

*Design Thinking*

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# Guide for Design

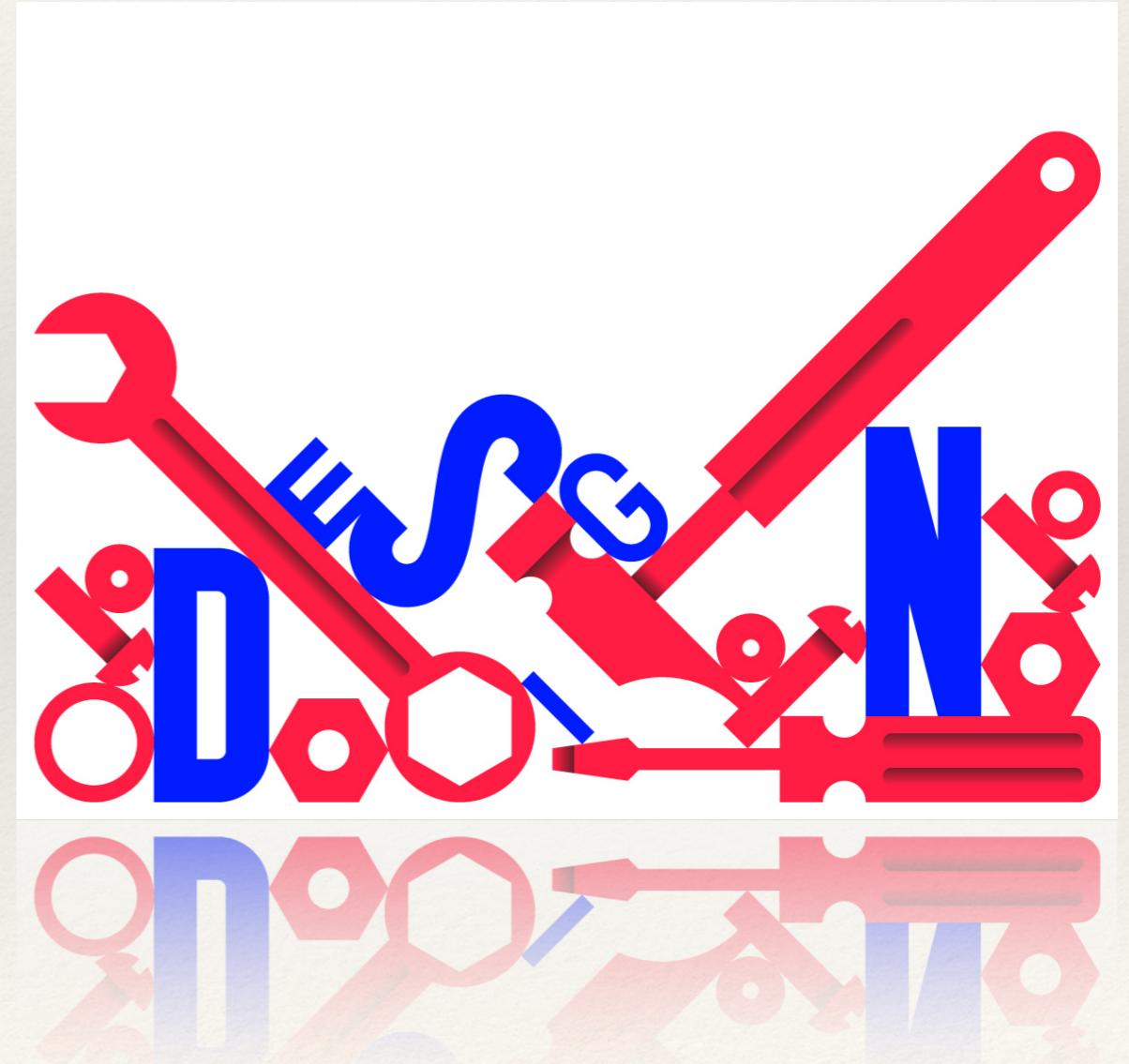
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# Who are Designers?

