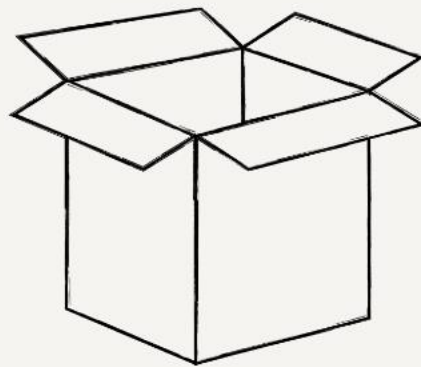
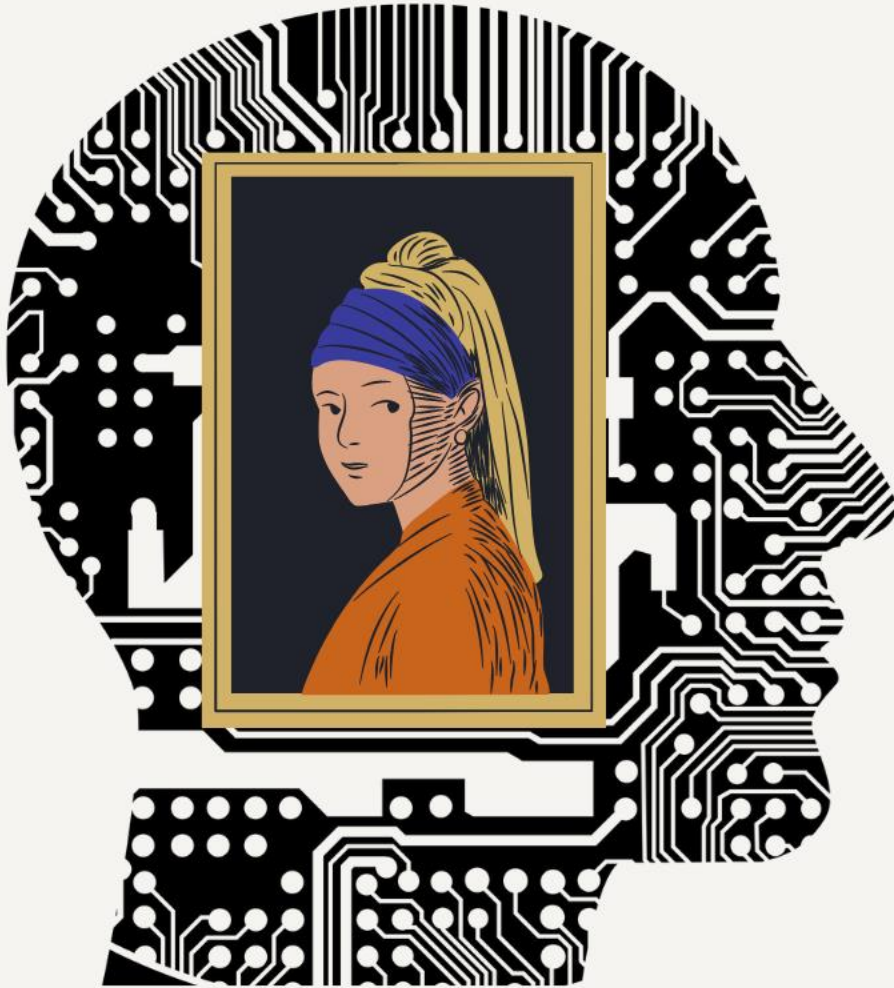


BRIGHTON TEST  
BASH

# HOW DO YOU THINK OUTSIDE OF THE BLACK BOX?



LINA DEATHERAGE



# AGENDA

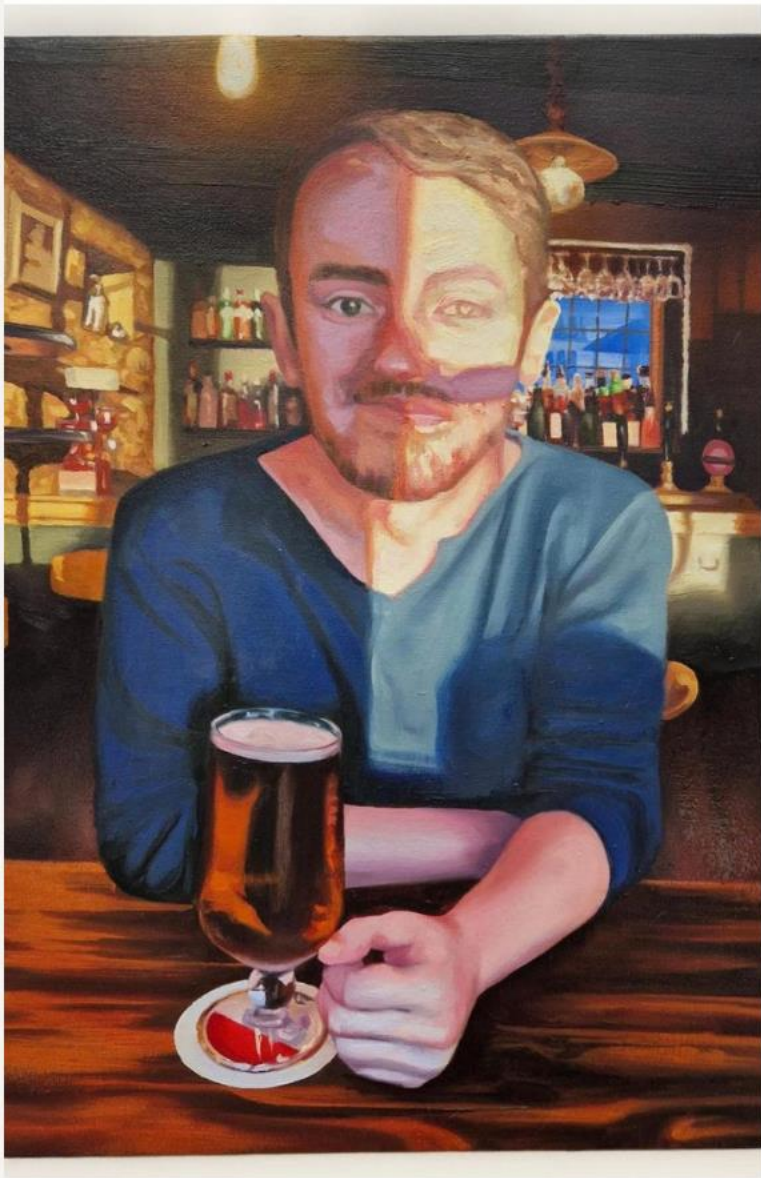
What is creativity?

