Test Plan Automation Framework

Version1.1

May 11th, 2019



**Version History 2**

[**Project**](#_heading=h.4d34og8) **Information 2**

[**Approvals**](#_heading=h.2s8eyo1) **2**

[**Project**](#_heading=h.17dp8vu) **Description 3**

3

[**Functional**](#_heading=h.26in1rg) **Specifications 3**

**Objectives 3**

[**Planification**](#_heading=h.35nkun2) **4**

[Test](#_heading=h.1ksv4uv) Procedures 4

[Roles](#_heading=h.2jxsxqh) and responsibilities 5

[**Test Strategy**](#_heading=h.1y810tw) **6**

[Test](#_heading=h.4i7ojhp) Focus 6

[**Resources**](#_heading=h.2xcytpi) **6**

[Environment requirements - Hardware](#_heading=h.1ci93xb) 6

[Environment requirements - Software](#_heading=h.3whwml4) 6

[Tools](#_heading=h.3whwml4) required to test 6

[Training](#_heading=h.2bn6wsx) 6

[**Reach**](#_heading=h.qsh70q) **6**

Elements to test 7

Tested elements 7

Functionalities not being tested 7

[**Deliverables**](#_heading=h.147n2zr) **8 9**

## **Version history**

|  |  |
| --- | --- |
| **Date** | **Version** |
| 05/11/2020 | 1.1 |

## **Project information**

|  |  |
| --- | --- |
| **Organization** | SQA 2020 |
| **Project** | Automation framework |
| **Start Date** | 9/11/2019 |
| **Client** | Juan de Dios Delgado |

## **Approvals**

|  |  |  |
| --- | --- | --- |
| **Team member** | **Date** | **Signature** |
| Joaquin Miranda Castro | 05/11/2020 | Joaquin Miranda Castro |
| Ricardo German Serrano | 05/11/2020 | Ricardo German Serrano |
| Juan Carlos Patrón Ruano | 05/11/2020 | Juan Carlos Patrón R. |

## **Project Description**

Android is currently in the development stage of three applications within their operating system. The settings, calculator, and phone application. As these applications have become an industry standard within any operating system, and the risk implications for any user that can experience with these are significantly high, the upmost quality is required for these applications. The settings app has the functionality to either turn on or off the Wi-Fi and the airplane mode. The calculator app gives the end user the ability to calculate basic or complex operations with the following operators: sum, subtraction, multiplication and division. Finally, the phone app allows the user to place a phone call to any number he or she may desire.

## **Functional specifications**

Settings app:

1. Turn Wi-Fi on or off
2. Turn airplane mode on or off.

Calculator app operations:

1. Sum
2. Subtraction
3. Multiplication
4. Division

Phone app:

1. Call emergency numbers
2. Call national phone numbers
3. Call international phone numbers

## **Objectives**

* Test the functionality of each individual application’s processes
* Develop an automated framework to accelerate the testing of these applications

## **Planification**

### **Testing Procedure**

During the development cycle of the previously stated applications an automated testing framework will be developed hand in hand to accelerate the testing process, thus offering a significantly greater amount of test coverage, more robust testing capabilities and overall efficiency. During the development cycle of the automated framework, visible issues will be corrected and will be logged adequately. After each build for the applications in test the automated framework will execute the test suite and a log with the test cases’ results will be recorded.

High priority defects or critical issues that offer no immediate solution will be raised and the development team will be notified, the test report summary will be updated for their resolution within the following sprint

**Pass or Fail Criteria**

The pass or fail criteria are rules used to determine if a tested element (process) has passed the project requirements.

The pass criteria for the automated framework is to adequately complete each test case within the target phone. For example, if the TC09 requires the phone to call a national phone number “4491963704” the automated framework must complete this task on the tested mobile device within the phone application, and correctly store the result of the test case within the test log.

The automated framework is considered apt for delivery after all of the developed test cases for the framework are executed correctly. The libraries created within this framework must also include methods and classes which are reusable in case any of the applications under test requirements change. Thus, offering a significant advantage over manual testing.

Due to the fact that this framework was developed during a sprint the bugs or issues that are found after testing will be raised and will be corrected after further notice.

