Green Thumb

a web app for Lawn Service companies



Test Plan

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CMSC495 Current Trends

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# 1. Introduction

## 1.1 Objectives

The following document will provide a comprehensive framework for testing the agile web-based Green Thumb Lawn Service Software (GTLSS) package. The testing framework will involve two primary levels: the user interface (UI) design and functionality for the customers and client and the database functionality for the client. The team will utilize two different kinds of testing methodologies: black-box and white-box testing. The black-box (component requirements) testing methodology will involve testing the UI design and functionality. The white-box (algorithmic) testing will involve the code coverage and path coverage of the UI.

## 1.2 Background

The agile web-based GTLSS package is an online portal facilitating Business-to-Consumer (BC2) transactions. The GTLSS package will provide efficiency in customer and business interaction by reducing the need for personal interaction through the automating of services and products for delivery. The GTLSS package will provide inventory management to further increase efficiency for the business by supporting electronic database record keeping, thus reducing clerical expenses and increasing revenue. In the following Testing Plan document, analysis of the UI design and functionality along with database functionality will be tested to ensure the development of GTLSS for the business and consumer to reach the highest efficiency and profit margin.

## 1.3 Scope

The scope of the testing for the GTLSS package will involve testing cases specifics for the three modules of the architectural context diagram:

1. User Interface (UI) – Section 2.1
2. Services (SV) – Section 2.2
3. Domain Objects (DO) – Section 2.3

Out-of-Scope for GTLSS package will be testing for service scheduling, administration of inventory, equipment, employees via admin portal, security protocols, assignment of specific employee or equipment for scheduling, real interaction with payment collection, bookkeeping.

## 1.4 References

References for the software test specification include:

1. IEEE std. 829-1998-IEEE Standard for Software Documentation
2. Software Requirement Specification (SRS) for GTLSS
3. Software Design Document (SDD) for GTLSS

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## 1.5 Testing Environment

The testing environment for GTLSS will be moderate due to the involvement of other components such as web server, web server software, browser compatibility, and database communication. Therefore, the testers will limit their scope to functionality of the UI on two major browsers platformers Google and Firefox for the desktop along with communication of the database to the website.

### 1.5.1 Software

The GTLSS package will require minimal software installation for the business. This E-commerce web application can run on Windows or Linux operating system. The GTLSS package will require access to a database software package like MySQL for the purpose of the business to perform database querying on inventory.

### 1.5.2 Hardware

A desktop or laptop with the following hardware requirements: **Processor**: Intel Core i7, **Hard Drive**: 256GB Solid State, **Monitor Resolution**: 1024x768, and **Memory**: 8GB RAMs. If working with desktop include a keyboard and mouse.

### 1.5.3 Communication

Networking requirements for GTLSS package will require secure protocols with SSL (Secure Sockets Layer) and TLS (Transport Layer Security) by the business. For the purpose of the testers, networking will be performed over TCP/IP protocols. The GTLSS package will require minimal internet speeds of 384kbps along with dedicated ports.

### 1.5.4 Tools

The testing environment will consist of hardware able to access different web browsers. Since the domain object layer and the application layer of the GTLSS package will not be designed for public use, their access will be limited to the testers. Thus, all the team members as testers will have administrative rights to the database and access to the UI. As a result, the testers will ensure UI functionality for the customer and business and MySQL database.

### 1.5.5 Data

The testers of the GTLSS package should have the following data in order to complete the use cases in Section 4 of this Test Plan:

1. Inventory data
2. Products data with pricing
3. Annuals
4. Perennials
5. Vegetables
6. Mulch
7. Fertilizer
8. Soil
9. Services data with pricing
10. Mowing
11. Tree trimming
12. Shrub trimming
13. Customer data
    1. Names (first, last)
    2. Address (Street, state, and zip code)
    3. Dummy credit card information (valid and invalid formats)
    4. Dummy phone numbers (valid and invalid formats)
14. UI functionality
15. Verify browser compatibility
16. Launching the site on different browsers i.e. Google & Firefox
17. Verify navigation bar is visible
18. Verify all links are represent
19. Email
20. Verify all text is clearly visible
21. Logo
22. Product description
23. Content for each page
24. Verify images are loading
25. Verify services and products page has add to cart button
26. Verify each page has a back to top feature
27. Verify text boxes are visible for contact page
28. Functional Testing
29. Verify all pages have correct links
30. Verify email link will open composition for user
31. Verify add to cart button
    1. Adds items from the services and product page to checkout page
32. Verify checkout
33. Verify Confirmation
34. Verify continue shopping
35. Verify proceed to Checkout
36. Verify subtotal
37. Verify customer details text box

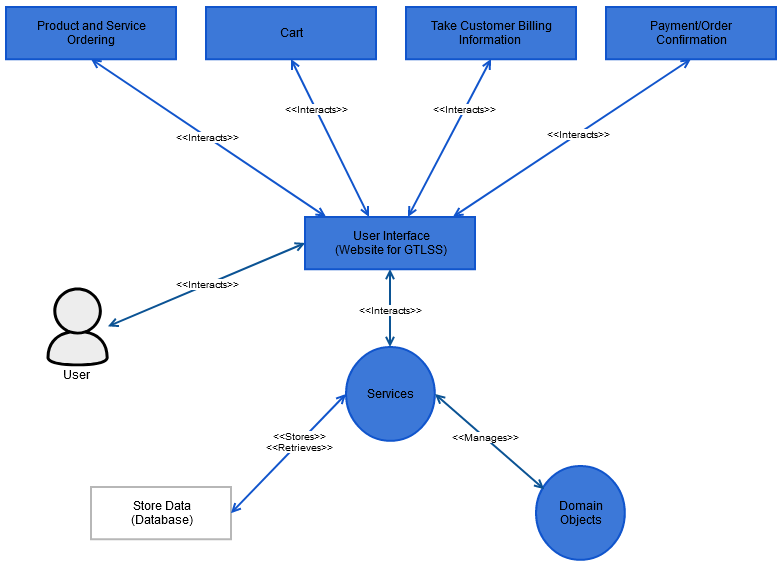
The set of data listed will accommodate the entirety of test cases across the UI, service, and domain objects cases listed for the Test Plan for GTLSS.

