Black Box Testing

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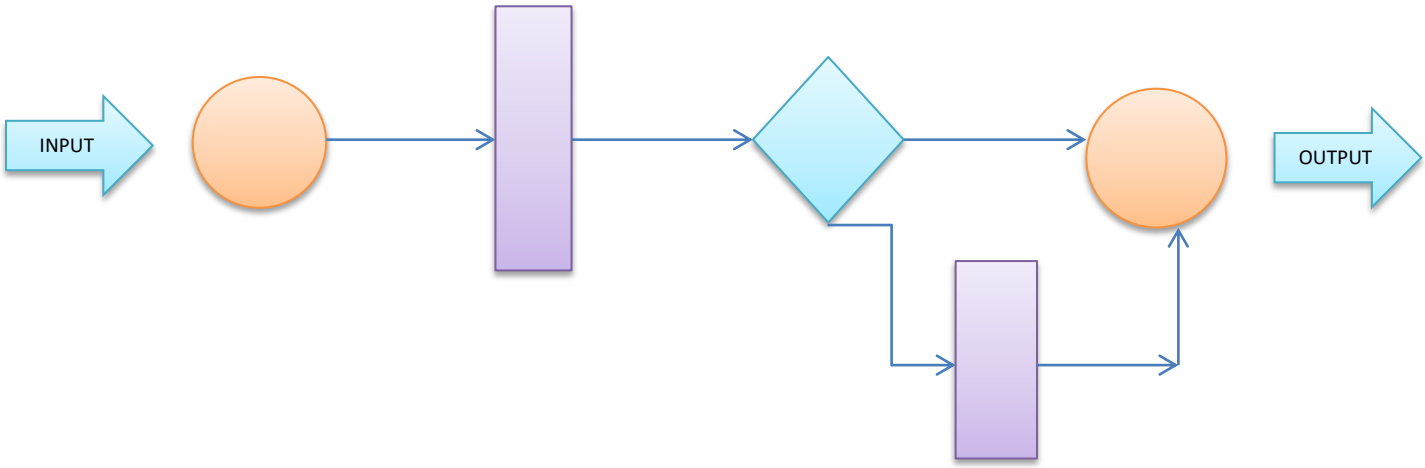
Black box testing is a software testing method that examines the functionality of an application without looking into its internal structure of workings.

It is carried out to test the functionality of the program and also called 'Behavioral Testing '. The tester in this case, has a set of input values and respective desired results. On providing input, if the output matches with the desired results, the program is tested 'ok', and problematic otherwise.



In this method of testing, the design and the structure of the code are not known to the tester, and the testing engineers and the end users conduct this test on the software.
This method is applied at every level of software testing unit

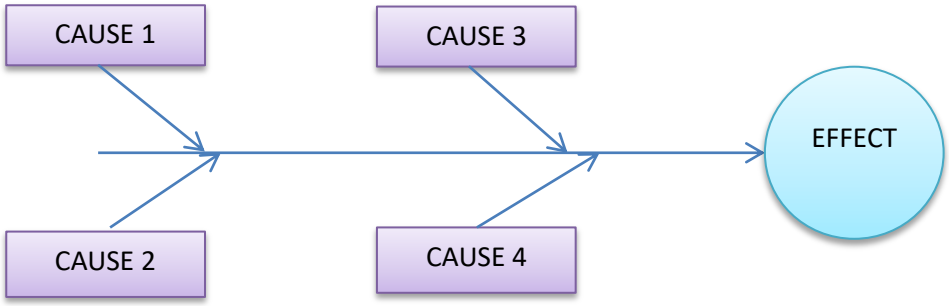
- Integration
- System
- Acceptance

Black box testing techniques:

- **Equivalence class -** The input is divided into similar classes. If one element of a class passes the test, it is assumed that all the class is passed.
    - Eg: If the valid range is 0 to 100 then select one valid input like 49 and one invalid input like 104.

- **Boundary value -** The input is divided into higher and lower values. If these values pass the test, it is assumed that all values in between may pass too.
    - **Eg:** If the valid range is 10 to 100 then test for 10, 100 also apart from valid and invalid inputs.

- **Cause-effect graphing -** In both previous methods, only one input value at a time is tested. Cause (input) – Effect (output) is a testing technique where combinations of input values are tested in a systematic way.



- **Pair-wise testing -** The behaviour of software depends on multiple parameters. In pairwise testing, the multiple parameters are tested pairwise for the different values.

Test ID	X	Y	Z
T1	A	C	E
T2	A	D	E
T3	A	C	F
T4	A	D	F
T5	B	C	E
T6	B	D	E
T7	B	C	F
T8	B	D	F

One can get rid of Test case T2

- {A, -, E} is covered in T1
- {A, D, -} is covered in T4
- {-, D, E} is covered in T6

Test ID	X	Y	Z
T1	A	C	E
T4	A	D	F
T6	B	D	E
T7	B	C	F

- **State based testing -** The system changes state on provision of input. These systems are tested based on their states and input.