TMap

Design Technique - Syntactic

Lesson Objectives

- Syntactic Design Technique
- Steps
- Variations
- Coverage

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13.1 Syntactic Test Design Technique

- Aim
  - Validation: Testing of validity of input and output data attributes
  - Presentation: Testing of Lay-Out
- Test Basis
  - Validation Testing - 'Data Dictionary' or other data models
    - Functional requirements
  - Presentation Testing - Style Guides
    - List and screen specifications
- Deriving Principle
  - Coverage type: 'Checklist' for primary data definition plus layout of screen and reports
- Quality characteristics
  - Functionality
  - User friendliness

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13.2 Steps

- Identify test situations
- Create logical test cases
- Create physical test case
- Specify initial data set
- Create test Script

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13.2 Steps

Example: Description of situation

- Test basis
- Use Cases with an integrated GUI. Within these Use Cases a basic scenario and a number of alternate scenarios are acknowledged
- A test is to be executed by means of a checklist. Highest priority is given to the basic scenarios. The alternate scenario have less priority

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13.2 Steps

Step 1. Identify Test Situations

- Attribute Checks
  - For the Validation test
- Layout Checks
  - For the Presentation Test

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13.2 Steps

Step 1.1- Validation test Attribute Checks -1

- Data type
- Field length
- Input/Output
- Default value
- Mandatory / Not Mandatory
- Selection Mechanism
- Domain
- Special Characters
- Format

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13.2 Steps

Step 1.1- Validation test Attribute Checks -2

- Data type
  - Numeric, Alphabetical, Alphanumerical, etc.
- Field length
  - Find out what happens when more that the maximum field length is entered, for input as well as out put
- Input/Output
  - Three Options:
    - I: No value is shown, this can/need to be added
    - O: A value is shown, but can not be altered
    - IO: A value is shown, this can be altered

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13.2 Steps

Step 1.1- Validation test Attribute Checks -3

- Default
  - When the attribute is not filled with a value, the system should process with the default value
  - For a IO – field the default value must be shown
- Mandatory/ Not Mandatory
  - A mandatory attribute can not remain empty
  - An attribute that is not mandatory can remain empty

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13.2 Steps

Step 1.1- Validation test Attribute Checks -4

- Selection Mechanism
  - Make a choice from a number of possible options
  - One option or more (especially with GUI's)
    - Radio Button (Try activating more than one)
    - Check boxes (Try activating more than one)
    - Drop down box (Try to change a value or clear this)

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13.2 Steps

Step 1.1- Validation test Attribute Checks -5

- Domain
  - The domain describes all valid values for the given attribute
  - Can be displayed in two ways:
    - Summing up: ex {M,V,O}
    - Value range: All values between the given boundaries are allowed, ex.[0,100]; especially test the boundary values
- Special characters
  - Quotes (all), excluding space, question marks etc.

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13.2 Steps

Step 1.1- Validation test Attribute Checks -6

- Format
  - For some attributes there are specific demands for the format, for example:
    - **Date : YYYYMMDD , DD-MM-YY**
    - **Postal Code: The format differs per country, in the NL its 1111 AA (Four digits space two letters)**

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13.2 Steps

Step 1.2- Presentation test Layout Checks -1

- Overview Layout checks
  - Headers / Footers
  - Attributes
  - Other Screen Objects

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13.2 Steps

Step 1.2- Presentation test Layout Checks -2

- Headers / Footers
  - Are standards met?
    - Ex. Standards for screen , System, print date, version number
- Attributes
  - Per attributes often specific demands are defined for the layout for example:
    - Name of the attribute
    - Place of the attribute on screen or report
    - Display of the attribute (like letter type, color, etc)

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13.2 Steps

Special Notes at step 1

- Test basis for SYN is
  - General, like style guide, language specification
  - Specific, like screen- and list design
- The Syntactic Test is sufficiently specified when there is an overview of:
  - All attributes and screens
  - All checks (checklist)

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13.2 Steps

Limit Testing SYN

SYN can lead to an unmanageable great number of test situations

But:

The density of the defect that are found with the SYN is relatively low.

Measures:

- Do not describe test cases

  During execution keep test basis handy for exact details
- Limit testing by means of prioritizing
  - Determine all to be tested attribute/ screens and sort on priority basis
  - Determine checks that need to be adhered and sort on priority basis
  - First execute the tests on the attributes/ screens/ Checks with the high priority

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13.2 Steps

More Specific: Prioritizing

		Data Type	Format	Domain	I/O	Selection	Mandatory	Field length	Spec Char	Default
Add Booking	H	H	H	H	M	M	M	L	L	L
Booking ID			-			-				-
Destination			-							-
Company			-			-		-		-
Travel date			-			-				
No Of Passengers			-							
Class			-							
…	…									

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13.2 Steps

More Specific: Add Test Situation

		Data Type	Format	Domain	I/O	Selection	Mandatory	Field length	Spec Char	Default
Add Booking	H	H	H	H	M	M	M	L	L	L
Booking ID		Num	-	0-999	O	-	Y	6		-
Destination		Alpha	-	{NL,IN}	I		Y	20		-
Company		Alpha-num	-	{KLM,J9,BA}	I/O	-	Y	20		-
Travel date		Num	DDMMYYYY	Sysdt 31122007	I/O	-	Y	-		Sys-Date
No Of Passengers		Num	-	1-200	I		Y	3		1
Class		Alpha-num	-	[A-Z]	O		Y	1		A
…	…									