Why does it matter in testing?

Learning how to think creatively

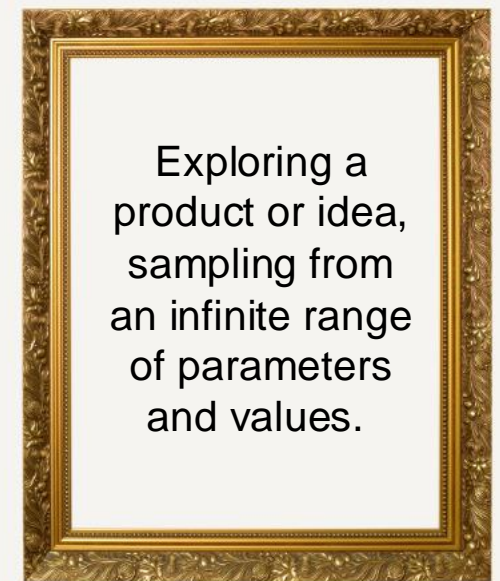
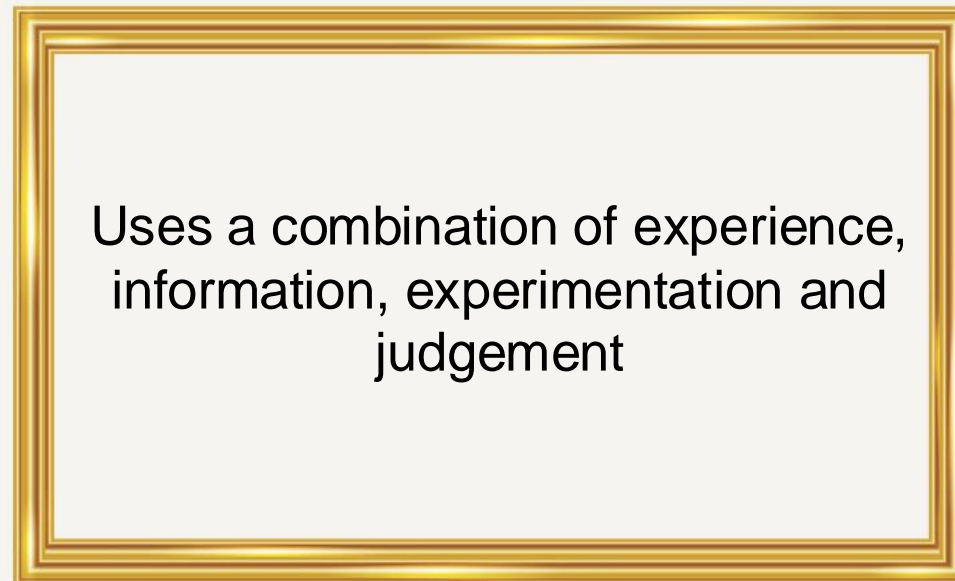
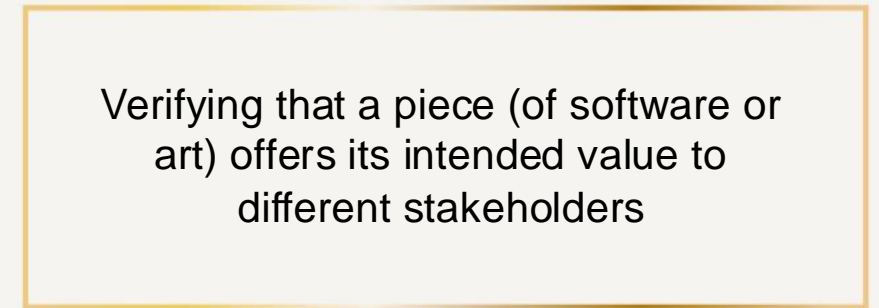
How to practice creativity like an artist

HOW DO YOU THINK OUTSIDE OF THE BLACK BOX?

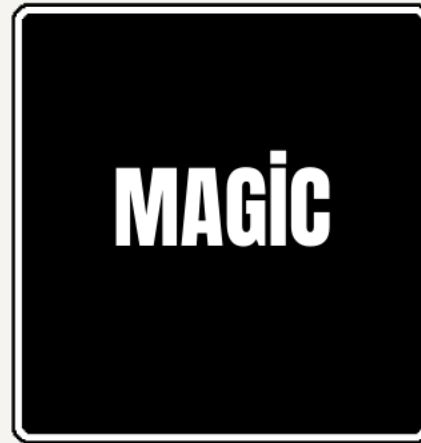


HOW DO YOU THINK OUTSIDE OF THE BLACK BOX?

# PARALLELS IN SOFTWARE TESTING & ART



# HOW PEOPLE THINK SOFTWARE IS MADE

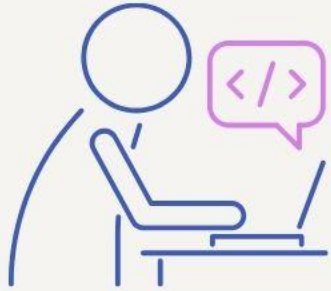


HOW DO YOU THINK OUTSIDE OF THE BLACK BOX?

