

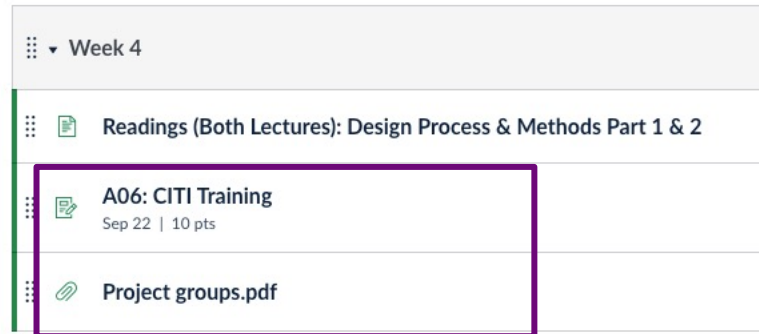
Human Computer Interaction

Taslima Akter

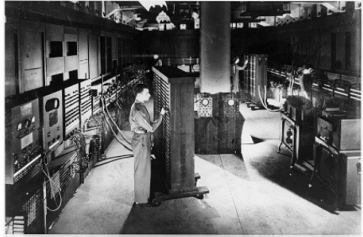
Design Processes &
Methods – Part 1

Canvas Update

- › Grades for A04 & A05 are released
- › Project groups are assigned
- › A06 is posted
- › P2 will be posted soon!



First 25% of Intro to HCI

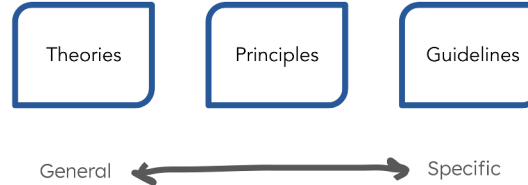


roots of HCI

...



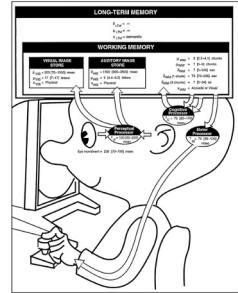
modern HCI



guidelines (e.g.,
navigation)

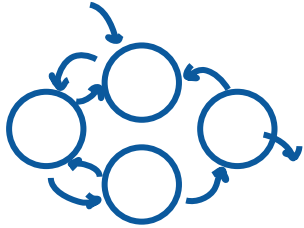
Visibility
Feedback
Constraints
Consistency
Affordances
Mapping

Norman's
principles



models (aka
theories) of
human
behavior

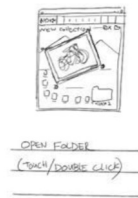
Next 25% of Intro to HCI



the UX design
process



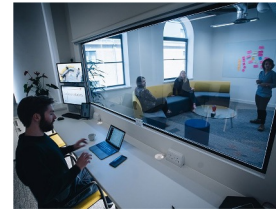
user
involvement



design
ideation
& comm.



prototyping



user testing



representing
users



Today

- › Motivations of UX Design Profession
- › Characteristics of UX Design Profession

Motivations

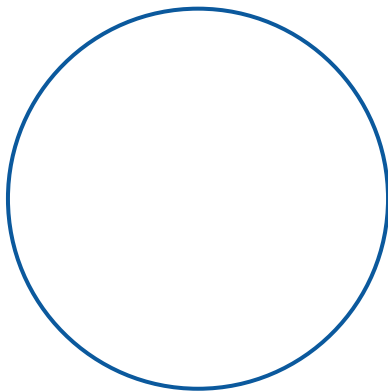


% of Software Projects that are...

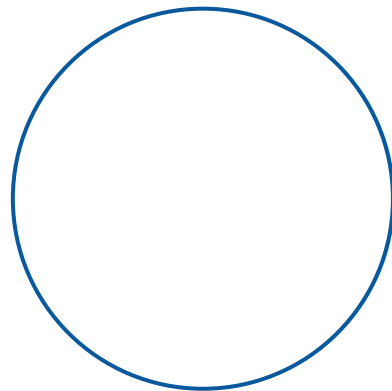
onbudget



ontime

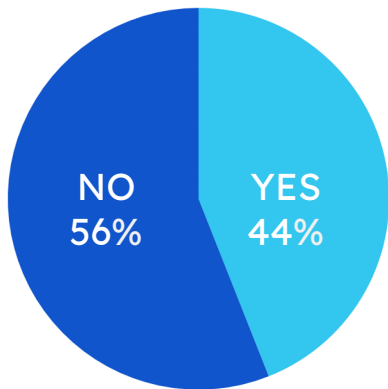


ontarget

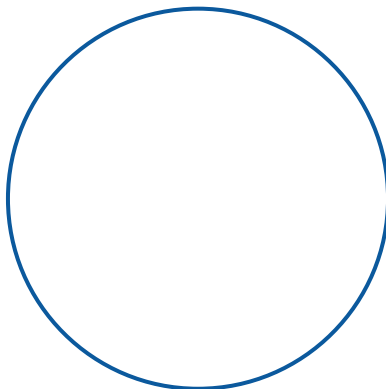


% of Software Projects that are...

