



## **CS 1632 Software Quality Assurance**

### **Deliverable 1: Test Plan and Traceability Matrix**

Project Name: Coffee Maker Quest

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## **1. Introduction**

In this project, the test plan is much more difficult to figure out compared to what we did in exercise 1. Firstly, the number of requirements is much larger than that in exercise 1, which means the test cases will be complex. Secondly, there are much more interactions between user and program, which results in complicated results. Different execution steps will end in different states. Indeed, the test plan is hard to build. Last, the workload is heavier than exercise 1. We need to give more defects and add an introduction section in the report. It took a longer time to finish this project.

According to the difficulties of this project, we divided the work into two parts. Yuliang Xiao did the introduction and defects section. Yunjie Zhang did the traceability matrix and test cases section. Since the traceability matrix and test cases section are similar and have lots of contents in common, grouping them together is a rational idea.

At the beginning of this project, our team went through the README.md file to have a clear understanding of what we need to do and how the program executes. Then, we had a consideration of corner and edge cases. For example, when we tested unknown commands, we tried 26 alphabets except six defined commands and several combinations of 26 alphabets. We tried our best to test the program exhaustively. Finally, we began to write and modify the whole test plan in order to make it specific and easy to understand without any loss of important information while other programmers will be reading it in the future.

## 2. Traceability Matrix

**REQ1:** TEST-ENTER-N-UPPERCASE-COMMAND, TEST-ENTER-S-UPPERCASE-COMMAND, TEST-ENTER-L-UPPERCASE-COMMAND, TEST-ENTER-I-UPPERCASE-COMMAND, TEST-ENTER-H-UPPERCASE-COMMAND, TEST-ENTER-D-UPPERCASE-COMMAND

**REQ2:** TEST-UNKNOWN-COMMAND

**REQ3:** TEST-ENTER-N-LOWERCASE-COMMAND, TEST-ENTER-S-LOWERCASE-COMMAND, TEST-ENTER-L-LOWERCASE-COMMAND, TEST-ENTER-I-LOWERCASE-COMMAND, TEST-ENTER-H-LOWERCASE-COMMAND, TEST-ENTER-D-LOWERCASE-COMMAND

**REQ4:** TEST-ENTER-S-UPPERCASE-COMMAND, TEST-ENTER-N-UPPERCASE-COMMAND, TEST-ENTER-N-LOWERCASE-COMMAND, TEST-ENTER-S-LOWERCASE-COMMAND

**REQ5:** TEST-WIN-WITH-ALL-ITEMS-COLLECTED

**REQ6:** TEST-LOSE-NO-ITEM, TEST-LOSE-ONLY-COFFEE, TEST-LOSE-ONLY-SUGAR, TEST-LOSE-ONLY-CREAM, TEST-LOSE-NO-COFFEE, TEST-LOSE-NO-SUGAR, TEST-LOSE-NO-CREAM

**REQ7:** TEST-ENTER-I-UPPERCASE-COMMAND, TEST-ENTER-I-LOWERCASE-COMMAND

**REQ8:** TEST-ENTER-L-UPPERCASE-COMMAND, TEST-ENTER-L-LOWERCASE-COMMAND

**REQ9:** TEST-ENTER-H-UPPERCASE-COMMAND, TEST-ENTER-H-LOWERCASE-COMMAND

**REQ10:** TEST-SMALL-ROOM, TEST-FUNNY-ROOM, TEST-REFINANCED-ROOM, TEST-DUMB-ROOM, TEST-BLOODTHIRSTY-ROOM, TEST-ROUGH-ROOM

**REQ11:** TEST-SMALL-ROOM, TEST-FUNNY-ROOM, TEST-REFINANCED-ROOM, TEST-DUMB-ROOM, TEST-BLOODTHIRSTY-ROOM, TEST-ROUGH-ROOM

### 3. Test Cases

1.

