Sketching with Office Supplies 3.7

using commonly available office supplies to create editable sketches

While paper and pencil is the best way to create rapid sketches, you can also use other common office supplies to create designs that are easily altered on the fly. The basic idea, advocated in Rettig's 1994 article ***Prototyping for Tiny Fingers***, is this. You use sticky notes of various types and sizes as graphical user interface elements, where you assemble these elements onto a poster board to create your layout. You write atop these sticky notes to bring your interface to life. If you change your mind about something, you just peel off that sticky note and replace it with a new one, or move it to a new position to experiment with different layouts. It gives you some of the flexibility of digital tools, while still letting you work with traditional media.

The side bar shows a sampling of office supplies that you will find handy. The most useful are: the sticky notes of various sizes; a sticky-note glue stick that will let you transform any piece of plain, colored or transparent paper into a sticky note; scissors to cut paper and notes into different sizes; and a reasonably stiff and sufficiently large poster board where you can assemble your interface. Of course, there are many other office supplies that you can exploit that aren't included on this list. Visit an office supply store to look for opportunities. Both Marc Rettig and Michael Muller, in their articles listed at the end of this chapter, suggest other places where you can find supplies, or other supplies you can exploit for sketching.

THE VERSATILE STICKY NOTE

Sticky notes come in various sizes. You can also, of course, cut them down to any size. This means you can rapidly use sticky notes as buttons, dialog boxes, menus, icons, tooltips, as individual input fields in a form, as containers of labels and other fixed text, and so on. Samplings of stickies used in this way, along with other office supplies, are shown in the figure to the right.

Materials

- sticky notes of various sizes
- poster boards of various sizes
- 'sticky-note' glue stick
- scissors
- transparencies/ acetate sheets
- sheets of white and colored paper
- water-soluble markers
- pencil
- normal and colored pencils
- sharpener
- good quality eraser
- stapler
- a case to hold these supplies

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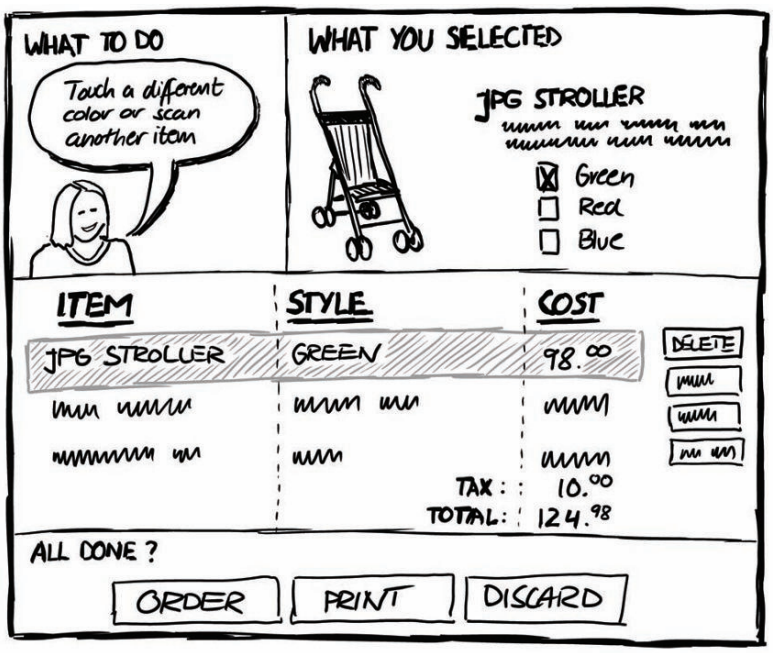
Try It Yourself

As an exercise, reconstruct one or more pencil sketches that appeared in previous chapters using these (and other) office supplies (try the one shown here of the online shopping system, without looking at my own solution).