### 

### **Risks**

|  |  |  |
| --- | --- | --- |
| Description | Probability | Mitigation |
| Different schedule and availability of our team members may affect the development of this automated framework, including but not limited to development, testing, and continuous integration | High | Follow best practices, and agile methodologies. |
| Due to the ongoing global pandemic working in a physical environment is impossible and could hinder development speed | Medium | Work as a team that is considered near shore |
| Lack of development knowledge for some team members, little experience with tools such as github, ui automator, adb shell. | Medium | Schedule multiple meetings to work as a team and support each other using each team members’ unique skill set |
| Due to the fact that the phone app is the most critical part of a mobile device and is the feature that will most likely be used during an emergency by the end, the optimum functionality of this application is required otherwise a software bug could cause a life and death situation | High | Focus a great part of the automated testing framework on testing the phone app functionalities |

### **Roles and Responsibilities**

|  |  |  |
| --- | --- | --- |
| **Name** | **Role** | **Responsibilities** |
| Joaquin Miranda Castro | Architecture and development lead | * Acts as the development lead within the automated framework project * Develop reusable methods and classes within framework |
| Ricardo German Serrano | Dev | * Offer development support to lead * Serves as a connection between QA and development |
| Juan Carlos Patrón Ruano | QA | * Comprehend the basic requirements for the framework and the application under test processes * Develop and execute test cases * Create adequate documentation to log and track bugs and issues * Project documentation |

### 

## **Test Strategy**

### **Test focus**

The automated test framework is currently being developed to test mostly black box tests, utilizing techniques such as equivalence partitioning and boundary analysis. The main testing tool being used are external libraries which are adb shell and ui automator which allow the framework to access the mobile device and use its objects parameters to select them and utilize them as well as other activities such as swipe, type, search, long click etc. The testing is also based on the QA tester experience, error assumption and intuition to search for bugs or other issues that may arise in the automated framework.

### **Resources**

#### **Hardware**

Hardware used to develop and test the automated framework

* Acer Predator PH315-52
  + Processor: Intel Core i7-9750H CPU @ 2.60GHz
  + RAM 16 GB
  + Operating system 64 bits, x64-based processor
* Asus ROG STRIX
  + Processor: Intel Core i7-9750H CPU @ 2.60GHz
  + RAM 16GB
  + Operating system 64 bits, x64-based processor
* MacBook Pro
  + Processor: Intel Core i5 2.6 GHz

RAM: 8GB

* + DD: 126GB
  + Operating system: 64 bits, x64-based processor

Currently tested phones:

* Motorola Moto G6
  + Serial: ZY323XP43F

RAM: 8GB

* + Region: Mexico
  + Android version: Android 9
  + Language: English
* Huawei Y9
  + Serial: 6JHNW19C02007532

RAM: 8GB

* + Region: Mexico
  + Android version: Android 9
  + Language: English

#### **Software**

Software y and its versions for the required automation framework

Python 3.6

* Python 2.7
* ADB shell
* UI automator
* Github
* Any IDE preferably pycharm
* Phone number library

### Training

Each team member must research and comprehend Python, Github, Ui automator, ADB shell, as well as other external libraries that can be included within the automation framework.

**Reach**

#### Tested elements

1. Settings
   1. Wi-Fi functionality turn on and off
   2. Airplane mode turn on and off
2. Calculator
   1. Sum operation
   2. Subtraction
   3. Multiplication
   4. Division
3. Phone

3.1 Call emergency numbers

3.2 Call national numbers

3.3 Call international numbers

3.4 Calls must be made via adb shell and / or ui automator

#### Functionalities not to test

1. Nonfunctional testing such as performance testing, security, usability, maintainability among others.

### Deliverables

|  |  |  |
| --- | --- | --- |
| **Elements** | **Description** | **Delivery date** |
| Test Plan | A document which explains the ass and fail criteria, defines the individual test cases that will be developed, defines scope. | 05/11/2020 |
| Automated framework demo | Partial product build which is then demonstrated to the stakeholders and hopefully given approval | 05/11/2020 |
| Test Cases and result execution | Document that is developed to thoroughly test the automated framework, finds bugs and issues during execution. Results are then inputted. | 05/11/2020 |
| Release notes | Document which includes the results of the test suite execution and informs the team if the product build is ready to enter the next stage of development, and what issues or bugs must be resolved during the following sprint if any are encountered. | 05/11/2020 |
| Business Case | Document which is presented to the stakeholders to inform the stakeholders in the most complete form what our automation framework is, its goals, benefits, roi, architecture, etc. | 05/11/2020 |
| Traceability Matrix | Matrix which joins the user stories and test cases that were executed based on the project’s requirements for the product owner to see. | 05/11/2020 |