Created using the Usability test plan template (Usability test plan template, 2013).

Usability test plan template (2013) Available at: https://www.usability.gov/how-to-and-tools/resources/templates/usability-test-plan-template.html (Accessed: 29 December 2016).

### Overview

This document describes a test plan for conducting a usability test during the development of a mobile fitness game named Sweet Sensation. The goals of usability testing include establishing a baseline of user performance and identifying potential design concerns to be addressed to improve the efficiency, productivity, and end-user satisfaction.

The usability test objectives are:

* To determine design inconsistencies and usability problem areas within the user interface and content areas. Potential sources of error may include:
  + Navigation errors – failure to locate functions, excessive keystrokes to complete a function, failure to follow recommended screen flow.
  + Presentation errors – failure to locate and properly act upon desired information in screens, selection errors due to labelling ambiguities.
* Exercise the application under controlled test conditions with representative users. Data will be used to access whether usability goals regarding an effective, efficient, and well-received user interface have been achieved.
* Establish baseline user performance and user-satisfaction levels of the user interface for future usability evaluations.

The application is targeted at the older generation, users who are likely to want to play games such as Candy Crush. Usability testing will be conducted on who fit this profile (5) and users who do not (3), in total eight participants will take part in the study.

### Executive Summary

The goal of this usability analysis is to test whether the system can be used and navigated easily and that functionality within the application makes sense to the user.

Specifically, participants will be tested to see whether they can achieve a high score within the game and then view it on the game leader board, gain an in game reward through the use of the applications fitness elements and whether they can Purchase an in game reward and clearly identify what it was they purchased.

Upon review of this usability test plan, including the draft task scenarios and usability goals for the Sweet Sensation, documented acceptance of the plan is expected.

### Methodology

There will be eight participants taking part in a study over two sessions conducted at the premises primarily used for the design of this product and an offsite location, users will interact with the system through the use of a mobile application that will be installed on a number of test devices. The test aims to collect data on user demographic, satisfaction with the system and collect any suggested improvements that could be made.

### Participants

Eight participants will take part in this trial, some have been chosen due to their knowledge of the use of similar applications, others due to their knowledge of software design principles and a final subset of users were selected due to them being in the target demographic the application is aimed at. The participants' responsibilities will be to attempt to complete a set of representative task scenarios presented to them in as efficient and timely a manner as possible, and to provide feedback regarding the usability and acceptability of the user interface. The participants will be directed to provide honest opinions regarding the usability of the application, and to participate in post-session subjective questionnaires and debriefing.

### Procedure

Participants will take part in the usability test. Several test mobile phones hosting the application will be used in a typical home environment. The participant’s interaction with the application will be monitored by the facilitator seated in the same location.

The facilitator will brief the participants on the application and instruct the participant that they are evaluating the application, rather than the facilitator evaluating the participant. Participants will sign an informed consent that acknowledges: the participation is voluntary, that participation can cease at any time. The facilitator will ask the participant if they have any questions.

Participants will complete a pretest demographic and background information questionnaire. The facilitator will explain that the amount of time taken to complete the test task will be measured and that exploratory behavior outside the task flow should not occur until after task completion. At the start of each task, the participant will read aloud the task description from the printed copy and begin the task. Time-on-task measurement begins when the participant starts the task.

The facilitator will instruct the participant to ‘think aloud’ so that a verbal record exists of their interaction with the application. The facilitator will observe and log user behavior, user comments, and system actions.

After each task, the participant will answer a post-task questions and elaborate on the task session with the facilitator. After all task scenarios are attempted, the participant will complete the post-test satisfaction questionnaire.

### Roles

The roles involved in a usability test are as follows. An individual may play multiple roles and tests may not require all roles.

#### Trainer

* Provide training overview prior to usability testing

#### Facilitator

* Provides overview of study to participants
* Defines usability and purpose of usability testing to participants
* Assists in conduct of participant and observer debriefing sessions
* Responds to participant's requests for assistance

#### Data Logger

* Records participant’s actions and comments

#### Test Participants

* Provides overview of study to participants
* Defines usability and purpose of usability testing to participants
* Assists in conduct of participant and observer debriefing sessions
* Responds to participant's requests for assistance

### Ethics

All persons involved with the usability test are required to adhere to the following ethical guidelines:

* The performance of any test participant must not be individually attributable. Individual participant's name should not be used in reference outside the testing session.
* A description of the participant's performance should not be reported to his or her manager.

### Usability Tasks

The usability tasks were derived from test scenarios developed from the assistance of a subject-matter expert. Due to the short time for which each participant will be available, the tasks are the most common and relatively complex of available functions. The tasks are identical for all participants of a given user role in the study.

The task descriptions below are required to be reviewed by the application owner to ensure that the content, format, and presentation are representative of real use and substantially evaluate the total application. Their **acceptance is to be documented** prior to usability test.

**Task 1 – The user shall navigate through the application and start playing the first available level, upon completion of the level the user will attempt to find their high score**

**Task 2 – The user will attempt to claim the daily award available for reaching a fitness milestone, note for this task the users progress towards the milestone will be set just off from what is required to achieve the award, in order to test how intuitive this is for the user.**

**Task 3 – The user shall attempt to purchase an item from the in game store with their reward for completing Task 2 above, the user must be able to clearly define what they have purchased, and how this purchase has changed the in game experience.**

### Usability Metrics

Usability metrics refers to user performance measured against specific performance goals necessary to satisfy usability requirements. Scenario completion success rates, error rates, and subjective evaluations will be used. Time-to-completion of scenarios will also be collected.