**IDENTIFIER:** TEST-ENTER-N-UPPERCASE-COMMAND

**TEST CASE:** When entering "N" in prompt, the player shall go north.

**PRECONDITIONS:**

1. Java version 1.8.0\_231 has been installed and is in the OS PATH environment variable.
2. The game has started and the player has no coffee, sugar and cream. Steps:
  1. Launch program by: "java -jar coffeemaker.jar".

**EXECUTION STEPS:**

1. Type "N [Enter]" in the prompt.

**POSTCONDITIONS:** The player shall go north and the description of the room shall be shown. The system shall display

"You see a Funny room. It has a Sad Record Player.

A Beige door leads North.

A Massive door leads South."

2.

**IDENTIFIER:** TEST-ENTER-S-UPPERCASE-COMMAND

**TEST CASE:** When entering "S" in prompt, the player shall go south.

**PRECONDITIONS:**

1. Java version 1.8.0\_231 has been installed and is in the OS PATH environment variable.
2. The game has started and the player has no coffee, sugar and cream. Steps:
  1. Launch program by: "java -jar coffeemaker.jar".

**EXECUTION STEPS:**

1. Type "S [Enter]" in the prompt.

**POSTCONDITIONS:** The move is disallowed with a message

"A door in that direction does not exist."

3.

**IDENTIFIER:** TEST-ENTER-L-UPPERCASE-COMMAND

**TEST CASE:** When entering “L” in prompt, the player shall collect the item in the room.

**PRECONDITIONS:**

1. Java version 1.8.0\_231 has been installed and is in the OS PATH environment variable.
2. The game has started and the player has no coffee, sugar and cream. Steps:
  1. Launch program by: "java -jar coffeemaker.jar".

**EXECUTION STEPS:**

1. Type “L [Enter]” in the prompt.

**POSTCONDITIONS:** The player shall collect the item in the room. The system shall display

“There might be something here...

You found some creamy cream!”.

4.

**IDENTIFIER:** TEST-ENTER-I-UPPERCASE-COMMAND

**TEST CASE:** When entering “I” in prompt, the player shall be informed what he/she has collected (Coffee, cream and sugar).

**PRECONDITIONS:**

1. Java version 1.8.0\_231 has been installed and is in the OS PATH environment variable.
2. The game has started and the player has no coffee, sugar and cream. Steps:
  1. Launch program by: "java -jar coffeemaker.jar".

**EXECUTION STEPS:**

1. Type “I [Enter]” in the prompt.

**POSTCONDITIONS:** The player shall be informed what he/she has collected. A message shall be displayed as following:

“YOU HAVE NO COFFEE!

YOU HAVE NO CREAM!

YOU HAVE NO SUGAR!”

5.

**IDENTIFIER:** TEST-ENTER-H-UPPERCASE-COMMAND

**TEST CASE:** When entering “H” in prompt, the player shall be shown a list of help commands.

**PRECONDITIONS:**

1. Java version 1.8.0\_231 has been installed and is in the OS PATH environment variable.
2. The game has started and the player has no coffee, sugar and cream. Steps:
  1. Launch program by: "java -jar coffeemaker.jar".

**EXECUTION STEPS:**

1. Type “H [Enter]” in the prompt.

**POSTCONDITIONS:** The player shall be shown a list of help commands.

6.

**IDENTIFIER:** TEST-ENTER-D-UPPERCASE-COMMAND

**TEST CASE:** When entering “D” in prompt, the player shall drink.

**PRECONDITIONS:**

1. Java version 1.8.0\_231 has been installed and is in the OS PATH environment variable.
2. The game has started and the player has no coffee, sugar and cream. Steps:
  1. Launch program by: "java -jar coffeemaker.jar".

**EXECUTION STEPS:**

1. Type “D [Enter]” in the prompt.

**POSTCONDITIONS:** The player shall drink and a message shall be displayed as following:

“YOU HAVE NO COFFEE!

YOU HAVE NO CREAM!

YOU HAVE NO SUGAR!

You drink the air, as you have no coffee, sugar, or cream.

The air is invigorating, but not invigorating enough. You cannot study.

You lose!

Exiting with error code 1”

7.