- ❖ Designers come in all shapes and forms, not just as artists and engineers.
- ❖ Everyone has the potential to be a designer in their own capacity.
- ❖ Designers focus on solving problems and creating solutions for *people*.



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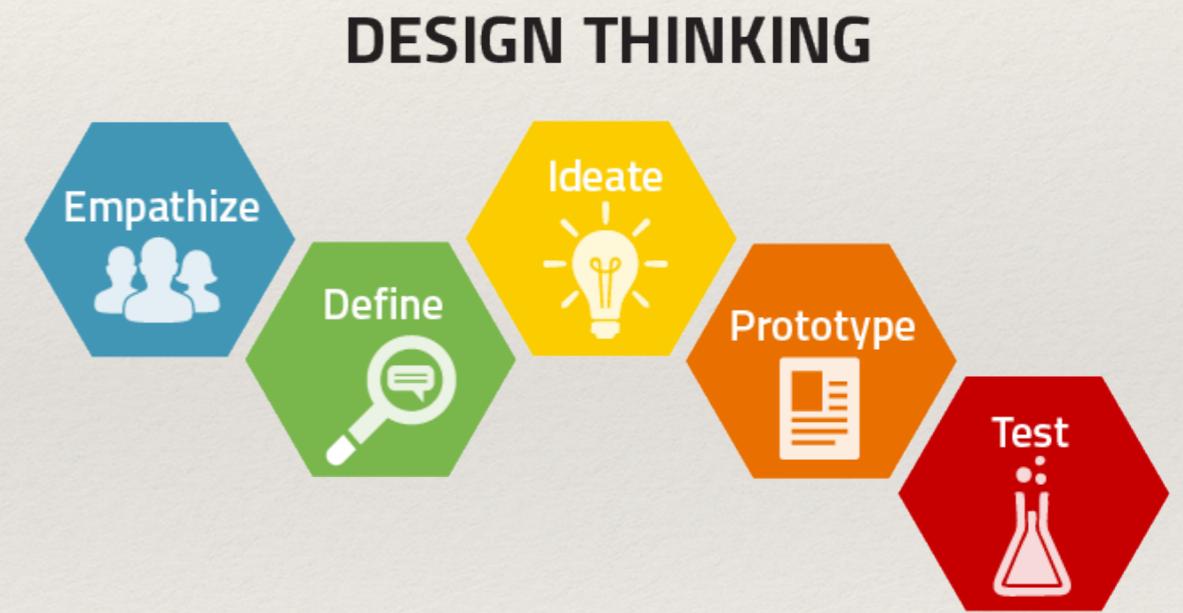
# Aspects of Good and Bad Designers

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- ❖ Good
  - ❖ Creative, Imaginative, Innovative, Open-minded, Teachable, Proactive, Hard-working, Process oriented, communicative.
- ❖ Bad
  - ❖ Self-Centered, Jumps to Solutions, Close-minded, Stubborn, Defensive, Complacent

# What is Design Thinking?

- ❖ Design thinking is a methodology which focuses on an iteration process to solve difficult problems.
- ❖ Design thinking focuses on human-centered design (HCD).
  - ❖ HCD puts the users and their needs at the center of the solution rather than personal biases or opinions of the designers.