# HOW PEOPLE THINK ART IS MADE



HOW DO YOU THINK OUTSIDE OF THE BLACK BOX?



# WHAT IS CREATIVITY?

Do you identify as a creative person?

When was the last time you did something creative?





# WHAT IS CREATIVITY?

Creativity is the ability to generate, develop, and express novel and original ideas, solutions, or concepts



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Artistic Expression



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Problem-Solving



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Problem-Solving

Innovative Thinking



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Innovative Thinking

Communication



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Communication

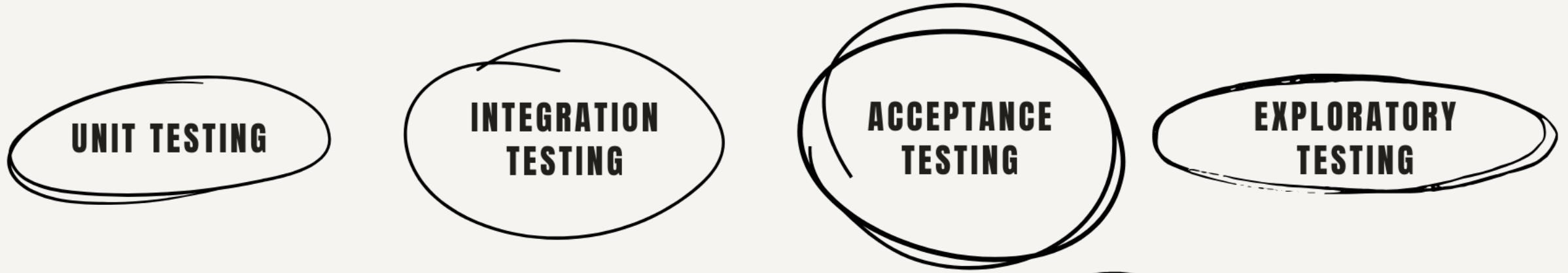
Creativity is the outcome of a particular set of skills

HOW DO YOU THINK OUTSIDE OF THE BLACK BOX?



# HOW DOES CREATIVITY AFFECT TESTING?

A SOFTWARE BUG IS AN ERROR, FLAW,  
FAILURE, OR FAULT IN A SOFTWARE  
PROGRAM THAT CAUSES IT TO PRODUCE  
INCORRECT OR UNEXPECTED RESULTS, OR  
TO BEHAVE IN UNINTENDED WAYS



**HOW DOES CREATIVITY  
AFFECT TESTING?**



HOW DO YOU THINK OUTSIDE OF THE BLACK BOX?

**UNIT TESTING**  
**INTEGRATION**  
**TESTING**  
**ACCEPTANCE**  
**TESTING**  
**EXPLORATORY**  
**TESTING**

What is "correct"?  
Why is it correct?

How can we simulate real  
world conditions?

What have we not thought about?  
What is unexpected?

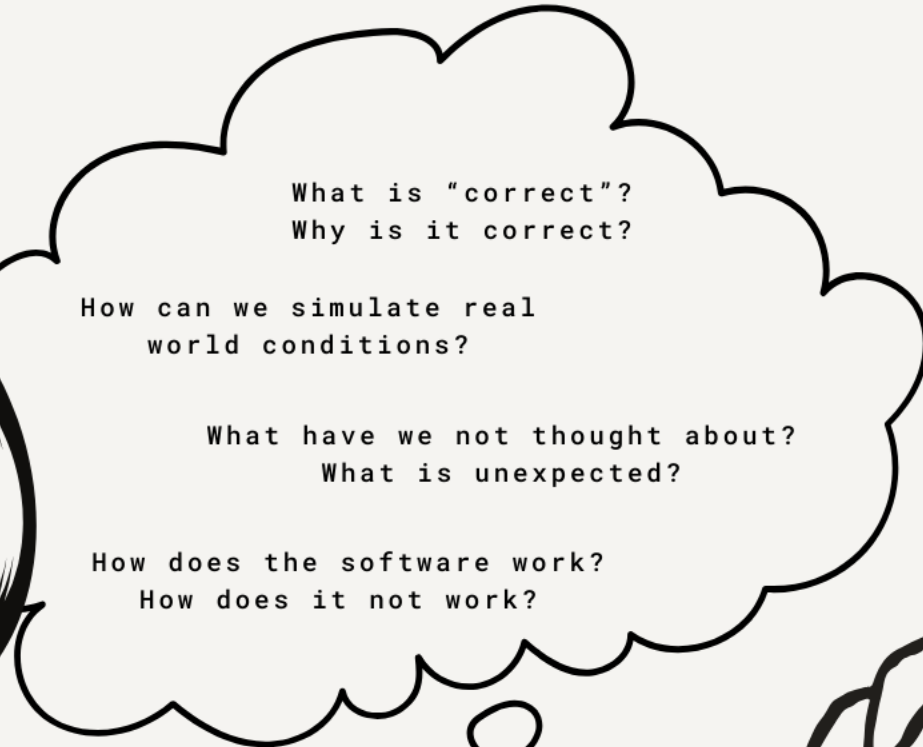
How does the software work?  
How does it not work?

