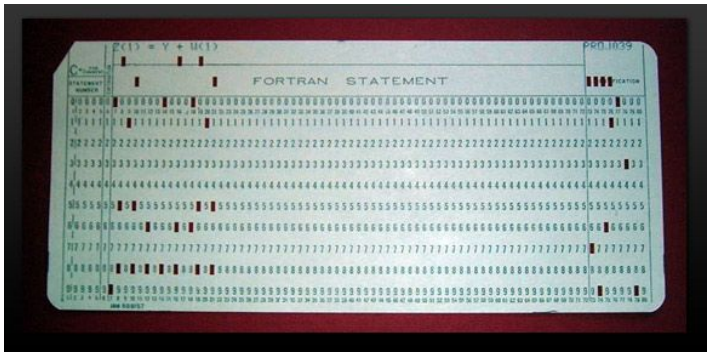
An Important Concept (*UX*)

Since the beginning...

Engineers and hobbyists have struggled to control and manipulate computers.

Early Programming

Input



Punch Cards

Tape Roll

Since the beginning...

Engineers and hobbyists have struggled to control and manipulate computers.

Early Programming

Input

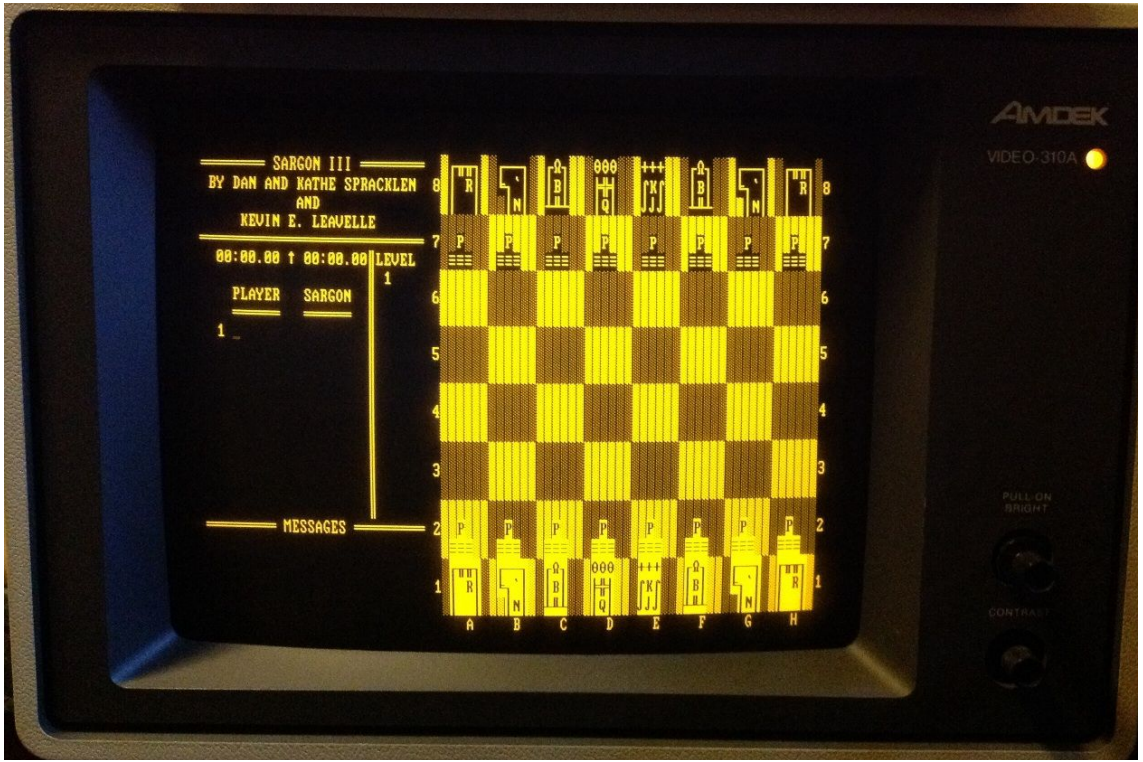
Buttons and Switches

Output

Analog Gauges

Since the beginning...

Then Output passed Input



Since the beginning...

