

Client Communication & Recommendation

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Design Decisions

Each screen of the *Eat Right!* mobile app displays the app logo and app name prominently on the action bar anchored to the top of the screen. A menu button also consistently appears on the right end of the action bar with a familiar “3 consecutive dots” menu icon, which when touched, opens a pop-up menu with a clickable avatar icon and “Account” link to change the email and password associated with the user account. (The account links are grayed out and disabled on the “Login Screen.”) Underneath the account links, a Light/Dark mode toggle switch is set to “Light” mode in the prototype; however, a default setting will match the system setting for this feature.

The *Eat Right!* mobile app starts first-time users at the “Login Screen”. Beneath the action bar, “Login” is displayed in large, bold font, stylized as a San Fransico variant (Apple) or Roboto font (Android), the system fonts recommended by Apple and Google (Medium, n.d.). Underneath this in a smaller (Sans-type) font is used to ensure the user that logging in allows you “To save your scanned products.” Another message of similar font appears in the footer stating that an “Account will be created if one does not exist.” The middle part of the screen allows the user to enter an “Email” and “Password” in the corresponding text boxes. The password will appear masked, and an external encrypted server will be queried upon valid submission. If the user enters an invalid password or hovers over the password entry box, a message regarding password rules will be displayed over “Password.” Once the user enters a valid email and password, an account will be created (if it does not exist). This provides an easy-to-use login interface for a better user experience (UX), which is both efficient and effective. The user will then navigate forward to the

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"Main Screen." The "Login Screen" will be bypassed if the user has previously logged into the app using this device.

The "Main Screen" allows users to scan the UPC (Universal Product Code) of any food product to see a graphic representation of all the included ingredients, along with a color-coded ranking of each item based on the associated health factors of the product. Data will be pulled from a number of online databases that store relevant data for food items, which will require (automatic) install-time permission for internet access. The device will use its main (front-facing) camera to scan the unique barcode found on the packaging of each food product and will provide navigability via touchscreen. Camera access will require an approval from the user for a runtime permission. The user will be prompted for this permission as close to the actual use-case (barcode scan) as possible. User data will not be shared with third parties and the user's identity will not be displayed in any format, which is in line with privacy and security best practices (Google, n.d.). A 4.5:1 color contrast between normal text and background color and a 3:1 for larger text and graphics will be targeted, as suggested by the Web Content Accessibility Guidelines (WCAG). Appropriate font sizes and styles will be implemented for greater accessibility, such as Serif or Sans Serif font for body text (Material Design, n.d.). The app will be easy-to-learn and intuitive to use, taking advantage of gestures like scrolling and swiping, as well as appropriately scaling UI element sizes and resolutions. Touch targets will be at least 48dp x 48dp with at least 8dp of space between each. Consistent spacing and aspect ratio will also be maintained throughout the UI elements. Consistent sound, color, and motion will also be integrated throughout the app to stimulate emotional engagement. Images will be cached on local servers to ensure fast-loading time and a

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better. Multiple high-resolution formats for each graphic will be stored to avoid appearing blurry on high pixel-count monitors like Apple's Retina display, as Apple recommends (Apple, n.d.). It is important to meet the best-practices guidelines suggested by Apple and Google, as each of these specifications help create a better UX and help keep the user delightfully engaged in the app for longer amounts of time.

Once a user selects (touches) the "Details" link for any scanned product listed on the "Main Screen," the user is taken to the "Details Screen" for that product. The user is presented with the same thumbnail image, product and brand names, and the colored and numerical rating. Underneath this, the most critical health-related information is presented in a list that includes the element name (like "Fiber") and representative icon (like grains), a colored rating and categorical phrase, along with the amount and corresponding unit of measure of each element of concern. The categorization will increase inclusivity to those with color-blindness. A back icon appears in the lower left corner of the screen is available, although a labeled "Back" button may appear in the final software version, to aid in better user comprehension of the intended functionality. A "Back Button" toggle switch will also appear in the menu options, to reserve this choice for the user.