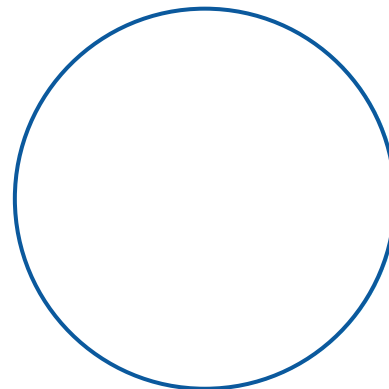
onbudget



ontime

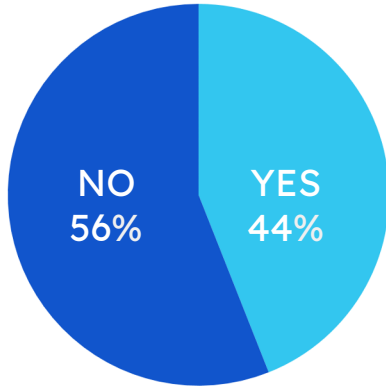


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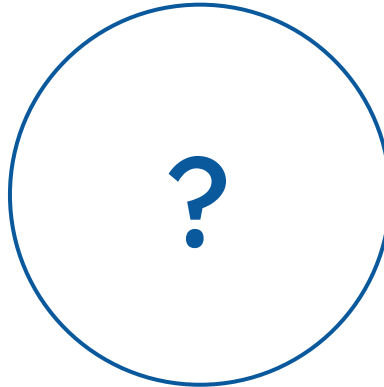


% of Software Projects that are...

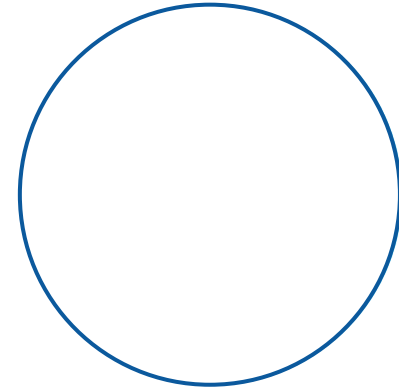
onbudget



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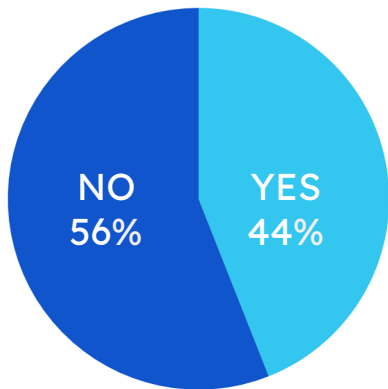


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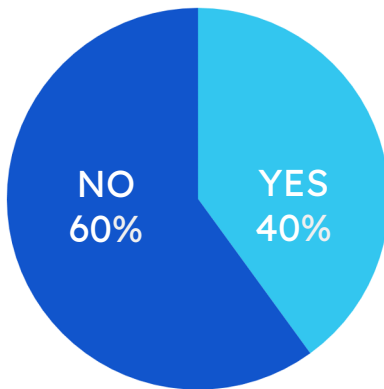


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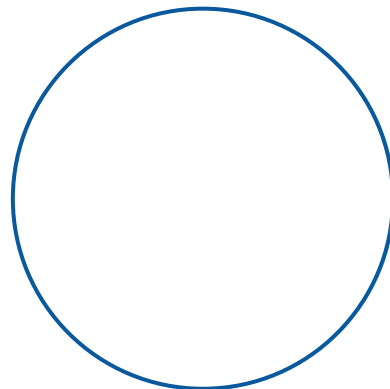
onbudget



ontime

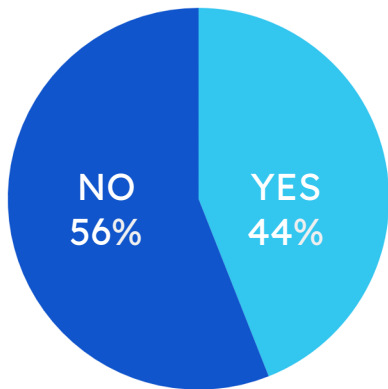


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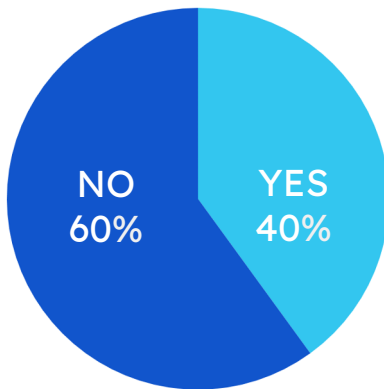


% of Software Projects that are...