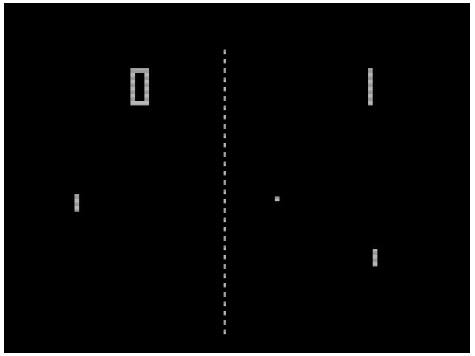
So Input caught up

First Mouse - Doug Engelbart

The point

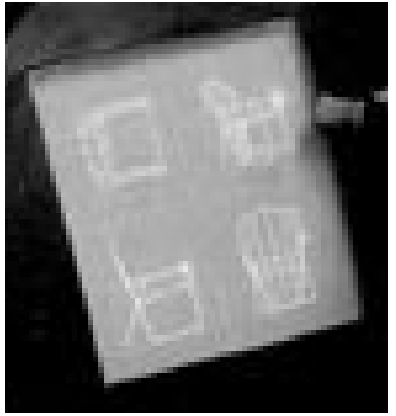
Joystick

Back and Forth



Pong

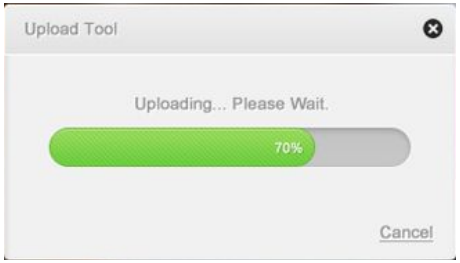
First Drawing Pen

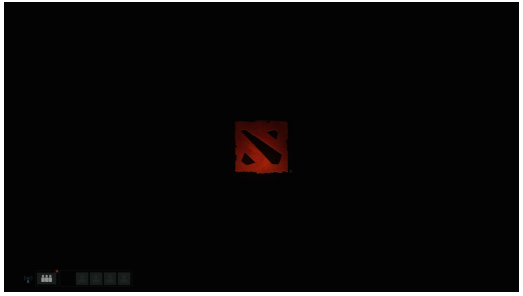


Drawing software

Response Times

Realtime

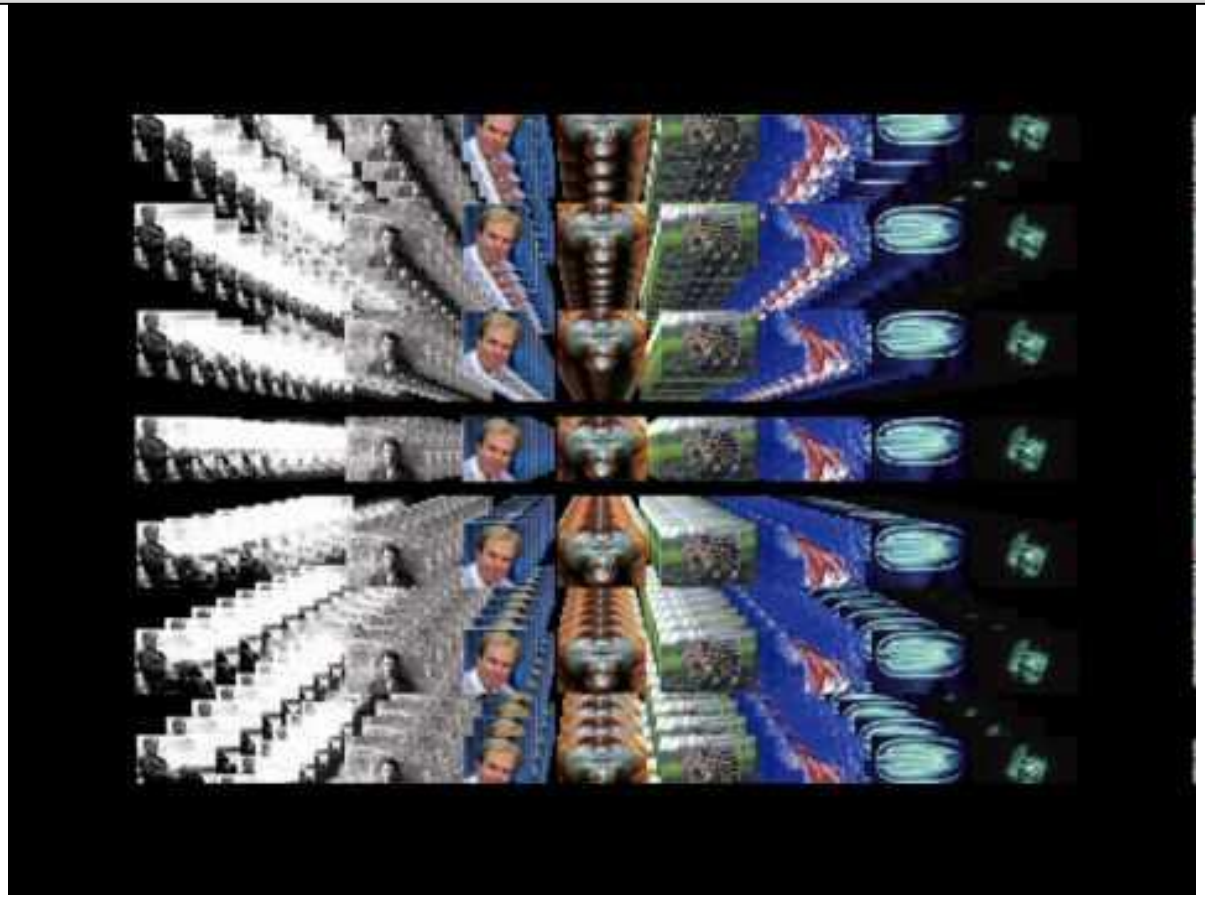




- **0.1 second** is about the limit for having the user feel that the system is **reacting instantaneously**, meaning that no special feedback is necessary except to display the result.
- **1.0 second** is about the limit for the **user's flow of thought** to stay uninterrupted, even though the user will notice the delay. Normally, no special feedback is necessary during delays of more than 0.1 but less than 1.0 second, but the user does lose the feeling of operating directly on the data.
- **10 seconds** is about the limit for **keeping the user's attention** focused on the dialogue. For longer delays, users will want to perform other tasks while waiting for the computer to finish, so they should be given feedback indicating when the computer expects to be done. Feedback during the delay is especially important if the response time is likely to be highly variable, since users will then not know what to expect.