# 2. Architectural Context Diagram Mappings

## 2.1 User Interface

Figure 1 will provide the architectural design through the user perspective i.e. the customers and the business manager for the GTLSS package. The users will access the user interface of this software via the GTLSS website.

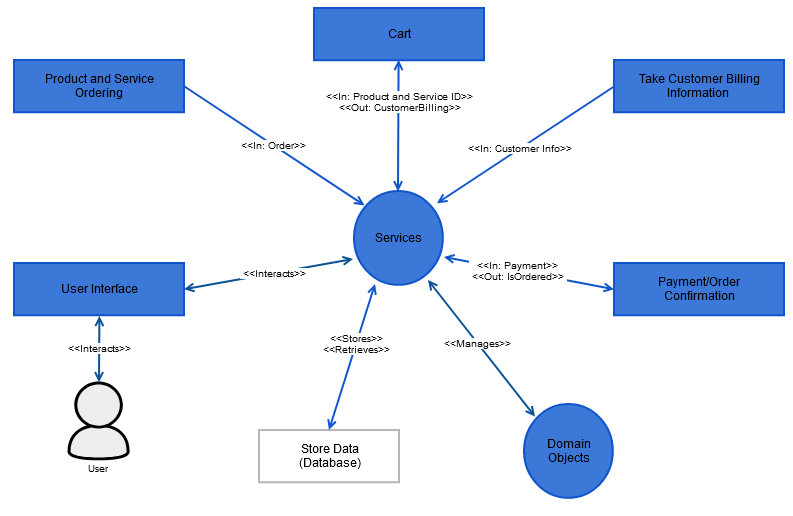
**Figure 1. Architectural Context Diagram – User Interface**

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## 2.2 Services

Figure 2 will provide the business logic processes for the GTLSS package when domain objects are involved, such as looking up inventory (products and services). The service module provides output to the UI and input by the business manager into the SQL database for the purpose of managing domain objects.

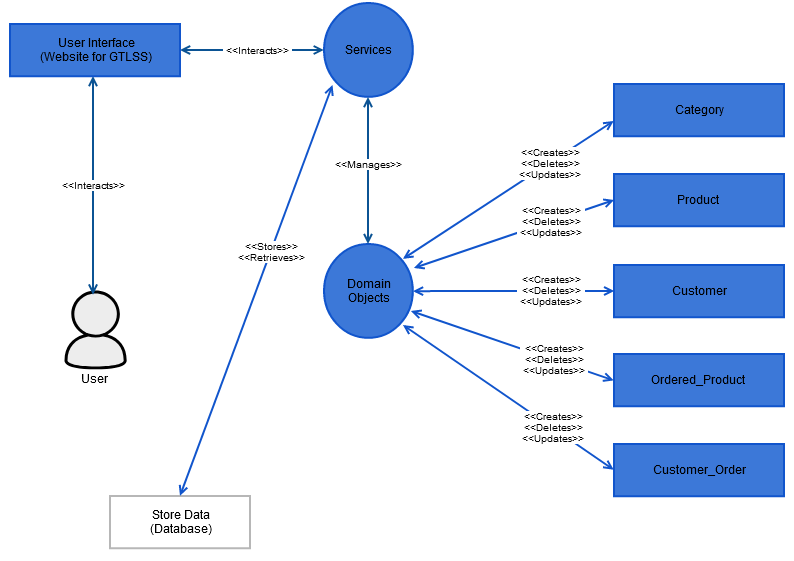
**Figure 1. Architectural Context Diagram – Services**



## 2.3 Domain Objects

Figure 3 will cover all entities that hold data in GTLSS for the purpose of producing the output of a confirmation for the customer. The objects holding the data will be referred to as domain objects.

**Figure 3. Architectural Context Diagram – Domain Objects**

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# 3. Traceability Matrix

The traceability matrix (Table 1) will provide a linkage between the initial software requirements (SRS) and software design (SDD) to the testing (STS) use cases for the GTLSS package. By utilizing the traceability matrix accountability on the testing framework can be measured as pass/fail.

