

Assignment 1 – Task Centered Design and Prototyping

SECTION 1: Tasks and Requirements

1. Introduction.

Earth Café is a health-conscious restaurant with an assorted menu, catering to a broad customer base. In the past, this assorted menu was only displayed at the front of the store, and customers would crowd around, before deciding what they want and waiting in line. Once they arrived at the front the line, an Earth Café cashier would take their order, handing them an order number in exchange for their payment. The cashier would then pass the order receipt to the cook, who begins preparing the meal. When the meal is ready, the cashier prompts the customer by calling their order number. This system was sufficient in the past, as Earth Café was not as popular as it has become now. The exponential growth in business serves as incentive for Earth Café to invest in technology to further expand their capabilities. This is where the computerized ordering system comes into play.

Earth Café plans to implement a series of in-store computers, which will be used by customers to complete their orders, as well as by the employees in the event that a customer needs support. When the customer enters restaurant, rather than crowding around the menu and waiting in a lengthy line, they can immediately start filling out their order at the self-serve ordering system. The customer will be able to select from the digitized menu, adding as many items as they would like in a single order. In addition to providing the customer with individual cost of each item, they are also informed of the calories. Once completed, they will be able to see the total cost, as well as their total

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calorie intake, before placing their order, and printing the receipt. If the customer is paying at the kiosk using a credit or debit card, the order will be sent to the kitchen staff, along with an order number corresponding to the one on the customer's receipt.

However, if the customer is paying with cash, they must then take their receipt to the "Express Payment Line", where the cashier will accept their payment and pass manually pass the order to the kitchen staff. When the meal has been prepared, the staff will call the customer's name, letting them know that their order is ready to be picked up. With the newly implemented in-store computers, Earth Café expects customer wait times to decrease significantly, thus increasing responsiveness and overall efficiency.

In order to develop a successful end product, we must ensure that a few system constraints are in place. Firstly, we must take into account that multiple customers may place an order on different systems at the same time. To allow this, each customer must be assigned a unique order ID, to prevent any confusion for the kitchen staff. Secondly, the system must ensure that the customer's payment method is verified before allowing them to place the order. Thirdly, the system will not let the customer place their order without inputting their name, which will be used by the employee to inform that his or her meal is ready.

2. Concrete Task Examples.

By monitoring customer activity at the Earth Café restaurant, we were able to observe the customers' interactions with the working prototype in place at the restaurant. Throughout the day, we took extensive field notes, and conducted a series of first-hand

interview with a variety of customers and employees. We observed customer-employee interactions. Estimated customer wait times, and recorded overall customer satisfaction. This provided us with an opportunity to understand the needs and wants of a wide range of customers. This information will allow us better envision how the typical Earth Café customer will interact with the computerized ordering system.

Task 1. Mark Crosby, a middle-aged man who has decided to embark upon a healthier lifestyle, has recently come across Earth Café while searching for nutritious restaurant options. He analyzes the menu, and before placing his “to-go” order for a classic Caesar salad, he enters his credit card information. He prints his receipt with his order number, and a few minutes later his order is called, indicating that his salad is ready.

Discussion. Earth Café appeals to several health-conscious customers like Mark Crosby. Similarly to Mark, many first-time customers are weary of trying new things, so they tend to keep their orders small. They are generally not aware of the menu until they arrive at the restaurant, so they choose the most familiar items they see on the menu. Additionally, most customers prefer to pay with a credit card. Since this is a common, and typically standard occurrence, this task type is routine and important.

Task 2. Katrina Curtis, a stay-at-home mom, arrives at the restaurant after dropping her kids off at school. She is a frequent visitor of Earth Café, so she already knows what she would like to order before she arrives. Using the self-serve kiosk, she orders two strawberry smoothies, along with two blueberry muffins, and chooses the “dine-in” option. She inputs her debit card information into the system, which allows her to place her order. Then, Katrina memorizes her order number, and resets the system for the next

customer. When she sees her order is ready, she verifies the order number with the employee and proceeds to find a place to sit. Shortly, her friend Candace, for whom she ordered the second smoothie and muffin, joins her.