**HOW DOES CREATIVITY**  
**AFFECT TESTING?**

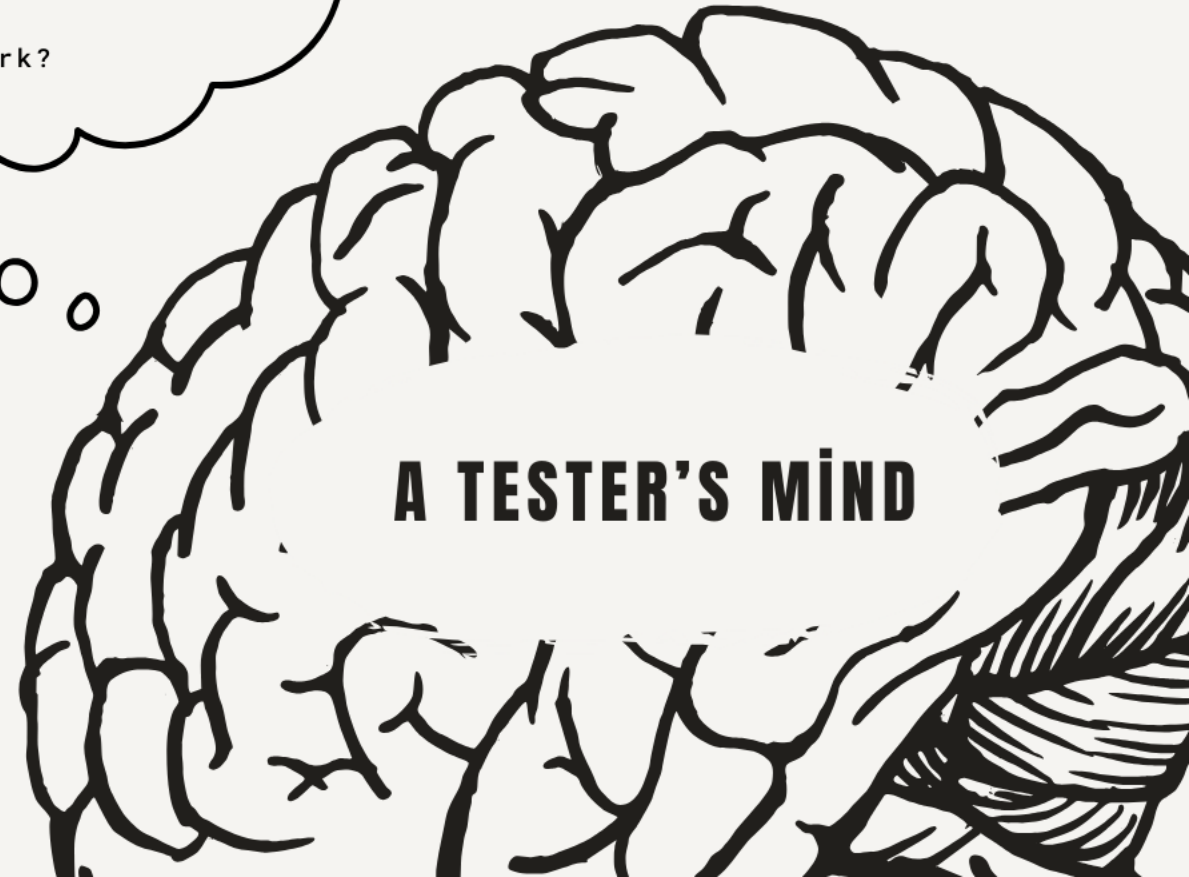


**A TESTER'S MIND**

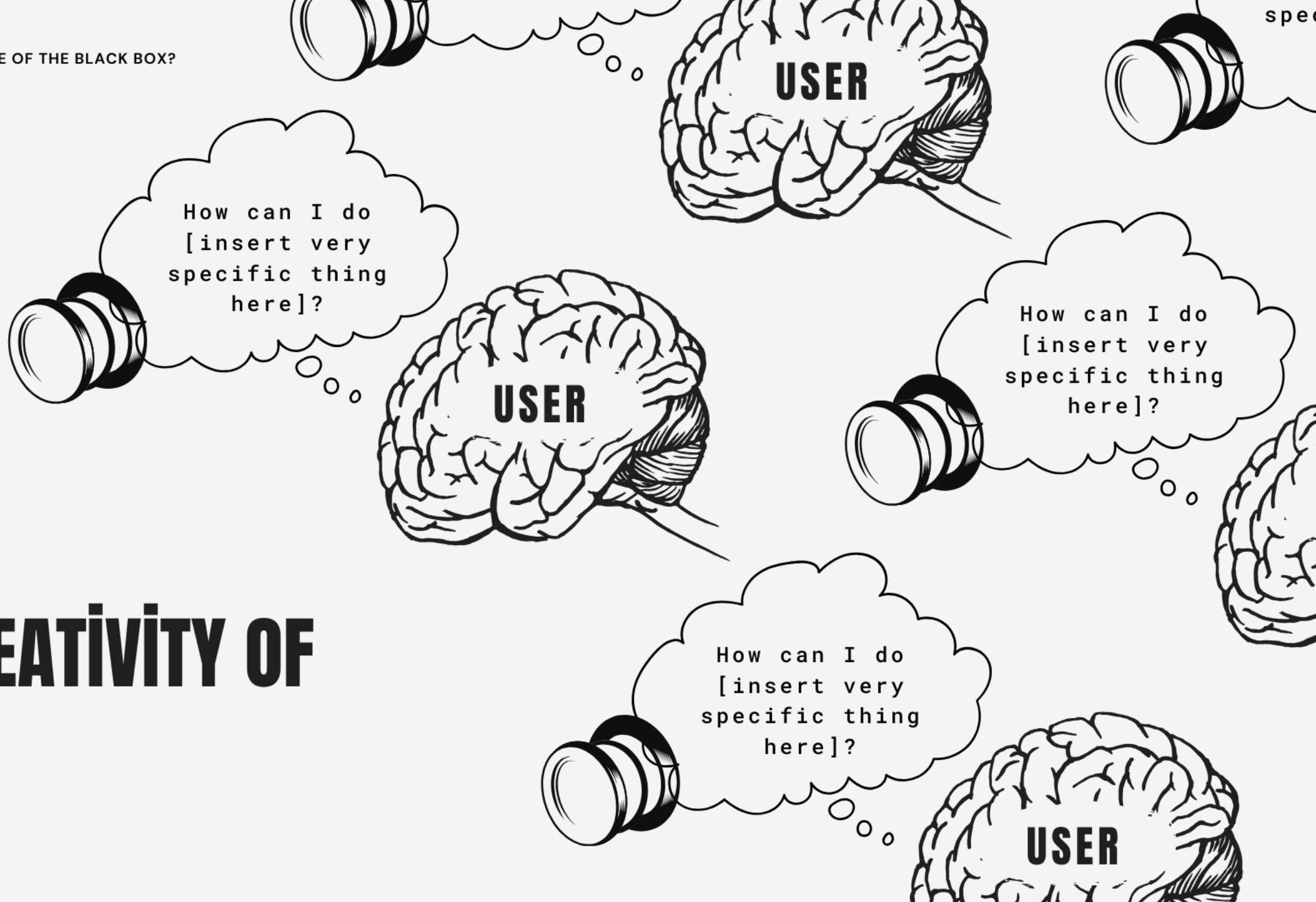
HOW DO YOU THINK OUTSIDE OF THE BLACK BOX?



