

CS-E5250 Data-Driven Concept Design

Prototyping and Tools for It

Mika P. Nieminen

Mathias L. Hoerlesberger

Special thanks to Aqdas Malik

CS-E5250@aalto.fi

Agenda

- Learning outcomes
- Concept Design: Visualization and Validation
- Prototyping
 - Low Fidelity Wireframing
 - High Fidelity Prototyping

Learning Outcomes

After this Assignment:

- You know how to create product and service concepts and develop select parts into visualised prototypes of various fidelity.

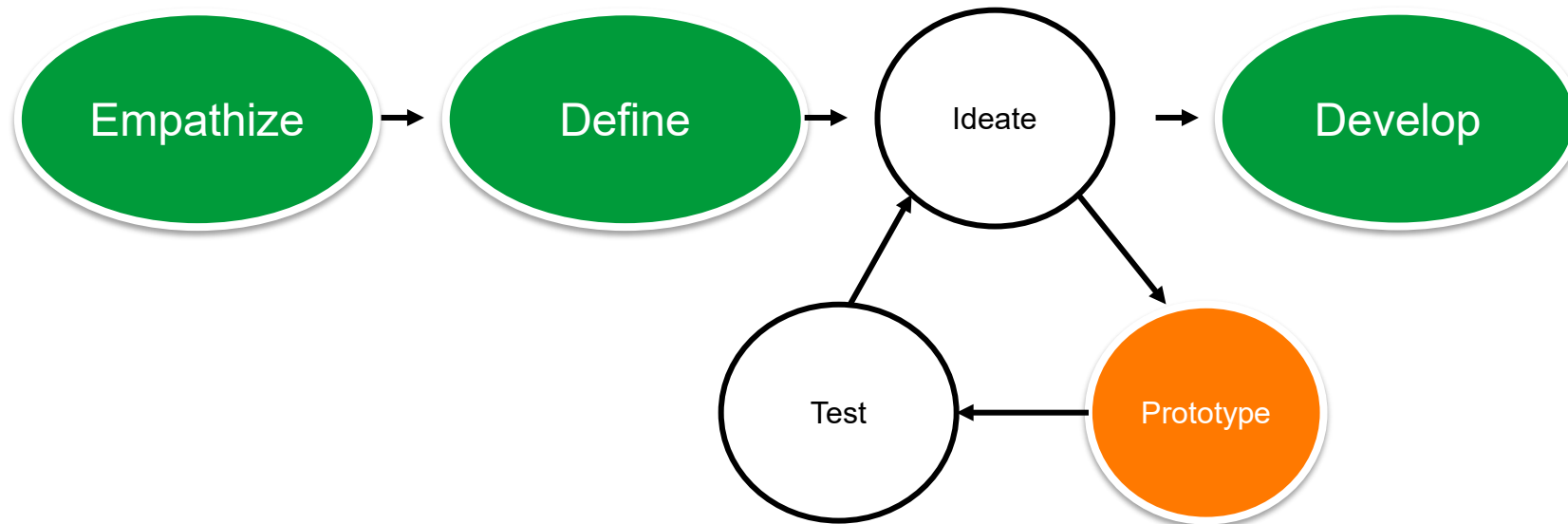
What is prototyping?

- A process of generating preliminary versions of a software (or any product) with an aim to ideate further, gather data from target users, and test its functionality.
- In UCD framework, prototyping is one of the integral tool used for learning as well as evaluating the design and performance.
- Goal is to build a software that is intuitive and easy to use.

Why prototype?