**Table 1. Traceability Matrix**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Category** | **Requirement Description** | **Requirement Type** | **Test Case** | **Pass/Fail** |
| 1 | User Interface | Home Index page loads for GTLSS | Front-end | 4.1.1 |  |
| 2 | User Interface | Navigation Bar displays on each page of the website. | Front-end | 4.1.2 |  |
| 3 | User Interface | Navigation Bar is functional and links to each page | Back-end | 4.1.3 |  |
| 4 | User Interface | Content description loads on each page | Front-end | 4.1.4 |  |
| 5 | User Interface | Content images display on each page | Front-end | 4.1.5 |  |
| 6 | User Interface | Website links to email composition for customers | Back-end | 4.1.6 |  |
| 7 | User Interface | Contact page loads with text boxes to enter customer information and comments | Front-end | 4.1.7 |  |
| 8 | User Interface | Services and Products page loads description of services and products with add to cart functionality | Front-end | 4.1.8 |  |
| 9 | User Interface | The “add to cart” button functionality works to move services and product items selected to cart | Back-end | 4.1.9 |  |
| 10 | Services | Validate inventory and addToCart | Back-end | 4.2.1 |  |
| 12 | User Interface | Cart icon is functional and displays service and product items on the checkout form | Front-end | 4.1.11 |  |
| 15 | Domain Object | Business Manager inputs new categories and products/services and the data gets inputted into the corresponding DB tables | Back-end | 4.3.1 |  |
| 16 | Domain Object | Business Manager retrieves products/services and the correct data gets pulled from the DB table and displayed to the manager | Back-end | 4.3.2 |  |
| 17 | Domain Object | Business Manager updates products/services and the data gets updated in the corresponding DB table | Back-end | 4.3.3 |  |
| 18 | Domain Object | Business Manager deletes products/services and the correct data gets removed from the corresponding DB table | Back-end | 4.3.4 |  |
| 19 | Domain Object | Customer User orders Services/Products and the order data gets stored into the ordered\_product and customer\_order DB tables | Back-end | 4.3.5 |  |
| 20 | Domain Object | Customer User inputs customer information (name, address, etc.) and this data gets stored into the customer DB table | Back-end | 4.3.6 |  |
| 21 | Domain Object | Customer User inputs billing information (credit card type, number, etc.) and this data gets stored into the customer DB table | Back-end | 4.3.7 |  |
| 22 | Services | Validate correct data input for the database by the Business Manager | Back-end | 4.2.2 |  |
| 23 | Services | Numerical calculation performed for display in the checkout form of services and products. | Back-end | 4.2.3 |  |
| 24 | User Interface | Numerical representation of the total for services and products added to cart is displayed | Front-end | 4.1.14 |  |
| 25 | User Interface | Check out form displays a "submit" button | Front-end | 4.1.15 |  |
| 26 | User Interface | Customer presses the "submit" button to open the customer billing form | Front-end | 4.1.16 |  |
| 27 | User Interface | Customer billing form loads and displays text boxes for input by customer | Back-end | 4.1.17 |  |
| 28 | User Interface | Customer input (name, address, phone number, email, credit card information) | Front-end | 4.1.18 |  |
| 29 | Services | Customer input is validated that the correct string, numeric and character values for input for each data field | Back-end | 4.2.4 |  |
| 30 | User Interface | Validation is made a "submit" button is loaded and displayed | Back-end | 4.1.19 |  |
| 31 | User Interface | Customer presses the "submit" button | Front-end | 4.1.20 |  |
| 32 | Services | Assign a Customer ID | Back-end | 4.2.5 |  |
| 37 | User Interface | Confirmation display of services and products ordered. | Front-end | 4.1.23 |  |
| 38 | User Interface | Verify continue shopping button returns to Service and Products page | Front-end | 4.1.24 |  |

# 4. Test Case Specifications

The test cases are provided for the three core modules for the GTLSS package, which is covered in section 2. The test will constitute the completion of steps to validate both the User Interface and DBMS inventory (products and services). The test cases will validate all requirements are being meet from the Project Plan Document.

## 4.1 User Interface Test Cases

The test cases for the User Interface (UI) are designed to prove the UI design and functionality meet the requirements for the GTLSS package.

### 4.1.1 Specification ID: GTLSS-UI-01

**Objective:** The objective of the test case is to provide a black-box test for the UI. Home page is loading to the web browser as required by the section of Project Plan Document section 1.3.1.

**Test Items:** The test will emulate a customer loading the Home Page for the GTLSS package.

**Input Specifications:**

1. Copy software file address to the **URL**.
2. Press enter.

**Output Specifications:**

1. Home page contents are displayed; navigation bar, images, email, and description.

**Environmental Needs:**

1. Laptop or Desktop with keyboard and mouse.
2. Web browser
3. Operating system with GTLSS files installed.

**Special Procedural Requirements:**

n/a

**Inter-case Dependencies:**

The GTLSS file package and the web browser.

### 4.1.2 Specification ID: GTLSS-UI-02

**Objective:** The objective of the test case is to provide a black-box test for the UI. Navigation bar is loading on each page required by the section of Project Plan Document section 1.3.1.

**Test Items:** The test will emulate a customer loading the Home Page, which should display the navigation bar for the GTLSS package.

**Input Specifications:**

1. Copy software file address to the **URL**.
2. Press enter.

**Output Specifications:**

1. The navigation displays on each page of the GTLSS website i.e. Home page, Services and Products page, Landscaping tips page, Contact page, About Us, and Cart page.

**Environmental Needs:**

1. Laptop or Desktop with keyboard and mouse.
2. Web browser
3. Operating system with GTLSS files installed.

**Special Procedural Requirements:**

n/a

**Inter-case Dependencies:**

The GTLSS file package and the web browser.

### 4.1.3 Specification ID: GTLSS-UI-03

**Objective:** The objective of the test case is to provide a black-box test for the UI. The Navigation bar functionality is linking to each of the site pages required by the section of Project Plan Document section 1.3.1.

**Test Items:** The test will emulate a customer pressing navigation bar items, which will redirect to the site page chosen.

**Input Specifications:**

1. Press navigation bar items i.e. Home page, Services and Products page, Landscaping tips page, Contact page, About Us, and Cart page.

**Output Specifications:**

1. Each site page is linked and displayed i.e. Home page, Services and Products page, Landscaping tips page, Contact page, About Us, and Cart page.

**Environmental Needs:**

1. Laptop or Desktop with keyboard and mouse.
2. Web browser
3. Operating system with GTLSS files installed.

**Special Procedural Requirements:**

n/a

**Inter-case Dependencies:**

The GTLSS file package and the web browser.

### 4.1.4 Specification ID: GTLSS-UI-04

**Objective:** The objective of the test case is to provide a black-box test for the UI. The content is displayed for each site page required by the section of Project Plan Document section 1.3.1.

**Test Items:** The test will emulate a customer able to view all content on the site pages i.e. Home page, Services and Products page, Landscaping tips page, Contact page, About Us, and Cart page.

