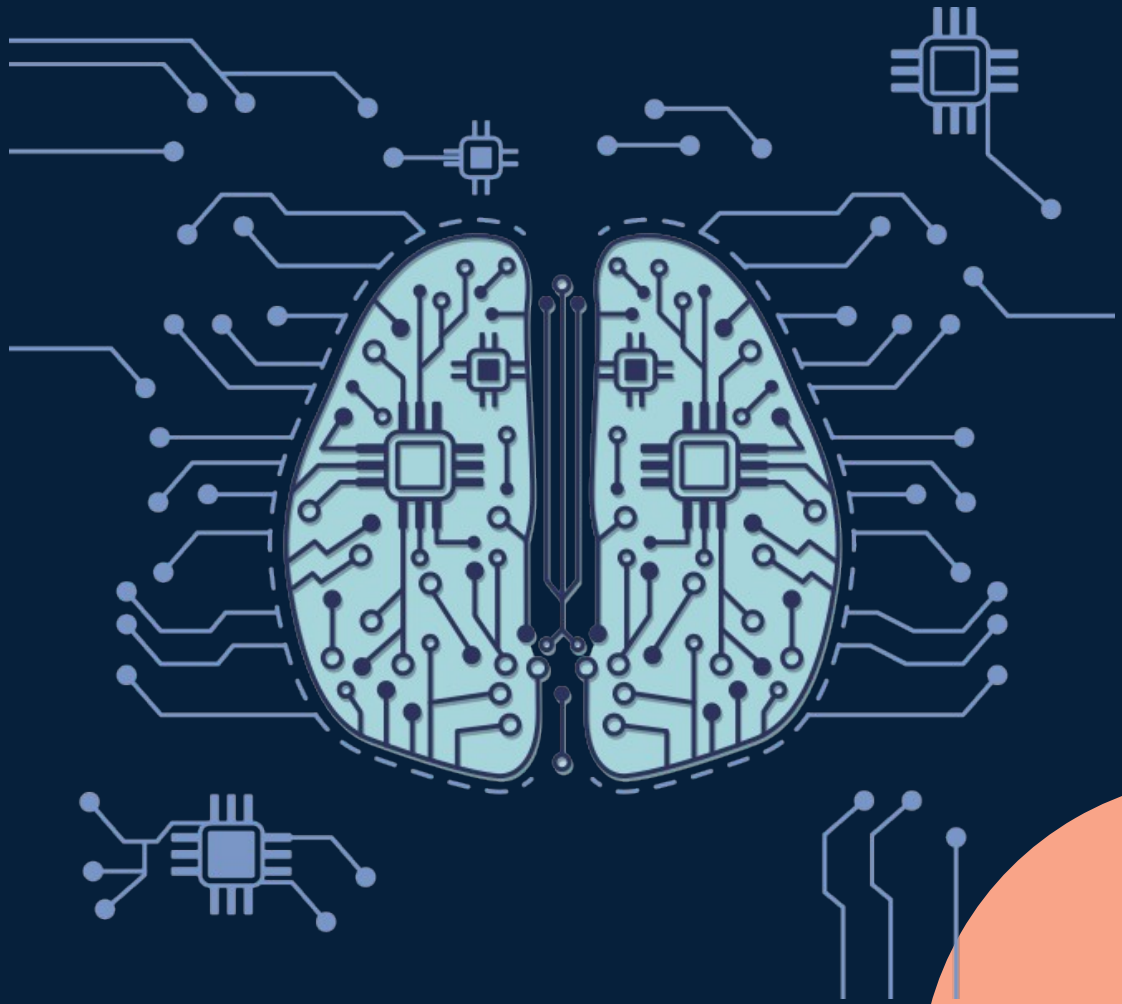
Design Thinking (Define)