# When and Where is Design Thinking Used?

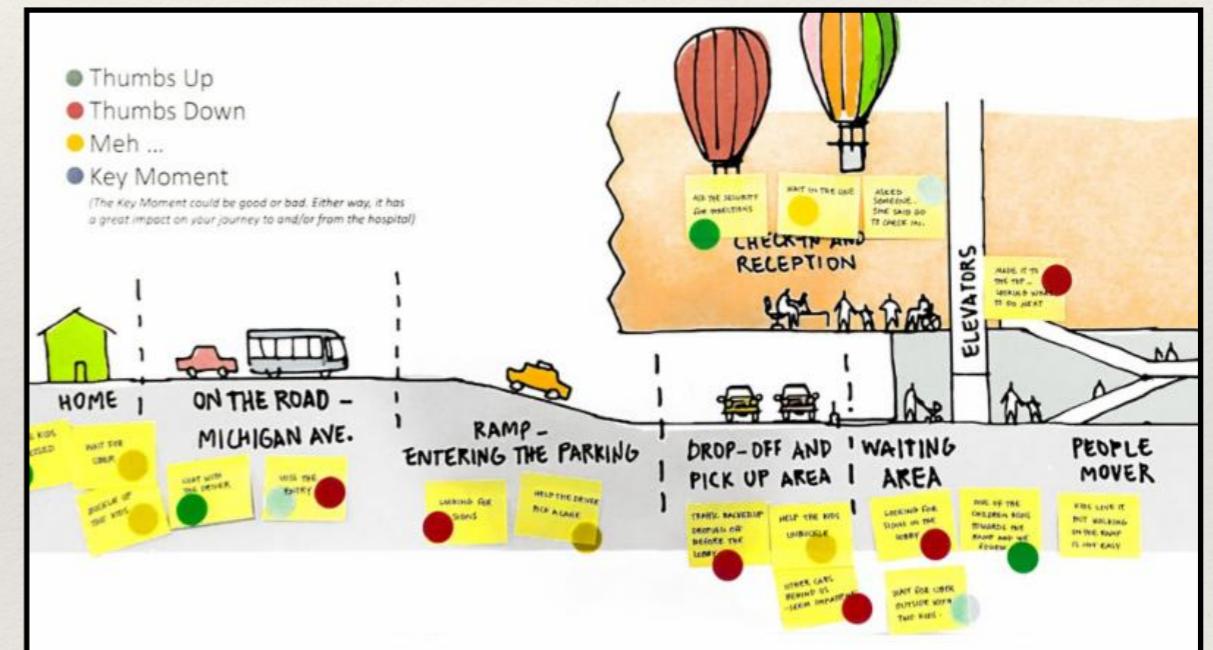
- ❖ Design thinking can be used for *every* problem that requires a solution.

❖ Creating this power point was its own design thinking challenge.

- ❖ Design thinking is used in many industries.

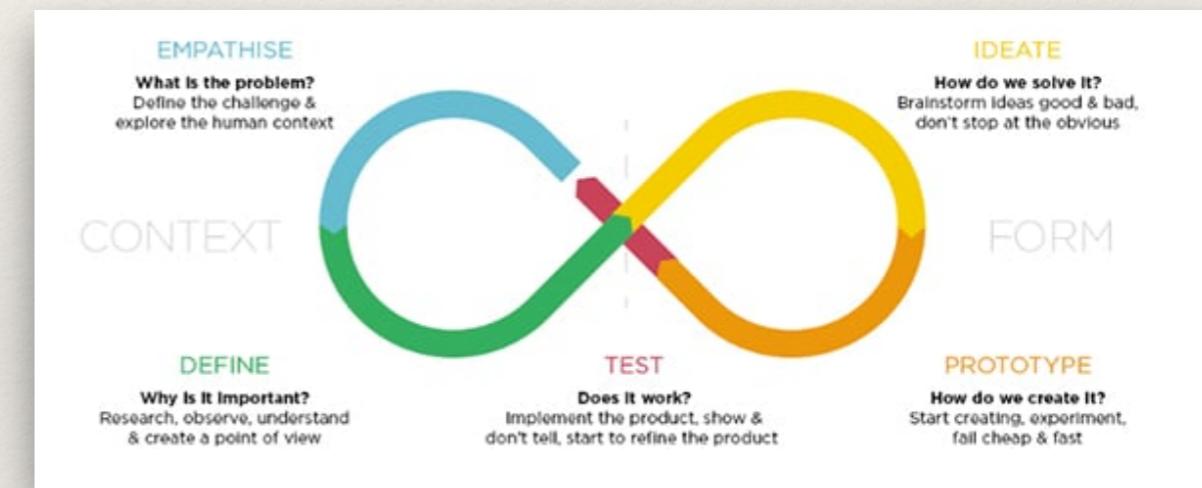
❖ Education, marketing, product development, music and art, etc.

