Software Engineering Testing Documentation

Team 4

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Contents

1 Introduction

This document provides documented of both unit and system level testing of the Ant Game system. Unit level tests are drawn from the design document, and system level tests are drawn from the requirements document. Known bugs are also described.

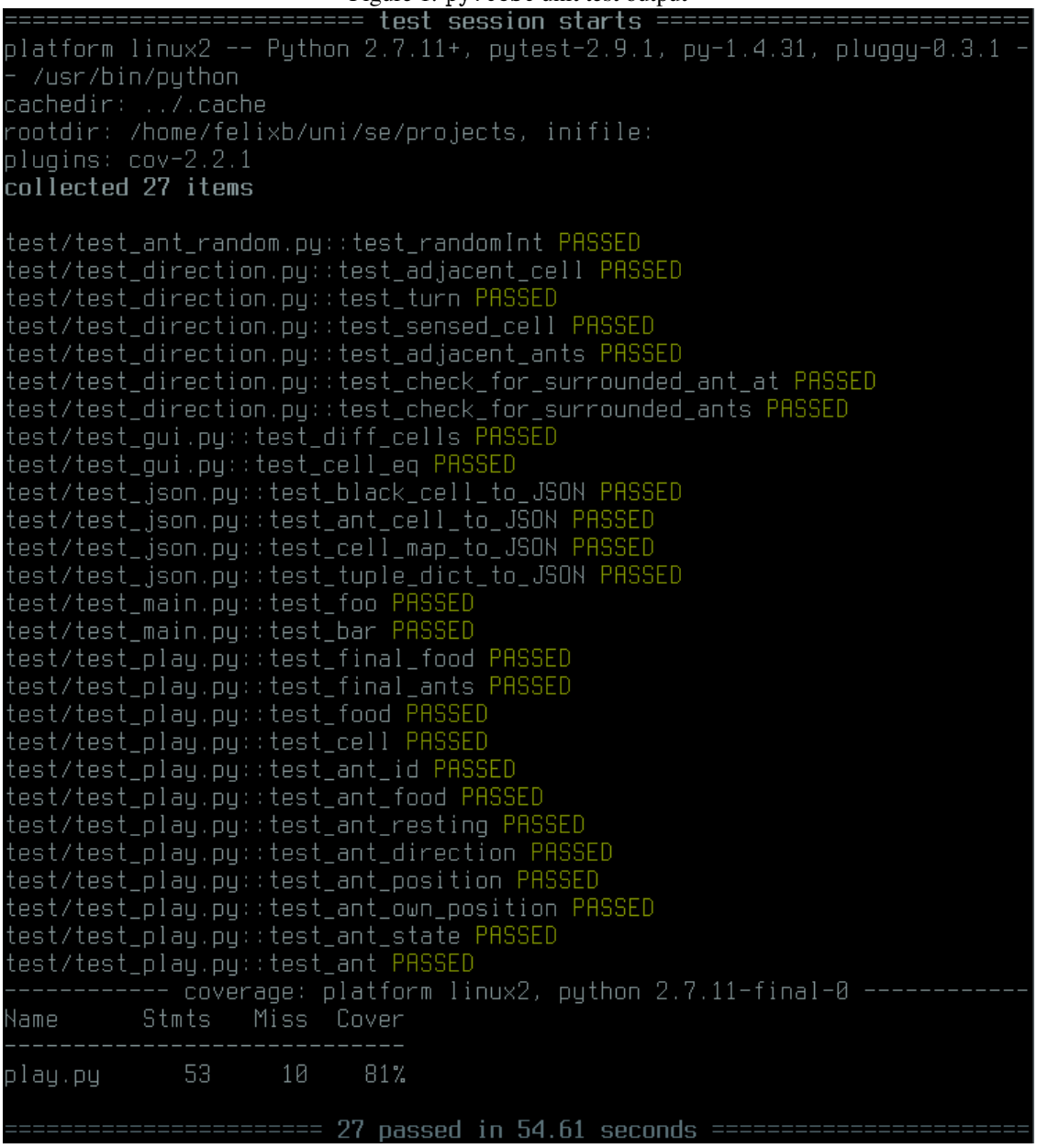
2 Unit Level Testing

Tests have been written in order to achieve 100% test coverage of the Ant Game Logic System. As well as Ant Game Logic, unit tests have been written for functions that are used for the Ant Game Server, such as converting the Ant Game Board to a JSON representation which is sent to the Client GUI. Unit tests have been written with the `py.test` framework.

2.1 Evidence of Unit Level Testing

Unit level tests are located in the `src/test` directory. Most tests cover the methods laid out in the design document in Section 3 Figure 3.

Figure 1: `py.test` unit test output



2.2 Links to Design Document

Both the Ant Game Logic and Ant Game Server methods described in Section 3 of the Design Document are tested on a unit level.

3 System Level Testing

System level tests have been carried out in accordance with Section 6 (Acceptance Criteria and Testing) of the Requirements Document.

3.1 Valid Gameplay

The Ant Game is tested to be valid by comparing the output of each round to the expected output in the dump files describing the state of the ant world after every round. The dump files describing the expected output of the game can be found in the in the customer requirements.