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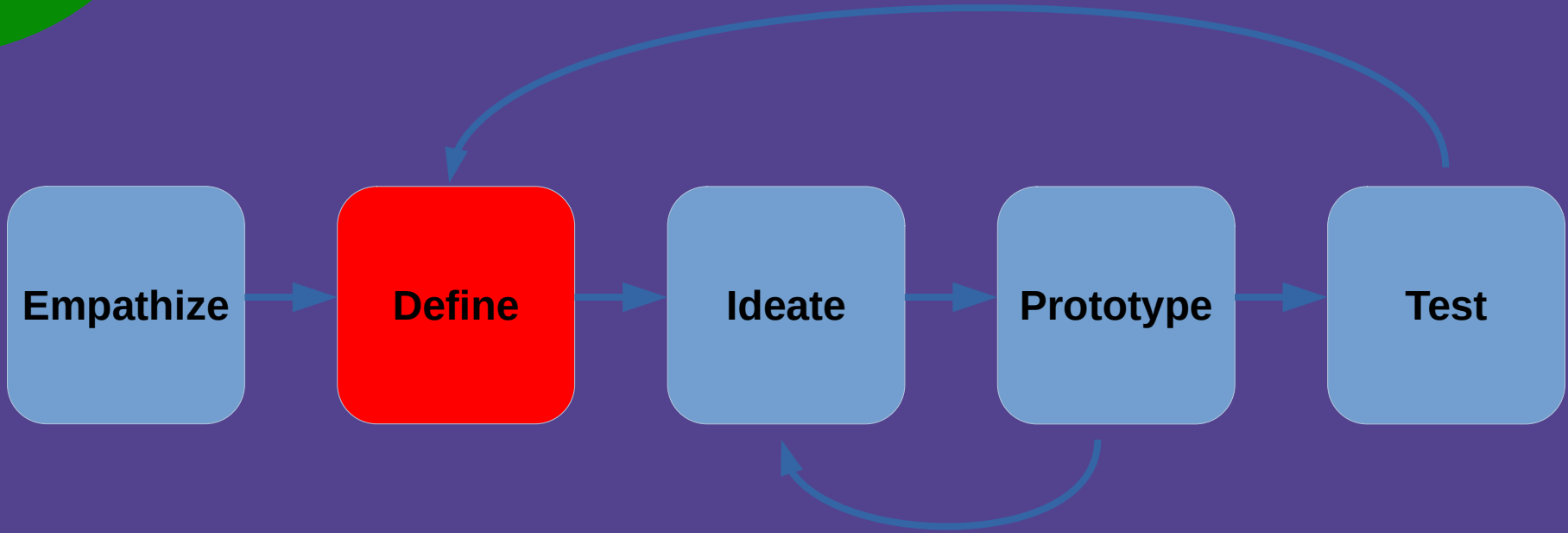
Define



Define

Making Sense of the problem

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Define

- One of the hardest part of the process
- Empathize helps us gain insights
- Define helps us make sense of it
- Why is it important to Define the problem?

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Importance of Defining

- In the 60s, NASA realized that normal pens do not work in space
- Problem Statement:
  - **Ink won’t flow without gravity**
- Solution:
  - High tech pressurized pen that don’t require gravity

USD $ 1,000,000 to develop

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Importance of Defining

- The Russian space agency encountered the same problem
- Problem Statement:
  - **Pen won’t work in space**
- Solution:
  - Use a pencil

$ 0.10 each

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Good Problem Statement

- Human-centered
- Broad enough for creative freedom
- Narrow enough to be manageable

Behavior

Needs

Values

Problems

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Human Centered

- Focus on the people you are helping...
- ...not on the technology you're trying to use

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Broad enough for creative freedom

- Too narrow:
  - “Ink won’t flow without gravity”
- Makes assumption about solution (...assumes that we need to make the ink flow to solve the problem)

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Narrow enough to be manageable

- Too broad:
  - “Students are not recycling enough”
- Many different causes
- No single solution

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5 “Why” Technique

- Repeatedly ask “Why”
- Developed by Toyota
- Must understand the user first
- If you cannot answer “Why”, go back to to the “Empathize” stage, **don’t make assumptions!**

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Example

1) Why are working adults unhealthy?
   Because they didn’t exercise enough
2) Why don’t they exercise enough?
   Because they are too busy.
3) Why are they too busy?
   Because they have work and family time.
4) Why are they not exercising during family time?
   Because their kids couldn’t join them.
5) Why couldn’t their kids join in the exercise?
   Because the exercise facilities isn’t suitable for kids.

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Tips: 5 “Why” Technique

- Avoid circular lines of questions...
- Example:
  - Why are elderlies not exercising?
    Because they are unhealthy.
  - Why are they unhealthy?
    Because they don’t exercise
- ...you won’t get anywhere with this

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Tips: 5 “Why” Technique

- Pick one answer for each questions
- Bad:
  - Why are students not exercising?
    Because they are lazy, dislike exercising, weak, busy, prefer playing games, and afraid of getting injured.
- There may be more than one answer, but pick one to work on

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Exercise

Discuss and fill in...

5 “Why”
Apply the 5 Why technique.

Re-Empathize
Note down any further interview questions or observations that you need to understand the problem better.

Define
Complete your problem statement

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