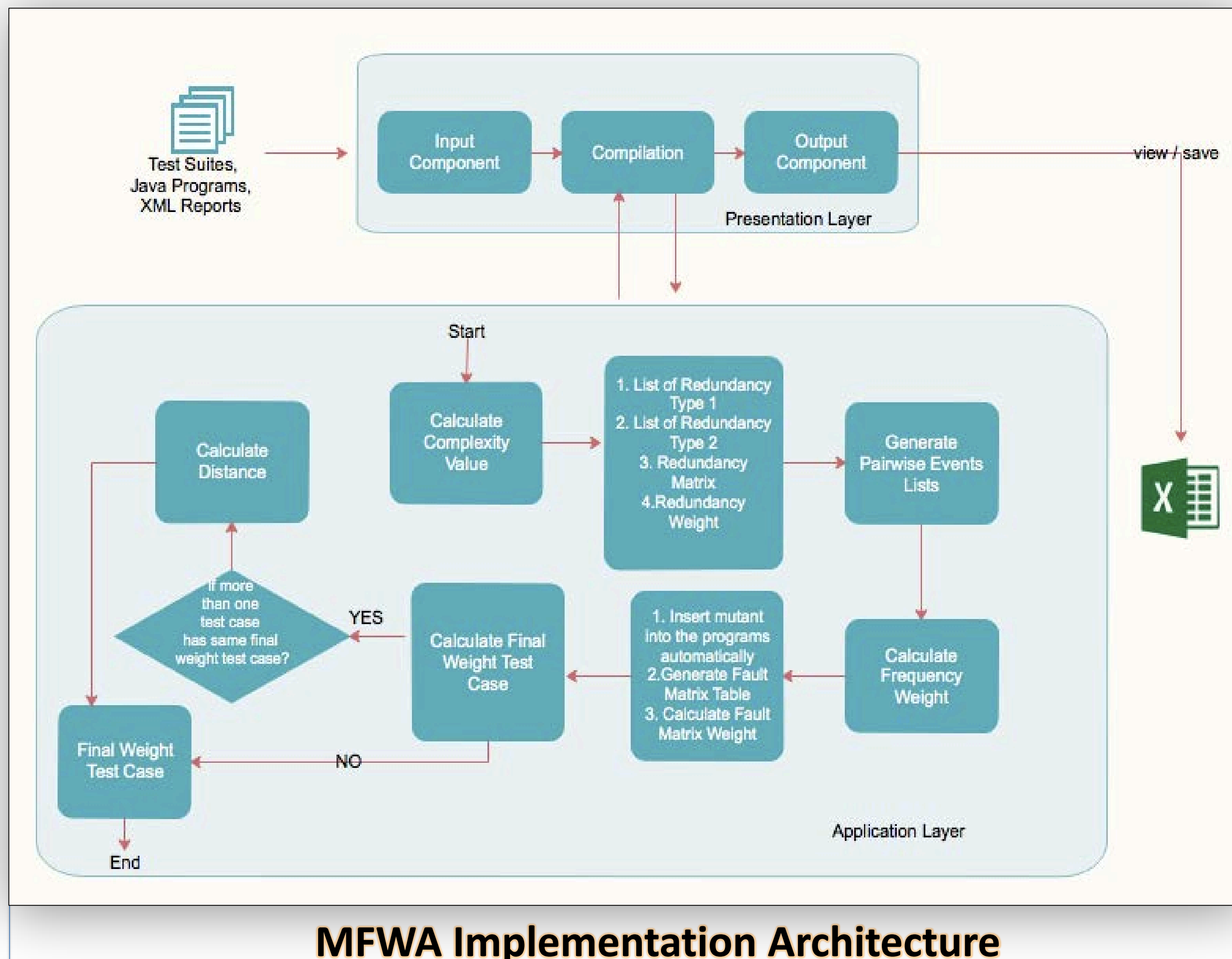