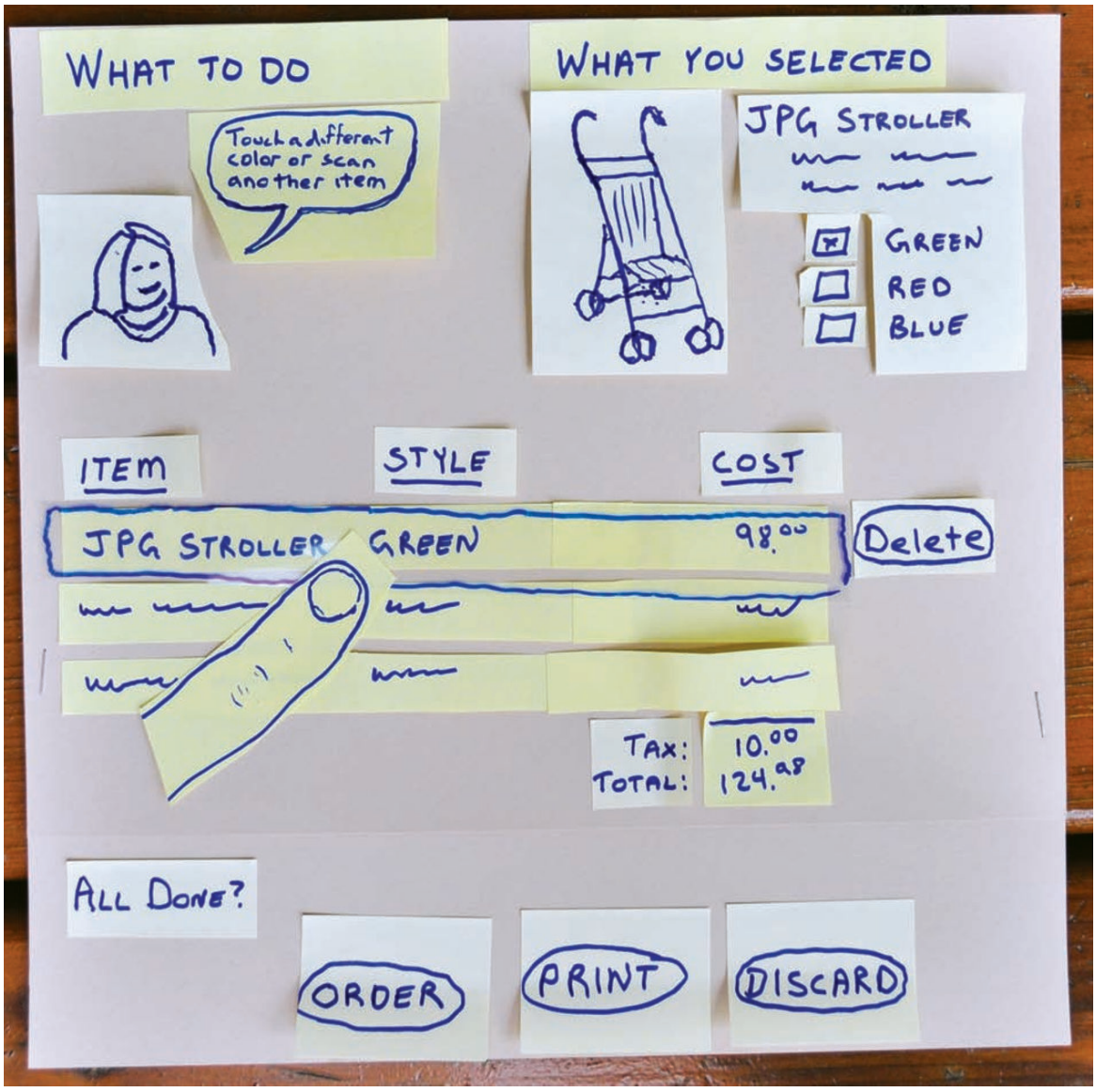


You will quickly discover that you will be making decisions on how much should be put on a single sticky. To help you make these decisions, ask yourself what would serve as the best 'unit' to use as a building block? This will depend on how likely it is that you will be changing the contents or location of a particular graphical element, and how that element matches standard graphical elements of an interface.

Tips

If you know you are going to repeatedly use many graphical elements of a particular type, you can premake sticky notes as that type. For example, let's say you are going to be creating many menus. Instead of doing them one-by-one, you can creat a sheet of menus (like the one on the top right) and make copies of that sheet. You can then cut out these menus, glue them on their backs with sticky note glue, and make your own 'menu pad' (as shown on the bottom right). You can, of course, do the same thing with other graphical items, such as pad of buttons, dialog boxes, and so on. These pads can help speed up your construction of sketches.