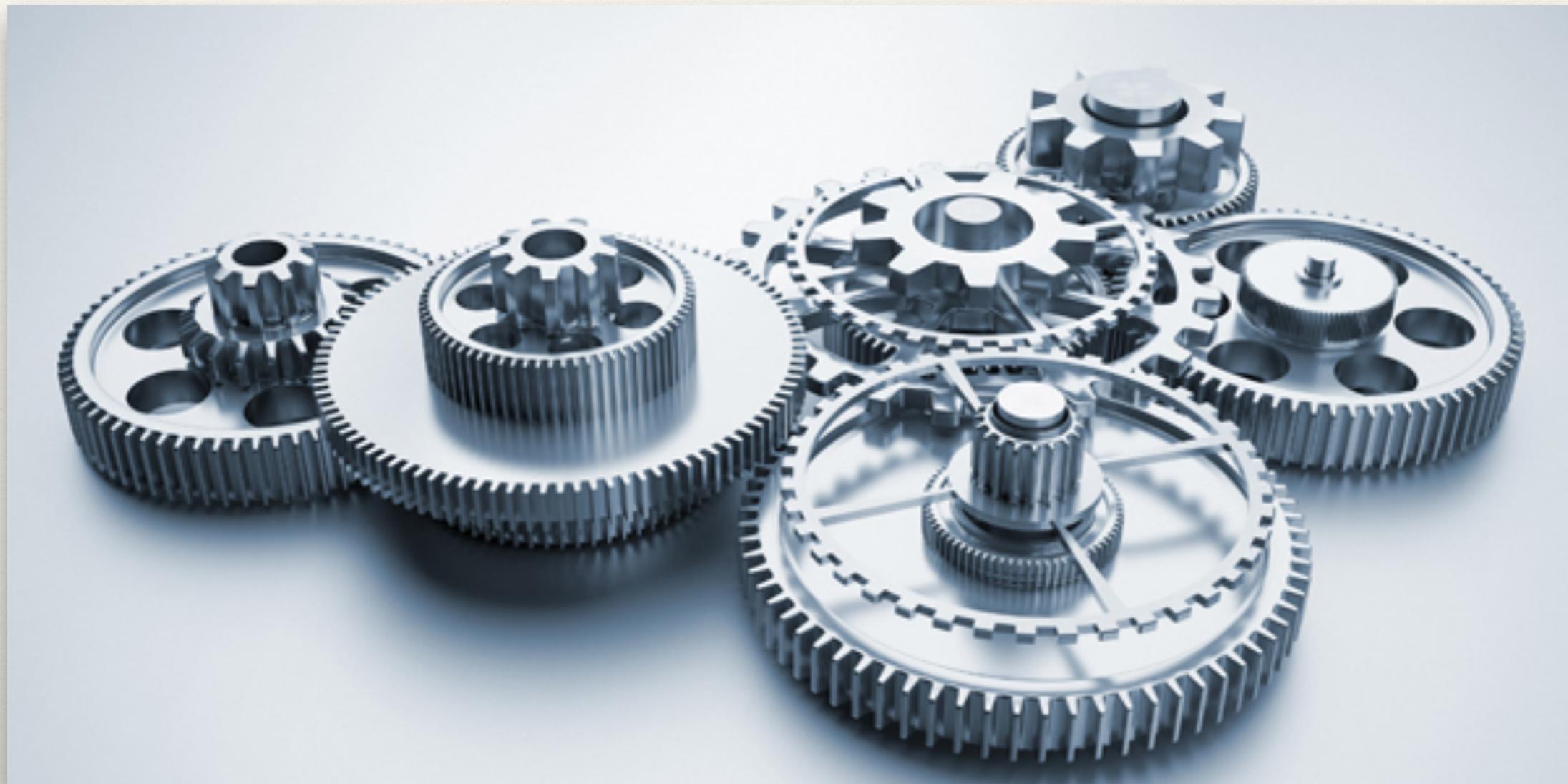
❖ Almost any industry can use designers and design thinking.