Discussion. Earth Café markets its employment of “green” business practices for sustainable development. For this reason, many customers, like Katrina, are advocates for environmental sustainability, so they choose not to print their receipts in an attempt to reduce the amount of paper used by the café. However, to be certain that the correct customer is receiving each other, the employee must verify, by asking the customer for their order number. Also, a common form of payment used by many customers is debit, so it is essential for the system to provide this option. Furthermore, a large majority of consumers choose to enjoy their meals in the establishment, as Katrina has, by selecting the dine-in option. The kitchen staff must be informed of this decision in order to prepare the customer’s meal accordingly.

Task 3. Tristan Elliot, who is on his lunch break, visits Earth Café with three of his colleagues. Tristan recently started at his new job, so he decided to treat his teammates out to lunch. He is not particularly health-conscious, but he heard that Earth Café is the “go-to” lunch spot among his colleagues. He orders three spicy black bean burgers, a hummus wrap, two bottles of orange juice, a bottle of water, and strawberry smoothie. He pays for the order using his credit card, places the “dine-in” order, and prints the receipts. When the order is ready, he picks it up and joins his colleagues at their table.

Discussion. Many customers choose to visit Earth Café during their lunch break from work. For this reason, lunch orders tend to be on the larger side, as in the case of

Tristan and his colleagues. This is very common task, so the system must be prepared to handle orders consisting of multiple items from various categories.

Task 4. Monica Geller, a gym fanatic, stops by Earth Café for breakfast every morning. She uses the self-serve ordering system to quickly process her order, because she likes to have enough time to go to the gym before she heads to work. She orders a breakfast wrap and strawberry smoothie, and selects the “to-go”. Before she pays for her order using her credit card, she takes note of her calorie intake, which is displayed on the screen. When her name is called, she picks up her breakfast wrap and rushes to the gym.

Discussion. Since Earth Café offers an assortment of breakfast foods, many customers like to stop by in the mornings. Like Monica, most of the morning crowd is usually in a rush because they need to get to work or school. This requires a quick and efficient system to serve customers in a timely manner. Monica also takes advantage of the “calorie counting” feature, as do many other customers who are looking to maintain a healthy weight.

Task 5. Phoebe Buffay, a musician who also happens to be a vegetarian, is browsing through the digitized menu. From the menu options, she chooses a hummus wrap and an orange juice for her “dine-in” order. Unfortunately, Phoebe forgot her credit card at home. But thankfully, she brought cash. She prints her receipt and proceeds to the Express Payment line, where she hands the cashier the correct amount, and waits for her meal.

Discussion. Although credit cards and debit cards are the most common form of payment at Earth Café, many customers decide to use cash to pay for their orders. Since the computerized ordering system does not accept cash, customers, like Phoebe, need to bring their receipt to an Earth Café cashier. The cashier will then submit the order to the kitchen staff in exchange the cash payment. On average, this takes more time than paying at the machine, which why it is a less preferred method. Another character of Phoebe that is common among many Earth Café customers is that she is vegetarian. This means that she can only choose from a subset of the menu.

Task 6. Max Murphy, an Earth Café employee, is aiding an elderly man, John, in placing his order. Max reads each item from the menu, after which John asks him to place an order for a Caesar salad and a hummus wrap. Max fills out the order and prints the receipt. He hands the receipt to John and guides him to the Express Payment line, where John pays for his meal using cash. When his name is called, John verifies the order number with the employee, and makes his way to a table with his meal.

Discussion. It is not often that the Earth Café employees must use the self-serve kiosk, however most cases are usually similar to the aforementioned case. Most customers that are in need of assistance are generally over the age of 65, and tend to have trouble reading the menu. However, this is not a common occurrence, because Earth Café generally appeals to a younger demographic.