The figure below is my reconstruction of the pencil sketch of the online shopping system using office supplies. My decisions regarding sticky note 'units' relate to what I thought I may change as I explore this sketch: the text of the labels, the images used, the contents of the instructions, the item(s) used as examples, the kinds of buttons I wanted, and so on. If you look closely, you will also notice two more 'unusual' things in this sketch. First, one of the sticky notes is of a person's finger, where that finger has selected the first item in the shopping list. Second, the highlight around that first item (invoked when a person selects it) is 'implemented' as a strip of acetate transparency, where an outline was drawn on its edges. I dabbed some sticky note glue onto this transparency, which means I can replace the finger repeatedly atop of the sketch (this is important when the sketch is placed on a wall, so no bits fall off).



Admittedly, this sketch took me longer to do than the pencil sketch. Yet the advantage is that I can now alter this sketch, For example, I can replace certain sticky notes without having to completely redraw the sketch.

INTERACTING WITH OFFICE SUPPLIES OVER TIME

The real power of this method, however, comes from animating the interaction over time, where people can 'play out' an interaction sequence to explore design possibilities. For our example, we could animate what happens when the 'Delete' button is pressed. We would perhaps remove the sticky containing the JPG Stroller item, create a new sticky showing a different tax and total figure, and have the 'clerk' icon provide feedback of that action by changing the text in the speech bubble to say what was deleted. This can continue through many interactions.

The problem is that the designer would just be left with memories and a mess of paper. To solve this, the process could be captured as a storyboard via a camera (Chapter 4.4), or as a video animation (Chapter 5.5). These can be used to review the various interaction scenarios.

Try it yourself by designing the next steps in the example interface that would occur if a user pressed the 'Order' button.

USING OFFICE SUPPLIES WITH OTHERS

The familiar paper medium also means that others on your team can easily collaborate over this sketch. As Michael Muller describes in his 1991 article on ***Pictive***, all members of a design team can be involved as, unlike digital drawing systems, no special training on the technology is required. All can compose, explore and change this sticky-note interface. Work can be done in parallel. If multiple people work on the same part, then they can compare their designs, perhaps even merging the best parts of each design into a new design simply by moving their sticky notes around. Each person can even work on one or more parts of the interface on his or her own as a 'homework assignment' and bring in the solution for others to see.

Reconsider our example above in a group design session. Perhaps one person could be sketching out the sticky notes involved in the 'What to do' section, while another could be creating the example in the 'What you selected' section. Or different people may work separately on the same interface component, where they place their own version into the sketch to show others. In critiquing this interface, all can rapidly create alternate design solutions as revealed by discussions, and place them on the interface to show how they work. This flexibility is why Muller calls these kinds of sketches 'plastic'.

References

Rettig, M. (1994) *Prototyping for Tiny Fingers.* Communications of the ACM, 37(4), ACM Press.

Muller, M.J. (1991) *Pictive: An exploration in participatory design*. In Proceedings of the ACM Conference on Human Factors in Computing Systems, 225–231, ACM Press.

YOU NOW KNOW

Office supplies – especially sticky notes – are very useful for crafting editable paper interfaces. By composing key interface elements onto single sticky notes, you can edit the interface by substituting another sticky, by moving it, or by altering its contents. It provides you and your collaborators with the flexibility of digital tools, while letting you all work with traditional media.

Templates 3.8

pre-draw the constant, non-changeable parts of your sketch as a template that you can use and reuse

In some situations, you will be responsible for modifying only a portion of an existing visual interface. Certain portions may be pre-determined and fixed, either because of the shape of the hardware product (e.g., a cell phone body, buttons and screen size), the application hosting the system (e.g., a web browser frame), a window that contains pre-existing controls and information (e.g., an application), or a layout/style sheet that dictates how the contents of a window must conform to a certain layout (e.g., dialog boxes, particular web pages).

