Apply A Process by Prototyping

Prototypes

Spiral Process / Unified Process & Prototypes

five types of prototypes

- illustrative
- exploratory
- throwaway
- incremental
- evolutionary

Illustrative prototype 1/3

Illustrative prototype is

- the most basic prototype
- to share an idea using a low-fidelity, disposable image

Form of an illustrative prototype

- drawings
- a brief slideshow
- index cards with components drawn onto them

Illustrative prototype 2/3

Functions of an illustrative prototype

- help to get the systems look and feel right without investing much time or money into developing a product.
- give a really good idea of how the product will look when it's finished.
- can save a lot of time in development later on.

Illustrative prototype servers

- as a way to weed out bad ideas
- as a guide for development

Illustrative prototype 3/3

mock up prototypes

- sketching key features in a drawing program
- tying them together by using a slide show editor

drawn on paper

- demonstrating by swapping out one paper screen for another

beyond

- faking the functionality by having a human control behind the scenes
- » timing [humain control] & one slide show on each side

exploratory prototyping 1/1

exploratory prototyping

- takes more time
- a more comprehensive understanding of what the product will look like
- build working code so that you can actually see what's possible

- allows to focus just on what the products **look** and **feel** is
- help to determine the effort it takes to build the product

motivation of exploratory prototyping

» the product developers want to study how feasible some product idea is.

- beyond what the product looks like
- how realizable it is to develop the product,
- how useful the product may be

throwaway prototype: the first version of a product

why throwaway prototype

- The first version often has various problems.
- » build a second version from scratch?

- avoid sticking to the first version
- There could be many useful lessons to be learned and problems to avoid in the second version.

Quiz

Context

- Carly just built her first iteration of her product, and now she has her first working product prototype.
- She shows it to her client, who then tells her that after seeing what the design looks like in real life, they should take a different approach.
- Carly's forced to discard her original prototype and start from scratch.

What type was her original prototype?

- A. Working.
- B. Illustrative.
- C. Throwaway.
- D. Iterative.

Quiz

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- B. Illustrative.
- ✓ C. Throwaway.
- D. Iterative.

[working software]

- ✗ illustrative prototype
- ✓ throwaway prototype

Prototyping

prototypes & final version of the product

- ✗ illustrative
- ✗ exploratory
- ✗ throwaway
- ...

prototypes & actual product development

- incremental
- evolutionary

the idea

to have working software for each successive prototype » any of which could be released as a version of your software product.

incremental prototyping 1/4

incremental prototyping

- works in stages
- based on a triage system.
- build and release your product in increments, one at a time.

stages & priorities

- assess each of the system's components
- assign them a priority
- develop from most important to least important

incremental prototyping 2/4

features & priorities 1/2

assign priorities to a software product's features based on

- what must be done
- should be done
- what could be done

incremental prototyping 2/4

features & priorities 1/2

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- what must be done
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features & priorities 2/2

- must-do priority: core features
- should-do priority: all the features which would support your product, but aren't absolutely critical
- could-do priority: everything else that seems like an extraneous feature

incremental prototyping 2/4

features & priorities 1/2

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features & priorities 2/2

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- should-do priority: all the features which would support your product, but aren't absolutely critical
- could-do priority: everything else that seems like an extraneous feature

- starting with the features which you assigned to the must-do priority » released as an incremental prototype
- as resources permit, you develop features under the should-do priority
- ...

incremental prototyping 3/4

a messaging app

You're developing a messaging app. First and foremost, you want your users to be able to talk to each other through the app.

must-do

Anything related to that, like

- integrating the ability to find other users' message,
- sending or receiving functions, or
- text editing
- ...,
  could be your highest priority.

incremental prototyping 4/4

should-do

- add profile pictures
- post status updates
- message groups of people

could-do: any features like being able to

- change message fonts,
- send custom drawings to other users
- post links

Quiz

What sets incremental prototyping apart from illustrative, throwaway, or exploratory prototyping?

- A. incremental prototypes use a triage system.
- B. incremental prototypes get discarded after they are created.
- C. incremental prototypes do not contain any code.
- D. incremental prototypes may contain working software for the end product.

Quiz

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incremental prototyping

- ... allow development team to create a potentially releasable product.
- ... features which have been prioritized using a triage system.

evolutionary prototype 1/

[recall] incremental prototyping: the most important features » the least important

begin with a core set of features and add new features over time.

- prioritize a software product's features using a triage system
- build successive, incremental prototypes
- » the end product is feature-rich

evolutionary prototyping

begin with a set of **all the features in basic form** and refine or evolve them over time.

- make the existing features easier or more flexible to use.
- the end product is feature-mature [and feature-rich]

evolutionary prototype 2/

example: adding a profile picture in the messaging app

- specify the path of the photo
- choose the photo from a drop down menu of available photos
- drag and drop functionality

incremental & evolutionary prototyping

- make working software at regular intervals to gain further feedback
- a real morale boost for your development team

prototyping & process

core idea behind prototyping

» to gain feedback on versions of your product.

Prototyping & spiral/unified process 1/2

initial prototypes

- spend a minimal amount of time
- make the most efficient use of your resources

prototyping & spiral/unified process

- first iteration of the spiral model just creating an illustrative prototype
- inception phase: first iteration of the spiral model just creating an illustrative prototype

how a prototype would fit into these models?

- In the spiral model, imagine where you would start.
- Usually, the place to start is by creating a prototype
- -> go through the first iteration of the spiral model just creating an illustrative prototype.
- -> scribble a few drawings onto the paper, and get an idea of how your system will work.

(similar for the inception phase of unified process)

Prototyping & spiral/unified process 2/2

- By creating prototypes, you can better visualize what your product does,
- and therefore make feature decisions based on what the product might look like.
- ... (it doesn't stop there)
- imagining the possibility of combining the illustrative prototype with an incremental or evolutionary prototype

- Your first version is just an idea written on a few pieces of paper.
- Then, to further test your idea, you outline some key features and start building.
- ... (prototype / working software)

(next on continuous delivery)