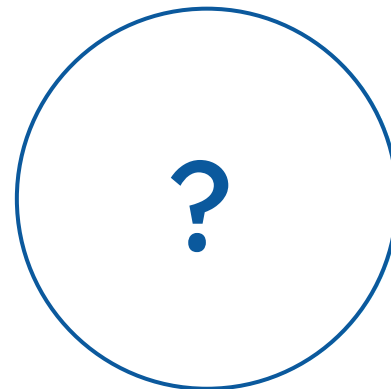
onbudget



ontime

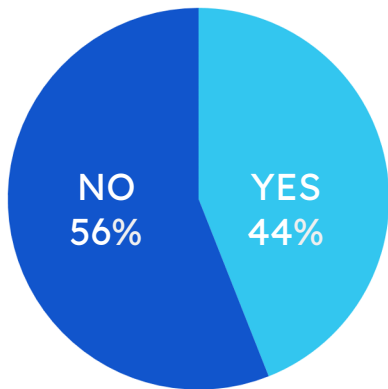


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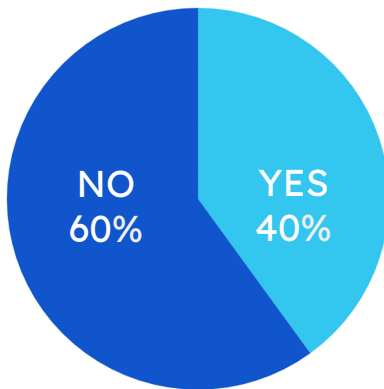


% of Software Projects that are...

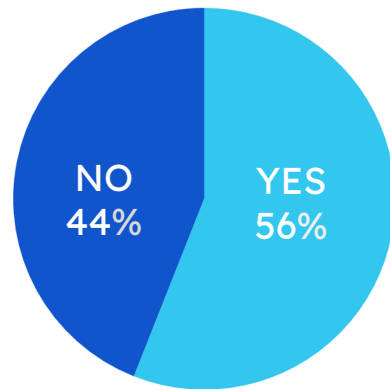
onbudget



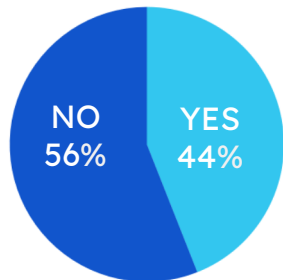
ontime



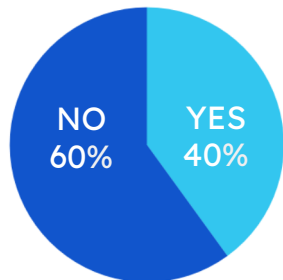
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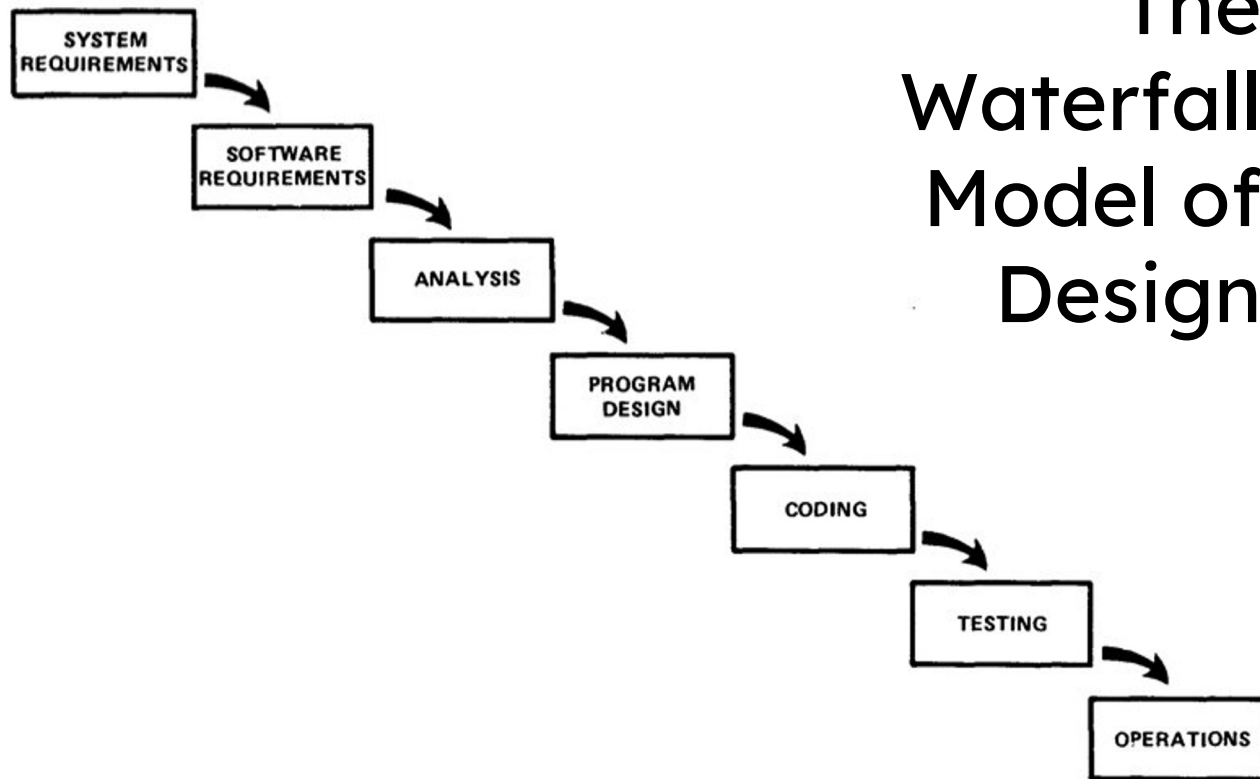
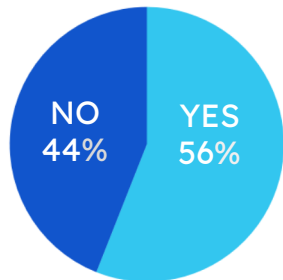
onbudget