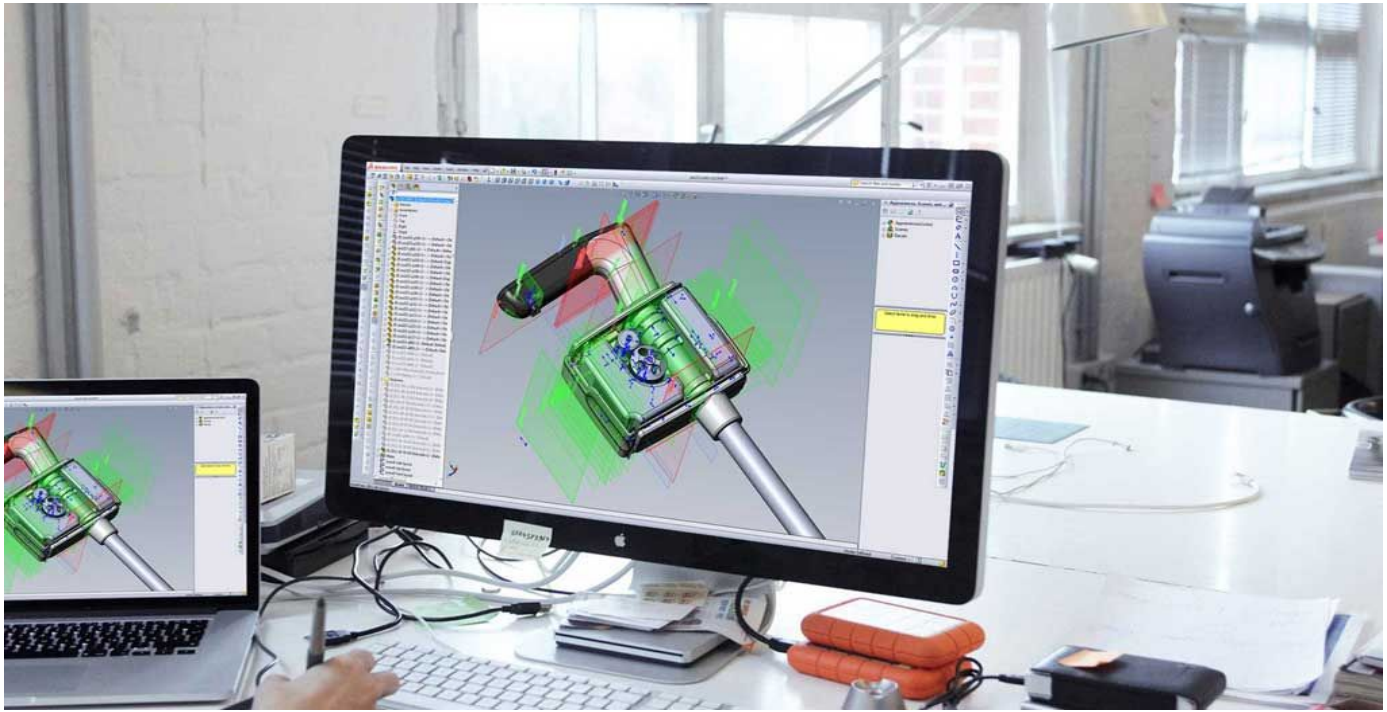
Nielsen Norman Group
https://www.nngroup.com/articles/response-times-3-important-limits/

Human Computer Interaction



Our tools evolve to meet our needs

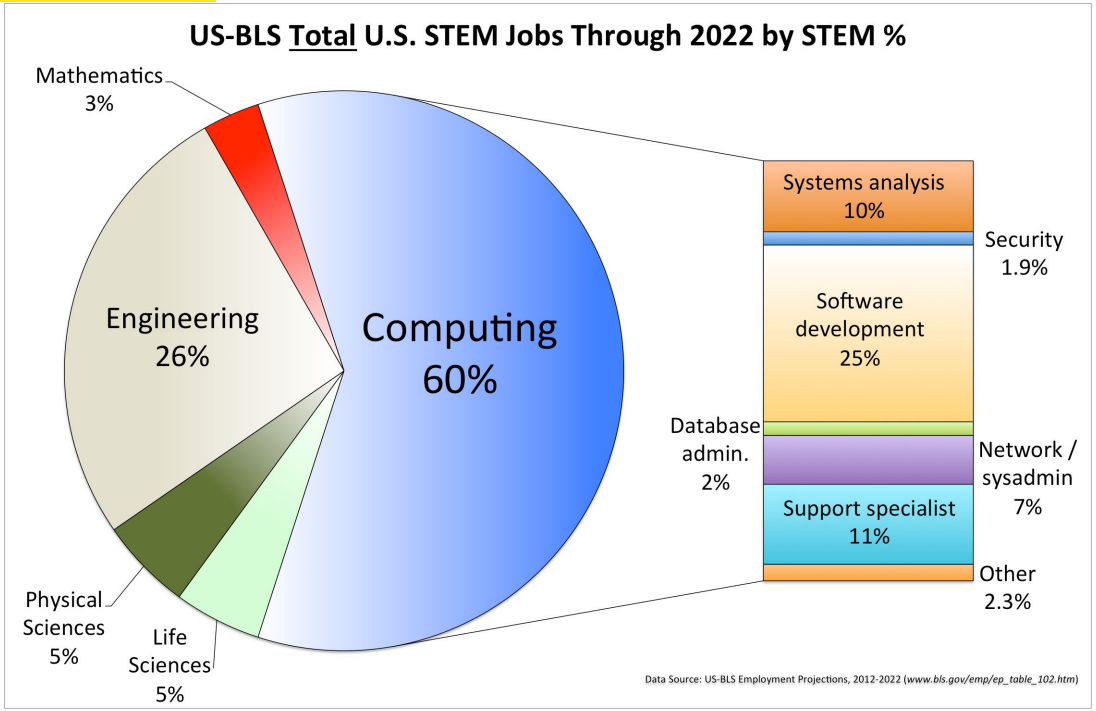
Tooling Engineer



Individuals that build tools to improve how humans work or play

- Payroll Software
- 3D Design Tools
- Ergonomic Design
- Accessibility Tools
- Localization Tools
- ...

