

# Smart Waiter Test Plan

Meraj Patel #1137491

Pavneet Jauhal #1149311

Shan Perera #1150394

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# **1 General Information**

The following section provides an overview of the test plan for Smart Waiter Solutions. This section explains the purpose of this document, the scope of the system, and an overview of the following sections

## **1.1 Purpose**

The purpose of this document is to describe various test cases and procedures to evaluate functionality of Smart Waiter. This document is intended to be used as a reference for all future testing.

## **1.2 Scope**

This test plan is used to evaluate Smart Waiter functionality. Various plans are described in detail to test expected functional and non function requirements are met.

## **1.3 Overview of Document**

The following sections provide more detail about types of test that will be used. Information about the testing process is provided, and the software specifications that were discussed in the SRS document are stated. Testing processes is split up between system test for POC and the final demonstration.

# **2 Plan**

This section provides a description of the software that is being tested, the team that will perform the testing, the milestones for the testing phase, and the budget allocated to the testing.

## **2.1 Software Description**

The software being tested is for Smart Waiter Solutions. The project aims to provide a solution that will allow users to order and pay through a mobile application at restaurants.

## **2.2 Test Team**

The team that will execute the test cases, write and review Smart Waiter consists of:

- Pavneet Jauhal
- Shan Perera
- Meraj Patel
- Dr. Rong Zheng

## **2.3 Milestones**

### **2.3.1 Location**

The location where the testing will be performed is Hamilton Ontario. Specifically, we will be performing the testing is McMaster University.

### **2.3.2 Dates and Deadlines**

Test Case Creation: The creation of test cases is scheduled to begin October 19th, 2015. The deadline for creation of test cases for POC November 16, 2015. The deadline for final demonstration is February 1st, 2016.

Test Case Implementation: Implementing test cases for POC system test is scheduled to begin November 15, 2015 The implementation period is expected to last approximately one week.

Implementing test cases for Final Demonstration system test is scheduled to begin February 1, 2016 The implementation period is expected to last approximately three weeks.

## **2.4 Budget**

N/A

## **3 Software Specification**

This section provides the functional requirements, the software is expected to complete, and the non-functional requirements, the software is expected to exhibit.

### **3.1 Functional Requirements**

- The product shall scan a bar code to access the restaurant's menu from a database
- The product shall allow the user to register an account for complete access to the products payment services
- The product shall allow the user to report bugs
- The product will allow users to place their order
- The product will allow users to pay for their order using a credit card

### **3.2 Nonfunctional Requirements**

Priority nonfunctional requirements are performance, ease of use, reliability, security and maintainability.

## **4 Evaluation**

The following section first presents methods and constraints used during the evaluation process. This is followed by extent of testing and test tools to be used.

### **4.1 Methods and Constraints**

#### **4.1.1 Methodology**

Testing of Smart Waiter will consist of various types of tests explained in the next section. Manual testing will be conducted for the most part, some automation testing will be in place.

### **4.1.2 Extent of Testing**

The extent of testing will be end to end for the final demonstration. For POC, specific system tests will be conducted.

### **4.1.3 Test Tools**

### **4.1.4 Testing Constraints**

N/A

## **4.2 Types of Tests**

### **4.2.1 Functional Testing**

Functional testing is in place to uncover errors that occur in implementing requirements or design specifications. Concentration is on results rather than the internal functions of the program. This type of testing is very effective to evaluate functional requirements.

### **4.2.2 Structural Testing**

Structural testing is in place to uncover errors during implementation of the application. Concentration is on evaluating structure of the application. This type of testing focuses on non functional requirements.

### **4.2.3 Unit Testing**

Unit testing refers to providing specific input to a system and verifying it evaluates to expected output. This process can be done manually or automated.

### **4.2.4 Manual and Automatic Testing**

Manual testing is done by people while automatic is processed through scripts.

### **4.2.5 Static and Dynamic Testing**

Static testing refers to testing techniques that simulate a dynamic environment. This does not involve program execution. Instead, a walk-through will be performed checking pre and post conditions evaluate to

requirements specified. As well to make sure proper syntax is used thoroughly. This type of testing is crucial in design stage. On the contrary, dynamic testing refers to executing the program while running test cases to view expected behaviour. This is done to find and fix defects in the program. This will be performed after implementation phase.

## 5 POC System Test Description

### 5.1 Barcode Scanning

Smart-Waiter needs to insure users are able to scan a barcode with minimal attempts. The number of expected attempts will be presented in the final SRS document.

#### 5.1.1 Test Type

- Manual
- Functional test
- Unit test

#### 5.1.2 Nonfunctional Test Factors

- Performance
- Correctness
- Ease of use

#### 5.1.3 Methods of testing

Dynamic testing is used to ensure correctness and data integrity, and to observe the application behaviour when given incorrect information.

#### 5.1.4 Test Cases

***Functional Unit Test***

*Summary*



Manual black box tests will be performed to assess barcode scanning. This test will be in the form of unit testing. Various test cases described below will be conducted. This is effective as it replicates real world usage and will provide a census of expected number of successful attempts to evaluate performance.