**IDENTIFIER:** TEST-UNKNOWN-COMMAND

**TEST CASE:** When entering "123" in prompt, the system shall respond with "What?".

**PRECONDITIONS:**

1. Java version 1.8.0\_231 has been installed and is in the OS PATH environment variable.
2. The game has started and the player has no coffee, sugar and cream. Steps:
  1. Launch program by: "java -jar coffeemaker.jar".

**EXECUTION STEPS:**

1. Type "123 [Enter]" in the prompt.

**POSTCONDITIONS:** The system shall display "what?".

8.

**IDENTIFIER:** TEST-ENTER-N-LOWERCASE-COMMAND

**TEST CASE:** When entering "n" in prompt, the player shall go north.

**PRECONDITIONS:**

1. Java version 1.8.0\_231 has been installed and is in the OS PATH environment variable.
2. The game has started and the player has no coffee, sugar and cream. Steps:
  1. Launch program by: "java -jar coffeemaker.jar".

**EXECUTION STEPS:**

1. Type "n [Enter]" in the prompt.

**POSTCONDITIONS:** The player shall go north and the description of the room shall be shown. The system shall display

"You see a Funny room.

It has a Sad Record Player.

A Beige door leads North.

A Massive door leads South."

9.

**IDENTIFIER:** TEST-ENTER-S-LOWERCASE-COMMAND

**TEST CASE:** When entering “s” in prompt, the player shall go south.

**PRECONDITIONS:**

1. Java version 1.8.0\_231 has been installed and is in the OS PATH environment variable.
2. The game has started and the player has no coffee, sugar and cream. Steps:
  1. Launch program by: "java -jar coffeemaker.jar".

**EXECUTION STEPS:**

1. Type “s [Enter]” in the prompt.

**POSTCONDITIONS:** The move is disallowed with a message

“A door in that direction does not exist.”

10.

**IDENTIFIER:** TEST-ENTER-L-LOWERCASE-COMMAND

**TEST CASE:** When entering “l” in prompt, the player shall collect the item in the room.

**PRECONDITIONS:**

1. Java version 1.8.0\_231 has been installed and is in the OS PATH environment variable.
2. The game has started and the player has no coffee, sugar and cream. Steps:
  1. Launch program by: "java -jar coffeemaker.jar".

**EXECUTION STEPS:**

1. Type “l [Enter]” in the prompt.

**POSTCONDITIONS:** The player shall collect the item in the room. The system shall display

“There might be something here...”

You found some creamy cream!”

11.

**IDENTIFIER:** TEST-ENTER-H-LOWERCASE-COMMAND



**TEST CASE:** When entering “h” in prompt, the player shall be shown a list of help commands.

**PRECONDITIONS:**

1. Java version 1.8.0\_231 has been installed and is in the OS PATH environment variable.
2. The game has started and the player has no coffee, sugar and cream. Steps:
  1. Launch program by: "java -jar coffeemaker.jar".

**EXECUTION STEPS:**

1. Type “h [Enter]” in the prompt.

**POSTCONDITIONS:** The player shall be shown a list of help commands.

**12.**

**IDENTIFIER:** TEST-ENTER-I-LOWERCASE-COMMAND

**TEST CASE:** When entering “i” in prompt, the player shall be informed what he/she has collected (Coffee, cream and sugar).

**PRECONDITIONS:**

1. Java version 1.8.0\_231 has been installed and is in the OS PATH environment variable.
2. The game has started and the player has no coffee, sugar and cream. Steps:
  1. Launch program by: "java -jar coffeemaker.jar".

**EXECUTION STEPS:**

1. Type “i [Enter]” in the prompt.

**POSTCONDITIONS:** The player shall be informed what he/she has collected. A message shall be displayed as following:

“YOU HAVE NO COFFEE!

YOU HAVE NO CREAM!

YOU HAVE NO SUGAR!”