Tooling Engineer

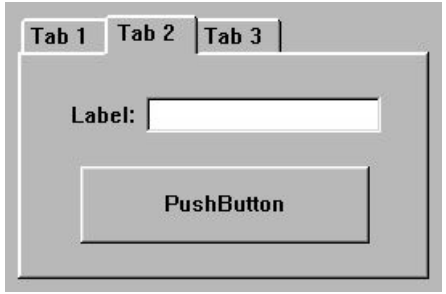


Building software and tools to support new jobs and occupations.

Back to Software for a moment...

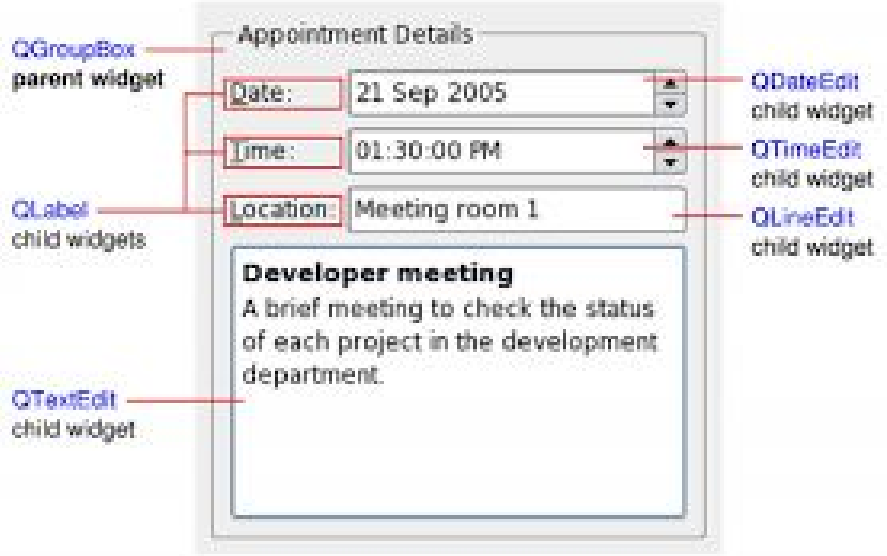
Widget Toolkits (Built-ins)

Early Windows



Common Controls

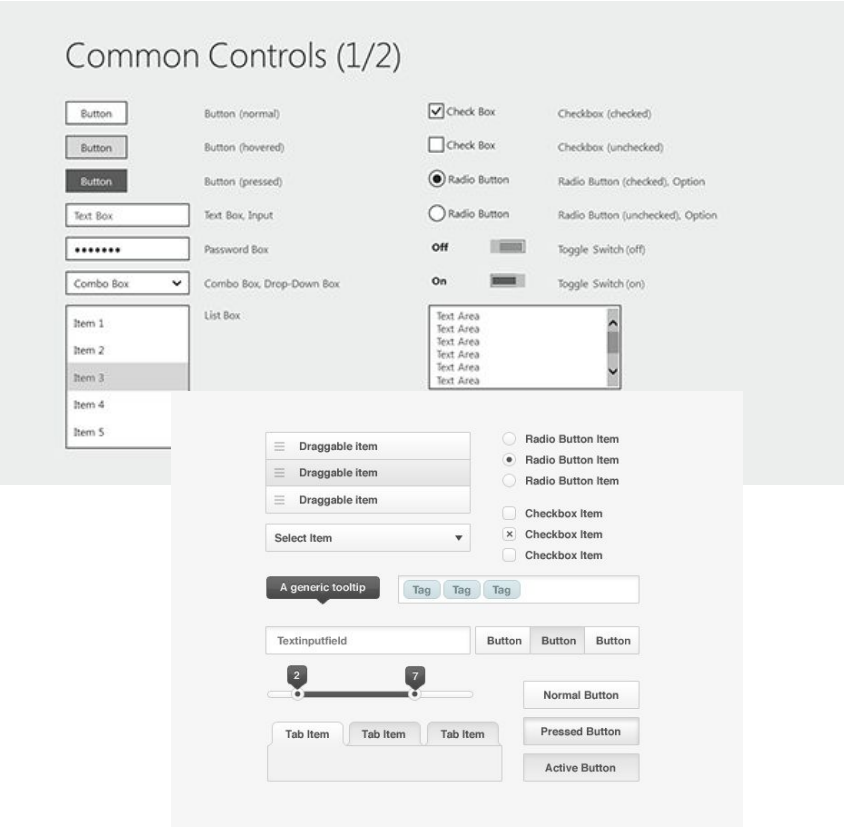
Early Qt (4.8)



