# COMPREHENSIVE TEST CASES FOR NUMBER GUESSING GAME

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## 1. INPUT VALIDATION TEST CASES

*Test Case 1: Difficulty Level Validation*
**Purpose**:Verify only valid difficulty levels are accepted
**Steps to Test**:
1. Run the game
2. When asked for difficulty, type "expert"
3. Then type "EASY" when prompted again
**Expected Result**: Game should reject "expert" and only accept "EASY"
**Success Criteria**: Error message shown for invalid input, game proceeds with Easy mode

*Test Case 2: Number Range Validation*
**Purpose**: Ensure guesses are within valid range
**Steps to Test**:
1. Select Easy mode (range 1-10)
2. Enter "0" as your guess
3. Then enter "11" as guess
4. Finally enter "5" as guess
**Expected Result**: Only "5" should be accepted, errors for out-of-range values
**Success Criteria**: Proper error messages for invalid numbers

*Test Case 3: Non-Number Input Handling*
**Purpose**:Test how game handles text inputs
**Steps to Test:**
1. Select any difficulty mode
2. When asked for guess, type "hello"
3. Then type "5.5" (decimal)
4. Finally type a valid number
**Expected Result**: Game should handle text and decimals gracefully
**Success Criteria**: Clear error messages, game doesn't crash

*Test Case 4: Menu Choice Validation*
**Purpose**: Verify menu accepts only valid options
**Steps to Test**:
1. Complete one game
2. When menu appears, type "4"
3. Then type "abc"
4. Finally type "2"
**Expected Result**: Only options 1, 2, or 3 should work
**Success Criteria**: Proper error handling for invalid menu choices

## 2. GAME LOGIC TEST CASES

*Test Case 5: Easy Mode Functionality*
**Purpose**: Test Easy mode game mechanics

**Steps to Test**:

1. Select Easy mode

2. Make guesses until you win or lose

3. Note the range is 1-10 with 7 attempts

**Expected Result**: Game should work with correct range and attempts

**Success Criteria**: Proper win/lose conditions, correct attempt counting

*Test Case 6: Medium Mode Functionality*

**Purpose**: Test Medium mode game mechanics

**Steps to Test**:

1. Select Medium mode

2. Try boundary numbers (1 and 15)

3. Use all 5 attempts if needed

**Expected Result**: Range 1-15 with 5 attempts working correctly

**Success Criteria**: All game mechanics work properly

*Test Case 7: Hard Mode Functionality*

**Purpose**: Test Hard mode challenging gameplay

**Steps to Test**:

1. Select Hard mode

2. Try to win within 3 attempts

3. Test what happens when attempts run out

**Expected Result**: Range 1-20 with only 3 attempts

**Success Criteria**: Higher difficulty is actually challenging

*Test Case 8: Perfect Guess Scenario*

**Purpose**: Test immediate win condition

**Steps to Test:**

1. Play any mode

2. Guess the correct number on first try

**Expected Result**: Immediate win celebration with "1 attempt" message

**Success Criteria**: Correct attempt counting for instant wins

*Test Case 9: Hint System Accuracy*

**Purpose**: Verify "Too high/Too low" hints

**Steps to Test**:

1. Play any mode

2. Intentionally guess numbers above the target

3. Then guess numbers below the target

**Expected Result**: Accurate "Too high" and "Too low" messages

**Success Criteria**: Hints actually help player find the number

## 3. USER INTERFACE TEST CASES

*Test Case 10: Center Alignment Check*

**Purpose**: Verify all text is properly centered

**Steps to Test**:

1. Play through entire game

2. Observe all messages and prompts

**Expected Result**: All text should be perfectly center-aligned

**Success Criteria**: Professional, consistent appearance

*Test Case 11: Emoji Display Test*
**Purpose**: Ensure emojis render correctly
**Steps to Tes**t:
1. Check all screens for emoji display
2. Look for any missing or broken symbols
**Expected Result**: All emojis should display properly
**Success Criteria**: Enhanced visual experience

*Test Case 12: Dynamic Width Adjustment*
**Purpose**: Test adaptive formatting
**Steps to Test**:
1. Play multiple games with different guess patterns
2. Make some games with many guesses, some with few
**Expected Result**: Display should adapt to longest line of text
**Success Criteria**: Consistent formatting regardless of content length

## 4. GAME FLOW TEST CASES

*Test Case 13: Multiple Game Sessions*
**Purpose**: Test playing multiple games in one session
**Steps to Test**:
1. Play one game
2. Choose "Play another game" from menu
3. Play second game
4. Choose "View history" from menu
**Expected Result**: Both games should appear in history
**Success Criteria**: Proper data persistence between games

*Test Case 14: Complete Game Flow*
**Purpose**: Test entire user journey
**Steps to Test**:
1. Start game → Play → View History → Play Again → Quit
2. Follow the complete flow
**Expected Result**: Smooth transitions between all states
**Success Criteria**: No crashes or stuck states

*Test Case 15: History Display Accuracy*
**Purpose**: Verify game history is accurate
**Steps to Test**:
1. Play 3 different games
2. Note the target numbers and your guesses
3. Check history display
**Expected Result**: History should match exactly what happened
**Success Criteria**: Accurate data recording and display

## 5. EDGE CASE TEST CASES

*Test Case 16: Empty History Scenario*
**Purpose**: Test behavior with no game history

**Steps to Test**:

1. Start game

2. Immediately choose "View history" from menu

**Expected Result**: "No game history available" message

**Success Criteria**: Graceful handling of empty data

*Test Case 17: Maximum Attempts Usage*

**Purpose**: Test game over scenario

**Steps to Test**:

1. Play any mode

2. Intentionally use all attempts without guessing correctly

**Expected Result**: Proper "Game Over" message with target number revealed

**Success Criteria**: Clear end-of-game communication

*Test Case 18: Rapid Invalid Inputs*

**Purpose**: Test system stability

**Steps to Test**:

1. Quickly enter multiple wrong inputs

2. Try to "break" the game with bad data

**Expected Result**: Game should remain stable and responsive

**Success Criteria**: Robust error handling under stress

## 6. VISUAL AND FORMATTING TESTS

*Test Case 19: Long Guess List Formatting*

**Purpose**: Test formatting with extensive data

**Steps to Test**:

1. Play a game with many wrong guesses

2. Create a long guess list like [1,2,3,4,5,6,7,8,9,10,11,12]

**Expected Result**: Display should handle long lists gracefully

**Success Criteria**: No formatting breaks with large data

*Test Case 20: Cross-Platform Compatibility*

**Purpose**: Verify game works on different systems

**Steps to Test**:

1. Test on Windows, Mac, and Linux if possible

2. Try different terminal sizes

**Expected Result**: Consistent behavior across platforms

**Success Criteria**: Universal compatibility

## TESTING INSTRUCTIONS

For Each Test Case:

1. Follow the steps exactly as written

2. Record your actual results

3. Mark as      PASS or      FAIL

4. Note any unexpected behavior

5. Take screenshots of any issues

Success Criteria Summary:

- No game crashes under any input

- All error messages are helpful and clear

- Game mechanics work as described

- User interface is consistent and professional

- Data is accurately saved and displayed

TESTER NOTES SECTION
(Include this blank section in your PDF for testers to write their observations)

Tester Name: _____
Date Tested:   _____
System Used: _____
Overall Rating:

Additional Comments:
_____
_____
_____

Bugs Found:
_____
_____
_____

Suggestions for Improvement:
_____
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