System and Unit Test Report
Flower Finder
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System Test scenarios:

User story:
User story 1 from sprint 1: “As a hiker, I want to be able to use an app to take a picture”.
Scenario:
1. start Flower Finder app;
   select ‘take picture’;
2. The picture is taken by camera and the user can see it on the screen.

User story:
User story 2 from sprint 1: “As a curious individual, I want to be able to take a picture of something and find out what it is, so I can be more knowledgeable.” Note: this is using a pretrained model for app testing only.
Scenario:
1. start Flower Finder app;
   select ‘take picture’;
2. The picture of a keyboard is taken by camera;
   select ‘detect saved image’;
3. User can see the picture and the detection result which shows the “keyboard” on the screen.

User story:
User story 1 from sprint 2: “As a flower enthusiast, I want to be able to take a picture of a flower I saw with an app to detect on the fly and view later”.
Scenario:
1. start Flower Finder app;
   select ‘take picture’;
2. The picture of a rose is taken by camera;
   select ‘detect saved image’;
3. User can see the picture and the detection result which shows the “rose” on the screen.

User story:
User story 1 from sprint 3: “As an explorer, I want to review the flowers I’ve identified at a later time.”
Scenario:
1. start Flower Finder app;
   select ‘take picture’;
2. The picture of a sunflower is taken by camera; the detection result is shown.
3. User can see the picture and the detection result which shows the “sunflower” on the screen;
   select ‘history’;

4. User can see that picture and its detected species. select the picture, User can see the google map which shows the location where the picture is taken.
5. Select ‘take new picture’;
6. The picture of a tulip is taken by camera;
7. User can see the picture and the detection result which shows the “tulip” on the screen;
   select ‘history’;
8. User can see both that tulip picture with its detected species and the previous sunflower picture with its species.

User story:
User story 2 from sprint 3:“As a flower enthusiast, I want to be able to accurately identify the species of flower I took a photo of.”
Scenario:
1. start Flower Finder app;
   select ‘take picture’;
2. The picture of a Blackberry Lily is taken by camera;
    detection result automatically appears;
3. User can see the picture and the detection result which shows the “Blackberry Lily” on the screen.

Unit tests:

- After the training of the model, a collection of test images was used to validate the accuracy of the model; the images were fed into the model to test its output and accuracy was over 94%.
- The gui elements of the app were heavily tested.
    - We tried every possibility/combination of permissions enabled and disabled to see how the app would react.
    - We tried revoking permissions in the middle of running the app.
- We used different virtual machines and physical devices to test the app.
- We had JUnit tests to verify that directories and files were being created correctly.
    - Since there were not algorithms that produced calculations, the types of tests that could be done through a JUnit test were limited.
- Testing was heavily reliant on physical tapping on a mobile device.
    - All intuitive swipes and taps were tried; tapping of buttons in all conceivable orders was tested; boundary conditions were tested.