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Cos301 : Test Policy  
for the SmartCard Application

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# 1 Mission of Testing

To effectively deliver efficient and effective software that meets the customers requirements. To further ensure that quality software is produced.

## 2 Test Description

We include three categories of tests:

- Small tests are unit tests that you can run in isolation from production systems. They typically mock every major component and should run quickly on your machine.
- Medium tests are integration tests that sit in between small tests and large tests. They integrate several components, and they run on emulators or real devices.
- Large tests are integration and UI tests that run by completing a UI workflow. They ensure that key end-user tasks work as expected on emulators or real devices.

Our Testing process will be divided into two sections. Unit testing and Automated testing.

- Unit testing is done using Junit
- Automated testing is done using Espresso

### 2.1 Unit testing

#### 2.1.1 Storage

- Check if the information is stored correctly.
- Check if the information can be retrieved from the database.

#### 2.1.2 Application activities and functions

- Ensure that an appointment can be set and retrived
- Validate that emails are of the correct form
- Ensure that a user can be created

### 2.2 Test Cases

Below are our tests which are grouped by Large Automated tests which consist of the listed Unit tests within them

#### 2.2.1 Incorrect Log In functionality

- test for when No input is entered to the email and and password field
- test for when only the email is provided
- test for when the email and password are both incorrect
- test for when correct email is provided and incorrect password

<https://github.com/XoloKDandashe/Alpha-Tech/blob/master/Code/NFCBusinessCardLocal2/app/src/androidTest>

### **2.2.2 Correct Log In And functionality**

- tests if a Registered User can login to the app
- tests if a user can logout after a successful login
- teste if the App displays a message to warn the user that they are about to log out  
<https://github.com/XoloKDandashe/Alpha-Tech/blob/master/Code/NFCBusinessCardLocal2/app/src/androidTe>

### **2.2.3 Register And LogIn functionality**

- Checks if a new user can register an account
- Checks if passwords match when confirming password when registering
- Checks if a new user can Log in with their details  
<https://github.com/XoloKDandashe/Alpha-Tech/blob/master/Code/NFCBusinessCardLocal2/app/src/androidTe>

### **2.2.4 Generate QR Code functionality**

- Checks if the generate Qr Code button works
- Check if the QR code generates correct information  
<https://github.com/XoloKDandashe/Alpha-Tech/blob/master/Code/NFCBusinessCardLocal2/app/src/androidTe>

### **2.2.5 Scan QR Code functionality**

- Checks if the Scan QR code button works
- Checks if the Scan QR code button opens the camera intent
- Checks if the Qr code is scanned and the user information is displayed and saved

### **2.2.6 View Details functionality**

- Checks if the view details button works
- Checks if the view details activity displays the current user information

### **2.2.7 Update user details functionality**

- Checks if the update user details button works
- tests if the user can update thier information

### **2.2.8 NFC functionality**

- Tests if the App notifies the user if the NFC technology is not switched on.
- Tests if the App notifies users that do not have NFC

### **2.2.9 View Cards Functionality**

- Tests whether a user can view thier saved cards
- Tests the functionality of the search tool that searches for saved card
- Tests if a user can delete a saved card
- Tests if a user can view the details of a saved card

### **2.2.10 NFC Send functionality**

- Tests the Nfc send function and if it sends correct information

### **2.2.11 Import Card Functionality**

- Tests whether the import card button works
- Tests whether the capture card button opens the camera intent

### **2.2.12 Create and View Appointment Functionality**

- Tests whether a user can Create an Appointment
- Tests whether a user can view saved Appointments
- Tests whether a user can delete an appointment

### **2.2.13 Navigation Functionality**

- Tests if the navigate me button opens the google maps API
- Tests if the find me button returns the current locaton or an error message if it couldnt find the location

## **3 Test Evaluation**

We will use JUnit and Travis-CI to ensure that implementations have been functions as it should. Travis-CI is a continuous integration, hosted service, JUnit is a testing framework for Android and Java applications.

## **4 Quality level to be achieved**

We aim to have no outstanding faults prior to product release.

## 5 Approach to Test process improvement

Project review meetings are held in regards to improving the project.

## 6 Travis-CI yml file

```
language: android
android: components: - platform-tools - tools
//The SDK version we used to compile our project: android-26
//The BuildTools version used in our project: build-tools-26.0.2
//Other additional components: extra-google-google-play-services
//The emulator that we will be using: sys-img-armeabi-v7a-android-17
```

## 7 Testing Scripts

RegTest.java