Llama Impact Pan-LATAM Hackathon

Team: Mt Fuji
Project: UI test helper

What’s “UI test helper” project

When developing web or mobile applications, your code changes may lead to unintended side effects. Additionally, novice developers often neglect to test even the areas surrounding their modifications. As a result, manual testing by the QA team is typically performed before releasing the changes to production. To reduce the workload of QA testing, E2E scenario testing is often automated. This project aims to support and facilitate such automated testing.

General UI test implementation problem

This is ok

```
def test_submit_button_visibility():
  # Operate UI then
  assert(submit_button.visible)
```

But…

What if it contains dynamically changing components?

E.g. date and time, images…

What if we could write UI tests at a more abstract level?

```
def test_screen():
  # Operate UI then
  ret = screen.check(“““
  This screen includes a date and time component, an image of a globe, and a submit button.
  ”””)
  assert(ret)
```

Pros

1. Easy to read/understand
   a. Mostly test code is hard to read
   b. E.g. if you want to check a button's background color is red. button.bg.color == rgb(255, 0, 0)
2. Easy to update
   a. Easily update tests when the screen under test changes.
   b. E.g. "it has a submit button" to "it has a submit button and cancel button"
3. Robust
   a. If you change the design of your globe image, you do not have to change the test code

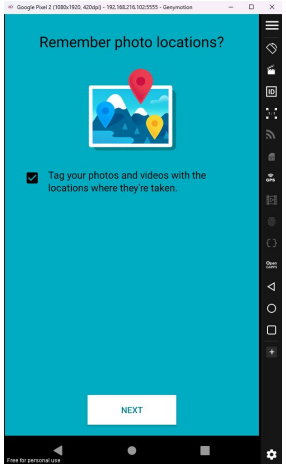


Goal

This hackathon only targeted Android emulator due to time constraints（Web and IOS are not supported)

How to run

1. Launch an Android app on Android emulator
2. Execute “pytest test_android_app.py”



test_android_app.py

```
import adb_screen

def test_android_app():
    assert(adb_screen.check("that picture contains next button"))
```

Result

```
Windows PowerShell
(latam_hackathon) PS C:\Users\daisu\workspace\latam_hackathon> pytest .\test_android_app.py
============================================= test session starts =============================================
platform win32 -- Python 3.12.7, pytest-8.3.3, pluggy-1.5.0
rootdir: C:\Users\daisu\workspace\latam_hackathon
plugins: anyio-4.6.2.post1
collected 1 item

test_android_app.py .                                                                                [100%]

============================================== 1 passed in 2.58s ==============================================
```