ontime



ontarget



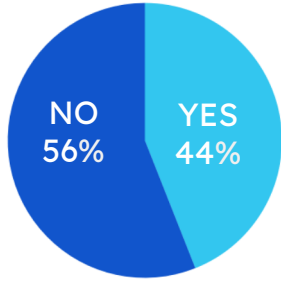
A meme featuring a close-up of a man with glasses and a skeptical expression, likely from the TV show 'The Office'. The background is a blurred office setting with another person visible in the distance.

WEBSITE IS DONE!

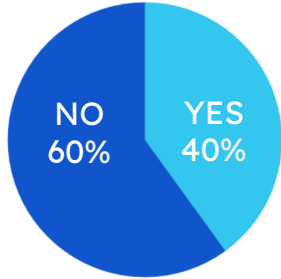
**FALSE. A WEBSITE IS NEVER
"DONE"**

The Waterfall Model of Design

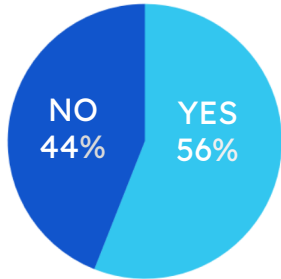
onbudget



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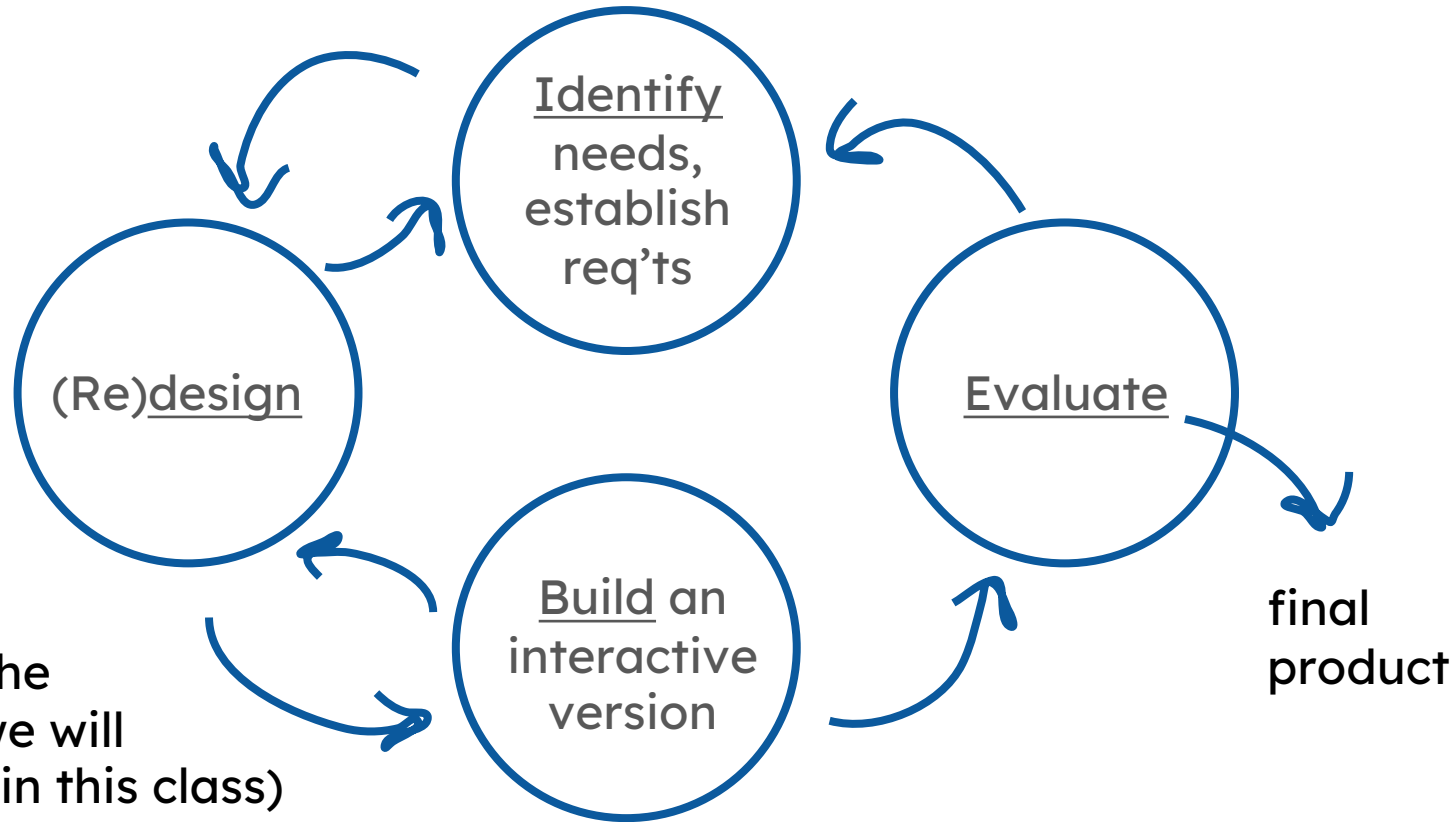
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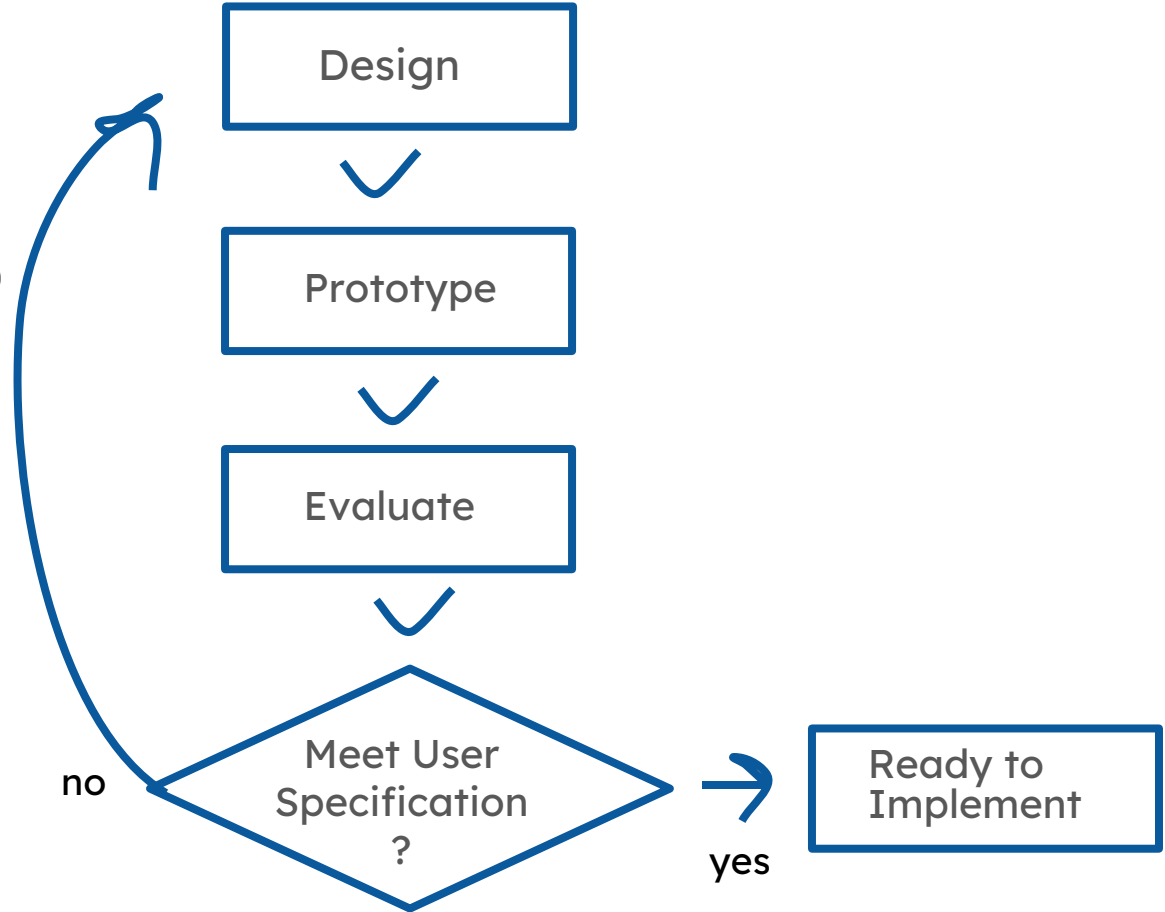
2% budget >>
software quality