**HOW DOES CREATIVITY  
AFFECT TESTING?**



HOW DO YOU THINK OUTSIDE OF THE BLACK BOX?



# THE CREATIVITY OF USERS

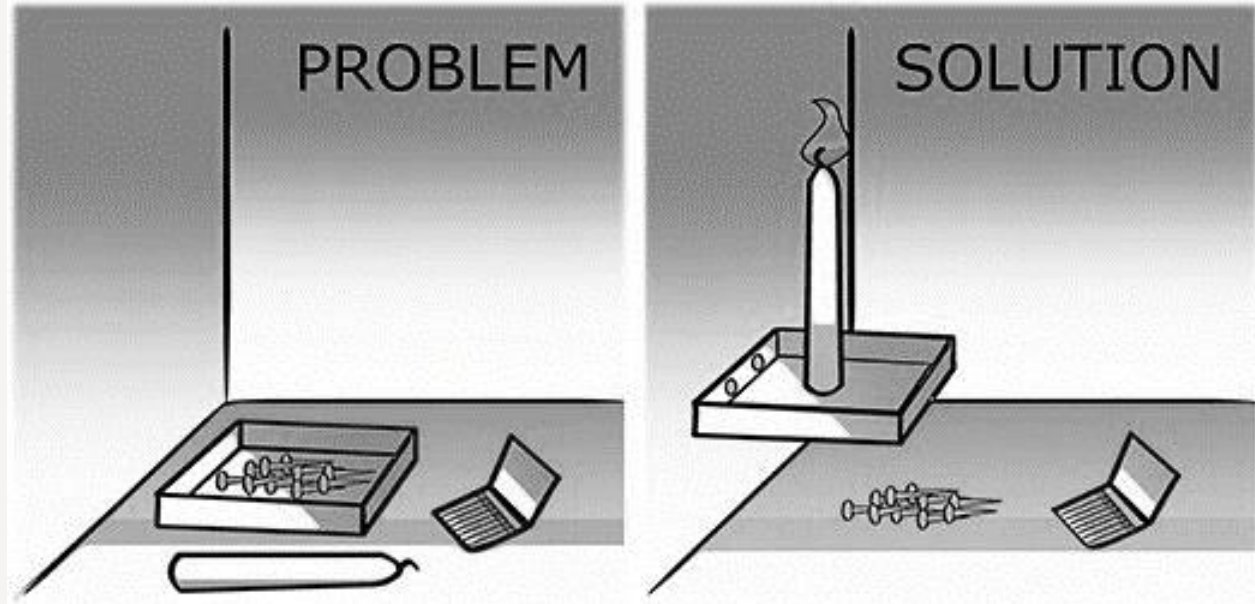
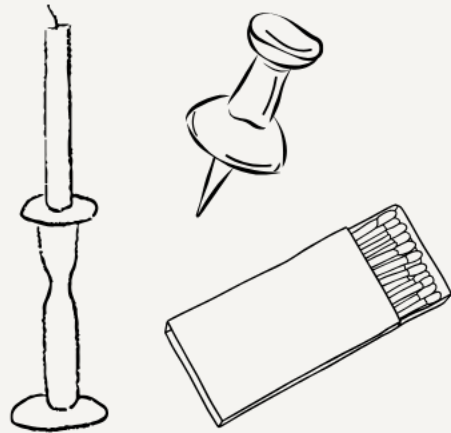
HOW DO YOU THINK OUTSIDE OF THE BLACK BOX?

