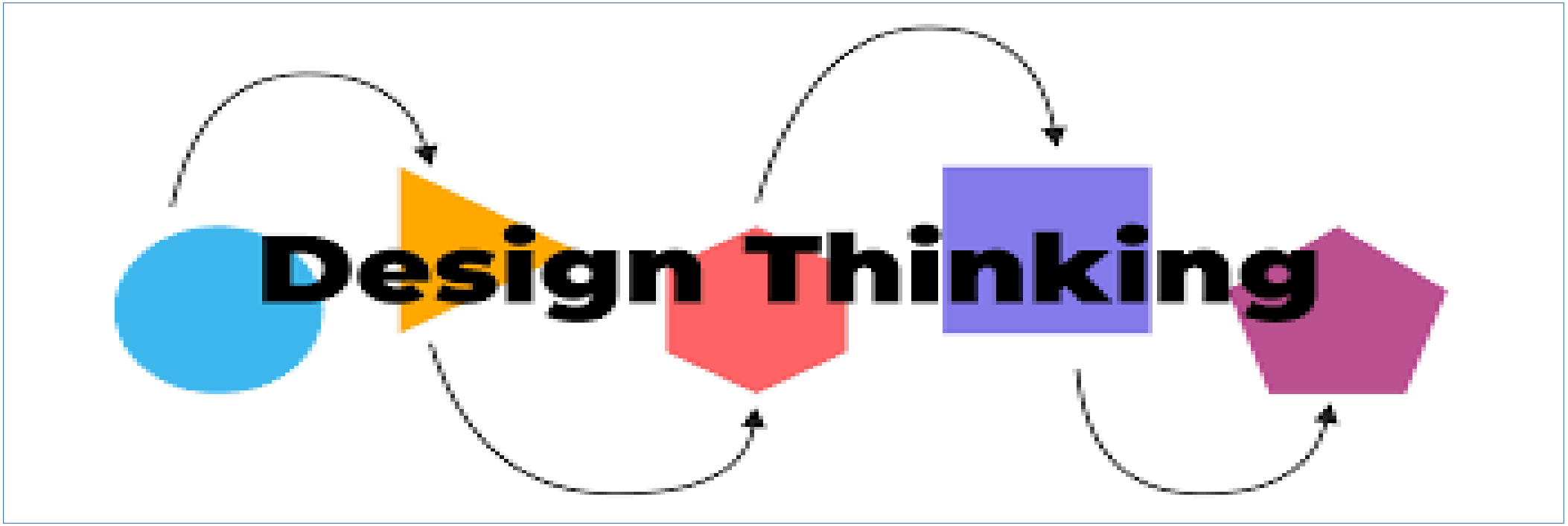
GLS UNIVERSITY

Faculty of Computer Applications & Information Technology

BCA Programme



UNIT 4: Prototype

Prototype – Introduction

- Prototyping is an integral part of Design Thinking
- Prototyping provides a set of tools and approaches for properly testing and exploring ideas before too many resources get used.
- A prototype is a simple experimental model of a proposed solution used to:
  - test or validate ideas,
  - design assumptions
  - aspects of its conceptualisation quickly and cheaply,
  - designer/s involved can make appropriate refinements or possible changes in direction.

Prototype – Introduction

- Prototypes can take many forms, and just about the only thing in common the various forms have is that they are all tangible forms of your ideas as:
  - Simple sketches
  - Storyboards used to illustrate a proposed experiential solution
  - Rough paper prototypes of digital interfaces
  - Role-playing to act out a service
- In fact, prototypes do not need to be full products: you can prototype a part of a solution.
- **Forms of Prototype:**
  - **Quick And Rough:** useful for early-stage testing and learning
  - **Fully Formed and Detailed:** usually for testing or pilot trials near the end of the project.

Importance of Prototype

- Research conducted during the early stages of your Design Thinking project does not tell you everything you need to know in order to create the optimal solution.
- Prototyping can be used:
  - As form of research to explore problem areas in interfaces, products or services, and spot areas for improvement or innovation.
  - As part of different phases of Design Thinking process
  - To explore problems, ideas, and opportunities within a specific area of focus and test out the impact of incremental or radical changes.
  - To better understand the dynamics of a problem, product, or system by physically engaging with them and picking apart what makes them work or fail.

Why Prototyping?

- Every product has a target audience
- Each product is designed to solve particular problems of this target audience.
- To assess whether a product really solves its users' problems, designers create an almost-working model or mock-up of the product, called a prototype, and test it with prospective users and stakeholders.
- Thus, prototyping allows designers to test the practicability of the current design and potentially investigate how trial users think and feel about the product.
- It enables proper testing and exploring design concepts before too many resources get used.

Why Prototyping?