# Why Design Thinking?

- ❖ Human centered design
  - ❖ More and more often, problems require solving with our users at the center rather than our own personal gain at the center.
  - ❖ Empathizing with the user one of the most in depth processes in design thinking.
- ❖ Iterative Process
  - ❖ Design thinking is a unique iterative process that allows more understanding of the deep rooted issues in a particular industry.
  - ❖ The process allows for quick iterations and changes to get a more successful solution in the end.





*Design Thinking*

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# Design in Engineering

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# Design Thinking for Engineering

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- ❖ In my experience, engineers love to find the quick and easy solution.
  - ❖ This solution may benefit themselves (can be completed quickly) or may save the company time and money, but does not keep the user front of mind.
  - ❖ Engineers love solving the problem, even without all the information necessary.
- ❖ Empathy takes patience.
  - ❖ Since we are trying to keep the user at the center, a lot more background work needs to take place before a design can be created.
  - ❖ Most often solutions are the first or second idea proposed, but more background understanding and empathy work needs to be completed before meaningful ideas can be generated.

# Design Thinking for Engineering

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## ❖ Defining the problem

- ❖ Generally the definition of the problem is where the design process starts, especially in consulting and design engineering.
- ❖ With design thinking, this problem definition will be created by the insights gathered through the empathy work completed.

## ❖ Ideation

- ❖ Ideation is every engineers' favorite part of the design process.
- ❖ It is very difficult to stay focused during empathy work and problem definition because ideas flow so naturally before this stage.
- ❖ Through the background work, ideation will take place and can provide a more wholistic solution to the problem that was defined.

# Design Thinking for Engineering

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## ❖ Prototyping

- ❖ This is another step that comes naturally to engineers. After ideation the creation can finally come to life.
- ❖ It is important to not get attached to any prototypes before thoroughly testing and refining the design.
- ❖ A prototype in design thinking does not have to be a perfect 3D-model, or a 3D printed design. It can be as simple as a folded piece of paper, or cut up piece of cardboard.
- ❖ Quick prototyping allows for more user interaction and quicker iteration.

## ❖ Testing

- ❖ After prototyping, the designs can be tested (strength, durability, etc / user tests).
- ❖ The tests allow insights from the users that may have been overlooked during empathy work.

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# Design Thinking for Engineering

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- ❖ Why is design thinking important in engineering?
  - ❖ Allows the users needs to be *fully* understood and fulfilled.
  - ❖ Fully iterative process that can solve *any* problem.
  - ❖ Not just applicable for product design, but also work-flow or process designs.
  - ❖ Iteration can occur quickly so a better product is produced in the end.



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# Design in Musical and Visual Arts

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# Design in Musical and Visual Arts

- ❖ Music and art are a form of storytelling which allow the performer or creator to connect with an audience.
- ❖ While there is no direct “problem” to solve, design thinking can still be used to craft a product that is accessible and understood by the audience.



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# Design in Musical and Visual Arts

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- ❖ The design thinking process applies the same way as previously shown in an engineering setting.
- ❖ Empathy (connects us to the audience and what they are feeling)
- ❖ Defining the problem (or in this case defining what message needs to come across to the audience)
- ❖ Ideation (mapping ideas to feelings that we want to convey)
- ❖ Prototyping (creating an initial design or initial rendition of the product)
- ❖ Testing (allow family, friends, and some strangers to interact with your creation and give you feedback)
- ❖ Iteration (back to the drawing board to identify what is working and what needs to be improved)



