Group 2: Chris Bickelhaupt, Justin Sosa, Evan Wang, Beverly Wertz

Software Requirements Specification – Outline

Introduction

Purpose

The purpose of this document is to describe the design of the Custom Computer Express mobile application. The target demographics for this document is for software developers and should provide the necessary information to start developing the application.

Scope

Throughout this document many design requirements and decisions will be defined. These requirements will include the functional and nonfunctional requirements.. This document will also define a complete description of the application.

System Overview

The Custom Computer Express mobile application will be designed for the Android platform. The application will be designed for users to view and purchase a computer through their phone. They will also be able to get help on picking a computer that suits their needs. If a user purchases a computer, they will be able to also check their order status. This application is targeted towards all levels of computer purchasers.

References

Definitions

CCE - Custom Computer Express

Use Cases

Name	**UC-1: Selecting Computer Parts**
Summary	Every selected hardware component is added to the computer's final build and price.
Rationale	During the process of selecting individual computer parts, many users will decide to change or reselect their decisions. The function should be able to update the price and selection accordingly so that the cart reflects the correct build. The function also contains popup screens to allow the user educate themselves on what the part is for.
Users	All users
Preconditions	The user engages in the computer building process.
Basic Course of Events	The user indicates that he/she wants to customize a computer. 1. The software prompts the user to select a part. 2. The user selects the desired part. The user can change the selection if desired before moving on. 3. The software updates the cart accordingly to keep track of the current running price and part selection.

Alternative Paths	1. In step 3, the user can transition to any part selection to review and reselect any parts. 2. The user may decide to abort the computer customization process. The software redirects the user back to the home screen. 3. The user may decide to view information about the part to educate themselves about the specific part, how to use the part in their computer and how it impacts their computer performance and configuration.
Postconditions	All part selections have been added to the cart and the user is presented with his/her final build and price.

Name	**UC-2: Questionnaire fill out**
Summary	The user proceeds through the questionnaire in order to have parts selected for him/her
Rationale	Some users will be very inexperienced while purchasing a computer. This use case provides them the opportunity to have computer parts selected for them based off of their selected needs.
Users	Users with little computer knowledge
Preconditions	The user selects to have help building their computer
Basic Course of Events	1. The software prompts the user to select their answers for each question 2. The software analyzes the answers and using rating system, determines which computer best suits the user. 3. The software updates the cart accordingly to keep track of the current running price and part selection. 4. The software presents the custom computer to the user for review
Alternative Paths	1. In step 1, the user can return to the home screen if desired
Postconditions	All questions have been answered and the software has selected a computer to suit the user's needs.

Name	**UC-3: Store to purchase pre-built custom computers**
Summary	The user proceeds to the main store to purchase a pre-built computer
Rationale	Provides a quick and easy way for the user to purchase a computer without going through the complete process of customizing their own.
Users	All users
Preconditions	The user selects the store portion of the application
Basic Course of Events	1. The software displays the available computers, consisting of images, specifications, and price. 2. The user selects a computer 3. The user is directed to checkout
Alternative Paths	1. In step 2, the user can select to customize a pre-built computer. This will fill the cart with the parts from the pre-built computer, but allow the user to go through customization as in UC-1: Selecting Computer Parts 2. The user may decide to leave the store. The software redirects the user back to the home screen.
Postconditions	The user has selected a computer to purchase and presented with the checkout screen.

Name	**UC-4: Checkout**
Summary	After selecting a computer, either from the store, questionnaire, or computer building process, the user will be presented with a checkout screen to complete their purchase.
Rationale	The main function of this application is to provide users with the ability to purchase computers. In order to do this, the user must be presented with a checkout screen that provides a summary of the order and payment options.
Users	All users
Preconditions	The user's cart has been filled with computer parts
Basic Course of Events	1. The software prompts the user to input their billing information 2. The software prompts the user to input their shipping information if it is different from billing information 3. The user is shown a confirmation page of their billing and shipping info along with the total price of their computer purchase 4. The user submits their purchase
Alternative Paths	1. In step 1, 2, or 3 the user may return to the previous page to edit their information or cancel the computer purchase
Postconditions	The user's purchase has been submitted to CCE. The transaction is complete.