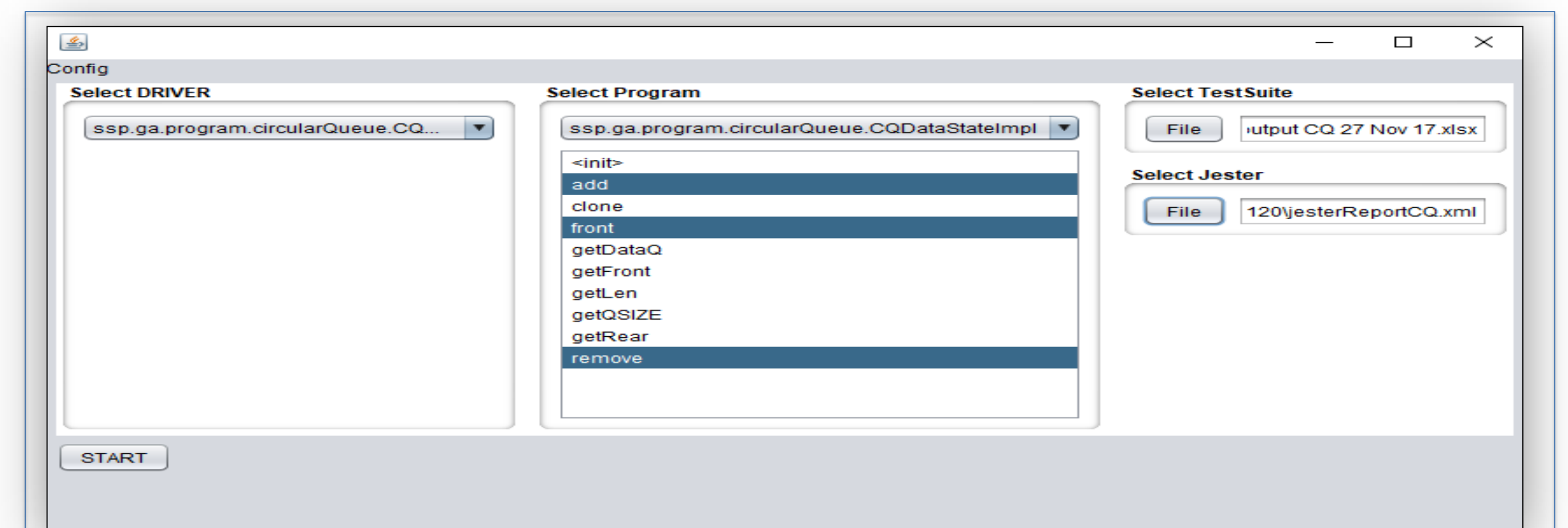


