WHAT IS THE DESIGN-BUILD-TEST CYCLE?

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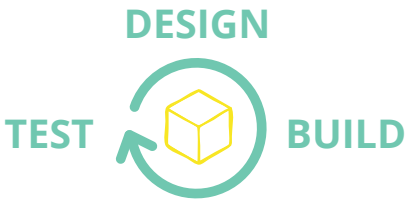
Just like how a good author will go through multiple drafts when writing a book, a good computer scientist will build multiple versions of a product before it's finished. One process that computer scientists can use to build a product is the **design-build-test cycle**. In this cycle, computer scientists create a product by moving through three different stages:



- **Design:** Deciding what the product should look like.
- **Build:** Creating a version of the product.
- **Test:** Getting feedback on the product from other people.

Once you finish the test phase, take what you've learned and use it in your next design phase. For example, in your tests you might learn that your users have a hard time finding a particular feature. So you might start a new design stage where you tweak your product's layout to improve the user's experience. This cycle can be repeated again and again to make a product better and better.

WHAT IS A PROTOTYPE?

A **prototype** is an early version of a product, like a first draft of an essay. Computer scientists will often start off by building a prototype, because it lets them quickly put something together so they can get feedback from actual users. It's better to use a prototype to test than a finished product, because if users don't like something, it's easier to make changes to a prototype. Think about a time when you wrote a paper for class. Wouldn't it be easier to make changes to your first outline than it would be to change your final draft?

MIRAL KOTB

Miral Kotb was born in Egypt, and she and her parents moved to the United States when she was 2. When Miral was 9, she built her first computer program. She went on to earn a degree in computer science at Columbia University while studying dance at Barnard College at the same time. After college, she started working as a software engineer, but she dreamed of combining her love of dance with her love of technology.

Then, in 2009, when Miral was working as an engineer on mobile apps, she had an idea. She imagined a performance where dancers wore costumes with lights that could be wirelessly turned on and off in time with the music. This idea led Miral to create iLuminate, a dance group that performs in special light-up suits to create visual illusions. As the company got started, Miral and her team built different prototypes of the costumes until they found one that worked just right. Miral likes that iLuminate brings together people from different backgrounds - programmers, dancers, costume designers - to create something magnificent!

When might Miral have used the design-build-test cycle when she was creating iLuminate?