**Input Specifications:**

1. The GTLSS package files will display content for site pages i.e. Home page, Services and Products page, Landscaping tips page, Contact page, About Us, and Cart page.

**Output Specifications:**

1. Content is displayed for site pages i.e. Home page, Services and Products page, Landscaping tips page, Contact page, About Us, and Cart page.

**Environmental Needs:**

1. Laptop or Desktop with keyboard and mouse.
2. Web browser
3. Operating system with GTLSS files installed.

**Special Procedural Requirements:**

n/a

**Inter-case Dependencies:**

The GTLSS file package and the web browser.

### 4.1.5 Specification ID: GTLSS-UI-05

**Objective:** The objective of the test case is to provide a black-box test for the UI. The images are displayed on each site page as required by the section of Project Plan Document section 1.3.1.

**Test Items:** The test will emulate a customer able to view all the images on the site pages i.e. Home page, Services and Products page, Landscaping tips page, Contact page, About Us, and Cart page.

**Input Specifications:**

1. The GTLSS package files will display images for site pages i.e. Home page, Services and Products page, Landscaping tips page, Contact page, About Us, and Cart page.

**Output Specifications:**

1. Images are displayed for site pages i.e. Home page, Services and Products page, Landscaping tips page, Contact page, About Us, and Cart page.

**Environmental Needs:**

1. Laptop or Desktop with keyboard and mouse
2. Web browser
3. Operating system with GTLSS files installed.

**Special Procedural Requirements:**

n/a

**Inter-case Dependencies:**

The GTLSS file package and the web browser.

### 4.1.6 Specification ID: GTLSS-UI-06

**Objective:** The objective of the test case is to provide a black-box test for the UI. The website links to email composition for customers as required by the section of Project Plan Document section 1.3.1.

**Test Items:** The test will emulate a customer clicking on the email for green thumb and being directed to an email composition with the green thumb address in the to line.

**Input Specifications:**

1. Clicking on the email address at the bottom of a site page.

**Output Specifications:**

1. Clicking on the email address at the bottom of a site page will result in an email composition window being opened with the address for green thumb being in the To line allowing the customer to send an email to the company.

**Environmental Needs:**

1. Laptop or Desktop with keyboard and mouse
2. Web browser
3. Operating system with GTLSS files installed.

**Special Procedural Requirements:**

n/a

**Inter-case Dependencies:**

The GTLSS file package and the web browser.

### 4.1.7 Specification ID: GTLSS-UI-07

**Objective:** The objective of the test case is to provide a black-box test for the UI. The contact page loads with text boxes to enter customer information and comments as required by the section of Project Plan Document section 1.3.1.

**Test Items:** The test will emulate a customer opening the contact page, which will load text boxes for them to enter customer information and comments.

**Input Specifications:**

1. Clicking on the contact page in the navigation bar or otherwise loading the contact page.

**Output Specifications:**

1. Contact page loads with text boxes for customer information and comments.

**Environmental Needs:**

1. Laptop or Desktop with keyboard and mouse
2. Web browser
3. Operating system with GTLSS files installed.

**Special Procedural Requirements:**

n/a

**Inter-case Dependencies:**

The GTLSS file package and the web browser.

### 4.1.8 Specification ID: GTLSS-UI-08

**Objective:** The objective of the test case is to provide a black-box test for the UI. The services and products page loads with descriptions of services and products available and add to cart functionality as required by the section of Project Plan Document section 1.3.1.

**Test Items:** The test will emulate a customer opening the services and products page, which will load descriptions of the services and products and provide add to cart functionality.

**Input Specifications:**

1. Clicking on the services and products page in the navigation bar or otherwise loading the services and products page.

**Output Specifications:**

1. Services and Products page loads with descriptions of services and products and add to cart functionality.

**Environmental Needs:**

1. Laptop or Desktop with keyboard and mouse
2. Web browser
3. Operating system with GTLSS files installed.

**Special Procedural Requirements:**

n/a

**Inter-case Dependencies:**

The GTLSS file package and the web browser.

### 4.1.9 Specification ID: GTLSS-UI-09

**Objective:** The objective of the test case is to provide a black-box test for the UI. The “add to cart” button moves services and products to the users cart as required by the section of Project Plan Document section 1.3.1.

**Test Items:** The test will emulate a customer adding services and products to their cart from the services and products page and verify that services and products are then in the users cart.

**Input Specifications:**

1. Clicking on the services and products page in the navigation bar or otherwise loading the services and products page.
2. Selecting a service/product.
3. Clicking “add to cart”.

**Output Specifications:**

1. Services and products page “add to cart” button when clicked puts the selected service/product into the user's cart.

**Environmental Needs:**

1. Laptop or Desktop with keyboard and mouse
2. Web browser
3. Operating system with GTLSS files installed.

**Special Procedural Requirements:**

n/a

**Inter-case Dependencies:**

The GTLSS file package and the web browser.

### 4.1.10 Specification ID: GTLSS-UI-10

**Objective:** The objective of the test case is to provide a black-box test for the UI. The “add to cart” button displays results in “sold out” message being displayed when an item is not available as required by the section of Project Plan Document section 1.3.1.

**Test Items:** The test will emulate a customer adding a product to their cart from the services and products page and when the item is not available, it will display the sold out message.

**Input Specifications:**

1. Clicking on the services and products page in the navigation bar or otherwise loading the services and products page.
2. Selecting a product that is unavailable.
3. Clicking “add to cart”.

**Output Specifications:**

1. Services and Products page “add to cart” button when clicked displays a message that the item is sold out.

**Environmental Needs:**

1. Laptop or Desktop with keyboard and mouse
2. Web browser
3. Operating system with GTLSS files installed.

**Special Procedural Requirements:**

n/a

**Inter-case Dependencies:**

The GTLSS file package and the web browser. GTLSS-SV-01

### 4.1.11 Specification ID: GTLSS-UI-11

**Objective:** The objective of the test case is to provide a black-box test for the UI. The cart icon is functional and displays service and product items on the checkout form as required by the section of Project Plan Document section 1.3.1.

