Deliverable 5: Fault Injection

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Task: Design and inject 5 faults into the code you are testing that will cause at least 5 tests to fail, but hopefully not all tests to fail. Exercise your framework and analyze the results.

Deliverable: We designed three faults for username and password related methods , then two faults for flexidate methods. This totals five designed faults within the system of Martus. The end result was that seven of our test cases were caused to fail as a result of these faults.

Faults:
Fault Injection 1: Removed the catch BlankUserNameException from the method validateUserNameAndPassword inside the Martus file, MartusUserNameAndPassword.

- Classpath: org/martus/client/core/MartusUserNameandPassword.java
- Results: Causes Test Case #5 and #7 to change the error generated from BlankUserNameException to NoError

Fault Injection 2: Removed the catch PasswordMatchedUserNameException from the method validateUserNameAndPassword inside the Martus file, MartusUserNameAndPassword.

- Classpath: org/martus/client/core/MartusUserNameandPassword.java
- Results: Causes Test Case #6 to change the error generated from PasswordMatchedUserNameException to NoError

Fault Injection 3: Add the catch cause InputMismatchException if the String variable was empty from the method getCombinedPasswordPhrase inside the Martus file, PasswordHelper.

- Classpath: org/martus/clientside/PasswordHelper.java
- Results: Causes Test Case #11 and #12 to change the error generated from ArrayIndexOutOfBounds to InputMismatchException

Fault Injection 4: Changed the methods getMartusFlexidateString and toFlexidateFormat to return integers instead of Strings inside the Martus file, MartusFlexidate.

- Classpath: org/martus/common/utilities/MartusFlexidate.java
- Results: Causes Test Case #19 to change the result generated from 20030105+2 to the error NumberFormatException

Fault Injection 5: Add the catch cause NumberFormatException if the String variable was less than 7 characters in length from the method extractIsoDateFromStoredDate inside the Martus file, MartusFlexidate.

- Classpath: org/martus/common/utilities/MartusFlexidate.java
- Results: Causes Test Case #25 to change the error generated from StringIndexOutOfBoundsException to NumberFormatException

Experiences: for the most part, our experience with fault injection was relatively painless. The only issue was with the compilation of the source code. Initially, our code was using an archived .jar file, rather than compiling a new one from the source code. This meant every time we ran the code, it would not use the source code that we had changed, and no tests would fail. A quick change to the script fixed this issue, and there were no further problems. Code is much easier to break than to design.

How-To:
-Step one: Clone repository to the chosen directory
-Step two: Navigate to the parent directory (TestAutomation) in terminal
-Step three: Run the "bash ./scripts/runAllTests.sh" command
-Step four: results of all tests should be displayed in terminal
-Step five: View the table displayed in your browser