- Evaluate Technical Feasibility
- Enhance Website Quality
- Effectively Present Idea to Customers
- Reduced Risks
- Iterate at Lower Costs
- Simulate the Future Product
- Provide Focused Feedback
- Planning

Types of Prototyping: Sketches and Diagrams

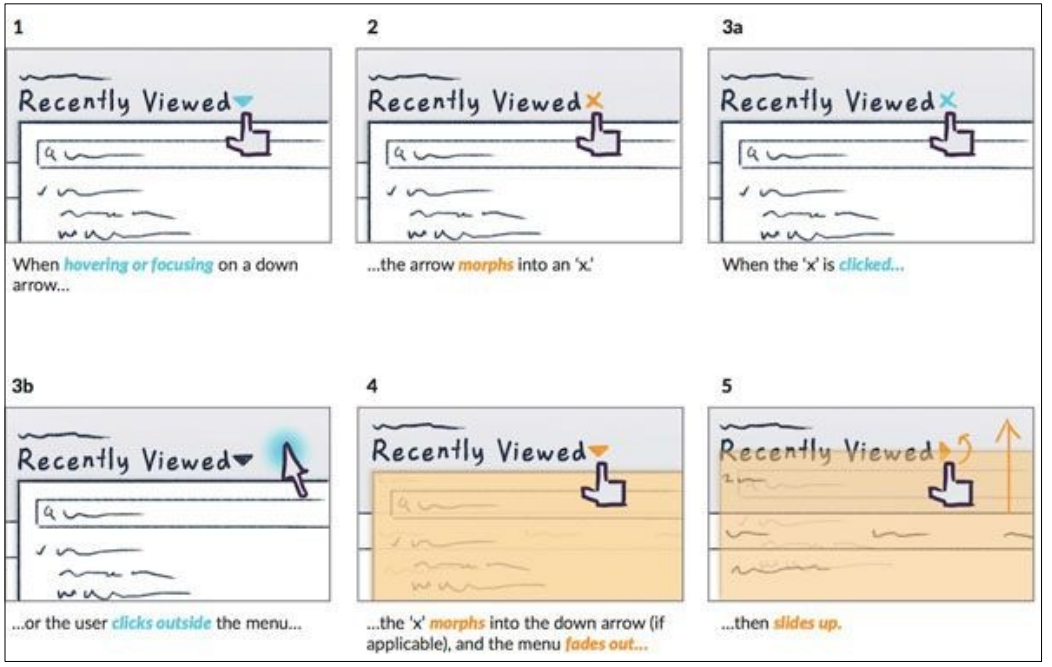
- Perhaps the most basic form of prototyping, sketching.
- It requires minimal effort and does not necessarily require artistic drawing skills to serve its purpose.
- Use sketches to begin the process of conceptualizing and building a new product and share the concept with teammates for more ideas and discussions.

Types of Prototyping: Paper Interface

- Digital products, especially websites, mobile apps, web services, and other screen-related products, require a range of prototyping methods en route to the final design and development.
- Paper interfaces prove to be handy for early-stage prototyping for digital products.
- You can sketch paper interfaces or draw and cut out usable parts of a user interface like a drop-down menu or text field

Types of Prototyping: Storyboards

- Storyboarding is an excellent way of telling stories and guiding targeted customers through a user experience.
- A technique to be used for early prototyping, storyboards allow you to visualize how users would experience a problem or product and present it in a series of images or sketches.
- Stories help us gather information on users, tasks, and goals while at the same time evoking new ideas through collaboration with other designers.
- Drawing out a user's experience helps us better understand their world and to think from their perspective.



Types of Prototyping: Role-Playing

- Role-playing or experiential prototyping enables designers to explore situations within the system that you're targeting physically.
- Role-playing can be best used in capturing and enacting the user's experience of using a product or service.
- Consider simulating their experience to gain an empathic understanding of users.
- You can create props, use objects and audio simulations to imitate the user environment.

Types of Prototyping: Physical Models

- For a physical product, you can use a wide variety of materials to build a prototype for testing.
- Physical models are often built using paper, cardboard, clay, foam, or by repurposing existing objects.
- A physical model is used to bring an intangible idea into a physical, three-dimensional form.
- This enables much better user testing and can evoke discussions on the form factor of the proposed product.

Types of Prototyping: Wizard of Oz

- Wizard of Oz prototypes are illusory based prototypes.
- Functions are faked in order to save time and expenses but to give the same effect of a finished product.
- For example, if testing software with users, the designer would hit computer driven responses when the tester hit certain touch points. Here the designer is mimicking what the final product would do but is actually controlling it as it hasn't yet been finalised.
- It's important to note that during this prototyping method the designer is with ethical boundaries - there is no "tricking" for immoral gain.

Types of Prototyping: User-Driven Prototypes

- Instead of building a prototype to test on users - designers will ask users to create something within set constraints.
- During this process designers can see what their users prioritise and how their minds work, which gives them lots of insight into the assumptions the designers' themselves could've made.
- Designers can use user-driven prototypes to gain empathy with users or to fine-tune certain details of the product once they have an idea in place.

