Universiti Malaysia PAHANG
Engineering • Technology • Creativity

BCS3323 – Software Testing and Maintenance

Test Case Design
Black Box

Editors

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Decision Testing & State Transition Testing

Aims is students be able to discover
> The purpose of decision table testing
>
> The purpose of state transition testing
>
> How to use these techniques to design the test cases

Expected Outcomes
> Students be able to show how to design the test cases based on these techniques
>
> Students be able to show when to use these techniques .

References
> ISTQB
>
> MSTB/GTB
>
> http://www.softwaretestingclass.com/software-testing-tools-list/
>
> http://www.softwaretestinggenius.com/articalDetails.php?qry=572#commentsList

Decision tables

- Investigate the combinations of system's inputs, events.

- It will express the combinations of inputs' conditions to produce either FALSE or TRUE conditions

Example

A university computer system allows students an allocation of disc space depending on their projects. If they have used all their allotted space, they are only allowed restricted access, i.e. to delete files, not to create them. This is assuming they have logged on with a valid username and password.

What are the input and output conditions?

List the input and output conditions

- List the 'input conditions' in the first column of the table

- List the 'output conditions' under the input conditions

Input Conditions	
Valid username	
Valid password	
Account in credit	
Output Conditions	
Login accepted	
Restricted access	

Define input Cond.

- Add columns to the table for each unique combination of input conditions.
- Each entry in the table may be either 'T' for true, 'F' for false.

Input Conditions								
Valid username	T	T	T	T	F	F	F	F
Valid password	T	T	F	F	T	T	F	F
Account in credit	T	F	T	F	T	F	T	F

- some combinations may be impossible or not of interest

- some combinations may be 'equivalent'

- use a hyphen to denote "don't care"

Input Conditions				
Valid username	F	T	T	T
Valid password	-	F	T	T
Account in credit	-	-	F	T

Decision Table

- Determine the expected output conditions for each combination of input conditions

Input Conditions				
Valid username	F	T	T	T
Valid password	-	F	T	T
Account in credit	-	-	F	T
Output Conditions				
Login accepted	F	F	T	T
Restricted access	-	-	T	F

Exercise A

- A technical support staff of a company writes a decision table to diagnose the common printer problems as seen below. Complete the decision table with the reasonable boolean values.

Printer Troubleshooter		Test IDs			
		#1	#2	#3	#4
Input Conditions	Printer does not print	Y	Y	Y	Y
	A red light is flashing	Y	Y	N	N
	Printer is unrecognized	Y	N	Y	N
Output Conditions	Check the power cable				
	Check the printer-computer cable				
	Ensure printer software is installed				
	Check/replace ink				

Acme, an internet based Music CD retailer, is now offering free shipping for orders over RM500. For orders less than RM500, the following shipping charges apply.

Shipping Options	For the number of CD items ordered are 10 or less	For the number of CD items ordered are 11 or more
Standard Shipping	RM 20	RM 5 X No of CDs ordered
Express Shipping	RM 30	RM 7 X No of CDs ordered

Derive the complete decision table for expressing all the conditions and actions with regard to shipping of ordered CD items.