#### Scenario Completion

Each scenario will request, that the participant obtains or inputs specific data that would be used in course of a typical task. The scenario is completed when the participant indicates the scenario's goal has been obtained (whether successfully or unsuccessfully) or the participant requests and receives sufficient guidance as to warrant scoring the scenario as a critical error.

#### Critical Errors

Critical errors are deviations at completion from the targets of the scenario. Obtaining or otherwise reporting of the wrong data value due to participant workflow is a critical error. Participants may or may not be aware that the task goal is incorrect or incomplete.

Independent completion of the scenario is a universal goal; help obtained from the other usability test roles is cause to score the scenario a critical error. Critical errors can also be assigned when the participant initiates (or attempts to initiate) and action that will result in the goal state becoming unobtainable. In general, critical errors are unresolved errors during the process of completing the task or errors that produce an incorrect outcome.

#### Non-critical Errors

Non-critical errors are errors that are recovered from by the participant or, if not detected, do not result in processing problems or unexpected results. Although non-critical errors can be undetected by the participant, when they are detected they are generally frustrating to the participant.

These errors may be procedural, in which the participant does not complete a scenario in the most optimal means (e.g., excessive steps and keystrokes). These errors may also be errors of confusion (ex., initially selecting the wrong function, using a user-interface control incorrectly such as attempting to edit an un-editable field).

Noncritical errors can always be recovered from during the process of completing the scenario. Exploratory behaviour, such as opening the ski trail while completing a task, will not be coded as a non-critical error.

#### Subjective Evaluations

Subjective evaluations regarding ease of use and satisfaction will be collected via questionnaires, and during debriefing at the conclusion of the session. The questionnaires will utilize free-form responses and rating scales.

#### Scenario Completion Time (time on task)

The time to complete each scenario, not including subjective evaluation durations, will be recorded.

### Usability Goals

The next section describes the usability goals for Sweet Sensation.

#### Completion Rate

Completion rate is the percentage of test participants who successfully complete the task without critical errors. A critical error is defined as an error that results in an incorrect or incomplete outcome. In other words, the completion rate represents the percentage of participants who, when they are finished with the specified task, have an "output" that is correct. Note: If a participant requires assistance in order to achieve a correct output then the task will be scored as a critical error and the overall completion rate for the task will be affected.

**A completion rate of 100% is the goal for each task in this usability test.**

#### Error-free rate

Error-free rate is the percentage of test participants who complete the task without any errors (critical **or** non-critical errors). A non-critical error is an error that would not have an impact on the final output of the task but would result in the task being completed less efficiently.

**An error-free rate of 80% is the goal for each task in this usability test.**

#### Time on Task (TOT)

The time to complete a scenario is referred to as "time on task". It is measured from the time the person begins the scenario to the time he/she signals completion.

#### Subjective Measures

Subjective opinions about specific tasks, time to perform each task, features, and functionality will be surveyed. At the end of the test, participants will rate their satisfaction with the overall system. Combined with the interview/debriefing session, these data are used to assess attitudes of the participants.

### Problem Severity

To prioritize recommendations, a method of problem severity classification will be used in the analysis of the data collected during evaluation activities. The approach treats problem severity as a combination of two factors - the impact of the problem and the frequency of users experiencing the problem during the evaluation.



#### Impact

Impact is the ranking of the consequences of the problem by defining the level of impact that the problem has on successful task completion. There are three levels of impact:

* High - prevents the user from completing the task (critical error)
* Moderate - causes user difficulty but the task can be completed (non-critical error)
* Low - minor problems that do not significantly affect the task completion (non-critical error)

#### Frequency

Frequency is the percentage of participants who experience the problem when working on a task.

* High: 75% or more of the participants experience the problem
* Moderate: 26% - 74% of participants experience the problem
* Low: 25% or fewer of the participants experience the problem

#### Problem Severity Classification

The identified severity for each problem implies a general reward for resolving it, and a general risk for not addressing it, in the current release.

**Severity 1** - High impact problems that often prevent a user from correctly completing a task. They occur in varying frequency and are characteristic of calls to the Help Desk. Reward for resolution is typically exhibited in fewer Help Desk calls and reduced redevelopment costs.

**Severity 2** - Moderate to high frequency problems with moderate to low impact are typical of erroneous actions that the participant recognizes needs to be undone. Reward for resolution is typically exhibited in reduced time on task and decreased training costs.

**Severity 3** - Either moderate problems with low frequency or low problems with moderate frequency; these are minor annoyance problems faced by a number of participants. Reward for resolution is typically exhibited in reduced time on task and increased data integrity.

**Severity 4** - Low impact problems faced by few participants; there is low risk to not resolving these problems. Reward for resolution is typically exhibited in increased user satisfaction.

### Reporting Results

The Usability Test Report will be provided at the conclusion of the usability test. It will consist of a report and/or a presentation of the results; evaluate the usability metrics against the pre-approved goals, subjective evaluations, and specific usability problems and recommendations for resolution. The recommendations will be categorically sized by development to aid in implementation strategy.