**Test Items:** The test will emulate a customer adding a products and services to their cart and then show the functionality of the cart icon in displaying the products and services on the checkout form.

**Input Specifications:**

1. Clicking on the products/services page in the navigation bar or otherwise loading the products/services page.
2. Selecting a product/service.
3. Clicking “add to cart”.
4. Clicking the cart icon.

**Output Specifications:**

1. Products/services selected should be displayed in the checkout form when the cart icon is selected.

**Environmental Needs:**

1. Laptop or Desktop with keyboard and mouse
2. Web browser
3. Operating system with GTLSS files installed.

**Special Procedural Requirements:**

n/a

**Inter-case Dependencies:**

The GTLSS file package and the web browser. GTLSS-SV-01

### 4.1.14 Specification ID: GTLSS-UI-14

**Objective:** The objective of the test case is to provide a black-box test for the UI. The numerical total for services and products added to the cart is displayed as required by the section of Project Plan Document section 1.3.1.

**Test Items:** The test will emulate a customer or other user being able to see the total for products and services they have added to their cart displayed.

**Input Specifications:**

1. Clicking on the products/services page in the navigation bar or otherwise loading the products/services pages
2. Selecting products/services.
3. Clicking “add to cart”.
4. Navigating to the cart once you have added all the products and services you wish.

**Output Specifications:**

1. The cart with the total price for the products and services should be displayed.

**Environmental Needs:**

1. Laptop or Desktop with keyboard and mouse
2. Web browser
3. Operating system with GTLSS files installed.

**Special Procedural Requirements:**

n/a

**Inter-case Dependencies:**

The GTLSS file package and the web browser. GTLSS-UI-13 has completed and items are displayed in cart. Calculation by GTLSS-SV-03 will be completed as cart is opened.

### 4.1.15 Specification ID: GTLSS-UI-15

**Objective:** The objective of the test case is to provide a black-box test for the UI. The cart/checkout form displays a submit button as required by the section of Project Plan Document section 1.3.1.

**Test Items:** The test will emulate a customer or other user being able to view the submit button on the Cart/Checkout page.

**Input Specifications:**

1. User adds items to the cart from products/services pages.
2. User clicks on the cart button.

**Output Specifications:**

1. The submit button should be displayed on the bottom of the cart/checkout page.

**Environmental Needs:**

1. Laptop or Desktop with keyboard and mouse
2. Web browser
3. Operating system with GTLSS files installed.

**Special Procedural Requirements:**

n/a

**Inter-case Dependencies:**

The GTLSS file package and the web browser.

### 4.1.16 Specification ID: GTLSS-UI-16

**Objective:** The objective of the test case is to provide a black-box test for the UI. The submit button is functional and opens the customer billing form as required by the section of Project Plan Document section 1.3.1.

**Test Items:** The test will emulate a customer adding a products and services to their cart and then show that pushing the submit button at the bottom of the cart opens the customer billing form.

**Input Specifications:**

1. Clicking on the products/services page in the navigation bar or otherwise loading the products/services page.
2. Selecting a product/service.
3. Clicking “add to cart”.
4. Clicking the cart icon.
5. Clicking on submit at the bottom of the cart page.

**Output Specifications:**

1. Products/services selected should be displayed in the checkout form when the cart icon is selected.
2. Submit button opens the customer billing form.

**Environmental Needs:**

1. Laptop or Desktop with keyboard and mouse
2. Web browser
3. Operating system with GTLSS files installed.

**Special Procedural Requirements:**

n/a

**Inter-case Dependencies:**

The GTLSS file package and the web browser. GTLSS-UI-17

### 4.1.17 Specification ID: GTLSS-UI-17

**Objective:** The objective of the test case is to provide a black-box test for the UI. The customer billing form loads and displays text boxes for customer input as required by the section of Project Plan Document section 1.3.1.

**Test Items:** The test will emulate a customer checking out with products and services from the cart and the billing form opening for customer input.

**Input Specifications:**

1. Clicking on the products/services page in the navigation bar or otherwise loading the products/services page.
2. Selecting a product/service.
3. Clicking “add to cart”.
4. Clicking the cart icon.
5. Clicking on submit at the bottom of the cart page.

**Output Specifications:**

1. Products/services selected should be displayed in the checkout form when the cart icon is selected.
2. Submit button opens the customer billing form.
3. Customer billing form loads and displays text boxes for customer input.

**Environmental Needs:**

1. Laptop or Desktop with keyboard and mouse
2. Web browser
3. Operating system with GTLSS files installed.

**Special Procedural Requirements:**

n/a

**Inter-case Dependencies:**

The GTLSS file package and the web browser. GTLSS-UI-18

### 4.1.18 Specification ID: GTLSS-UI-18

**Objective:** The objective of the test case is to provide a black-box test for the UI. The customer billing form receives customer input (name, address, phone number, email, credit card information) properly as required by the section of Project Plan Document section 1.3.1.

**Test Items:** The test will emulate a customer inputting their billing information into the billing form.

**Input Specifications:**

1. Clicking on the products/services page in the navigation bar or otherwise loading the products/services page.
2. Selecting a product/service.
3. Clicking “add to cart”.
4. Clicking the cart icon.
5. Clicking on submit at the bottom of the cart page.
6. Entering Customer information into the billing form that has been opened.