Name	**UC-5: Check order status**
Summary	After successfully completing a computer purchase, the user is able to use the mobile app to check their order status.
Rationale	One of the primary goals of the mobile app is to provide the user with access to their order status wherever they are. By knowing the current status of their order, users can better anticipate when their computer will arrive.
Users	Users that have recently purchased a computer from CCE
Preconditions	The user has been given a confirmation number after purchasing a computer from CCE
Basic Course of Events	1. The software prompts the user to input their confirmation number 2. The software displays the current status of the users order (order processing, payment completed, order shipped)
Alternative Paths	1. In step 2, if the confirmation number does not exist the user is returned an error message describing the situation
Postconditions	The user's order status is displayed

Name	**UC-6: Navigate to store from initial opening of the application**
Summary	Once the user opens the application, they will be able to navigate to the store from the main menu.
Rationale	Users should be able to access the store in no more than 1 link from the main menu.
Users	Users that want to look at the CCE store

Preconditions	The user has to just have opened the application and the main menu is open.
Basic Course of Events	1. The user shall click on the 'Go to Store' button. 2. The application loads the store
Alternative Paths	None
Postconditions	The store is displayed to the user.

Name	**UC-7: Navigate to questionnaire from initial opening of the application**
Summary	Once the user opens the application, they will be able to navigate to the questionnaire from the main menu.
Rationale	Users should be able to get help on deciding a computer from the store page
Users	Users that want to look at the CCE store but do not know what they want to buy
Preconditions	The user has to just have opened the application and the main menu is open.
Basic Course of Events	1. The user shall click on the 'Go to Store' button. 2. The application loads the store 3. The user shall click on the 'Help me Decide' button
Alternative Paths	None
Postconditions	The questionnaire is displayed to the user

Functional Requirements

Name	**FR-1: Cart update when parts are selected/reselected**
Summary	The cart must update according to what is currently selected. If a user selects a new part or decides he/she would rather not have it, the cart will update the price and current inventory accordingly.
Rationale	This will prevent the user from having to restart the build process and instead update the cart in real time.
Requirements	When a user selects a new part, the cart must updated to reflect the change. ● If a specific part was already selected, for instance, the CPU, it must be removed from the cart so that the running total can update accordingly. ○ If the part is required for a complete computer build, a new part must be selected before the user can move on. ○ Otherwise, the user can either select "None" or pick a new part. ● If no part was previously selected, then the part is added to the cart and the running total is updated accordingly.
References	UC-1: Selecting computer parts

Name	**FR-2: Order Processed and Confirmation Number**
Summary	The online store shall confirm to the end user once the order has been processed, and provide a confirmation number.
Rationale	This will provide the user with comfort that their order has been completed and provide a confirmation number for the user to later check their order status.
Requirements	Once the order is processed, the order will be uniquely identified with a confirmation number ● The confirmation number will be unique and specific to the particular order meaning no other confirmation number will be the same ● The confirmation number will later be used to check the status for the processed order ● The confirmation number will consist of 10 numeric digits
References	UC-4: Checkout, UC-5: Check order status

Name	**FR-3: Valid confirmation number**
Summary	The check order status feature must check to see if a confirmation number is valid or not.
Rationale	Users will often mistype their confirmation number. This requirement will ensure that the number is at valid number in the software.
Requirements	In order to ensure that the confirmation number is valid, it will be checked by the software to ensure that is corresponds to a purchase. ● If any character other than a number is detected, the user is prompted to enter a valid confirmation number. ● If the confirmation number is less or greater than 10 digits, the user is prompted to enter a valid confirmation number. ● The 10-digit number will be compared against every existing confirmation number. ○ If it matches, the user is able to view their order status ○ If it doesn't match, the user is prompted to enter a valid confirmation number.
References	UC-5: Check order status

Name	**FR-4: Questionnaire Validation**
Summary	The questionnaire must be completely filled out in order to be completed
Rationale	Each question will correspond to a specific part in the computer building process, so in order to process the user's request, they must all be completed.

Requirements	The user will be given a series of question in which they will only have a limited number of responses. ● Each level of response will correspond to a predefined part ● The user may only select one response for each question/statement ○ If the user has not selected a response for each question and tries to submit the questionnaire, an appropriate error message will appear informing the user ○ If the user changes the response for a question, it will deselect the previous response which will maintain a single response for the question ● Upon submission of the questionnaire, the cart will be filled with the corresponding part indicated by each question given
References	UC-2: Questionnaire fill out

Name	**FR-5: View Part Popup**
Summary	A popup screen should be shown to the user on the part selection screen when the user selects the button to learn more about the part.
Rationale	The popup screen will contain information related to the part on how it's used and how it affects the computer performance along with images, connectivity ports will be shown in the popup as well if applicable.
Requirements	The customer will start on the part selection page and then click an "educate me" button. ● A screen will popup with information related to the part ● If an image is available, it will be displayed at the top of the popup screen ● The popup screen will have an X to be able to close the screen and resume selecting parts without loss of information. ○ The user can also hit the back button on their phone to close the popup screen
References	UC-1: Selecting computer parts