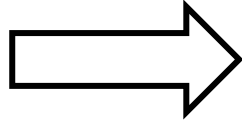
- Detect flaws and failures faster and early
- Identify wrong assumptions and oversights about user needs
- More insights about the context of use
- Enhanced communication among stakeholders
- Support in assessing and choosing among alternatives
- Reduced development costs and time

Prototyping in UCD



Prototyping fidelity

Visual design
Content
Interactivity



Low fidelity
Medium fidelity
High fidelity

Stages of prototype development



Low fidelity prototyping

- Aims to gather basic and initial requirements
- Focuses on users, context of use, flow of events
- Used within interviews, focus groups, design workshops
- Communicate and generate ideas among team
- Proof of concept
- Sticky notes, wireframes, paper prototypes/sketches, Powerpoint, Pencil project, Balsamiq

Low fidelity prototyping - Advantages

- Fastest way for visualizing concepts
- Can be applied to any type of software/device
- Rapid experimentation
- Quick initial feedback from users
- Supports in clarifying the user needs and requirements
- Useful in detecting usability issues early very early
- Communication channel between users and designers
- Anyone can do it
- Minimal resources and effort

Low fidelity prototyping - Limitations

- Requires effort and imagination from users
- Hard to convey complex operations
- Lacks interactivity, feeling, experience
- Testing uncertainty

Balsamiq

- Low fidelity
- Rapid wireframing
- Digital paper sketching tool
- Focus on structure and content
- UI components, icons, drag & drop, resize
- Limited interactivity
- Windows, Mac, Cloud
- 30 days free trial

www.balsamiq.com

Bank of The World | My Account | Help | Log Out

Accounts | Bill Pay | Transfer

All Accounts > Checking | September 19th, 2013

Checking Account | Available balance: \$4,217.48

Filter: All | Current Month | Last Month | Custom | search transactions | Search

Transactions from September 1st to September 19th, 2013 | Print | Download

Date	Description	Type	Amount	Balance	Actions
processing	Balgreens	Debit	-\$27.33	\$4217.48	View Details
Sept 19	Bill's books	Debit	-\$18.37	\$4244.81	View Details
Sept 17	Bank of The World	Withdrawal	-\$80.00	\$4263.18	View Details
Sept 17	Check 465	Check	-\$27.00	\$4343.18	View Details View Check
Sept 16	Local 123	Debit	-\$12.17	\$4370.18	View Details
Sept 15	Bank of The World	Deposit	\$1711.68	\$4382.35	View Details
Sept 15	Monterey Market	Debit	-\$43.60	\$2670.67	View Details
Sept 15	The Cheese Board	Debit	-\$11.05	\$2714.27	View Details
Sept 14	BART	Debit	-\$20.00	\$2725.32	View Details
Sept 13	Bank of The World	Withdrawal	-\$80.00	\$2745.32	View Details

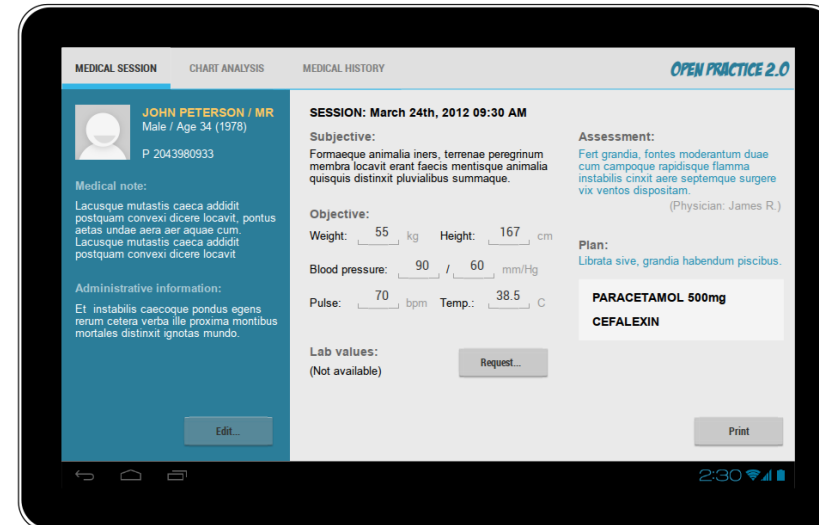
WIREFRAME DEMO

<https://youtu.be/0mYYqsJ-rE8>

Pencil project

- Open source
- Low fidelity prototyping
- Mockups and wireframes
- Easy to use
- Wide selection of stencils for Android, iOS
- Some issues with download
- Limited customer support/training
- Free