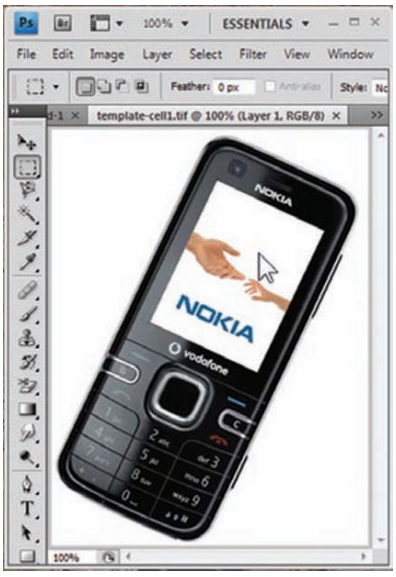
You can, of course draw out those fixed parts repeatedly for each sketch, but that quickly becomes tedious. Or you can leave those fixed parts out, but then your sketch may lack context. An alternative is to create a **template**, an image that captures the fixed parts of the system that you can easily copy, while leaving drawing space for your own creative endeavors atop this image.

APPROPRIATING PHOTOS

In this example, we will create a template of a particular cell phone body. We will leave the cell screen blank as a sketching surface.

1 Find a source image of the desired cell phone. You could take a photo of an existing cell phone. Or as done here, you could search for the image on the web. Alternately, you can find it in a print magazine or flyer, and scan it in.

2 Copy the image into an image or bitmap editor of your choice. The example to the left shows the cell phone image imported into Adobe Photoshop.



Materials

- a photo, screen grab, or found image of an existing visual
- an image or bitmap editor that allows cropping, painting and (preferably) layering
- printer

and/or

- tracing paper
- pencil
- photocopier/ scanner
- screen grabber

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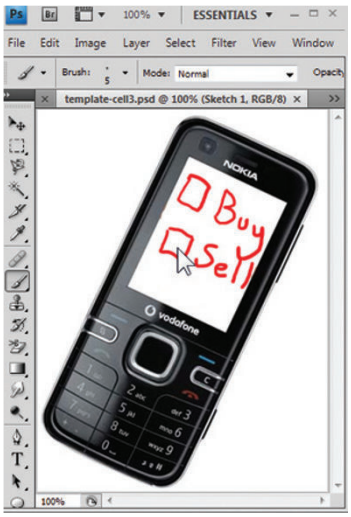
Tips

Mouse vs. Pen: Drawing with a mouse can be difficult. Instead, you may want to consider buying a pen-based tablet; these are much easier to draw with. There is a variety of modestly priced ones on the market.

If you have to use a mouse, zoom into the photo. Its larger size will make tracing easier to do. Still, it's hard to draw long curvy lines accurately. Instead, draw with short strokes, piece by piece. When continuing the stroke, always begin at the end point of the previous stroke so the result is a continuous line.

Drawing in short strokes also means undo will work better when you do make a mistake.

3 White out the screen area, which you will use as your sketching area. In the example on the left, I set Photoshop's paint brush tool to white and painted out the existing screen image.



4 Using your bitmap editor, sketch your ideas atop copies of this image (as done on the left). Alternately, print out paper copies of the images and sketch atop them with pencil.