Types of Prototyping: Low-Fidelity Prototyping

- Low-fidelity prototyping involves the use of basic models or examples of the product being tested.
- For eg, the model might be incomplete and utilise just a few of the features that will be available in the final design, or it might be constructed using materials not intended for the finished article, such as wood, paper, or metal for a plastic product.
- Low-fidelity prototypes can either be models that are cheaply and easily made, or simply recounts or visualisations of them.
- Examples of low-fidelity prototypes:
  - Storyboarding.
  - Sketching
  - Card sorting.
  - 'Wizard of Oz'.

Types of Prototyping: High-Fidelity Prototyping

- High-fidelity prototypes are prototypes that look and operate closer to the finished product.
- For example, a 3D plastic model with movable parts (allowing users to manipulate and interact with a device in the same manner as the final design) is high-fi in comparison to, say, a wooden block.
- Likewise, an early version of a software system developed using a design program such as Sketch or Adobe Illustrator is high-fi in comparison to a paper prototype

PROTOTYPE

How to build representations of potential solutions:

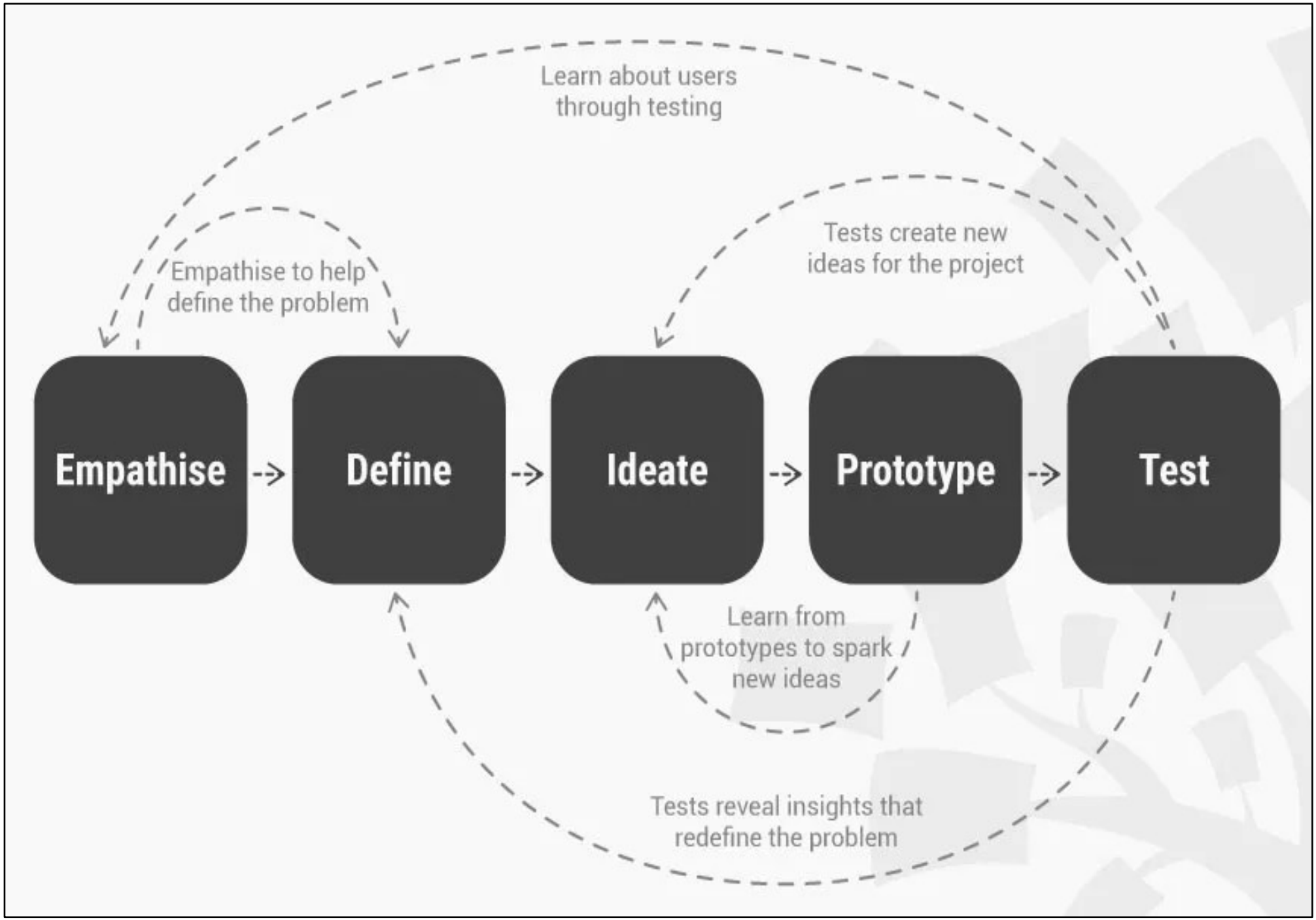
1. Keep the user in mind.

2. Plan the scope of testing.

3. Take action and fail fast.

4. Choose the right tools and fidelity.

5. Record questions for testing.


Learn about users through testing
Empathise to help define the problem
Tests create new ideas for the project
Empathise
Define
Ideate
Prototype
Test
Learn from prototypes to spark new ideas
Tests reveal insights that redefine the problem