Once I started putting together this digital mockup, I decided to move the Light/Dark mode toggle switch to the menu options (instead of near the "Scan" button) due to spacing requirements suggested by Apple and Google. I tried to keep the screens as minimalistic as possible, while also providing the user with as much critical information as possible. This was a usability testing participant's request. One of the changes I made was to include the numerical score on the "Main Screen" instead of a more ambiguous ranking (like "Good" or "Healthy"). I

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believe the addition of this feature to the User Interface (UI) is a major improvement over the original paper-based prototype!

Digital Watch Adaptation

Following industry best practices, adapting the mobile app *Eat Right!* to a digital watch, such as Apple Watch or Android Wear OS, requires a few modifications for a better UX. The "Login Screen" UI could be broken up into components to ensure the small display of the watch is not overcrowded (Google, n.d.). Keyboard input could allow using the rotary hardware input (Apple calls the "Digital Crown") to cycle through characters on the interface at the same speed the dial is spinning. Logging in from a mobile device would create a more consistent experience across different devices though. The "Main Screen" should also show one product (and element) at a time in order to satisfy the smaller screen experience. Images should be minimized (or omitted) in order to help accommodate this limitation. Small animations can help users navigate the minimalistic environment upon first-time use. Haptic feedback can also be implemented to better communicate with the user (Apple, n.d.).

The primary demographic for the *Eat Right!* mobile app is the primary shopper(s) of each household based in the United States. These users are driven by the ability to consume as much relevant information in the shortest amount of time. They want to know what is in their food and which foods should be avoided, in order to provide themselves and their family with healthier options. This is why a numerical score was added to each product listed on the "Main Screen". This primary demographic makes up a significant majority of all users expected on this app.

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The secondary demographic includes mobile device-owning people under the age of 18, who carry influence over the primary shoppers of the household. These users will likely use the add a fraction of the time that a primary shopper will. They can benefit from appealing (minimalistic) images and product names, but are less likely to own a digital watch, so mobile devices may be preferred for this demographic.

Each of these groups desire an easy-to-learn and intuitive UI, which (I believe) this app provides. Added accessibility for either group will be aided through the use of optimized system-based fonts and high-contrast "Dark" mode. As a final note, one of the most crucial features of the app – the ability to scan the UPC of a product – would be missing, as digital watches do not typically have a camera to execute this functionality. Also, I think an app like this is best served on a screen at least the size of a standard smartphone – not on a small screen like one found on a smart watch.

Large Touch-Kiosk Adaptation

Adapting the touch-based mobile app, *Eat Right!*, to a large-screened, touch-based kiosk would be straightforward, although a few modifications are needed for the best user experience. The touch-controls should remain consistent when crossing platforms to the kiosk, including swiping to scroll through lists, although functionality for keyboard, mouse, trackpad, stylus, and other common large-screen input devices could be supported. The app supports portrait-orientation on mobile devices already; however, support for landscape-orientation should be integrated into the app to support a wider range of devices and use-cases. Using responsive layouts, along with window-size classes, will help facilitate adaptation across different form factors

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and allow for appropriately sized fonts, padding, margins, and other UI elements. It will also be crucial to store various high-resolution images to be used in the higher-pixel display.

One of the primary benefits of more screen real-estate is the ability to display more content at any given time. Larger windows can be used, and fewer nested levels and modalities can be taken advantage of. For example, the "Details Screen" of the app could be omitted and be displayed alongside the product list as a pop-out window. More tools and information can be shown to the user, without the need for an extra menu button to toggle Light/Dark mode on and off or hiding away the "Account" link. All this extra space could potentially allow for more horizontal text and added horizontal swiping functionality, to see recommendations for healthy alternatives to the food products they have scanned. I love the idea of using this app on a larger screen, as it adds lots of extra functionality and significantly better user experience!

References:

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