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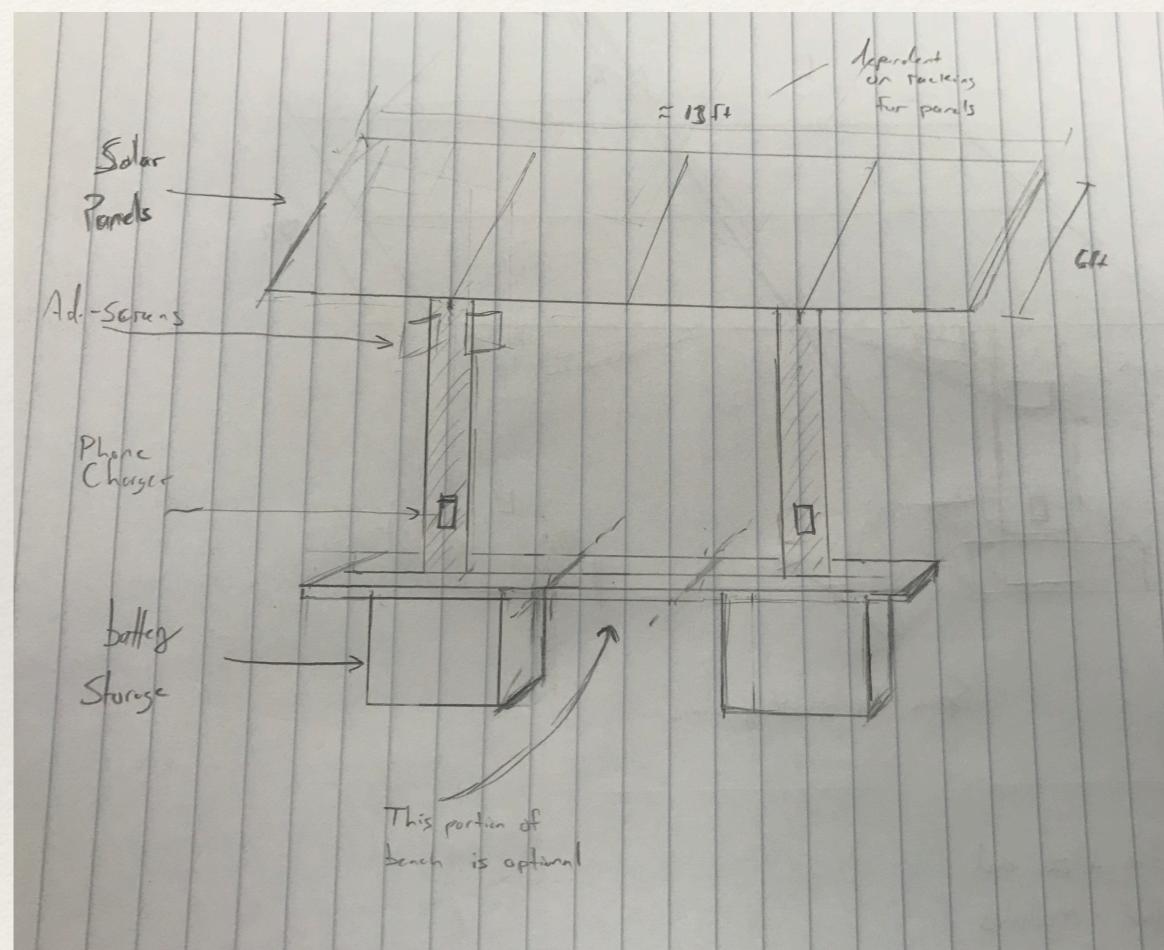
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# Who Am I As a Designer?