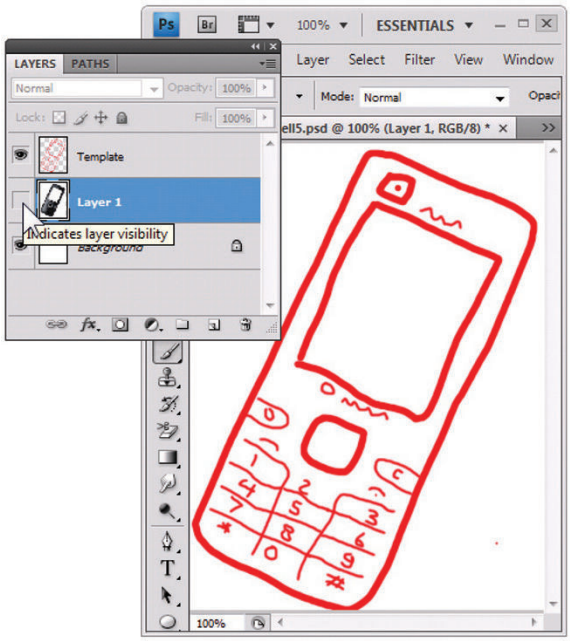
TRACING

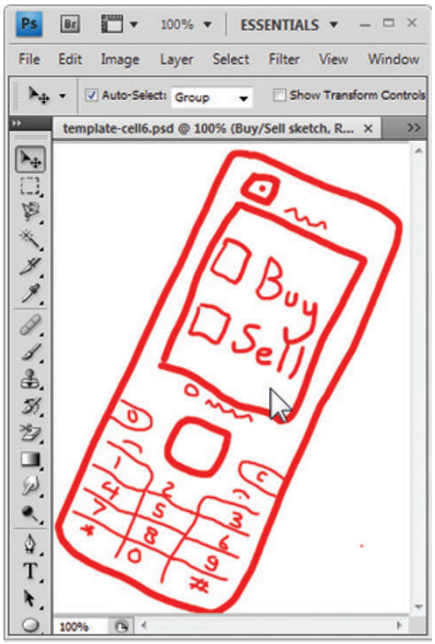
The above technique is simple, but does lead to a perhaps strange juxtaposition of a highly detailed photo and crude sketch. To keep everything at the same sketch fidelity, and perhaps to mute unneeded details, you can create a sketch of the image – the cell phone – and use that as a template. You can do this quickly by **tracing**. Here is one convenient way to do this in software.

1 Load the image into a bitmap editor that lets you create layers. Create a new layer (how you do this depends on your software), and trace over the parts of the image you want to keep. You don't have to trace everything, nor do you need to capture it in full fidelity. In the figure to the right, the letters associated with the keys were left off, and scribble text was used instead of logos.

2 Remove, cut or hide the photo layer, leaving only the trace. In Photoshop, you can do this by selecting the layer containing the original image and turning its visibility off, as done below in Layer 1.

3 As before, you can sketch your ideas atop copies of this template.





MORE ON LAYERS

Editors that allow layering will let you create and experiment with a multitude of sketches, where each sketch variation is saved as a new layer. This way, you can switch between layers (and between ideas) simply by changing that layer's visibility. You can also build up your single sketch as a series of layers. The examples below show how this is done in Photoshop.

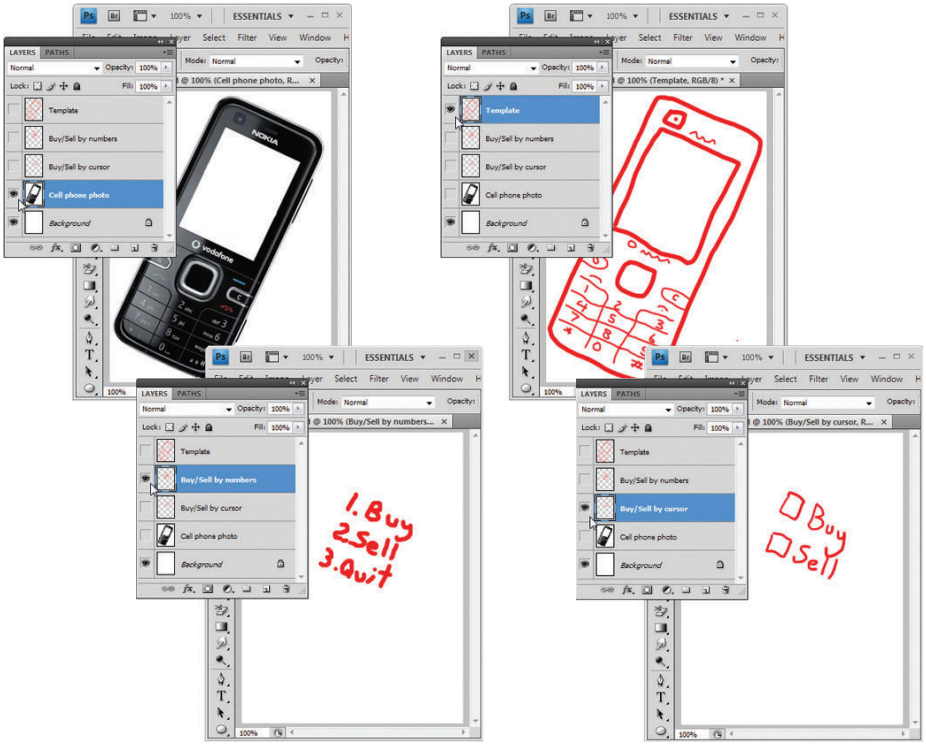
Tips

Using slideware like PowerPoint, you can use slides as a (sort of) replacement for layers.