Test Case	Initial State	Input	Output
5.1.1	Barcode Scanning Page – Empty	Eligible Barcode	Restaurant Menu
5.1.2	Barcode Scanning Page – Empty	Corrupted Barcode	Message prompt reading, "Please try again". After third attempt, prompt will read, "Please contact waiter" and will indicate an option to report bug
5.1.3	Barcode Scanning Page – Empty	Picture without barcode	Message prompt reading, "Please try again". After third attempt, prompt will read, "Please contact waiter" and will indicate an option to report bug

## **5.2 Database Querying**

### **5.2.1 Nonfunctional Test Factors**

#### **5.2.2 Inputs**

#### **5.2.3 Outputs**

#### **5.2.4 Initial State**

#### **5.2.5 Methods of Testing**

#### **5.2.6 Test Cases**

## **6 Final Demonstration System Test Description**

### **6.1 Account Login**

Smart-Waiter must use accounts to keep track of a user's personal information. The account module has to provide a secure login service.

#### **6.1.1 Test Type**

- Manual
- functional dynamic test

#### **6.1.2 Nonfunctional Test Factors**

- Correctness
- data integrity

#### **6.1.3 Methods of testing**

Dynamic testing is used to ensure correctness and data integrity, and to observe the application behaviour when given incorrect information.

#### 6.1.4 Test Cases

Test Case	Initial State	Input	Output
6.1.1	Create account menu, empty	Username, first name, last name, email, date of birth, address, credit card information	Message prompt reading: "The username you entered is already in use, please choose a different username."
6.1.2	Create account menu, empty	Username, first name, last name, email, date of birth, address, credit card information	My account menu
6.1.3	Create account menu, empty	Username, first name, last name, email, date of birth, address, fake credit card	Message prompt reading "The credit card information you have provided is invalid, please enter a different credit card."
6.1.4	Create account menu, empty	Google account information	Add credit card menu
6.1.5	Create account menu, empty	Facebook account information	Add credit card menu

## 6.2 Order Transaction

Smart-Waiter needs to ensure that a user can send in their order, and pay for their order easily and securely. Order transaction will be vigorously tested to ensure complete customer satisfaction.

### 6.2.1 Test Type

- Manual
- functional dynamic test

### 6.2.2 Nonfunctional Test Factors

- Correctness
- Reliability
- Data integrity

- Data security
- Ease of use

### 6.2.3 Methods of testing

Dynamic testing is used to ensure validity, record the number of successful tests given a sample.

### 6.2.4 Test Cases

Test Case	Initial State	Input	Output
6.2.1	Restaurant menu module	$n_3$ from set of orders $n_i$	Message prompt reading: "This order does not follow the restaurant's menu policy, a waiter has been called to the table to assist with the ordering process"
6.2.2	Restaurant menu module	$n_7$ from set of orders $n_i$	Order summary menu
6.2.3	Payment confirmation menu	Valid credit card	Payment receipt menu
6.2.4	Payment confirmation menu	Expired credit card	Message prompt, reading: "This credit card is expired, please enter valid credit card information"
6.2.5	Payment confirmation menu	Fake credit card	Message prompt reading: "The information provided is invalid, please provide another credit card"
6.2.6	Payment confirmation menu	VISA debit card	Payment receipt menu
6.2.7	Payment confirmation menu	VISA gift card	Message prompt reading "VISA gift cards are not accepted as a valid form of payment with Smart-Waiter, sorry for any inconvenience"

## 6.3 Usability Testing

The goal of usability testing is to verify if a user can successfully use all functionalities of the application from start to finish in a timely manner. This type of testing aids in evaluating if functional requirements are met. As well it provides scope for evaluating non functional requirements.

### 6.3.1 Nonfunctional Test Factors

- Reliability
- Performance
- Correctness
- Ease of use

### 6.3.2 Methods of testing

Dynamic testing is used to evaluate end to end system testing. This effectively evaluates functional non functional requirements entirely of the system.

### 6.3.3 Test Cases

#### ***Functional Unit Test***

##### *Summary*

Manual black box tests will be performed to assess usability of the application. This test will be in the form of unit testing. Ten participants will be selected to evaluate this test. At least five will have some experience with using android applications. The remaining will have little to no experience. Each participant will be asked to conduct a walk through of the application. Number of errors made will be counted and recorded to further evaluate functional requirements and improve test cases. As well, qualitative feedback from participants will be taken in the end. For example, participants will be asked to comment on things they liked and things they didn't like. Also, they will be asked to provide a rating out of 10 in terms of experience; 1 being a poor experience and 10 being a wonderful experience. This feedback will help evaluate non function requirements; user interface appearance,

learning requirements and accessibility.

## 7 Testing Schedule

Active testing is necessary to build Smart-Waiter into a successful app. Therefore, testing will be performed on numerous occasions throughout the development of this application. Individual testing will be performed before any code is committed to the repository. Furthermore, as newer features and functions are being added and the development of Smart-Waiter progresses, the testing team and developers will be changing the test cases accordingly.

Test Document	Objective	Delivery Date
Test Plan – Revision 0	Set test cases, guidelines and objectives for testing	October 30 <sup>th</sup> , 2015
Test Report – Revision 0	Report the progress of the application testing, and the results of the tests	March 24 <sup>th</sup> , 2016
Test Plan – Final	Provide test cases for testing before the final release of Smart-Waiter	April 1 <sup>st</sup> , 2016
Test Report – Final	Report the progress of the application testing, and the results of the tests	April 1 <sup>st</sup> , 2016

## Revision History

Date	Comments
October 30, 2015	first draft.

Table 1: Revision History Table