15% of that >>
user involvement

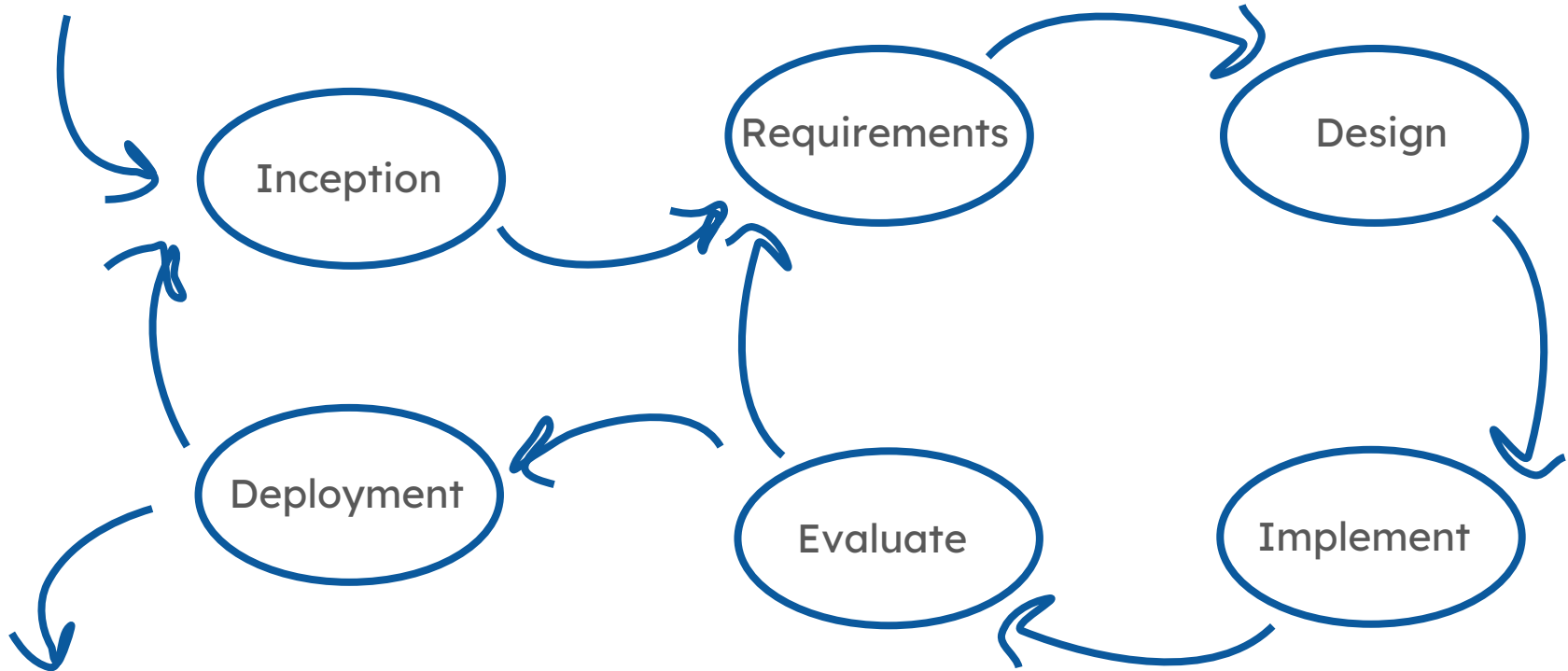
HCI Design Process (From Preece)



HCI Design Process (McCracken)

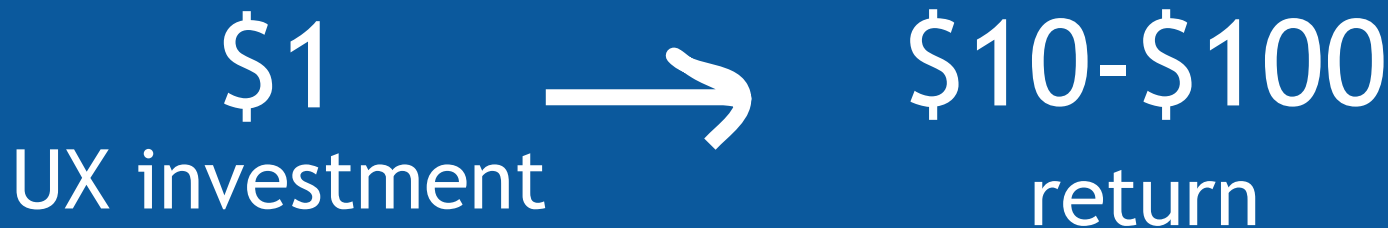


HCI Design Process (Your Book)



Return on Investment from UX/HCI

- › UX reduces dev. inefficiencies (avoid rework)
- › UX increases adoption
- › UX has been key for some of the biggest brands (Apple, Google, Amazon, Airbnb, etc.)



\$1
UX investment

→

\$10-\$100
return

Characteristics



Characteristics of Human-Centered Design

- › Early focus on users (cognitive, behavioral, attitudinal characteristics) and tasks
- › Actual measurement: observe, record, analyze users' reactions and performance
- › Iterative design: find problems, fix them, test again
- › Users should be involved throughout

IDEO's Design Process





Characteristics of Human-Centered Design (based on IDEO video)