<https://pencil.evolus.vn/>



High fidelity prototyping

- Visualizes the user requirements in detail
- Users can interact with dialogs, enter data, navigate between screens, view transitions etc.
- Pretty close to real-life behavior with the intended system
- Detect critical usability issues related to interactivity
- Support in enhancing the overall UX
- Feed to the UI specification

High fidelity prototyping - Advantages

- More natural behavior and realistic feedback from users
- Specific UI elements and interactions can be evaluated
- Clear idea and easy buy-in from stakeholders and clients

High fidelity prototyping - Limitations

- Costs
- Resources
- One or two design alternatives
- Learning curve

Invision

- Highly popular prototyping tool
- Collaborative
- Export static screens
- Transform to clickable prototypes through animations, transitions, and gestures
- Web-based
- Free license available

www.invisionapp.com/



DEMO

<https://www.youtube.com/watch?v=0qisGSwZym4>

Keynotopia

- Mockups and interactive prototypes in Powerpoint or Keynote
- Numerous UI design templates
- iOS, Android, Web, Blackberry, Windows
- No support for gestures (e.g. swiping, pinching)
- Cost: \$97

www.keynotopia.com

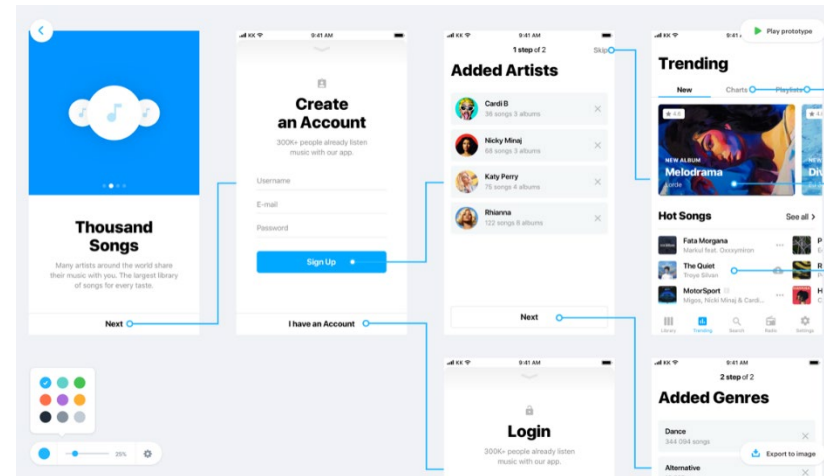


<https://youtu.be/QvMFu29n1O4>

Marvel

- Design and prototyping
- Collaboration
- Web-based
- Very easy to use
- Exports from Sketch and Photoshop
- Support for gestures and transitions
- Web, iOS, Android, Apple watch
- Price: Free - \$30/month

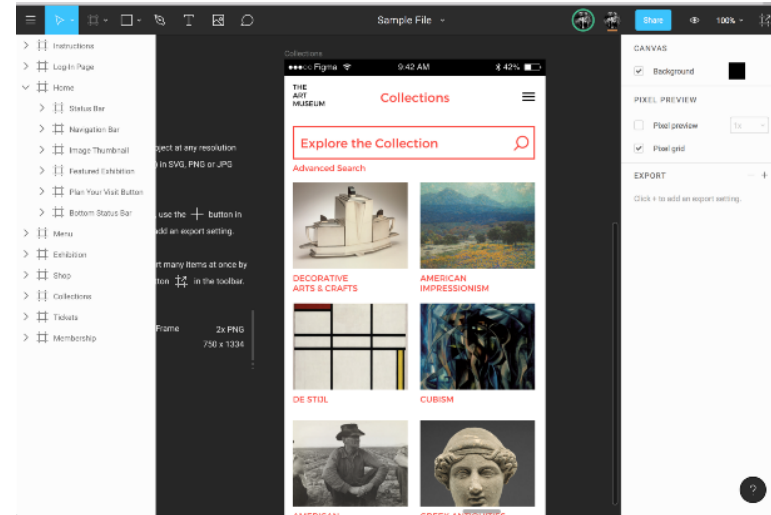
www.marvelapp.com



Figma

- Web-based (offline desktop version)
- Very similar to Sketch
- Real-time design collaboration
- Team library
- Steep learning curve
- Price: Free - \$41/user/month