REQUIREMENT

# THE CANDLE PROBLEM

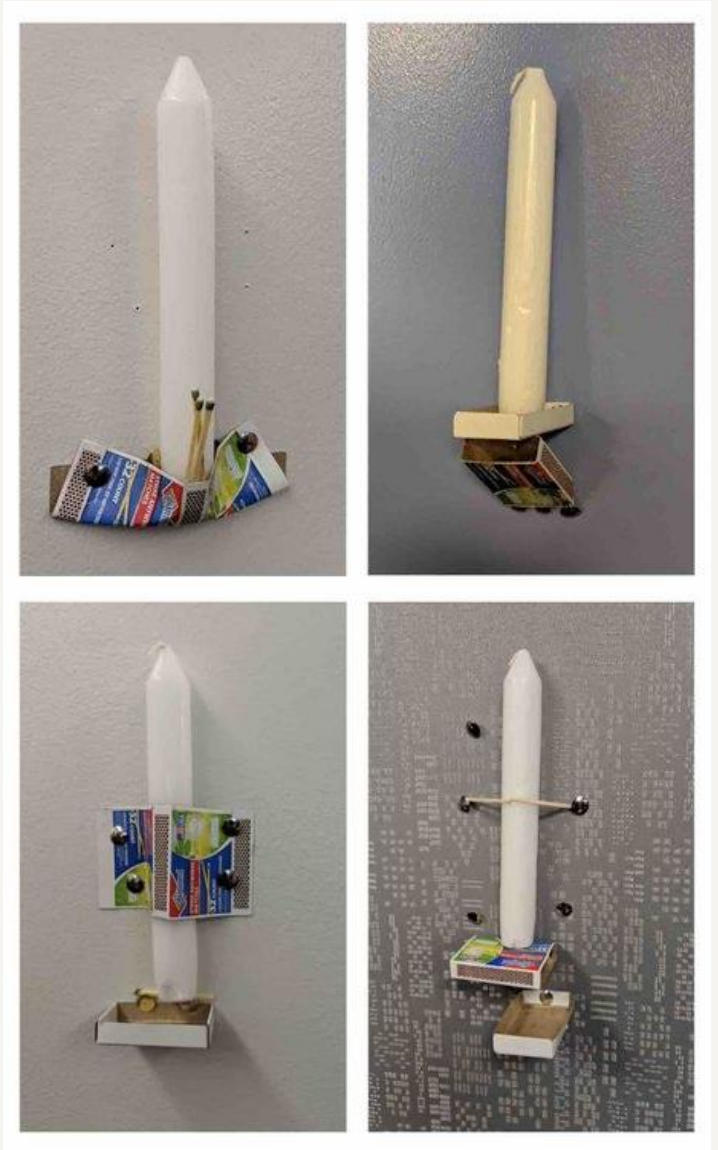
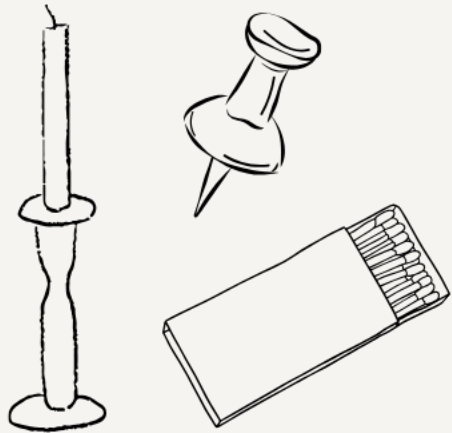
PUT A CANDLE ON A CORK WALL IN A WAY SO THAT THE CANDLE WAX WON'T DRIP ONTO THE TABLE BELOW. YOU CAN ONLY USE THE FOLLOWING MATERIALS:

- A BOOK OF MATCHES
- A BOX OF THUMBTACKS



HOW DO YOU THINK OUTSIDE OF THE BLACK BOX?

# THE CANDLE PROBLEM



“Conceptual prison” of old ideas

# HOW DO WE EXPAND OUR THINKING?

## Critical Thinking

## Creative Thinking

### Problem solving

Logically analyze a problem, breaking it down into manageable parts, and systematically evaluating solutions.

Generate new solutions to problems. Critical thinking assesses these creative solutions for feasibility and effectiveness.

### Idea Generation

Follows by evaluating these ideas, filtering out impractical ones, and refining the viable ones.

Encourages brainstorming and generating a wide range of ideas without immediate judgment.

### Flexibility and Adaptability

Ensures that while exploring creative ideas, one remains grounded in logic and evidence, balancing innovation with practicality.

Requires open-mindedness and the ability to think outside traditional boundaries

### Decision Making

Evaluates these options rigorously, considering pros, cons, and long-term impacts, leading to well-informed decisions.

Introduces diverse possibilities and approaches to a decision-making process

### Overcoming Bias

Identifies and mitigates biases by applying logical reasoning and evidence-based analysis to creative ideas.

Helps break free from conventional thinking patterns and biases, fostering a broader perspective.

# HOW DO WE EXPAND OUR THINKING?

## Vertical Thinking

### ~~Critical Thinking~~

#### Problem solving

Logically analyze a problem, breaking it down into manageable parts, and systematically evaluating solutions.

#### Idea Generation

Follows by evaluating these ideas, filtering out impractical ones, and refining the viable ones.

#### Flexibility and Adaptability

Ensures that while exploring creative ideas, one remains grounded in logic and evidence, balancing innovation with practicality.

#### Decision Making

Evaluates these options rigorously, considering pros, cons, and long-term impacts, leading to well-informed decisions.

#### Overcoming Bias

Identifies and mitigates biases by applying logical reasoning and evidence-based analysis to creative ideas.

## Horizontal Thinking

### ~~Creative Thinking~~

Generate new solutions to problems. Critical thinking assesses these creative solutions for feasibility and effectiveness.

Encourages brainstorming and generating a wide range of ideas without immediate judgment.

Requires open-mindedness and the ability to think outside traditional boundaries

Introduces diverse possibilities and approaches to a decision-making process

Helps break free from conventional thinking patterns and biases, fostering a broader perspective.

# HOW DO WE DO BOTH?

- Selective
- Analytical
- Exclude the irrelevant
- Finite process
- Follows the most likely paths
- VT develops the ideas generated by HT