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13.2 Steps

Step 2. Create Logical Test Cases

- The Test situations of step 1 are also the logical test cases

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13.2 Steps

Step 3. Create Physical test cases

- The test situations can be specified into the physical test cases
  - Especially useful when test execution will be done by inexperienced tester
  - Very Time consuming!
  - For example

Screen 2.6	Always Wrong				W/V	W/V	Always Valid	
Value Field	Too Many Symbols	Too Few Symbols	Wrong Symbols	Value Outside Of Range	Leave Field Empty	Value Zero	Min. Value	Max. Value
Bank Group	>5	<5	¬Num	n.a.	EM	EM	00001	55555
Expiry Date	>4	<4	¬Num	¬**01 - **12	OK	EM	0001	9912
postcode	>6	<6	¬Alphanum	¬9999XX	EM	EM	1000AA	9999ZZ
Pin ind	>1	<1	¬Alpha	¬{Y, N}	EM	EM	Y	N

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13.2 Steps

How much detail ?

- Depends on:
  - Risk
  - Available time
  - Available resources
- Example (Checks for numerical field (domain=1-1000))
  - Enter no value
  - Enter alphabetic value
  - Enter negative value
  - …
  - …
  - Check location on screen
  - …

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13.2 Steps

Step 4 Specify Initial data Set

- Usually no special demand for the initial situation
- Possible exceptions: Output
  - Certain lists/ reports with certain values in certain fields can sometimes only be produced after a complex or time consuming series of actions
  - Physical Test cases are required

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13.2 Steps

Test Situations

- Checklist with ‘to be tested aspects’
  - Can be tested separately
  - Without cohesion or order
  - Possibly prioritized
  - ‘Check’ during test

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13.2 Steps

Test Situations written down

- Every test Situation can directly be written as a physical test case

	Use Case "Handle client request"	Prio	Tested
1-1	Basic Scenario	H	☑
1-2	Alternate Scenario 1	M	☑
1-3	Alternate Scenario 2	M	-
1-4	Alternate Scenario 3	M	☑
	Use Case "call client"		
2-1	Basic Scenario	H	☑
2-2	Alternate Scenario 1	M	☑
2-3	Alternate Scenario 2	M	-
	….		

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13.3 Coverage type ‘Checklist’

- With the Coverage type “Checklist”, all situations are tested that are summed up without structure in a list
- Typical Usage
  - Requirements
  - Use Cases
  - Usability aspects

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13.4 Coverage type ‘Checklist’

- MoSCoW
  - Must Mandatory
  - Should Very Wanted
  - Could Please, if there is time left
  - Would Nice, not now, maybe later
- High, Medium, Low

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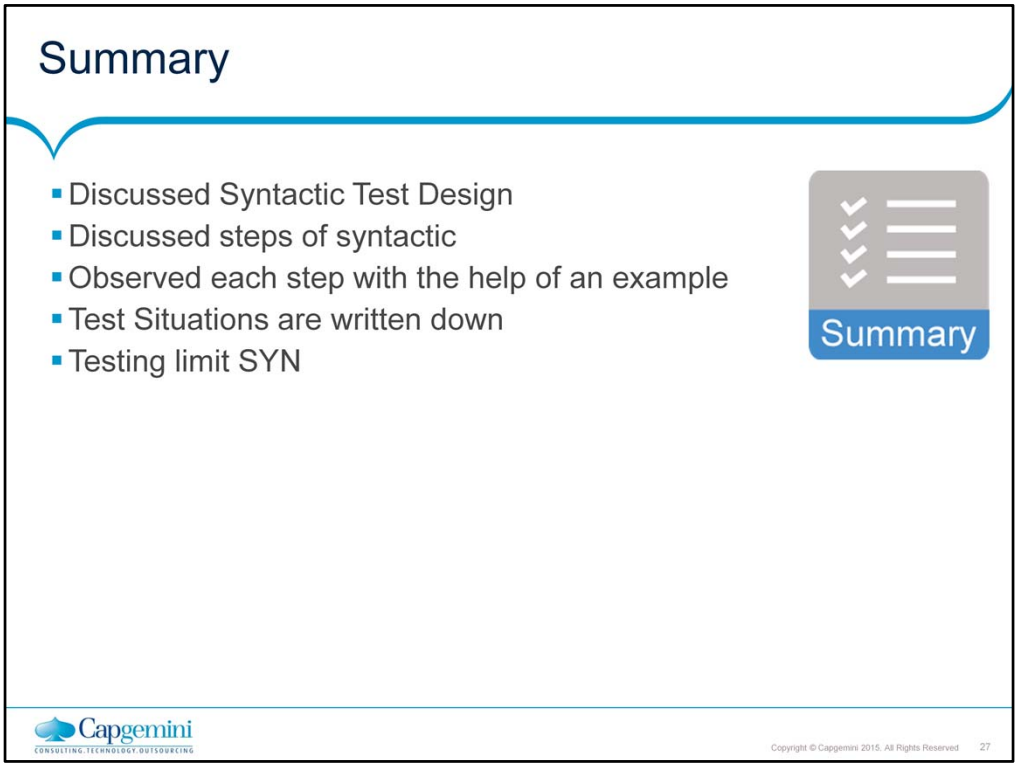

Add the notes here.

Review Question

- The syntactic rules can be tested independently
  - True/False
- SYN can lead to an unmanageable great number of test situations
  - True/False

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Add the notes here.

References

- Book
  - Please read TMap Next page. 634-635 On Coverage type Checklist and page. 690-695 on the TTST SYN