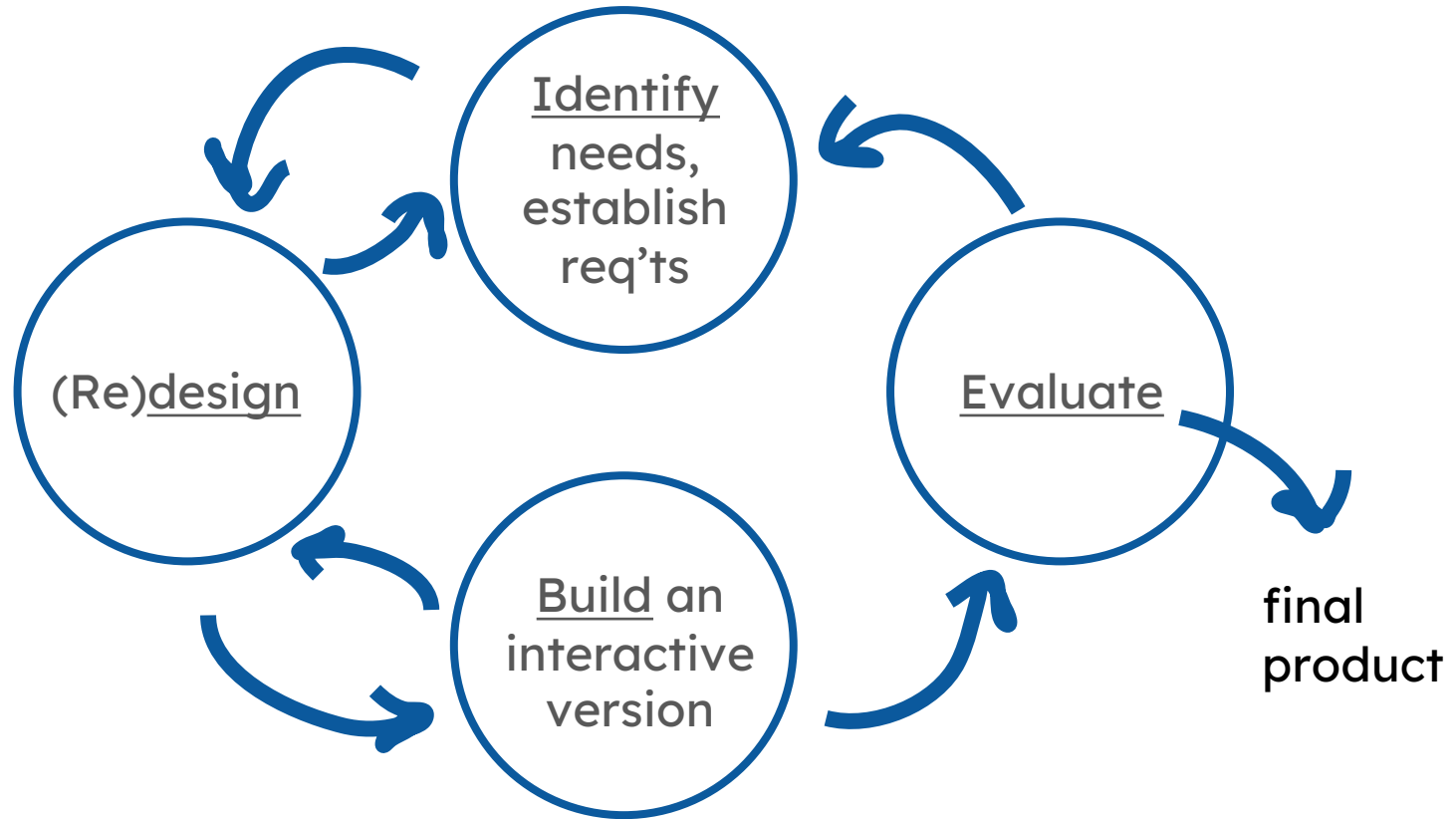
- › Ideation of the problem space
- › Identifying user needs: Talking with the stakeholders
 - › Staffs
 - › Parents
- › Iterative design -



Characteristics of Human-Centered Design (based on IDEO video)

- › fail fast and iterate
- › interdisciplinarity supports innovation
- › expertise and authority can be owned by anyone who has a user experience
 - aggregating expert research - data
 - enlightened trial and error succeeds over the planning of a lone genius
 - non-hierarchical design teams breed innovation
- › stakeholders - shop owners, grocery shoppers, ...
- › design process started with very divergent, specific design ideas, honed it in to be more practical and generally acceptable
- › design requires sketching and mockups
- › constraints - deadline
- › integrated ideas from each of the sub-teams

start here:)





Four basic activities in Interaction Design

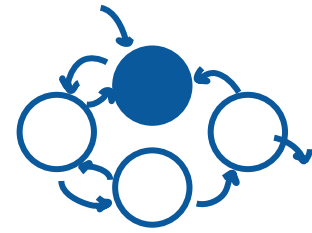
1. Establishing requirements
2. Designing alternatives
3. Prototyping
4. Evaluating



HCI Design Process (From Preece)

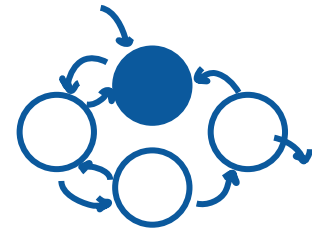
- › Identify needs, establish requirements
- › Develop alternative designs (unlike software design)
- › Build interactive versions of designs (prototypes)
- › Evaluate designs
- › Iteration and user engagement are critical

1. Identify Needs & Requirements



- › Understand the problem space
- › Understand what target users might, would, or should do with a new design
- › Conduct observations and Contextual Inquiry
- › Write scenarios – a narrative of future use
- › Design solution is judged on relevance to the individual who must use the system - The User is Not Me!!