**Output Specifications:**

1. Billing form should load with appropriate text boxes (name, address, phone number, email, credit card information) for customer input
2. Text boxes should retain information entered by the customer as they proceed to complete the form

**Environmental Needs:**

1. Laptop or Desktop with keyboard and mouse
2. Web browser
3. Operating system with GTLSS files installed.

**Special Procedural Requirements:**

n/a

**Inter-case Dependencies:**

The GTLSS file package and the web browser. User has selected items to be purchased and has clicked submit at the bottom of the cart to open the billing information page GTLSS-UI-19.

### 4.1.19 Specification ID: GTLSS-UI-19

**Objective:** The objective of the test case is to provide a black-box test for the UI. The customer billing form receives customer input (name, address, phone number, email, credit card information) and that information is validated causing a submit button to be displayed allowing the customer information to be stored as required by the section of Project Plan Document section 1.3.1.

**Test Items:** The test will emulate a customer inputting their billing information into the billing form, the information being verified and the submit button being displayed.

**Input Specifications:**

1. Clicking on the products/services page in the navigation bar or otherwise loading the products/services page.
2. Selecting a product/service.
3. Clicking “add to cart”.
4. Clicking the cart icon.
5. Clicking on submit at the bottom of the cart page.
6. Entering customer information into the billing form that has been opened.

**Output Specifications:**

1. Billing form should load with appropriate text boxes (name, address, phone number, email, credit card information) for customer input
2. Text boxes should retain information entered by the customer as they proceed to complete the form
3. After validation (GTLSS-SV-04) the submit button is displayed

**Environmental Needs:**

1. Laptop or Desktop with keyboard and mouse
2. Web browser
3. Operating system with GTLSS files installed.

**Special Procedural Requirements:**

n/a

**Inter-case Dependencies:**

The GTLSS file package and the web browser. User has selected items to be purchased and has clicked submit at the bottom of the cart to open the billing information page GTLSS-UI-19, GTLSS-UI-20 and GTLSS-SV-04.

### 4.1.20 Specification ID: GTLSS-UI-20

**Objective:** The objective of the test case is to provide a black-box test for the UI. The submit button is displayed and clicked allowing the billing information to be stored as required by the section of Project Plan Document section 1.3.1.

**Test Items:** The test will emulate a customer inputting their billing information into the billing form, the information being validated, the submit button being displayed and the button being pressed to submit the billing information.

**Input Specifications:**

1. Clicking on the products/services page in the navigation bar or otherwise loading the products/services page.
2. Selecting a product/service.
3. Clicking “add to cart”.
4. Clicking the cart icon.
5. Clicking on submit at the bottom of the cart page.
6. Entering customer information into the billing form that has been opened.
7. Clicking on submit button to submit/store the billing information

**Output Specifications:**

1. Billing form should load with appropriate text boxes (name, address, phone number, email, credit card information) for customer input
2. Text boxes should retain information entered by the customer as they proceed to complete the form
3. The submit button should be clickable for customer and functional (allowing to store customer billing information)

**Environmental Needs:**

1. Laptop or Desktop with keyboard and mouse
2. Web browser
3. Operating system with GTLSS files installed.

**Special Procedural Requirements:**

n/a

**Inter-case Dependencies:**

The GTLSS file package and the web browser. User has selected items to be purchased and has clicked submit at the bottom of the cart to open the billing information page GTLSS-UI-19, GTLSS-UI-20, GTLSS-UI-21 and GTLSS-SV-04.

### 

### 4.1.23 Specification ID: GTLSS-UI-23

**Objective:** The objective of the test case is to provide a black-box test for the UI. The confirmation of payment and order submission is displayed as required by the section of Project Plan Document section 1.3.1.

**Test Items:** The test will emulate a customer viewing the confirmation of payment and order submission.

**Input Specifications:**

1. Clicking on the products/services page in the navigation bar or otherwise loading the products/services page.
2. Selecting a product/service.
3. Clicking “add to cart”.
4. Clicking the cart icon.
5. Clicking on submit at the bottom of the cart page.
6. Entering customer information into the billing form that has been opened.
7. Clicking on submit button to store the billing information and submit order.

**Output Specifications:**

1. Confirmation of payment and order submission should be displayed.

**Environmental Needs:**

1. Laptop or Desktop with keyboard and mouse
2. Web browser
3. Operating system with GTLSS files installed.

**Special Procedural Requirements:**

Date needs to be checked for availability before delivery date is finalized GTLSS-SV-06.

**Inter-case Dependencies:**

The GTLSS file package and the web browser. User has selected items to be purchased and has clicked submit at the bottom of the cart to open the billing information page GTLSS-UI-19, GTLSS-UI-20, GTLSS-UI-21, GTLSS-UI-22, GTLSS-UI-23 and GTLSS-SV-04, GTLSS-SV-05, GTLSS-SV-06.

## 4.2 Services Test Cases

The service test cases will be designed to test the programming of the application program interface (API) for the GTLSS package.

### 4.2.1 Specification ID: GTLSS-SV-01

**Objective:** The objective of the test case is to provide a white-box test for the inventory of the GTLSS package and its ability to ensure that a product is available for purchase by the user and that it is properly added to their cart.

**Test Items:** Products (Database), Order, “Add to Cart” button.

**Input Specifications:**

1. Clicking on the services and products page in the navigation bar or otherwise loading the services and products page.
2. Selecting a product.
3. Clicking “add to cart”.

**Output Specifications:**

1. Product inventory will be checked to make sure that item is available/valid.
2. Product will be added to the user's cart and an order with the item will be created.

**Environmental Needs:**

1. Laptop or Desktop with keyboard and mouse.
2. Web browser
3. Operating system with GTLSS files installed.

**Special Procedural Requirements:**

If an item is not in the inventory, a message will be displayed as outlined in GTLSS-UI-13.

**Inter-case Dependencies:**

The GTLSS file package and the web browser.

### 4.2.2 Specification ID: GTLSS-SV-02

**Objective:** The objective of the test case is to provide a white-box test for the data input to the database by the Business Manager.