**13.**

**IDENTIFIER:** TEST-ENTER-D-LOWERCASE-COMMAND

**TEST CASE:** When entering “d” in prompt, the player shall drink.

**PRECONDITIONS:**

1. Java version 1.8.0\_231 has been installed and is in the OS PATH environment variable.
2. The game has started and the player has no coffee, sugar and cream. Steps:
  1. Launch program by: "java -jar coffeemaker.jar".

**EXECUTION STEPS:**

1. Type "d [Enter]" in the prompt.

**POSTCONDITIONS:** The player shall drink and a message shall be displayed as following:

"YOU HAVE NO COFFEE!

YOU HAVE NO CREAM!

YOU HAVE NO SUGAR!

You drink the air, as you have no coffee, sugar, or cream.

The air is invigorating, but not invigorating enough. You cannot study.

You lose!

Exiting with error code 1"

**14.**

**IDENTIFIER:** TEST-WIN-WITH-ALL-ITEMS-COLLECTED

**TEST CASE:** When all items are collected, the player shall drink the coffee and win.

**PRECONDITIONS:**

1. Java version 1.8.0\_231 has been installed and is in the OS PATH environment variable.
2. The game has started and the player needs to collect coffee, sugar and cream. Steps:
  1. Launch program by: "java -jar coffeemaker.jar".
  2. Type "L [Enter]" in the prompt.
  3. Type "N [Enter]" in the prompt.
  4. Type "N [Enter]" in the prompt.
  5. Type "L [Enter]" in the prompt.
  6. Type "N [Enter]" in the prompt.
  7. Type "N [Enter]" in the prompt.
  8. Type "N [Enter]" in the prompt.
  9. Type "L [Enter]" in the prompt.

**EXECUTION STEPS:**

1. Type "D [Enter]" in the prompt.

**POSTCONDITIONS:** The player shall drink the coffee and win. The system shall display:

" You have a cup of delicious coffee.

You have some fresh cream.

You have some tasty sugar.

You drink the beverage and are ready to study!

You win!

Exiting with error code 0"

**15.**

**IDENTIFIER:** TEST-LOSE-NO-ITEM

**TEST CASE:** When no items are collected, the player shall lose the game.

**PRECONDITIONS:**

1. Java version 1.8.0\_231 has been installed and is in the OS PATH environment variable.
2. The game has started and the player has no coffee, sugar and cream. Steps:
  1. Launch program by: "java -jar coffeemaker.jar".

**EXECUTION STEPS:**

1. Type "D [Enter]" in the prompt.

**POSTCONDITIONS:** The player shall lose the game with a message

"YOU HAVE NO COFFEE!

YOU HAVE NO CREAM!

YOU HAVE NO SUGAR!

You drink the air, as you have no coffee, sugar, or cream.

The air is invigorating, but not invigorating enough. You cannot study.

You lose!

Exiting with error code 1"

16.

**IDENTIFIER:** TEST-LOSE-ONLY-COFFEE

**TEST CASE:** When only coffee is collected, the player drinks and shall lose the game.

**PRECONDITIONS:**

1. Java version 1.8.0\_231 has been installed and is in the OS PATH environment variable.
2. The game has started and the player has only coffee. Steps:
  1. Launch program by: "java -jar coffeemaker.jar".
  2. Type "N [Enter]" in the prompt.
  3. Type "N [Enter]" in the prompt.
  4. Type "L [Enter]" in the prompt.

**EXECUTION STEPS:**

1. Type "D [Enter]" in the prompt.

**POSTCONDITIONS:** The player shall lose the game with a message

"You have a cup of delicious coffee.

YOU HAVE NO CREAM!

YOU HAVE NO SUGAR!

Without cream, you get an ulcer and cannot study.

You lose!

Exiting with error code 1"

17.

**IDENTIFIER:** TEST-LOSE-ONLY-SUGAR

**TEST CASE:** When only sugar is collected, the player drinks and shall lose the game.

**PRECONDITIONS:**

1. Java version 1.8.0\_231 has been installed and is in the OS PATH environment variable.
2. The game has started and the player has only sugar. Steps:
  1. Launch program by: "java -jar coffeemaker.jar".
  2. Type "N [Enter]" in the prompt.
  3. Type "N [Enter]" in the prompt.
  4. Type "N [Enter]" in the prompt.
  5. Type "N [Enter]" in the prompt.

