

Model Based Testing

Model based testing is nothing but simple testing technique in which we get different test cases that are described by the model. In this type of test cases are generated via both online and offline test case models.

In this case by considering the testing technique functionally we find out the model-based test cases. For checking the functionality of software, the unit testing is not sufficient for this case so this is considered.

Significance of Model Based Testing:

- Model based testing is very familiar for the test cases are performing actions in the same sequence or not? This testing technique is adopted and integrated with the testing techniques. A number of business tools are developed for supporting this type of technique now-a-days.
- In this type of the software behaviour is checked during the runtime against the prediction that has been made by the model itself.
- Behaviour of a system basically based upon the actions, sequence, conditions and the input output flow of a process that is made.
- When this is practically implemented we should know the concept i.e. sharable or valuable for the system and it should be in a very précised manner.
- The system has the main role for this model to perform different behaviour like data flow, control flow, state transition machines, decision tables and dependency graphs.
- Generally, we say that the model-based testing is online based/on-the-fly and offline based/a priori, In online based testing test suites are generated during the execution and in offline based testing test suites are generated before the execution.

Advantages:

- The automation efficiency is so high in this type and the higher level is also acquired by the model.
- Comprehensive testing is also possible in this type and the changes that have been made can be easily tested by model.
- Different types of machines like finite state machines, unified model diagrams and state charts are mostly taking part in this testing technique.
- By reducing the cost of the process available in this type. Simultaneously many numbers of processes are running together for performance increasing.
- The defects that are made in the beginning stage that are identified and the defect counts are increasing accordingly the testing undergoes in a progressing manner.

Disadvantages:

- For the testing purpose the system always needs formal specifications and the changes are made according to different sets in a combined manner.

- To understand the concept is so much difficult for the user and also for utilization. So, the learning curve of the model will be more i.e. the biggest failure of the model.
- For overcoming this situation, the model should be thoroughly improvised and trained.

Real Case Scenario of a Model:

- When a user is ready to go through web application then the user has multiple sections like sign In, forgot password and reset password options i.e. total 3 fields are there to enter into the home page so that case is only for one user and when considering for model based multiple users some permutation and combinations can be used to testing the product in a model type.
- So, the state transition diagrams are involved to fulfil the requirement of the user. Multiple states with multiple transitions are possible to reduce the complexity of the task that has been performed by different permutation and combination techniques.
- Validation of the test cases and state transition diagrams are created automatically and provide better solutions for many users present in a queue for requesting the access of the specific model.

Conclusion:

Model based testing is an approach to evolutionary testing. The testers are involved in the testing type to form mental models that are coming on the paper for better readability and reusability of the product under testing. In past studies the testing was manual, automation for the recent study model based testing came to market.

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