1. Identify Needs & Requirements



focus
groups



interviews



personas



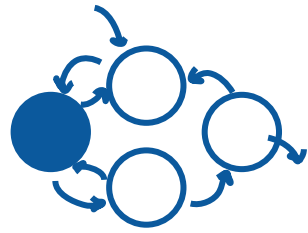
	A	B	C	D	E	F	G
	Name	Address of current location	Intersection info	Accessible entrance info	Ramps/ stairs/ elevators Location	Restroom Location	Bus inf
		25	21	10	10	9	7
AccessAble	No	No	Yes	No	Yes	No	No
Aira	Yes	Yes	Yes	Yes	No	Yes	Yes
Aridne GPS	Yes	No	No	No	No	No	No
AroundMe	Yes	Yes	No	No	No	Yes	Yes
Assist-Mi	No	Yes	Yes	No	No	No	Yes



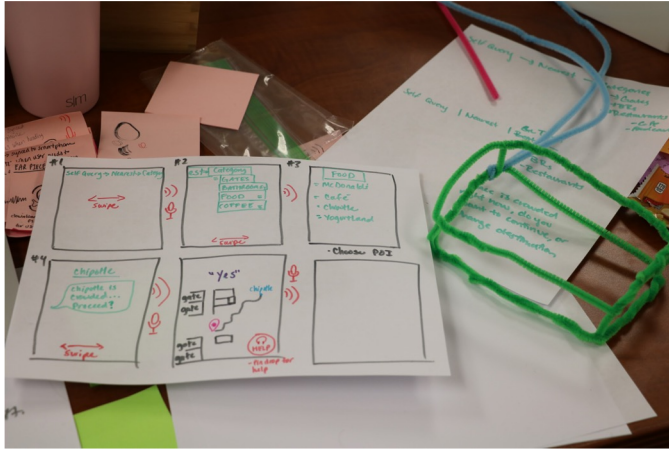
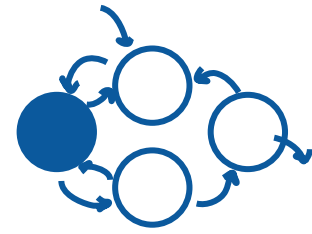
design spaces

2. (Re)design

- › Iterative cycle
- › Rapid ideation sketching
- › More scenarios and storyboards
- › Working towards a possible solution using both Convergent (narrowing) and Divergent (exploratory) thinking



2. (Re)design



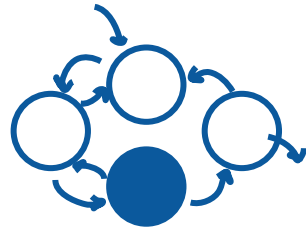
sketching and
prototyping



brainstorming

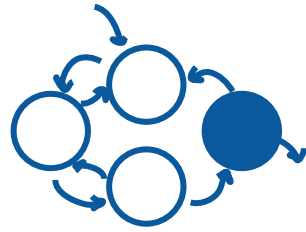
3. Build

- › Prototyping: low, medium, and high-fidelity



4. Evaluate

- › Testing with users, e.g., Think Aloud Protocol
- › Assessing success of product and process
- › Being critical of process and pitfalls
- › Plan to be better next time





Now, go back to step 1:)

- › Human-Centered Design processes are *iterative* (non-hierarchical, non-linear, flexible)
- › Steps often overlap and are a little *amorphous*-- this process diagram is just a conceptual tool

Design requires empathy

- › See problems and solutions from Other people's perspectives
- › Empathy is not enough
- › The designer can't account to the needs of a community or the unintended consequences of design on a community
- › Design *with* the world, not *on behalf* of the world

Design Responsibly

design requires deliberate practice
you must design *a lot* with *many* stakeholders,
in *many contexts*, and get *a lot* of feedback
throughout



CHECK FOR UNDERSTANDING

The most important part
of the User Centered
Design process is in
establishing the right
requirements.

- A. True
- B. False



CHECK FOR UNDERSTANDING

The most important part
of the User Centered
Design process is in
establishing the right
requirements.

- A. True
- ☒ B. False

DESIGN FRAMEWORKS

- **User-centered design (UCD)**

- Takes the needs, wants, and limitations of the actual end users into account during each phase of the design process

- **Participatory design (PD)**

- Direct involvement of people in the collaborative design of the things and technologies they use

- **Agile interaction design**

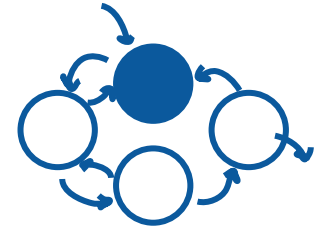
- Development methods for self-organizing, dynamic teams and that facilitate flexible, adaptive, and rapid development that is robust to changing requirements and needs

PARTICIPATORY DESIGN

- Directly involves users in the design team
- History: first used in Scandinavian industrial IT projects
- Requires a significant commitment from users, but can produce some of the best-tailored systems

AGILE INTERACTION DESIGN

- Prototypes developed rapidly
- Feedback is solicited
- Revisions are made
- Feedback taken again
- [repeat]



Human Computer Interaction

Taslima Akter

Design Processes &
Methods – Part 1

Materials in this course were compiled from courses taught by: Matt Bietz, Stacy Branham, Tyler Fox, Elena Agapie, Nigini Oliveira, Katharina Reinecke, Andrew Davidson, Jennifer Tums, Daniel Epstein, Andrea Hartzler. Thank you to all.