**Test Items:** Database table Product (for Products and Services)

**Input Specifications:**

1. Access the DMBS (product table)
2. Add a product using SQL statement

**Output Specifications:**

1. Correct data type will ensure that you are entering valid data types into the table
2. Product will be added to the database, it will overwrite existing data if the product already exists or create a new entry.

**Environmental Needs:**

1. Laptop or Desktop with keyboard and mouse.
2. Web browser
3. Operating system with GTLSS files installed.

**Special Procedural Requirements:**

None

**Inter-case Dependencies:**

The GTLSS file package and the web browser.

### 4.2.3 Specification ID: GTLSS-SV-03

**Objective:** The objective of the test case is to provide a white-box test for the calculation performed for display in the checkout form of services and products.

**Test Items:** Database tables (Products, Category), calculation, order, cart

**Input Specifications:**

1. Clicking on the services and products page in the navigation bar or otherwise loading the services and products page.
2. Selecting a product.
3. Clicking “add to cart”.
4. Navigating to the cart once you have added all the products and services you wish.
5. Clicking check out

**Output Specifications:**

1. Correct products and services will be displayed in the cart
2. Calculation will add totals for the cost of products/services
3. Total cost for all items will be displayed in the confirmed order

**Environmental Needs:**

1. Laptop or Desktop with keyboard and mouse.
2. Web browser
3. Operating system with GTLSS files installed.

**Special Procedural Requirements:**

None

**Inter-case Dependencies:**

The GTLSS file package and the web browser. All products and services are in stock as confirmed by GTLSS-SV-01.

### 4.2.4 Specification ID: GTLSS-SV-04

**Objective:** The objective of the test case is to provide a white-box test for the customer input that validates that it is the correct string, numeric and character value types are input for each field.

**Test Items:** Billing Information (page), customerInput.

**Input Specifications:**

1. Clicking on the services and products page in the navigation bar or otherwise loading the services and products page.
2. Selecting a product.
3. Clicking “add to cart”.
4. Clicking “submit”
5. Typing information into the text boxes of the billing information page

**Output Specifications:**

1. Correct data types are verified as user enters information into the billing fields
2. An error is provided if a data type does not match or cannot be validated (for example a 6 digit phone number or numerical input in the name category)

**Environmental Needs:**

1. Laptop or Desktop with keyboard and mouse.
2. Web browser
3. Operating system with GTLSS files installed.

**Special Procedural Requirements:**

None

**Inter-case Dependencies:**

The GTLSS file package and the web browser. GTLSS-UI-20 and all previous steps required to get to that point have been properly implemented allowing user to check out and submit a completed billing form.

### 4.2.5 Specification ID: GTLSS-SV-05

**Objective:** The objective of the test case is to provide a white-box test for to create an ID for each customer order received.

**Test Items:** Billing Information (page), customerInput, customerAccount.

**Input Specifications:**

1. Clicking on the services and products page in the navigation bar or otherwise loading the services and products page.
2. Selecting a product.
3. Clicking “add to cart”.
4. Clicking “submit”
5. Typing information into the text boxes of the billing information page
6. Clicking “submit”

**Output Specifications:**

1. A new customer ID is created and added to the customer account with the billing information provided for the order.

**Environmental Needs:**

1. Laptop or Desktop with keyboard and mouse.
2. Web browser
3. Operating system with GTLSS files installed.

**Special Procedural Requirements:**

Verification of information by GTLSS-SV-04 must occur first. A check of the database for existing customer records could also be done to prevent duplication of records.

**Inter-case Dependencies:**

The GTLSS file package and the web browser. GTLSS-UI-22 and all previous steps required to get to that point have been properly implemented allowing user to check out and submit a billing form.

## 4.3 Domain Object Test Cases

The test case will be designed to test the data encapsulation and storage portion of the GTLSS package. This testing will be performed by a user testing team.

### 4.3.1 Specification ID: GTLSS-DO-01

**Objective:** The objective of the test case is to provide a white-box test for the Category and Product (Products and Services) domain objects by having the system add new Category and Product (products/services) objects according to the user request.

**Test Items:** The items to be tested in this test case are the function that create a new Category and Product (products/services) domain objects. This case tests valid data entry.

**Input Specifications:**

1. The Admin User of the GTLSS requests to add a new Category (i.e. product or service) to the DB by using SQL statement.
2. The Admin User of the GTLSS requests to add a new Product (products/services) to the DB by using SQL statement. The user adds information about a new product (e.g. category, product/service name, description, and price) by using SQL statement. **Output Specifications:**
3. The successful creation of a Category object
4. The successful creation of a Product (product/service) object

**Environmental Needs:**

1. Laptop or Desktop with keyboard and mouse.
2. Web browser
3. Operating system with GTLSS files installed.

**Special Procedural Requirements:**

n/a

**Inter-case Dependencies:**

The GTLSS file package and the web browser.

### 4.3.2 Specification ID: GTLSS-DO-02

**Objective:** The objective of the test case is to provide a white-box test for the Product (Products and Services) domain object by having the system retrieve all available Product (products/services) data according to the user request.

**Test Items:** The item to be tested in this test case is the function that retrieves appropriate data for Product (products/services) domain object.

**Input Specifications:**

1. The Admin User of the GTLSS requests to see all available Product (products/services) data by using SQL statement

**Output Specifications:**

1. Successful retrieval and displaying of Products (name, description, price, etc.)

**Environmental Needs:**

1. Laptop or Desktop with keyboard and mouse.
2. Web browser
3. Operating system with GTLSS files installed.

**Special Procedural Requirements:**

n/a

**Inter-case Dependencies:**

The GTLSS file package and the web browser.