Name	**FR-6: Payment Information Validation**
Summary	Once the payment info is submitted to the CCE app, the software must check if it is valid or not.
Rationale	In order to ensure proper payment is received the application must verify that all the info is in fact correct. For example, credit card numbers, no digits in the name, zip code is 5 digits, etc.
Requirements	The customer will enter their complete payment information ● If any of the required information is omitted, the user will be prompted to fill it out. ● If any of the info is invalid, the user will be prompted to correct it. ● If the payment info is correct, the user will be directed to a summary screen detailing the order.
References	UC-4: Checkout

Name	**FR-7: Cancellation of computer purchase**
Summary	The user may cancel the purchase of a computer any time before the order has been completed

Rationale	The user should not be forced to complete a purchase and their should be an easy way for the user to back out of the purchase. This provides the user with comfort and less pressure.
Requirements	On each page of the computer parts selection, their must be a button that allows the user to return to home ● When returning to home the cart must be cleared of all items ● Returning to home cancels the current computer purchase and allows the user to start from scratch ● The user may also return to home on the checkout page before the transaction has been completed ● The user may also return to home after selecting a pre-built computer
References	UC-1: Selecting computer parts, UC-3: Store to purchase pre-built custom computers, UC-4: Checkout

Nonfunctional Requirements

Name	**NF-1: Performance requirements for Check Order Status**
Summary	The order lookup feature should perform quickly on a 3G/4G/Wifi connection.
Rationale	If the lookup isn't fast enough, the customers may stop using the store and shop elsewhere.
Requirements	Multiple order status lookups will be run on the database multiple times to ensure that the performance is suitable for a mobile environment with the following requirements: ● The database will be populated with multiple orders to simulate orders currently placed by customers ● Checks will be run with valid confirmation numbers which should return a result with the order contents and shipping status within 15 seconds on mobile networks, 10 seconds for wifi or better networks. ● For invalid confirmation numbers, results should be returned within 30 seconds with a prompt to submit a valid confirmation number.
References	UC-5: Check Order Status

Name	**NF-2: Performance requirements for Check Out**
Summary	The checkout feature should quickly validate user input, insert the sale into a database, and prompt the user with a confirmation number.
Rationale	If validation is slow, users may get frustrated trying to checkout. Also, when the sale is completed, the sale should quickly be updated in the database so that the user can receive their confirmation number.
Requirements	● Validation of user input should occur in real-time and give feedback quickly ● The database should have the appropriate relational algebra implemented to populate the database in a timely manner. ● The user should receive a confirmation number within 30 seconds of submitting the order.
References	UC-3: Checkout

Name	**NF-3: Performance requirements for store to purchase pre-built custom computers**
Summary	The order page to view pre-built computers should pull up with all computers quickly.. Images should load quickly when scrolling down to a new section of the page on 3G/4G/WiFi networks.
Rationale	If it takes too long to load the page with all the prebuilt computers, customers will leave the application and look for another vendor.
Requirements	● Multiple loads will be made of the page on various android devices with older and newer technology on Android OS 2.2 and higher. ● The page should load with all data loaded within 1 minute. ● Scrolling up and down the prebuilt computer screen will be performed to measure load time of newly displayed images, they should load within 10 seconds of reaching the area on the screen.
References	UC-3: Store to purchase pre-built custom computers

Name	**NF-4: Performance requirements for navigation through the application.**
Summary	The time taken to load new pages, computer parts, computers, and the questionnaire should be efficient for a 3G/4G mobile network.
Rationale	If navigating through the application is slow, the customer will get frustrated and will not want to use our application
Requirements	● All images will be optimized in terms of file format. Depending on what the image is, certain formats can significantly increase or decrease load time. ● All web pages will be cached ● HTTP requests will be minimized by combining images and any kind of stylesheets ● The speed of the website will be tracked to identify if any changes need to be made.
References	

Name	**NF-5: Performance requirements for selecting parts**
Summary	The time taken to update the users cart when they pick or update a cart should be on real-time and be fast. When selecting a computer part, the popup screen describing the part should appear quickly without any lag or delay.
Rationale	If a user picks or changes a part and the cart does not update fast, the user may get confused of what parts they actually have in their cart. Also, the user may get frustrated because of the slow update time. If the popup screen is slow to load, it may popup at a time when the user is already doing something else other than looking at that particular part.
Requirements	● The cart must update within 10 seconds of selecting or changing a part. ● The popup menu must appear within 5 seconds of selecting a computer part.
References	UC-1 **Selecting Computer Parts**