

Attribute listing is a method that can help us better understand the solution or design space, and then methodologically generate new ideas that capture different points in this space.

You can see a simple example about post-it notes here:

<https://www.youtube.com/watch?v=vruwnA6lKb8>

Now back to our in-class exercise of using mobile technology to help people eat more healthfully.

Here are some of the ideas you came up with in class:

1. App that uses computer vision to identify the nutritional value of your food
2. Social app to which you record a log of what you ate, and the app shames you in front of your friends when you eat bad food
3. App that takes as input the ingredients you have in your fridge and suggests recipes of nutritional dishes
4. App that filters information about whether different types of food are healthy or unhealthy based on expert advice.
5. Plug-in for instacart of related services that would assemble healthy shopping list for you
6. Buddy system for eating healthy from your social network

With **attribute listing**, we try to identify some of the *attributes* of the solution space (shown in the columns of the table below), and the different *values* of these attributes (shown in the rows of the table below) that our solutions suggest. For example, looking at the ideas above, we may identify the following attributes and their values (this is by no means a comprehensive list):

Output	Input information	Incentive mechanism	Input modality
Nutritional value (1)	Contents of a meal (1)	Intrinsic motivation to eat better (1, 3,5)	Taking pictures (1)
Display of user behavior (2)	Log of what you ate (2)	Negative - shaming (2)	Typing information (3,4)
Recipes (3)	Available ingredients in your fridge (3)	Intrinsic motivation to learn about food (4)	Plug-in for existing app (5)
Expert advice (4)	web/repository of articles (4)	Social comparison (6)	
Delivered groceries (5)	Food preferences (5)		
Activities of others, comparisons with others, peer-support (6)	Social network (6)		

Now that we have 4 attributes, and several different values that each of these attributes can take, we can try to generate new ideas by exploring combinations of these values that were not considered yet yet. For example, we could think of a social app that lets you take a picture (input modality from idea 1) of the contents of your fridge (input information from idea 3), and shows you how your fridge ranks compared to your friends' fridges' in terms of the nutritional value of your food (output and incentive mechanism from idea 6). This is called the exploratory stage, where we generates new points on the space by re-combining values of attributes we've identified from our initial set of ideas.

Next, we can go even further by doing transformational creativity: in this stage, we try to come up with new possible *values* for the attributes we've already identified. For example, we can think of new input modalities, such as sensors or gps; new input information, such as geographic location; new outputs such as names of restaurants that serve high quality and nutritional food. These will expand our table:

Output	Input information	Incentive mechanism	Input modality
Nutritional value (1)	Contents of a meal (1)	Intrinsic motivation to eat better (1, 3,5)	Taking pictures (1)
Display of user behavior (2)	Log of what you ate (2)	Negative - shaming (2)	Typing information (3,4)
Recipes (3)	Available ingredients in your fridge (3)	Intrinsic motivation to learn about food (4)	Plug-in for existing app (5)
Expert advice (4)	web/repository of articles (4)	Social comparison (6)	GPS
Delivered groceries (5)	Food preferences (5)		
Activities of others, comparisons with others, peer-support (6)	Social network (6)		
Recommended restaurants	User location		

We could think of an app that would get as input our location and would recommend restaurants where we can eat nutritional food. We can again mix these values with other attribute values as we did in the exploratory stage.

Similarly, we can also think of new *attributes* to expand our space. For example, we could think of the *triggering mechanism* of our app -- is the app triggered upon explicit user request (e.g., when we take a picture of our food), or is it triggered automatically without explicit user request (e.g., letting us know of restaurants nearby as we walk based on our location). This process will result in new columns in our table, and yet new regions of the solution space for us to explore.

Output	Input information	Incentive mechanism	Input modality	Triggering mechanism
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