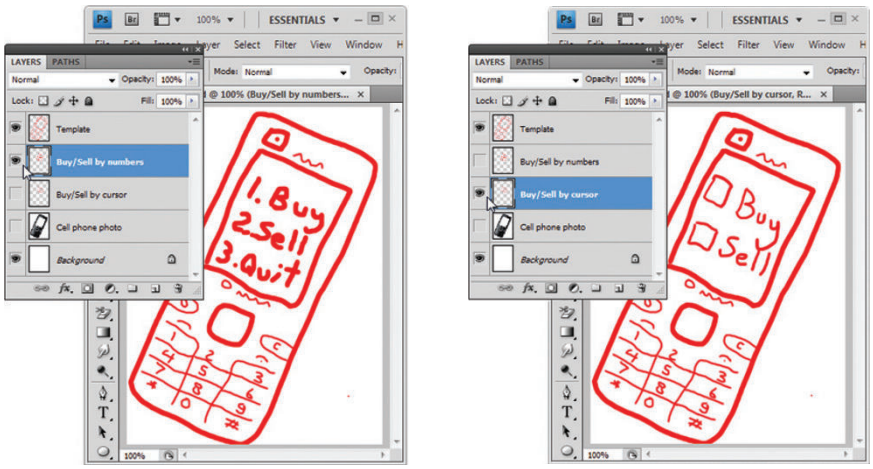
For example, put the image onto the first slide, and make a copy of that slide as a 2nd slide. Using PowerPoint's drawing tools (see Chapter 3.6), sketch over the phone. Group the marks to make a single drawing. Then delete the image off the second slide, leaving just the template. Copy that as new slides, where you can then sketch over those as with layers.

By mixing and matching slides and visuals, you can reuse the various pictorial and sketching elements.

1 Create layers as shown. The first four images show different layers, including the original image (layer titled Cell phone photo), the sketched over template (layer Template), and two different sketches of the screen contents (layers Buy/Sell by cursor, and Buy/Sell by numbers). The visibility of layers was adjusted to hide and reveal particular layers.



2 Compose the layers together to achieve different sketches. In Photoshop, this is done by adjusting the layer visibility. These images both use two composite layers. Both make the Template layer visible (to show the sketched phone). The first makes the Buy/Sell by numbers layer visible, while the second uses the Buy/Sell by cursor layer. While we don't show this, you can use the phone image instead of the sketched template simply by making the Cell phone photo layer visible and the Template layer invisible.



BACK TO PAPER

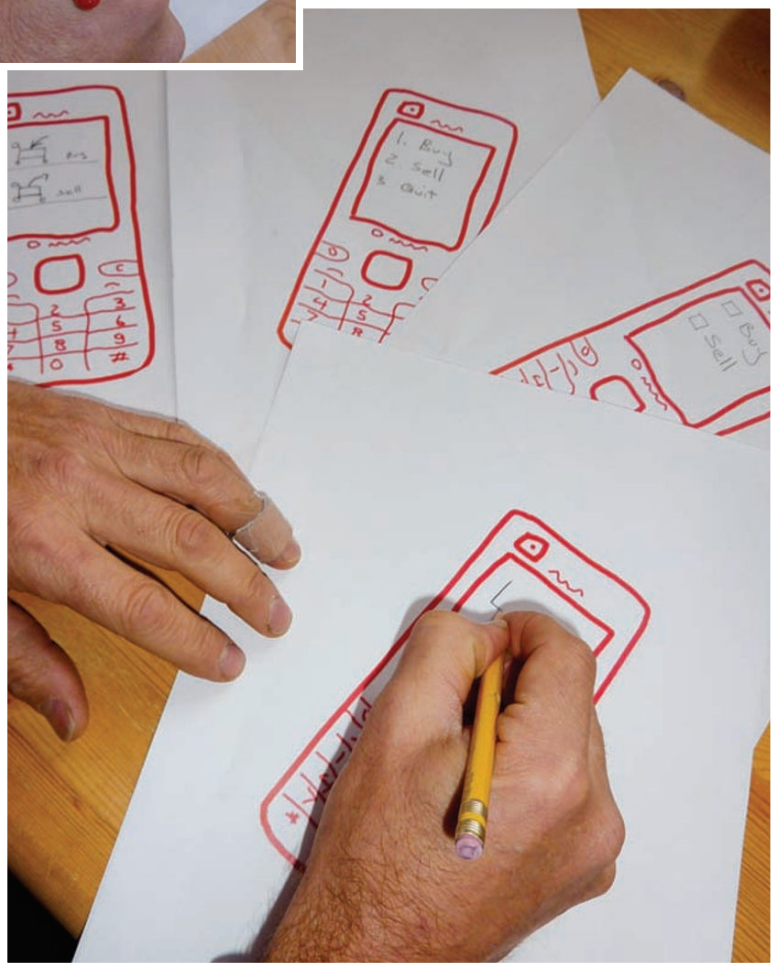
While software may help you create templates, it is not crucial. And as usual, drawing with pen or pencil is often faster and more convenient than drawing in software.