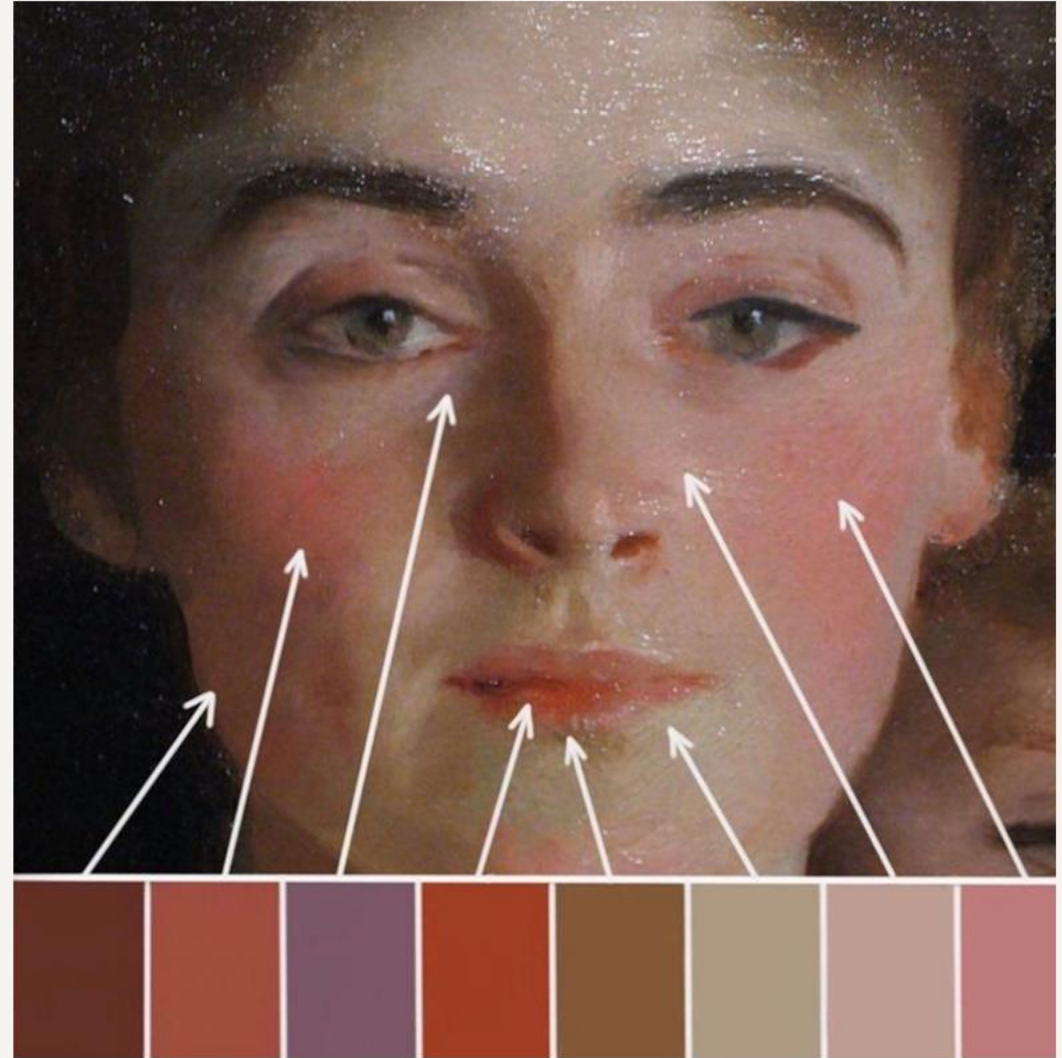
- Generative
- Provocative
- Welcome the unexpected
- Probabilistic
- Deliberatively explores the least likely paths
- Enhances the effectiveness of VT

**We can do deliberate practice in our every day activities**

HOW DO YOU THINK OUTSIDE OF THE BLACK BOX?

# HOW TO PRACTICE CREATIVITY LIKE AN ARTIST

5 LESSONS FROM ART SCHOOL



HOW DO YOU THINK OUTSIDE OF THE BLACK BOX?

# LESSON 1: TURN IT UPSIDE DOWN

Does the problem appear differently from another perspective? What can you see that you couldn't before?



# LESSON 1: TURN IT UPSIDE DOWN

To start at the wrong end and work backwards is a well-known problem-solving technique. The reason why it is effective is that the line of thought may be quite different from what it would have been had one started at the beginning.

The difference may be huge even if the actual ideas considered are the same. In practice, a different entry point will usually mean a different train of ideas.



Pick a new “entry point” to a problem:

- What inputs should this API reject?
- Do transactions have to have users?
- What happens if I zoom in? What if I zoom out?

HOW DO YOU THINK OUTSIDE OF THE BLACK BOX?

# LESSON 2: STRUCTURE UP

Before you can think out of the box, you have to start with a box



# LESSON 2: STRUCTURE UP

If the foundation of your drawing isn't structurally sound, the result will be poor, no matter how many details you add on.

The same goes for software applications; it doesn't matter what the latest and greatest feature is if the entire application doesn't work well.

A foundation of skill and environment will allow you to be creative.

TRY AT WORK

Ask yourself how to make your foundations more robust:

- Are there test I can't do because of my framework or skill or knowledge?
- Are there things I can't simulate or can't find data for?
- Is my framework built to support any possible situation?
- Does our team culture value open-minded and allows multiple opinions?

HOW DO YOU THINK OUTSIDE OF THE BLACK BOX?