6. Type "N [Enter]" in the prompt.
7. Type "L [Enter]" in the prompt.

**EXECUTION STEPS:**

1. Type "D [Enter]" in the prompt.

**POSTCONDITIONS:** The player shall lose the game with a message

"YOU HAVE NO COFFEE!

YOU HAVE NO CREAM!

You have some tasty sugar.

You eat the sugar, but without caffeine, you cannot study.

You lose!

Exiting with error code 1"

**18.**

**IDENTIFIER:** TEST-LOSE-ONLY-CREAM

**TEST CASE:** When only cream is collected, the player drinks and shall lose the game.

**PRECONDITIONS:**

1. Java version 1.8.0\_231 has been installed and is in the OS PATH environment variable.
2. The game has started and the player has only cream. Steps:
  1. Launch program by: "java -jar coffeemaker.jar".
  2. Type "L [Enter]" in the prompt.

**EXECUTION STEPS:**

1. Type "D [Enter]" in the prompt.

**POSTCONDITIONS:** The player shall lose the game with a message

"YOU HAVE NO COFFEE!

You have some fresh cream.

YOU HAVE NO SUGAR!

You drink the cream, but without caffeine, you cannot study.

You lose!

Exiting with error code 1"

19.

**IDENTIFIER:** TEST-LOSE-NO-COFFEE

**TEST CASE:** When only coffee is missing, the player drinks and shall lose the game.

**PRECONDITIONS:**

1. Java version 1.8.0\_231 has been installed and is in the OS PATH environment variable.
2. The game has started and the player has sugar and cream. Steps:
  1. Launch program by: "java -jar coffeemaker.jar".
  2. Type "L [Enter]" in the prompt.
  3. Type "N [Enter]" in the prompt.
  4. Type "N [Enter]" in the prompt.
  5. Type "N [Enter]" in the prompt.
  6. Type "N [Enter]" in the prompt.
  7. Type "N [Enter]" in the prompt.
  8. Type "L [Enter]" in the prompt.

**EXECUTION STEPS:**

1. Type "D [Enter]" in the prompt.

**POSTCONDITIONS:** The player shall lose the game with a message

"YOU HAVE NO COFFEE!"

You have some fresh cream.

You have some tasty sugar.

You drink the sweetened cream, but without caffeine, you cannot study.

You lose!

Exiting with error code 1"

20.

**IDENTIFIER:** TEST-LOSE-NO-SUGAR

**TEST CASE:** When coffee and cream is collected, the player drinks and shall lose the game.

**PRECONDITIONS:**

1. Java version 1.8.0\_231 has been installed and is in the OS PATH environment variable.
2. The game has started and the player has coffee and cream. Steps:
  1. Launch program by: "java -jar coffeemaker.jar".

2. Type "L [Enter]" in the prompt.
3. Type "N [Enter]" in the prompt.
4. Type "N [Enter]" in the prompt.
5. Type "L [Enter]" in the prompt.

**EXECUTION STEPS:**

1. Type "D [Enter]" in the prompt.

**POSTCONDITIONS:** The player shall lose the game with a message

"You have a cup of delicious coffee.

You have some fresh cream.

YOU HAVE NO SUGAR!

Without sugar, the coffee is too bitter. You cannot study.

You lose!

Exiting with error code 1"

**21.**

**IDENTIFIER:** TEST-LOSE-NO-CREAM

**TEST CASE:** When coffee and sugar is collected, the player drinks and shall lose the game.

**PRECONDITIONS:**

1. Java version 1.8.0\_231 has been installed and is in the OS PATH environment variable.
2. The game has started and the player has coffee and sugar. Steps:
  1. Launch program by: "java -jar coffeemaker.jar".
  2. Type "N [Enter]" in the prompt.
  3. Type "N [Enter]" in the prompt.
  4. Type "L [Enter]" in the prompt.
  5. Type "N [Enter]" in the prompt.
  6. Type "N [Enter]" in the prompt.
  7. Type "N [Enter]" in the prompt.
  8. Type "L [Enter]" in the prompt.