The dump files are parsed into a cell map representation and compared to the Ant Game cell map state for a given round. The parser for the dump files can be found in the `src/parse_dump.py` module. For the `tiny.world` file and `sample.ant` inputs the Ant Game produces the same output as the dump files. Thus the requirement is met and the gameplay is valid.

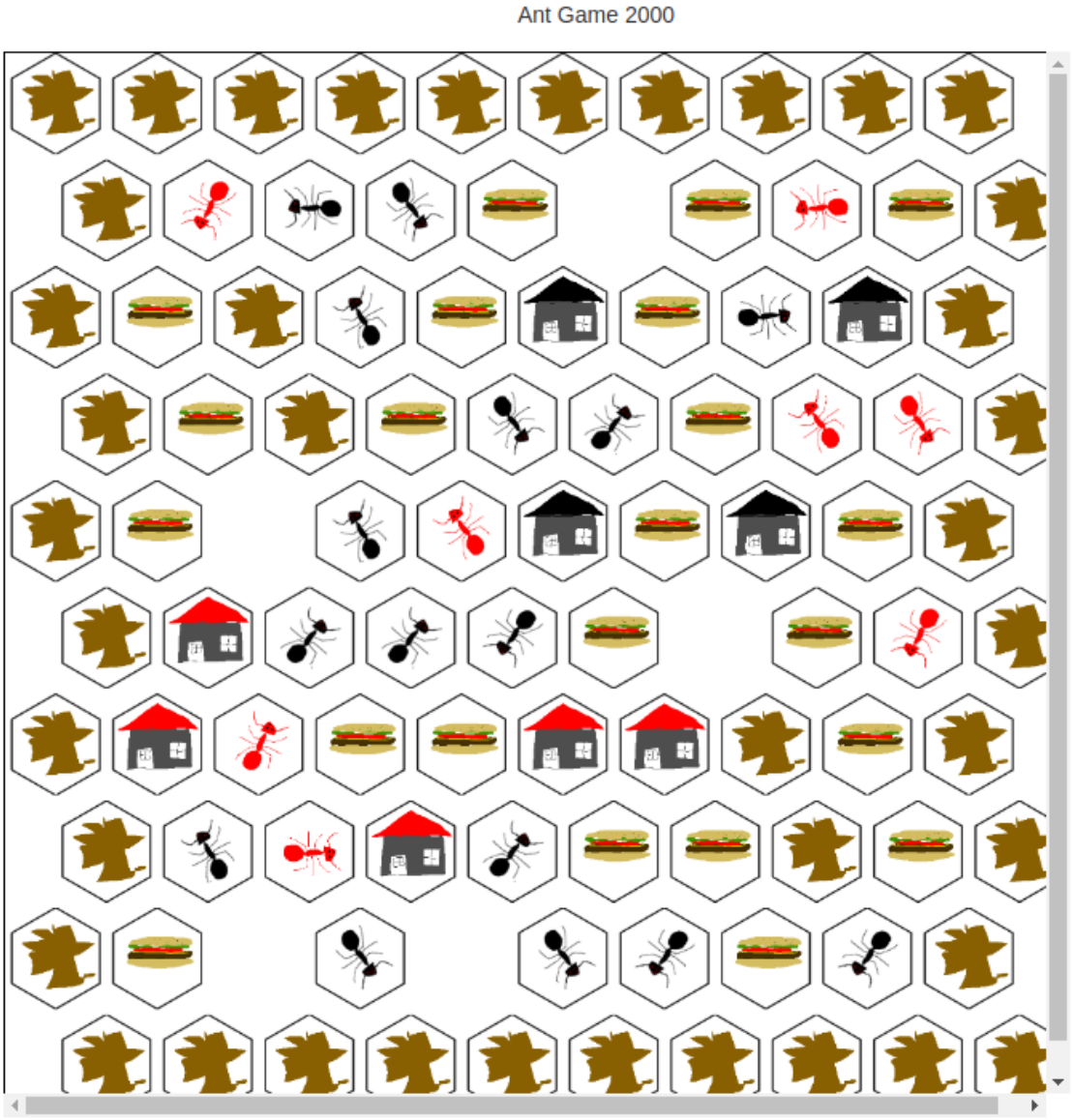
3.2 User Uploading of Ant Worlds

This requirement has not been met yet.

3.3 Visualization of Ant Game

The Ant Game server can be run and a client can connect to the Ant Game Server in a web browser. The browser can then visualize a running ant game.

Figure 2: Ant Game Vizualization



The Ant Game has been visualized, including the states of the different cells. This requirement is therefore met.

4 Known Issues

4.1 Multiple Clients Cannot Connect to Server

At this point in time more than one client cannot connect to the Ant Game Server. This prevents multiple users from playing the Ant Game at the same time. However, their was never any requirement that multiple users may play separate Ant Games at the same time.

4.2 Ant Game Does Not Validate User Inputted Files

Currently, the Ant Game does not validate files that have been uploaded by the user. This mean that files are not validated according to the rules laid in the Section 3.1.1 in the Requirements document.

4.3 Ant Game Cannot be tested with a full size contestworld

An Ant Game cannot be tested on a full size contestworld (size 150x150 cells) for 3000000 rounds because the machine that the Ant Game was being tested on ran out of memory. Therefore, the Ant Game cannot be tested fully.