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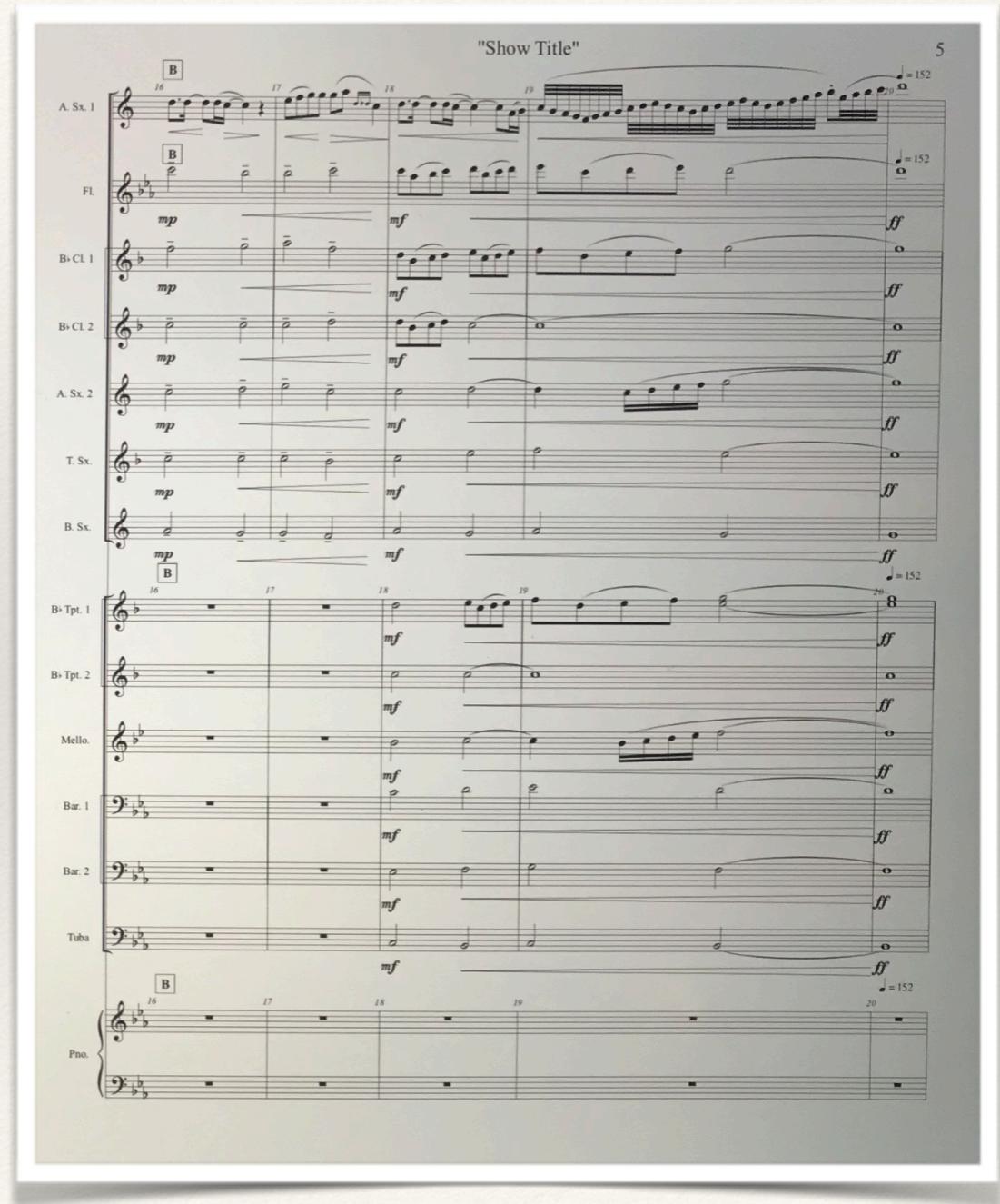
# Who Am I As a Designer?

- ❖ I have only recently started my journey as a Designer.
- ❖ I believe my diverse background in engineering and music gives me an advantage in creating unique and creative solutions.
- ❖ These two unique backgrounds are directly connected in design.
- ❖ Knowing the principals of design thinking I am able to better connect with the users and identify the underlying problems they are facing.



# Who Will I Become As a Designer?

- ❖ I believe that I will continue to grow in my ability to empathize with the user and clearly define their problems.
- ❖ I will continue to develop my design capabilities through experience and working with other designers.



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# Who Will I Become As a Designer?

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- ❖ I believe that I am hard-working, open-minded, and creative as a designer.
- ❖ I recognize that I can be overly-sensitive and defensive at times when working on projects.
- ❖ These are aspects of myself that I will continue to work to develop as I continue working as a Designer.

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# Who Will I Become As a Designer?

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- ❖ If given the opportunity, I will add value by using my diverse background to create meaningful solutions to complex problems.
- ❖ I will recognize my shortcomings and most importantly my lack of real-world experience.
- ❖ I will ensure that I am not a designer that is self-centered or designing for their own personal gain, but rather one who is designing for the well-being of the user.
- ❖ While I do not have all the answers, I will continue to seek guidance and develop my design capabilities as a member of any design team.

“Every great design begins with an even better story.”

– *Lorinda Mamo, designer*