1 Print out the image.

2 With tracing paper and pencil or marker, trace over the image (left figure).

3 Generate multiple copies of the template by photocopying it, or by scanning and printing the traced image.

4 Sketch over the printed templates with pen or pencil (right figure).

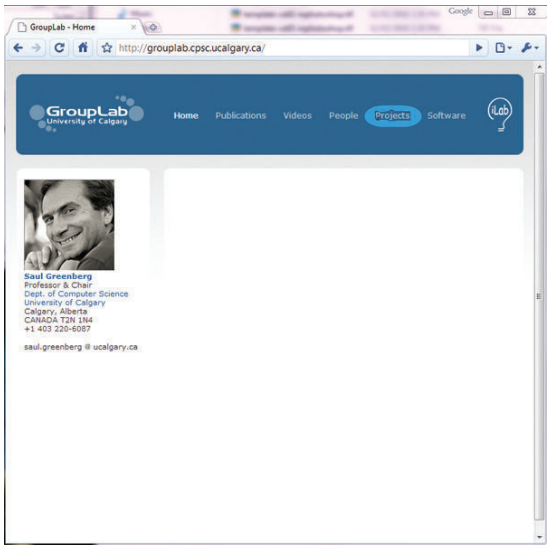


ANOTHER EXAMPLE: A WEB PAGE TEMPLATE

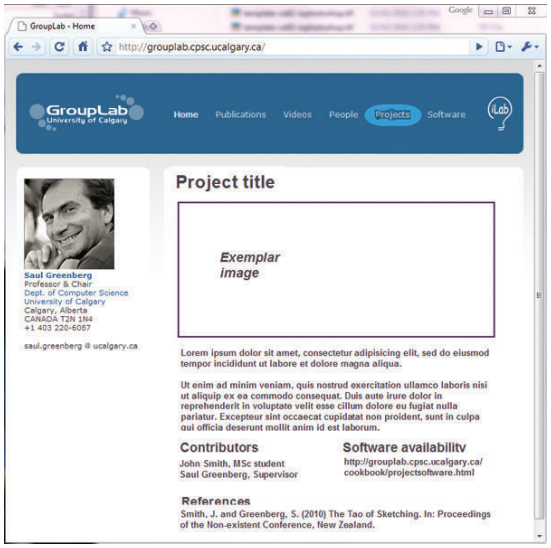
The next example shows – in abbreviated form – how the same technique is used to create a template for a web page. In this case, the designer is sketching out the general style of 'Project' pages, a new sub-site within Saul Greenberg's Grouplab web site. The style guide for this web site determined a fixed look and feel that all pages should conform to. The banner on top is always the same (although the highlights may differ), as is the sidebar. These are the steps the designer did, which you can repeat on this site or your own preferred web site.

1 Using a screen-grabbing tool, grab the source image.

2 In an image editor, white out the area that you will use as your sketching canvas. You can also modify the visuals of the template using the editing tools (e.g., the location of the blue highlight was changed to be over the Projects tab).



3 Using that as your template, sketch out your ideas. The two at the bottom are two variations of layout ideas for a project page. In this case, we used the image editor tools to create the layouts.



YOU NOW KNOW

Templates are images that capture fixed parts of the system, while leaving white space for your sketched ideas. Templates can be:

- photos,
- traces,
- used in digital or paper form,
- rapidly reused and built upon via layers.