MULTIFACTOR WEIGHTED APPROACH (MFWA) TOOL

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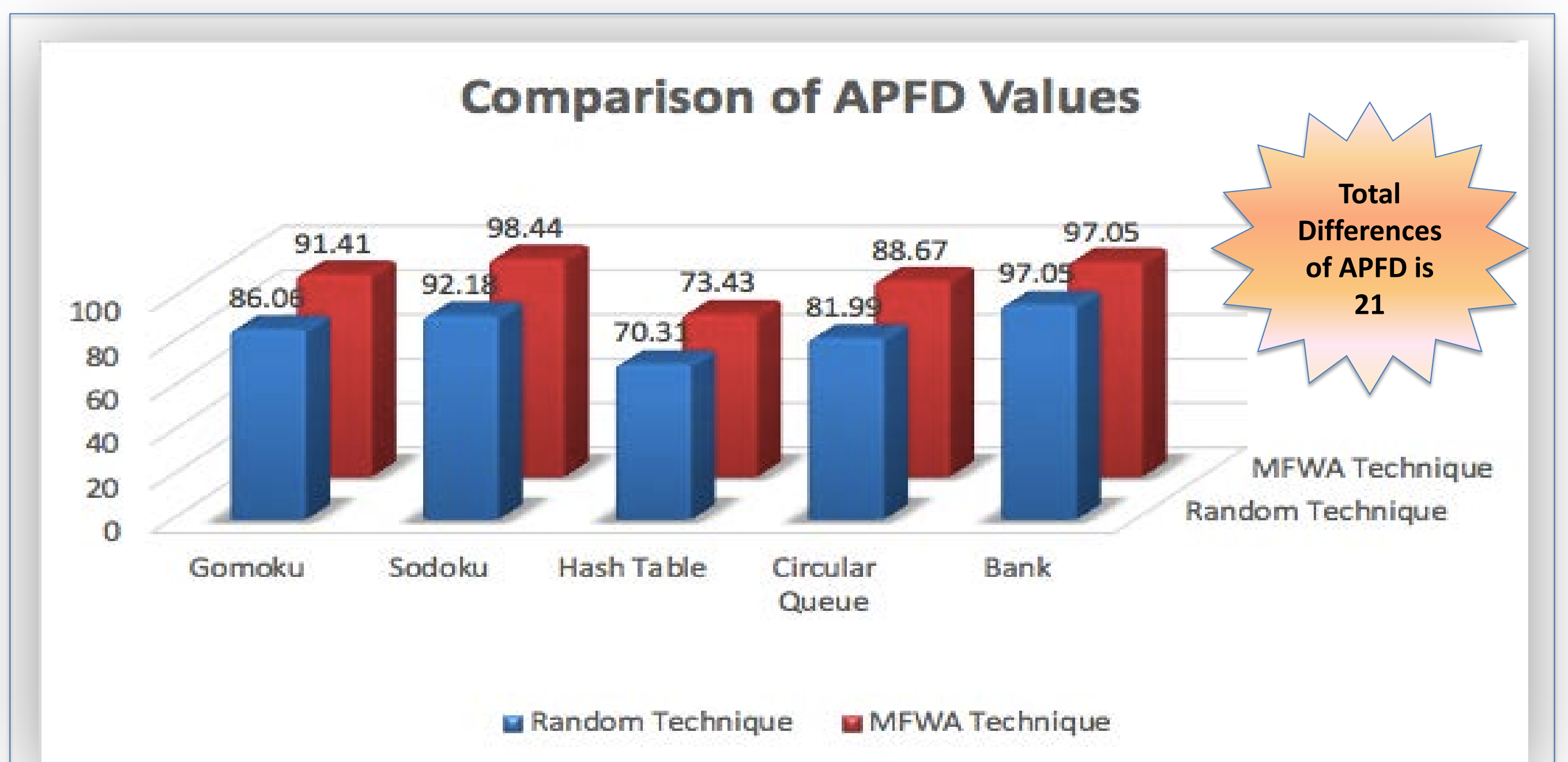
MFWA Implementation Architecture



Main User Interface for MFWA Tool

	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16
TC01																
TC02																
TC03																
TC04																
TC05																
TC06																
TC07																
TC08																
TC09																
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TC11																
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TC28																
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TC30																

Example of Fault Detection Table to Record Capability of Test Cases in Detecting Faults



Comparison of APFD Values for random technique and MFWA technique

INTRODUCTION OF TECHNOLOGY

Event-sequence test cases are required for testing a component that has memory using black-box approach. However, the size of test suite can be enormous and the sequence can be lengthy. To exhaustively test the event-sequence test cases is found to be ineffective and expensive. To deal with large number of this kind of test cases, several TCP techniques have been proposed. In TCP technique, each test case is assigned with a priority value. The priority value is calculated based on various factors. The issue when calculating the priority value is that some of the test cases might hold same priority value. Most researchers ignore the issue of same priority value by randomly executed one of the test cases holding same priority value. In order to avoid random technique, therefore we propose a unique priority value for each of the test case.

INVENTION

- Multifactor Weighted Approach (MFWA) using six factors to calculate the priority value which are complexity, redundancy, frequency, permutations and fault matrix.
- The factors are chosen based on the characteristics of event-sequence with the purpose to obtain a unique priority value.
- However, if same priority value exists, Jacard Distance approach will be used to break the ties.
- The invention aims to prioritize event-sequence test cases in a test suite in order to allow earlier detection of faults as well reduce time, cost and efforts.

ADVANTAGES

- Automate the process of selecting test cases that managed to detect faults earlier besides reduce time, cost, and resources during the testing process.
- Useful for test case prioritization or software testing domain.

MARKET POTENTIAL

- **Commercial applications:** It is flexible to be used by software testers as long as they provide a program written in Java language and consists of event sequences test cases.
- **Unique Selling Points (USP) or competitive advantage of the product:** Purposely for the event sequences test cases. Existing freely tools are meant for the single event test cases.
- One of the most significant issues in TCP is how researchers handled the same priority value issues. Most of the research will applied random techniques which is ineffective and create bias issues.



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