### 4.3.3 Specification ID: GTLSS-DO-03

**Objective:** The objective of the test case is to provide a white-box test for the Product (Products and Services) domain object by having the Product (products/services) data changed according to the user request.

**Test Items:** The item to be tested in this test case is the function that updates data for Product (products/services) domain object. This case tests valid data entry.

**Input Specifications:**

1.The Admin User of the GTLSS requests to change a Product (products/services) data in the DB by using SQL statement. The user selects what product already in the database he wants to adjust and updates information about a product (e.g. product name, product description, or product price) by using SQL statement.

**Output Specifications:**

1. The successful update of a Product (product/service) object

**Environmental Needs:**

1. Laptop or Desktop with keyboard and mouse.
2. Web browser
3. Operating system with GTLSS files installed.

**Special Procedural Requirements:**

n/a

**Inter-case Dependencies:**

The GTLSS file package and the web browser.

### 4.3.4 Specification ID: GTLSS-DO-04

**Objective:** The objective of the test case is to provide a white-box test for the Product (Products and Services) domain object by having the system remove Product (products/services) object according to the user request.

**Test Items:** The item to be tested in this test case is the function that deletes existing Product (products/services) domain objects.

**Input Specifications:**

1. The Admin User of the GTLSS requests to remove a Product (products/services) data from the DB by using SQL statement. The user selects what product already in the database he wants to delete and uses SQL statement to remove it.

**Output Specifications:**

1. The successful deletion of a Product (products/services) object

**Environmental Needs:**

1. Laptop or Desktop with keyboard and mouse.
2. Web browser
3. Operating system with GTLSS files installed.

**Special Procedural Requirements:**

n/a

**Inter-case Dependencies:**

The GTLSS file package and the web browser.

### 4.3.5 Specification ID: GTLSS-DO-05

**Objective:** The objective of the test case is to provide a white-box test for the Customer\_Order, Ordered \_Product domain objects by having the system add new Customer Order, and Product Order Details information.

**Test Items:** The items to be tested in this test case are the functions that create new Customer\_Order and Ordered\_Product domain objects. This case tests valid data entry.

**Input Specifications:**

1. At the Checkout, the Customer places the order by pressing the Submit button.

**Output Specifications:**

1. The successful creation of a Customer\_Order and Ordered\_Product objects.

**Environmental Needs:**

1. Laptop or Desktop with keyboard and mouse.
2. Web browser
3. Operating system with GTLSS files installed.

**Special Procedural Requirements:**

n/a

**Inter-case Dependencies:**

The GTLSS file package and the web browser

### 4.3.6 Specification ID: GTLSS-DO-06

**Objective:** The objective of the test case is to provide a white-box test for the Customer domain object by having the system add new Customer information.

**Test Items:** The item to be tested in this test case is the function that creates new Customer domain object. This case tests valid data entry.

**Input Specifications:**

1. At the Checkout, the Customer User inputs a valid customer data (e.g. name, address, phone, etc.).

**Output Specifications:**

1. The successful creation of a Customer object

**Environmental Needs:**

1. Laptop or Desktop with keyboard and mouse.
2. Web browser
3. Operating system with GTLSS files installed.

**Special Procedural Requirements:**

n/a

**Inter-case Dependencies:**

The GTLSS file package and the web browser.

# 5. Project Change Log

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Project Change Log for GTLSS | | | | |
| ID | Change Description | Document Changed | Date Revision | Comments |
| 001-T | Removal of Inventory Data | Project Test Plan | 04/15/2019 | Reduced Inventory data by only offering 3 kinds of services by size and nine products. |
| 002-T | Removal of Test Cases | Project Test Plan | 04/15/2019 | Removed test cases for product pages has the page merged with the service page creating a new Service and Products page. Test Cases: 4.1.9 and 4.1.11. |
| 003-T | Removal of site page Landscaping supplies page | Project Test Plan | 04/15/2019 | Changed any references to Landscaping supplies page to Service and Products page in the test cases. Test cases: 4.1.2,4.1.3,4.1.4,4.1.5,4.1.14,4.1.15. |
| 004-T | Removal of Data input for testing | Project Test Plan | 04/25/2019 | Removed data input for calendar, employee, and equipment (pages 7-8). |
| 005-T | Removal of Test Cases | Project test Plan | 04/25/2019 | Removed test cases related to the Admin login and portal (out-of -scope). Test cases: 4.1.12, 4.1.13 |
| 006-T | Removal of Test Cases | Project Test Plan | 04/25/2019 | Removed test cases related to the Calendar Scheduling feature (out-of-scope). Test cases: 4.1.21, 4.1.22, 4.2.6, 4.2.7. |
| 008-T | Validate date | Project Test Plan | 04/25/2019 | Removed validate date for customer (out-of-scope). Test case: 4.2.6. |
| 009-T | Invalidate date | Project Test Plan | 04/25/2019 | Removal of validating date after 20th Customer ID (out-of-scope). Test case: 4.2.7. |
| 007-T | Change of DB tables | Project Test Plan | 04/25/2019 | Changed Product Order Details to Ordered\_Product and removed Service Order Details (Test case: 4.3.5). Consolidated Customer Billing table with Customer table (Test case: 4.3.7). Consolidated Services table with Product table (Test cases: 4.3.1, 4.3.2, 4.3.3, 4.3.4). Added Category table (Test case: 4.3.1). Removed employees and equipment tables (Test cases: 4.3.1, 4.3.2, 4.3.3, 4.3.4). |
| 008-T | Change of diagrams to represent the alternate project design after scope reduction | Project Test Plan | 04/25/2019 | Changed ACD-User  Chahged ACD-Services  Changed the ACD-Services |
| 011-T | Removal of table Customer Billing | Project Test Plan | 04/25/2019 | Removal of Customer Billing table to Customer. Test case: 4.3.7. |