

# Testing Strategy for Green Master

## Overview

The main reason for the tests is to check that each of the models in the database accept only valid values and that functions can raise exceptions, and these be handled, and error messages returned in the UI. These tests will be split by app as these are where the tests.py files are stored.

## Strategy

In order to make sure every new feature adheres to these tests; they will be carried out whenever a pull request is made to merge a feature branch into the dev branch and when the dev branch is merged into main. This will ensure that when a feature is created it is not having any unexpected effects on the models or other functions.

## Accounts App

In this app the user model is created with a username, password, email, points and moderator status.

1. Test a user has the correct attributes saved.
  - This makes sure that when a user is created that it can then be fetched from the database by searching by username. It will make sure all attributes are as the user was created with.
2. Test user isn't created as a superuser.
  - This test makes sure that when the sign in function is called that a default user is created with no admin privileges.
3. Test user must be created with a username.
  - As a user must have a username to be displayed on the leaderboard, a user must be created with a username.
  - This test will make sure an error is thrown if someone attempts this.
4. Test username must be unique.
  - As a user must be uniquely identifiable the username must be unique, and it must be possible to know when to throw an error if a user tries to use a taken username.
5. Test email must be unique.
  - To stop user's having multiple accounts the email must be unique for each of the users.
6. Test user is created with 0 points.
  - So that no users are given a head start this will test that a user is created with 0 points when they sign up.

## Submission App

This is the app in which a user will submit their photo of the room as well as some information about the room in order to calculate environmental statistics for each building.

1. Test a user can upload an image in a variety of valid formats.
  - This is a sequence of tests ensuring that an image with the file extensions (.jpg, .jpeg, .gif, .png)
  - These will be simulated by creating random files with these extensions and checking that they are accepted.
2. Test negative points can't be added to a user.
  - Makes sure that when a user completes a task/submission only positive numbers of points will be added to their score otherwise an error will be thrown.
3. Test that points are added to a user.
  - Will create a new user and then subsequently add different numbers of points to make sure a user is able to have points added. Will then get the user from the database and make sure these changes have been committed.