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**Testing**

**7.1 Testing Plan**

**7.2 Test Results and Analysis**

**7.2.1 Test Class**

**7.1 Testing Plan**

**To create a testing plan for gesture recognition using Python and Unity, you can follow these general steps:**

1. **Define the requirements**: Specify the requirements for the gesture recognition system, such as the types of gestures to be recognized, the accuracy level required, and the expected response time.
2. **Choose** **testing** **methodology**: Decide on the testing methodology to be used, such as manual testing or automated testing. Automated testing is preferred since it can provide consistent results and reduce the chances of human error.
3. **Develop** **test** **cases**: Create a set of test cases that cover all the requirements of the gesture recognition system. This should include both positive and negative scenarios.
4. **Set** **up** **the testing environment**: Set up the testing environment in Unity and Python by installing the necessary libraries and tools.
5. **Implement test cases**: Implement the test cases using Python and Unity. This should include simulating different types of gestures and recording the system's response.
6. **Record test results**: Record the results of each test case, including any errors or issues encountered.
7. **Analyze results**: Analyze the results to identify any patterns or trends that can help improve the gesture recognition system.
8. **Refine and retest**: Based on the analysis, refine the system and retest until it meets all the requirements.
9. **Document results**: Document the results of each test case, along with any changes made to the system.

**7.2 Test Results and Analysis**

**7.2.1 Test Class**

**Table 7.2.1.1 Test Result**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Test Case** | **Test Steps** | **Expected Result** | **Actual**  **Result** | **Remarks**  **(Pass / Fail)** | |
| **Run python** | Camera Access | Camera should Enable | Camera get Enable | **PASS** | |
| **Run python script** | Track Hand | User hand should be track. | Hand tracked successfully. | **PASS** | **PASS** |
| Get Landmarks | It should display land-marks on it . | It display landmarks on hand . | **PASS** |
| Mouse movement | System mouse should move as hand moves. | System mouse moves as hand moves. | **PASS** |
| **Run EXE.** | Start Game | Game should start without any error. | Game started without any error. | **PASS** | |
| **Background**  **Audio** | Play Audio | Audio should be played when game start. | Audio has been played when game started | **PASS** | |
| **Button pressed(Start/Exit)**  **Button pressed(Start/Exit)** | Click start Button | By clicking Start button Game should start. | By clicking Start button Game started. | **PASS** | **PASS**  **PASS** |
| Start & End Amination  For start button | When cursor reach start button ,animation should be played and as it moves out it should be disable | As cursor reach the start button , animation is played and as it moves out it is disable. | **PASS** |
| Click Exit Button | By clicking Exit button Game should Quit. | By clicking Exit button Game Quitted. | **PASS** |
| Start & End Amination  For exit button | When cursor reach exit button ,animation should be played and as it moves out it. | As cursor reach the exit button , animation is played and as it moves out it is disable. | **PASS** |
| **After Start** | Fruit spawn | Fruit should spawn. | Fruit spawned. | **PASS** | **PASS** |
| Blade | Blade should be activated as cursor moves. | Blade moves as cursor moves. | **PASS** |
| Fruit sliced | Fruit should be sliced when  blade hits the fruits. | Fruit sliced when blade  hits the fruits. | **PASS** |
| Bomb Sliced | If bomb sliced then Game over screen should display. | Bomb sliced ,Game over screen is displayed. | **PASS** |
| **Audio**  **Audio** | Change Audio. | Audio should be change as game start. | Audio changed as game started | **PASS** | **PASS**  **PASS** |
| Fruit spawn Audio | Audio should be played when fruit is spawned. | Audio is played. | **PASS** |
| Blade Audio | Audio should be played as blade moves. | Audio is played when blade moves. | **PASS** |
| Fruit sliced Audio | When fruit sliced audio should be played. | Audio played when fruit is sliced | **PASS** |
| Bomb Blast | When bomb blast Audio should be played. | Audio is played when bomb blast. | **PASS** |
| **Animation** | Fruit spawn Animation | When fruit spawn Animation should be played. | Animation played when fruit spawned. | **PASS** | **PASS** |
| Fruit sliced Animation | When fruit sliced Animation should be played. | Amination played when fruit is sliced. | **PASS** |
| Bomb Blast Animation | When bomb Blast Animation should be played. | Animation is played when Bomb Blast. | **PASS** |
| **Game over** | Game over screen | As bomb blast it should display game over screen . | It displayed game over screen as bomb blast. | **PASS** | **PASS** |
| On game over screen | On game over screen, it should display high score and new high score. | On game over screen, it displayed high score and new high score. | **PASS** |
| Back ground Audio | Audio should be change as game over screen display. | Audio changed as game over screen displayed. | **PASS** |
| **Button pressed**  **(Restart/Exit)** | Click restart Button | By clicking restart button Game should restart. | By clicking restart button Game restarted. | **PASS** | **PASS** |
| Start & End Amination  For restart button | When cursor reach restart button ,animation should be played and as it moves out it should be disable. | As cursor reach the restart button , animation is played and as it moves out it is disable. | **PASS** |
| Click Exit Button | By clicking Exit button Game should Quit. | By clicking Exit button Game Quitted. | **PASS** |
| Start & End Amination  For exit button | When cursor reach exit button ,animation should be played and as it moves out it. | As cursor reach the exit button , animation is played and as it moves out it is disable. | **PASS** |