Back to Software for a moment...

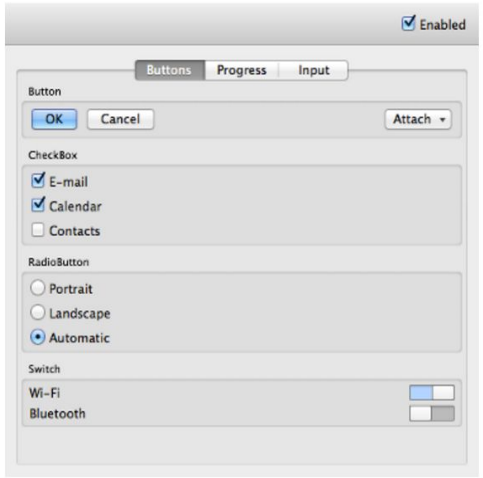
Widget Toolkits (Built-ins)

Windows RT

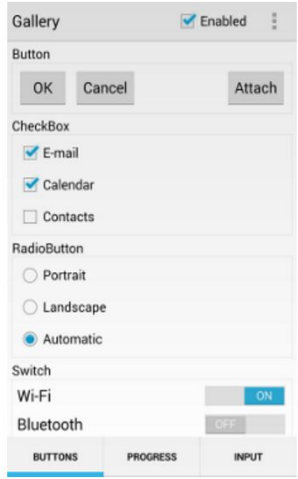


Qt5

Qt Quick Controls - Gallery



OS X



Android - Nexus 5

http://doc.qt.io/qt-5/qtquickcontrols-overview.html

http://doc.qt.io/qt-5/qtquick-controls-qmlmodule.html

Producing the Next Big thing.

Use this knowledge to touch up your storyboard a little. If you haven't tried wireframe, checkout -

http://pencil.evolus.vn/Default.html

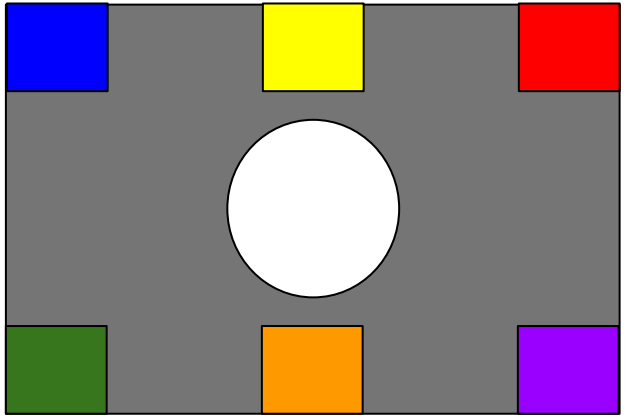
20 Excellent Wireframing tools

What will you create?

It all starts with an idea

Live Coding Demo

Expanding on the live coding demo from yesterday….



We will add -

- Drag and Drop input
- Flow object
- Qt Quick Controls Slider
- More on Behaviors
- Dynamic Resizing of Elements (based on input)

Suggested Reading
(QML Book)

4.5 - 4.7

http://qmlbook.github.io/en/ch04/index.html#positioning-elements