# 1. Introduction

## 1.1 Purpose

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It defines the test plan and protocol used to validate all functional and non-functional requirements of the **FunFlip Educational Game**.

**Audience**: Quality assurance team, developers, project reviewers  
**Scope of use**: Entire test cycle during development, delivery, and final acceptance phase.

## 1.2 Summary

The documentation outlines the test specifications, test infrastructure, detailed test cases, execution results, defect logging, and final test conclusions.

**Stakeholders**: Developers, testers, reviewers, and supervisors.

## 1.3 Definitions and Abbreviations

|  |  |
| --- | --- |
| **Term** | **Definition** |
| TC | Test Case |
| QA | Quality Assurance |
| NFR | Non-Functional Requirement |
| FR | Functional Requirement |
| Pass | Test case meets expected outcome |
| Fail | Test case does not meet expected outcome |

## 1.4 References, Standards, and Rules

* FunFlip Game Requirements Document
* Architecture Documentation
* SWE\_SoSe2025\_DELIVERABLES.pdf
* tasks3\_document-check-list.pdf
* swe\_05\_test.pdf

## 1.5 Overview

This document includes:

* Test specification and test infrastructure
* 15 manually executed test cases
* Test protocol including summary and defect log
* Conclusion of testing with final validation statement

# 2. Test Specification

Each test case includes:

* Tested requirement
* Preconditions and postconditions
* Test steps
* Expected result
* Infrastructure used

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Test case no** | **Req. Id** | **Test objective** | **Precondition** | **Test steps** | **Expected result** | **Postcondition** | **Test result** |
| TC01 | FR\_01 | Navigate to Category Selection via Play | On start screen | Tap Play button | Category selection appears | Category screen shown | Pass |
| TC02 | FR\_02 | Select one of 3 Difficulty Levels | On category screen | Tap difficulty level | Level selected | Game starts at selected level | Pass |
| TC03 | FR\_03 | Flip cards and match pairs | Game started | Tap two cards | Cards flip and match if same | Matched cards stay flipped | Pass |
| TC04 | FR\_04 | Audio on card flip | Game started | Flip a card | Card flip sound plays | Sound heard | Pass |
| TC05 | FR\_05 | Unmatched cards flip back | Game started | Tap two unmatched cards | Cards flip back after delay | Cards face down again | Pass |
| TC06 | FR\_06 | Display turn count | Game started | Flip cards | Turn count updates | Turn count visible | Pass |
| TC07 | FR\_07 | Play happy sound on match | Game started | Match a pair | Happy sound plays | Sound heard | Pass |
| TC08 | FR\_08 | Replay, return to menu, quit | In game or menu | Tap corresponding button | Action performed | Returned/restarted/exited | Pass |
| TC09 | FR\_09 | Voice feedback by category | Game started | Flip a card | Voice says category name | Voice heard | Pass |
| TC10 | FR\_10 | Toggle sound/music | Settings menu | Tap sound/music toggle | Sound/music toggles | Setting updated | Pass |
| TC11 | NFR\_01 | Simple, colorful UI for kids | App launched | Browse app | UI elements are colorful | UI visually appealing | Pass |
| TC12 | NFR\_02 | Offline operation | App installed | Use app offline | App works without internet | Offline features functional | Pass |
| TC13 | NFR\_03 | Load Start Screen Quickly | App installed & launched | Launch app | Start screen appears quickly | Start screen visible | Pass |
| TC14 | NFR\_04 | No personal data collection | App used | Use all features | No data prompts or collection | No data saved/shared | Pass |
| TC15 | NFR\_05 | Modular Godot components | Dev environment ready | Inspect codebase | Modular scenes/scripts | Reusable components | Pass |

# 3. Test Protocol

## Test Results Summary

|  |  |  |
| --- | --- | --- |
| **Test Case** | **Result** | **Notes** |
| TC01 | Pass | Fast start screen load |
| TC02 | Pass | Navigation to category works |
| TC03 | Pass | Difficulty level selection correct |
| TC04 | Pass | Flip sound plays |
| TC05 | Pass | Cards flip back after mismatch |
| TC06 | Pass | Turn count updates correctly |
| TC07 | Pass | Happy sound on match plays |
| TC08 | Pass | Replay and quit work |
| TC09 | Pass | Voice feedback by category audible |
| TC10 | Pass | Sound/music toggle functioning |
| TC11 | Pass | Colorful UI renders correctly |
| TC12 | Pass | Works offline as expected |
| TC13 | Pass | Start screen loads quickly |
| TC14 | Pass | No personal data prompts shown |
| TC15 | Pass | Modular components verified in code |

## Defect Log

|  |  |  |
| --- | --- | --- |
| **Test Case** | **Defect Class** | **Description** |
| TC07 | 5 (Cosme | Slight delay in flip-back animation |
| TC04 | 4 (Minor UI) | Button alignment slightly off |

## Conclusion

All required test cases were executed successfully.  
**Result**:

* No critical defects (Class 1–3)
* Minor cosmetic/UI issues (Class 4–5) accepted for delivery

The system meets all acceptance criteria and is ready for formal handover.

# 5. Index

Table of Contents

[1. Introduction 1](#_Toc202384118)

[1.1 Purpose 1](#_Toc202384119)

[1.2 Summary 1](#_Toc202384120)

[1.3 Definitions and Abbreviations 1](#_Toc202384121)

[1.4 References, Standards, and Rules 1](#_Toc202384122)

[1.5 Overview 2](#_Toc202384123)

[2. Test Specification 2](#_Toc202384124)

[3. Test Protocol 3](#_Toc202384125)

[Test Results Summary 3](#_Toc202384126)

[Defect Log 4](#_Toc202384127)

[Conclusion 4](#_Toc202384128)

[5. Index 4](#_Toc202384129)