CS 1632 Software Quality Assurance

Exercise 1 Extra Credit

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Defects

1.

IDENTIFIER: INVALID-ARGS-BUG

SUMMARY: The system displays a Java Exception to user which mismatches the requirement

DESCRIPTION: When the testers pass the number of threads that cannot be parsed to positive integer as argument, the system will display "Java NumberFormatException" to the user.

REPRODUCTION STEPS:

Preconditions: Java version 1.8.0_231.

Steps:

1. Open command prompt.

2. Go to the location of the program file.

3. Type command line as following: "java -jar GoatGoatCar.jar car goat 10001 hello".

EXPECTED BEHAVIOR: The system should explain the reason why the program shut down which is that number of threads should be a positive integer greater than 0.

OBSERVED BEHAVIOR: A "java.lang.NumberFormatException" is displayed on the terminal window

2.

IDENTIFIER: SMALL-RUNNING-TIMES-BUG

SUMMARY: The system give user a warning which mismatches the requirement

DESCRIPTION: When the testers pass the number of times which is 100 as argument, the system will give a warning and ask the users if they want to continue.

REPRODUCTION STEPS:

Preconditions: Java version 1.8.0_231.

Steps:

1. Open command prompt.

2. Go to the location of the program file.

3. Type command line as following: "java -jar GoatGoatCar.jar car goat 100 10".

EXPECTED BEHAVIOR: The system shall not give a warning and ask users if they want to continue.

OBSERVED BEHAVIOR: The system displays a warning to user and ask users if they want to continue. The message in the prompt is shown below:

"

3.

IDENTIFIER: DISPLAY-RESULT-BUG

SUMMARY: The system give user an exception when mismatches the requirement

DESCRIPTION: When the testers pass the number of threads which is MAX_INETGER in java as argument, the system will give an exception and cannot display the result as expected.

REPRODUCTION STEPS:

Preconditions: Java version 1.8.0_231.

Steps:

1. Open command prompt.

2. Go to the location of the program file.

3. Type command line as following: "java -jar GoatGoatCar.jar car goat 10001 2147483647".

EXPECTED BEHAVIOR: The system shall display the results of Monty Hall simulation to the user, using percentages with up to three places after the decimal, and then stop execution. This display shall print out the passed-in String versions of the "good" and "bad" options as defined in the arguments.

OBSERVED BEHAVIOR: A "java.lang.OutofMemoryError" is displayed because requested array size exceeds VM limit.

4.

IDENTIFIER: INCORRECT-DISPLAY-ITERATION

SUMMARY: The number of displayed threads mismatches to the number specified by argument.

DESCRIPTION: When the testers pass the number of times which is too large (often larger than heap space, but still smaller than MAX_INTEGER) as argument, the system will give an exception and the number of displayed threads is not expected.

REPRODUCTION STEPS:

Preconditions: Java version 1.8.0_231.

Steps:

> 1. Open command prompt.
>
> 2. Go to the location of the program file.
>
> 3. Type command line as following: "java -jar GoatGoatCar.jar car goat 10001 50000000".

EXPECTED BEHAVIOR: The system shall display the number of iterations executed by each thread, where there are as many threads as specified in the arguments. The sum of the number of iterations shall be equal to the number times specified in the arguments. Each thread shall execute an equal share of the number of times or be off by at most 1 if the number of times is not a multiple of the number of threads.

OBSERVED BEHAVIOR: The number of threads is not equal to the number specified by input argument and a "java.lang.OutofMemoryError" is displayed because the program reaches maximum heap space.

5.

> **IDENTIFIER**: ARGS-DISORDER

SUMMARY: The order of input arguments mismatches to the number specified by argument.

DESCRIPTION: When the testers pass a wrong order, which is different from what are specified by requirement, the program does not give any error but still continue to operate.

REPRODUCTION STEPS:

Preconditions: Java version 1.8.0_231.

Steps:

> 1. Open command prompt.

2. Go to the location of the program file.

3. Type command line as following: "java -jar GoatGoatCar.jar goat car 10001 500".

EXPECTED BEHAVIOR: The system shall accept the order in good option, bad option, number of times and number of threads. With incorrect order, the system shall not accept it.

OBSERVED BEHAVIOR: The system accepts the incorrect order and continue to the operate.