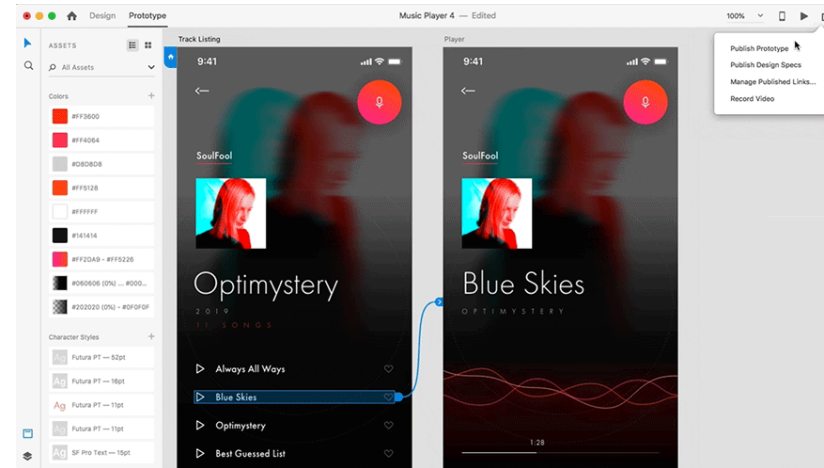
www.figma.com



Adobe XD

- Similarity and integration with Photoshop and Illustrator
- Lightweight
- Single app or part of Adobe creative cloud
- New features constantly added
- Price: Free - \$9.99/month
 - Available in Adobe CC for Aalto users

<https://www.adobe.com/products/xd.html>



https://youtu.be/brYZ_2Pe-8

Assess and compare prototyping tools

<https://www.prototypr.io/prototyping-tools/>

<https://www.guru99.com/prototyping-tools.html>

<https://uxtools.co/tools/design>

Tutorials

<https://balsamiq.com/tutorials/>

<https://www.invisionapp.com/inside-design/sketch-tutorials/>

<https://marvelapp.com/examples>

<https://www.figma.com/best-practices/>

<https://www.adobe.com/products/xd/learn/view-all-xd-tutorials.html>

Assignment 4, Deliverable 1

Design Specification

Group Assignment

Assignment A4-D1 Instructions

Group assignment

1. Produce a design specification for your service (A3-D2).
2. Find supporting facts and use them to prioritize your...
3. Service requirements in minimum of three types
 - a. User (stakeholder) requirements
 - b. Business Requirements
 - c. Functional (solution) requirements

Assignment 4, Deliverable 2

Low Fidelity Wireframing

Group Assignment

Assignment A4-D2 Instructions

Group assignment

1. Produce a low-fidelity concept visualization
2. You might do wireframes for screen-based concepts or a story-board for a spatial concept.
3. You should include all or most of the Design Specification requirements and your concept's functionality.
4. Pay special attention to
 - a. Information design,
 - b. Navigation design, and
 - c. Interface & Interaction design

Wireframing Essentials : an Introduction to User Experience Design. Hamm, Matthew J. Birmingham, England: Packt Publishing, 2014. Print. https://primo.aalto.fi/permalink/358AALTO_INST/1g8mond/alma999333715606526

The Elements of User Experience User-Centered Design for the Web and Beyond. Garrett, Jesse James. 2nd ed. Berkeley, CA: New Riders, 2011. Print. https://primo.aalto.fi/permalink/358AALTO_INST/ha1cg5/alma999354855906526 For wireframes see chapter 6.