**EXECUTION STEPS:**

1. Type "D [Enter]" in the prompt.

**POSTCONDITIONS:** The player shall lose the game with the message

"You have a cup of delicious coffee.

YOU HAVE NO CREAM!

You have some tasty sugar.

Without cream, you get an ulcer and cannot study.

You lose!

Exiting with error code 1."

## 22.

**IDENTIFIER:** TEST-SMALL-ROOM

**TEST CASE:** When entering the small room, there shall be a unique room description.

**PRECONDITION:**

1. Java version 1.8.0\_231 has been installed and is in the OS PATH environment variable.

**EXECUTION STEPS:**

1. Launch program by: "java -jar coffeemaker.jar".

**POSTCONDITION:** The system shall display the message

"You see a Small room.

It has a Quaint sofa.

A Magenta door leads North."

## 23.

**IDENTIFIER:** TEST-FUNNY-ROOM

**TEST CASE:** When entering the funny room, there shall be a unique room description.

**PRECONDITION:**

1. Java version 1.8.0\_231 has been installed and is in the OS PATH environment variable.
2. The game has started and the player has no coffee, cream and sugar. Steps:
  1. Launch program by: "java -jar coffeemaker.jar".

**EXECUTION STEPS:**



1. Type "N [Enter]" in the prompt.

**POSTCONDITION:** The system shall display the message

"You see a Funny room.

It has a Sad record player.

A Beige door leads North.

A Massive door leads South."

**24.**

**IDENTIFIER:** TEST-REFINANCED-ROOM

**TEST CASE:** When entering the refinanced room, there shall be a unique room description.

**PRECONDITION:**

1. Java version 1.8.0\_231 has been installed and is in the OS PATH environment variable.
2. The game has started and the player has no coffee, cream and sugar. Steps:
  1. Launch program by: "java -jar coffeemaker.jar".
  2. Type "N [Enter]" in the prompt.

**EXECUTION STEPS:**

1. Type "N [Enter]" in the prompt.

**POSTCONDITION:** The system shall display the message

"You see a Refinanced room.

It has a Tight pizza.

A Dead door leads North.

A Smart door leads South."

**25.**

**IDENTIFIER:** TEST-DUMB-ROOM

**TEST CASE:** When entering the dumb room, there shall be a unique description.

**PRECONDITION:**

1. Java version 1.8.0\_231 has been installed and is in the OS PATH environment variable.

2. The game has started and the player has no coffee, cream and sugar. Steps:
  1. Launch program by: "java -jar coffeemaker.jar".
  2. Type "N [Enter]" in the prompt.
  3. Type "N [Enter]" in the prompt.

**EXECUTION STEPS:**

1. Type "N [Enter]" in the prompt.

**POSTCONDITION:** The system shall display the message

"You see a Dumb room.

It has a Flat energy drink.

A Vivacious door leads North.

A Slim door leads South."

**26.**

**IDENTIFIER:** TEST-BLOODTHIRSTY-ROOM

**TEST CASE:** When entering the bloodthirsty room, there shall be a unique description.

**PRECONDITION:**

1. Java version 1.8.0\_231 has been installed and is in the OS PATH environment variable.
2. The game has started and the player has no coffee, cream and sugar. Steps:
  1. Launch program by: "java -jar coffeemaker.jar".
  2. Type "N [Enter]" in the prompt.
  3. Type "N [Enter]" in the prompt.
  4. Type "N [Enter]" in the prompt.

**EXECUTION STEPS:**

1. Type "N [Enter]" in the prompt.

**POSTCONDITION:** The system shall display the message

"You see a Bloodthirsty room.

It has a Beautiful bag of money.

A Purple door leads North.

A Sandy door leads South."

27.