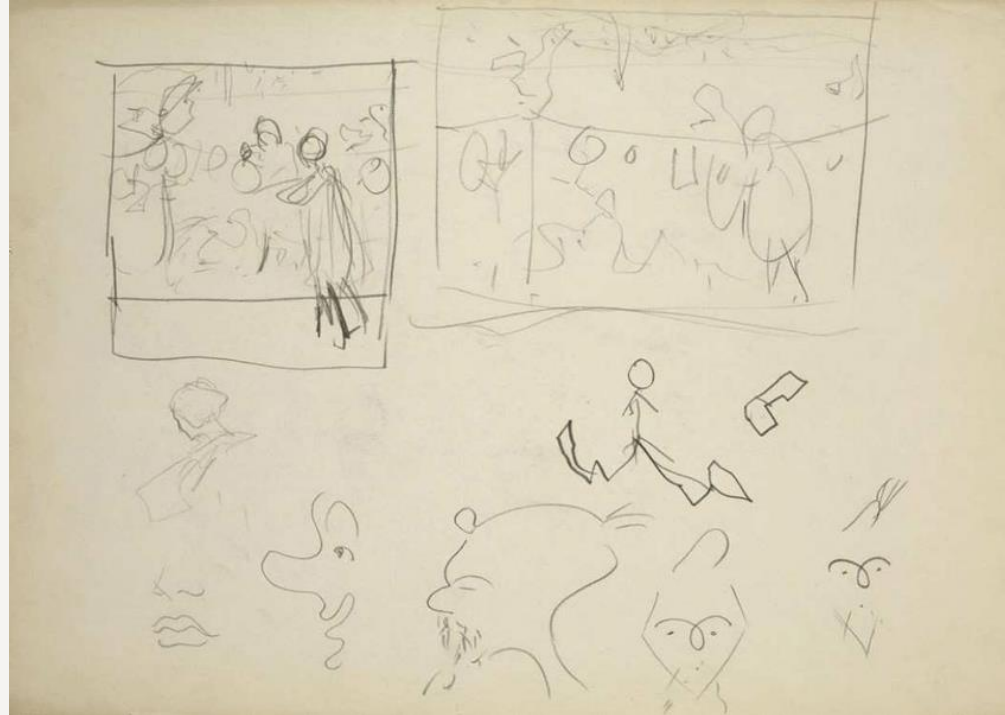
# LESSON 3: GENERATE



HOW DO YOU THINK OUTSIDE OF THE BLACK BOX?

# LESSON 3: GENERATE GENERATE GENERATE

Your first mark is always wrong



# LESSON 3: GENERATE GENERATE GENERATE

The ceramics teacher announced on opening day that he was dividing the class into two groups.

All those on the left side of the studio, he said, would be graded solely on the **quantity** of work they produced.

All those on the right solely on its **quality**. They needed to produce only one pot –albeit a perfect one– to get an “A”.

On the final day of class, a curious fact emerged: **the works of highest quality were all produced by the group being graded for quantity**. It seems that while the “quantity” group was busily churning out piles of work – and learning from their mistakes –the “quality” group had sat theorizing about perfection, and in the end had little more to show for their efforts than grandiose theories and a pile of dead clay.



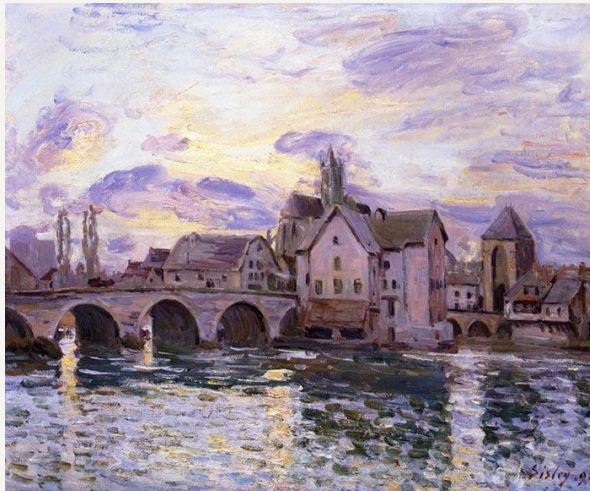
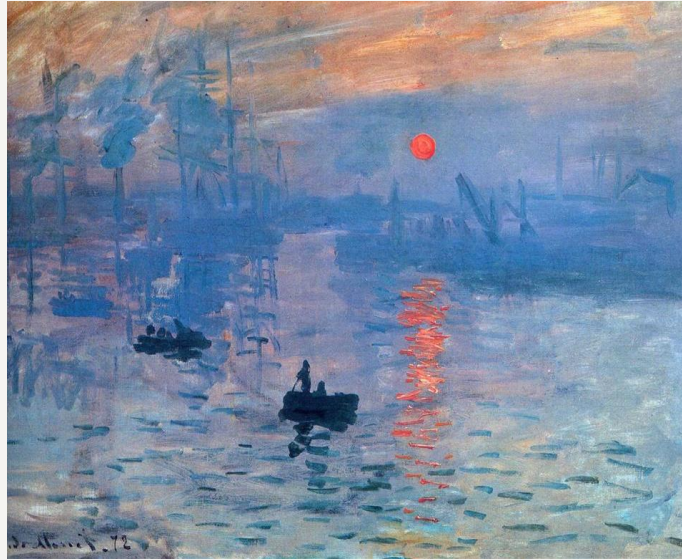
Generate many possible outcomes before selecting which to pursue:

- How are the available options for our test strategy, automation framework, test plan, and product?
- What are we attached to? What is not working?

HOW DO YOU THINK OUTSIDE OF THE BLACK BOX?

# LESSON 4: COLLAB

Brainstorming is a group effort!



# LESSON 4: COLLAB

One of the primary benefits of art school is being around other artists. You have the same benefit when you are on a team of fellow testers.

Everyone has a different perspective, and therefore, a different story they can tell. You can accelerate your ability to think creatively by learning the perspectives of others, and letting those ideas influence your own.



Utilize the creativity of your entire team:

- Pick a topic for random stimulation, and start crafting a story of how that can apply to your testing efforts.
- Collaborate between departments. What effects of cross stimulation do you see for each team?
- In brainstorming sessions, delay judgement until the very end.

HOW DO YOU THINK OUTSIDE OF THE BLACK BOX?

# LESSON 5: it is a HABIT

And therefore, a journey



# LESSON 5: IT IS A HABIT

Creativity is a skill that can be learned and increased. It is always available to us when we need it. The way we develop this skill is through habits.

TRY AT WORK

Ask yourself:

- How can I apply the principles of generation, entry points, and random stimulation to see a problem differently?
- Where am I stuck in a “conceptual prison” of old ideas? Where can I practice suspending judgement?
- What areas of my life would benefit from increased creative thinking?

**THANK YOU!**