3. Tentative List of Requirements.

The table below highlights a tentative list of requirements that absolutely must be implemented in the computerized ordering system, in order for the customer to perform the most basic and necessary tasks. In addition to this list of must-have requirements, the table also includes requirements that should and could be included to enhance the customer experience.

Absolutely must include:
<ul style="list-style-type: none">• Ability to order menu items<ul style="list-style-type: none">○ Single-item order○ Multiple-item order○ Modify order• Indication of meal type<ul style="list-style-type: none">○ Dine-in○ To-go• Review of order cost<ul style="list-style-type: none">○ Individual item costs○ Total order cost <p><i>Discussion:</i></p> <p>It is a necessity that every Earth Café customer is able to add menu items to their order, whether it is a single-item order, or a multiple-item order. This is the main purpose of this self-serve system, so it is required for all customers that use the machine. Also, before placing their order, each customer needs to indicate whether their meal will be “dine-in” or “to-go”, so the kitchen staff can prepare accordingly. While deciding what to order, the customer must be able to review the cost of each individual item. Finally, the system must verify the order total, so the customer is aware of how much they need to pay.</p>

Should include:

- **Multiple methods of payment**
 - Credit card
 - Debit card
 - Cash
- **Option to print order receipt**
- **Review of calories in meal**
 - Individual item calories
 - Total meal calories
- **Ability to reset/cancel the order**

Discussion:

The preferred methods of payment vary from customer to customer, so the machine should be able to accept the most common forms, which include credit, debit, and cash. In order to keep track of their order total, the customer should be able to print their receipt and keep it on hand. Another feature that should be included for the several fitness-enthusiast that visit Earth Café, is the calorie count of menu items. These customers would appreciate being able to review the calories of each individual item, as well as the total calories in their entire order. Also, in the event that the customer changes his or her mind, they should be able to cancel their order.

Could include:

- **Filtering menu items**
 - Vegetarian
 - Vegan

Discussion:

The system could include a feature to allow the customers to filter the entire menu down to a subset, based on different subcategories. This is not a crucial requirement, however it could be included to enhance the overall user experience.

Exclude:
<ul style="list-style-type: none">• Adjust the menu font size <p><i>Discussion:</i></p> <p>The system should exclude the ability for the user to increase or decrease the font size of the menu. This feature may be beneficial for many elderly customers, as they often have a hard time reading the menu. However, the total number of elderly customers that visit Earth Café is extremely insignificant, in proportion to the amount of effort that would be required to develop this feature.</p>

4. A Concluding Recommendation.

For the development of this computerized ordering system, I recommend using an iterative-and-incremental lifecycle model. This model is based on a technique that relies on continuous iteration to incrementally produce a successful end product. Our developers will focus on the most important requirements at each stage of development. Through the use of stepwise refinement, we will define and prioritize the most critical aspects of the product, while postponing the less vital tasks for later. All tasks are accomplished in order of importance, where everything will eventually reach a level of importance that results in its completion. For example, our main priority will be to ensure that customers are able to easily add and remove menu items to their order using this self-serve system. Once the absolutely essential requirements have been met, our team can focus on the less demanding requirements, such as implementing a filtering feature for the menu. Additionally, this lifecycle is able to easily adapt in the event that new requirements are introduced to the system. With iteration, multiple versions of a product

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can be implemented, then revised and implemented again. This provides developers with numerous chances to rectify any issues with each new implementation, thus mitigating risks earlier on in the life cycle.

Unfortunately, since we are using task-centered design to identify and analyze various potential user groups and user requirements, there is a high probability that a specific group or task may be neglected. This may pose as a major barrier, however since we are using the iterative-and-incremental lifecycle model, it can very easily be overcome. As we identify previously neglected user groups or requirements, we can iteratively revise the previously implemented version of the system.