**IDENTIFIER:** TEST-ROUGH-ROOM

**TEST CASE:** When entering the rough room, there shall be a unique description.

**PRECONDITION:**

1. Java version 1.8.0\_231 has been installed and is in the OS PATH environment variable.
2. The game has started and the player has no coffee, cream and sugar. Steps:
  1. Launch program by: "java -jar coffeemaker.jar".
  2. Type "N [Enter]" in the prompt.
  3. Type "N [Enter]" in the prompt.
  4. Type "N [Enter]" in the prompt.
  5. Type "N [Enter]" in the prompt.

**EXECUTION STEPS:**

1. Type "N [Enter]" in the prompt.

**POSTCONDITION:** The system shall display the message

"You see a Bloodthirsty room.

It has a Beautiful bag of money.

A Purple door leads North.

A Sandy door leads South."

## 4. Defects

1.

**IDENTIFIER:** [MISSING-COMMAND-BUG]

**SUMMARY:** [The help command is missing for every iteration.]

**DESCRIPTION:** [When the testers reach each state or iteration and want to enter “H” for help. However, there is no “H” character showing on the prompt interface, which means the program does not define “H” as command. Also, the list of help commands and their explanations are not shown in the prompt.]

**REPRODUCTION STEPS:**

**[Preconditions:**

1. Java version 1.8.0\_231 has been installed and is in the OS PATH environment variable.
2. The game has started and the player does not need to hold coffee, sugar and cream. Steps:
  1. Launch program by: "java -jar coffeemaker.jar".

**Steps:**

1. Type “H [Enter]” in the prompt.
2. Type “h [Enter]” in the prompt.]

**EXPECTED BEHAVIOR:** [In the FUN-ITERATION requirement, there should have “H” for help in each iteration when the program is running and in the FUN-HELP requirement, the player shall be shown a listing of possible commands and what their effects are]

**OBSERVED BEHAVIOR:** [A phrase “What?” is displayed on the prompt]

2.

**IDENTIFIER:** [INPUT-CAPS-WITH-ENTERING-N-BUG]

**SUMMARY:** [Entering “n” will not get the expected result.]

**DESCRIPTION:** [In the FUN-INPUT-CAPS requirement, the lower-case of six valid commands will also be accepted by the program as well as their upper-case version. However, the program does not give expected response but treats lower-case of “N” as undefined command.]

**REPRODUCTION STEPS:**

**[Preconditions:**

1. Java version 1.8.0\_231 has been installed and is in the OS PATH environment variable.
2. The game has started and the player does not need to hold coffee, sugar and cream. Steps:
  1. Launch program by: "java -jar coffeemaker.jar".

**Steps:**

1. Type "n [Enter]" in prompt.]

**EXPECTED BEHAVIOR:** [The lowercase "n" should be treated equally as uppercase "N" and the program should give equivalent responses.]

**OBSERVED BEHAVIOR:** [A phrase "What?" is displayed on the prompt which means "n" is not defined by the program.]

**3.**

**IDENTIFIER:** [DISALLOWED-MOVE-BUG]

**SUMMARY:** [No message about disallowed move is displayed in the prompt]

**DESCRIPTION:** [When the testers tried to move towards a direction in which there is no door existing, a message "You are in a magical land! But you are returned to the beginning!" which is mismatched to the requirement is displayed on the prompt.]

**REPRODUCTION STEPS:**

**[Preconditions:**

1. Java version 1.8.0\_231 has been installed and is in the OS PATH environment variable.
2. The game has started and the player does not need to hold coffee, sugar and cream. Steps:
  1. Launch program by: "java -jar coffeemaker.jar".

**Steps:**

1. Type "S [Enter]" in the prompt.
2. Type "s [Enter]" in the prompt.]

**EXPECTED BEHAVIOR:** [In this case, since the South door does not exist in this room, the move should be disallowed and a message "A door in that direction does not exist." should be displayed on the prompt.]

**OBSERVED BEHAVIOR:** [The move is allowed but return to the beginning. Also, a message “You are in a magical land! But you are returned to the beginning!” is displayed on the prompt.]