Documentación
Test Expresso
Fire base

1. Código Test Expresso:

```java
package com.example.JavaAplication;

import ...

@LargeTest
@RunWith(AndroidJUnit4.class)
public class MainActivityTest {

    @Rule
    public ActivityScenarioRule<MainActivity> mActivityScenarioRule =
            new ActivityScenarioRule<>(MainActivity.class);

    @Test
    public void mainActivityTest() {
        ViewInteraction materialButton = onView(
                allOf(withId(R.id.MetodoF), withText("Metodo fibonacci"),
                        childAtPosition(
                                childAtPosition(
                                        withId(android.R.id.content),
                                        position: 0),
                                position: 8),
                        isDisplayed()));
        materialButton.perform(click());

        appCompatEditText.perform(replaceText( stringToBeSet: "5"), closeSoftKeyboard());

        ViewInteraction materialButton4 = onView(
                allOf(withId(R.id.CF), withText("Calcular"),
                        childAtPosition(
                                childAtPosition(
                                        withId(android.R.id.content),
                                        position: 0),
                                position: 4),
                        isDisplayed()));
        materialButton4.perform(click());

        ViewInteraction materialButton5 = onView(
                allOf(withId(R.id.button), withText("Volver"),
                        childAtPosition(
                                childAtPosition(
                                        withId(android.R.id.content),
                                        position: 0),
                                position: 6),
                        isDisplayed()));
```

```java
                                    position: 0),
                            position: 9),
                    isDisplayed()));
    materialButton6.perform(click());

    ViewInteraction appCompatEditText2 = onView(
            allOf(withId(R.id.Numero), withContentDescription( text: "Numero"),
                    childAtPosition(
                            childAtPosition(
                                    withId(android.R.id.content),
                                    position: 0),
                            position: 2),
                    isDisplayed()));
    appCompatEditText2.perform(replaceText( stringToBeSet: "5"), closeSoftKeyboard());

    ViewInteraction materialButton7 = onView(
            allOf(withId(R.id.GotoFactorial), withText("Calcular"),
                    childAtPosition(
                            childAtPosition(
                                    withId(android.R.id.content),
                                    position: 0),
                            position: 3),
                    isDisplayed()));
    materialButton7.perform(click());

    ViewInteraction materialButton8 = onView(
            allOf(withId(R.id.Volver), withText("Volver"),
                    childAtPosition(
                            childAtPosition(
                                    childAtPosition(
                                            withId(android.R.id.content),
                                            position: 0),
                                    position: 0),
                            isDisplayed()));
    materialButton8.perform(click());

    ViewInteraction appCompatEditText3 = onView(
            allOf(withId(R.id.Caja1),
                    childAtPosition(
                            childAtPosition(
                                    withId(android.R.id.content),
                                    position: 0),
                            position: 7),
                    isDisplayed()));
    appCompatEditText3.perform(replaceText( stringToBeSet: "5"), closeSoftKeyboard());

    ViewInteraction appCompatEditText4 = onView(
            allOf(withId(R.id.Caja2),
                    childAtPosition(
                            childAtPosition(
                                    withId(android.R.id.content),
                                    position: 0),
                            position: 6),
                    isDisplayed()));
    appCompatEditText4.perform(replaceText( stringToBeSet: "4"), closeSoftKeyboard());
```

```java
160        };        ViewInteraction materialButton9 = onView(
161                    allOf(withId(R.id.Suma), withText("Suma"),
162                            childAtPosition(
163                                    childAtPosition(
164                                            withId(android.R.id.content),
165                                            position: 0),
166                                    position: 1),
167                            isDisplayed()));
168            materialButton9.perform(click());
169
170            ViewInteraction materialButton10 = onView(
171                    allOf(withId(R.id.Resta), withText("Resta"),
172                            childAtPosition(
173                                    childAtPosition(
174                                            withId(android.R.id.content),
175                                            position: 0),
176                                    position: 5),
177                            isDisplayed()));
178            materialButton10.perform(click());
179
180            ViewInteraction materialButton11 = onView(
181                    allOf(withId(R.id.Division), withText("Dividir"),
182                            childAtPosition(
183                                    childAtPosition(
184                                            withId(android.R.id.content),
185                                            position: 0),
186                                    position: 4),
```

```java
    34 usages    ± Esteban Bustamante
@   private static Matcher<View> childAtPosition(
            final Matcher<View> parentMatcher, final int position) {

        ± Esteban Bustamante
        return new TypeSafeMatcher<View>() {
            ± Esteban Bustamante
            @Override
o↑          public void describeTo(Description description) {
                description.appendText("Child at position " + position + " in parent ");
                parentMatcher.describeTo(description);
            }

            ± Esteban Bustamante
            @Override
o↑          public boolean matchesSafely(View view) {
                ViewParent parent = view.getParent();
                return parent instanceof ViewGroup && parentMatcher.matches(parent)
                        && view.equals(((ViewGroup) parent).getChildAt(position));
            }
        };
    }
}
```
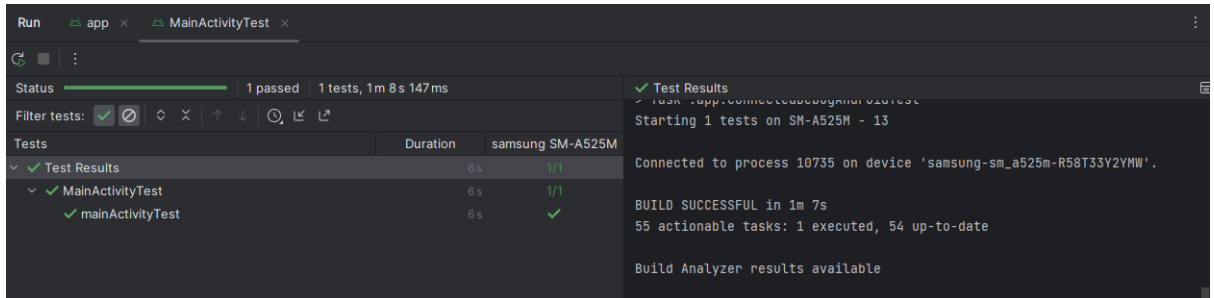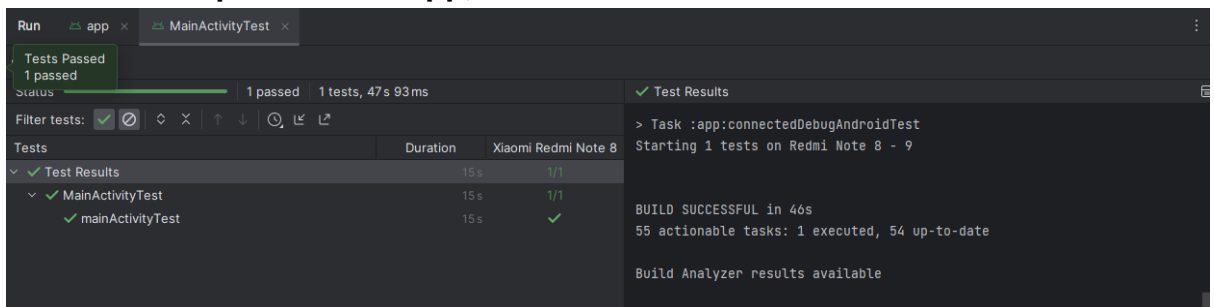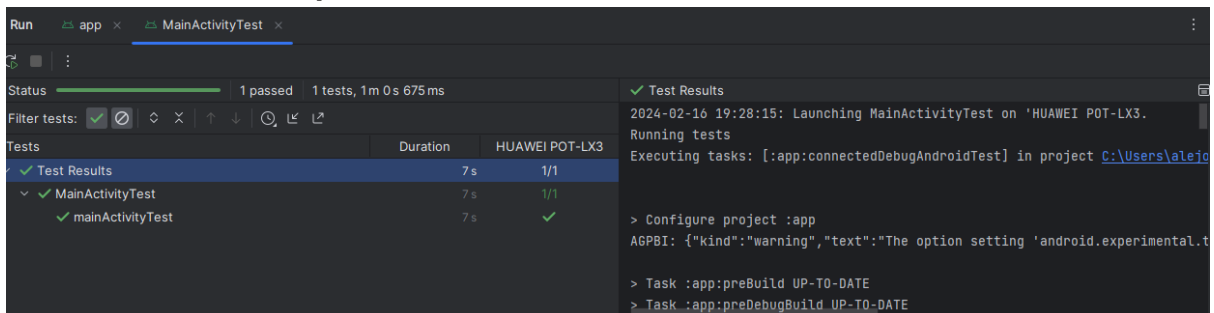
Observaciones:
- **En el Dispositivo Samsung A52 funciona correctamente.**

- **En el Dispositivo Redmi note 8 necesita de la intervención del usuario tan solo para abrir la app, de resto el test corre correctamente.**
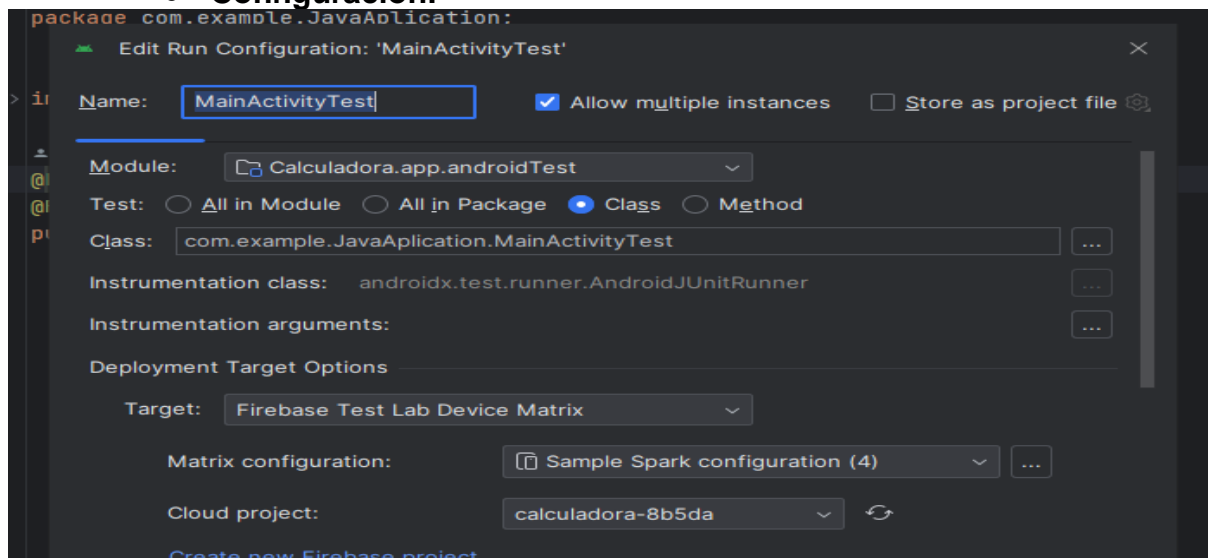

- **En el Dispositivo Huawei funciona correctamente.**

LOS VIDEOS ESTAN UBICADOS EN LA CARPETA: Calculadora/app/src/androidTest/java/com/example/JavaAplication/Video_Test_Dispositivos

2. **Test por medio de Firebase:**
   - **Configuración:**

- **Ejecución:**