COMP5222 Assignment 2

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COMP 5222
Software Testing and Quality Assurance
Assignment 1
Due date: Nov 23, 2012 Total Mark: 50

Question 1

Given the following input screen,

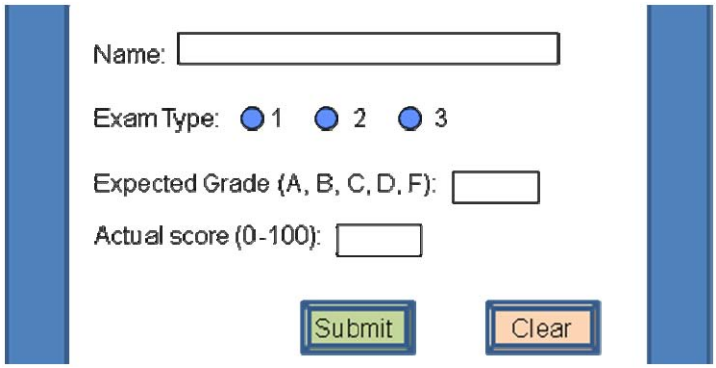

Figure 1: Assignment 2 Question 1

(a) For each input, give the equivalence classes. Note that *actual* score should be an integer. Use the following format: (6 marks)

Input	Type	EC	Description
Name	40 Characters	[blank],[Characters within 40], [too many Characters]	characters within 40 should be valid
Exam Type	Number	[unselected],[1-3]	Selection should be from one of the three
Expected Grade	Character	[blank],[A-D],[E],[F],[G-Z] [multiple characters]	Only Character A-D and F is valid
Actual Score	integer	[<0][0-100][>100][float number]	The score should a integar within 0-100

(b) Give a list of test cases covering your EC. (4 marks)

Input	Test Cases	Expected Results
Name	[blank]	Reject
	A	Accept
	AAAAA	Accept
	AAAAAAAAAAAAAA...(40)	Accept
	AAAAAAAAAAAAAA...(41)	Reject
	AAAAAAAAAAAAAA...(80)	Reject

Input	Test Cases	Expected Results
Exam Type	[unselected]	Reject
	1	Accept
	2	Accept
	3	Accept

Input	Test Cases	Expected Results
Expected Grade	[blank]	Reject
	A	Accept
	B	Accept
	D	Accept
	E	Reject
	F	Accept
	G	Reject
	R	Reject
	Z	Reject
	AA	Reject
	AAAAAAAA	Reject

Input	Test Cases	Expected Results
Actual Score	-30	Reject
	-1	Reject
	0	Accept
	5	Accept
	100	Accept
	101	Reject
	200	Reject
	0.1	Reject
	5.1	Reject
	100.1	Reject
	-0.1	Reject
	-5.1	Reject
	-100.1	Reject

Question 2

For the following case:

The Boiler is controlled by a monitor system, which will shut down the Boiler if

- Water level is below 20,000 lb
- Water level is above 120,000 lb
- Degraded mode and steam meter fails (Degraded mode when the water pump has failed or the pump monitor has failed)

(a) Identify all causes and effects. (6 marks)

Causes	Effects
$<$ 20,000lb	Shut down the Boiler
$>$ 120,000lb	Shut down the Boiler
Degraded mode	Shut down the Boiler
Steam meter fails	Shut down the Boiler
$<$ 20,000lb	Open water pump
$>$ 120,000lb	Shut down water pump
Water is boiled	Shut down the Boiler
Water pump is opend	Start the Boiler

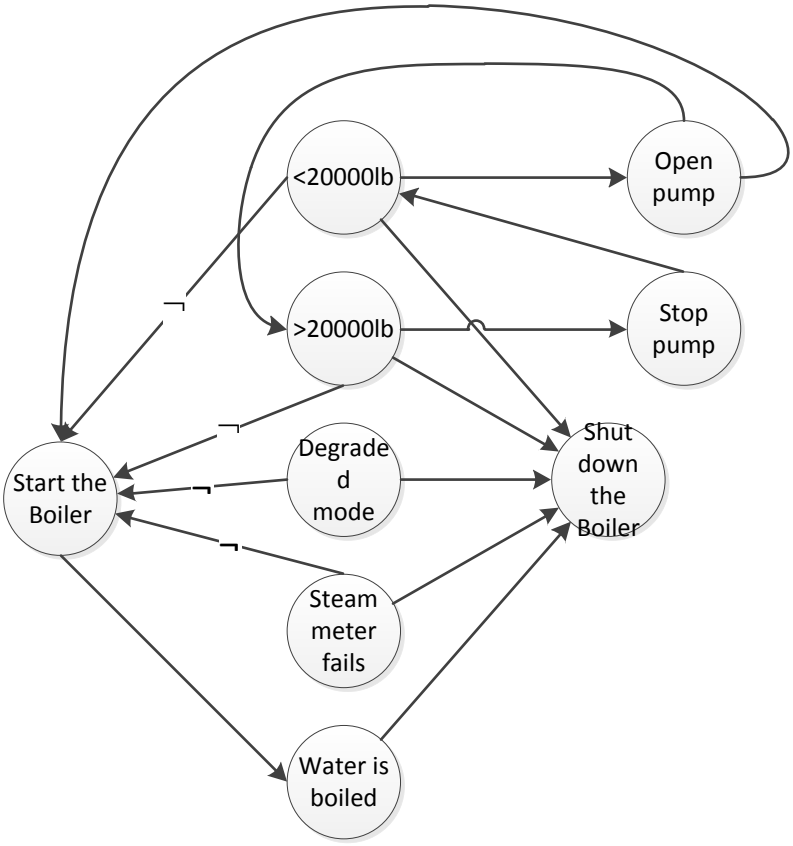

Figure 2: cause effect graph

(b) Draw the cause and effect graph. (4 marks)

(c) What test cases you should use? (6 marks)

Test Cases	Expected Results
19,999lb	Shut down the Boiler, open water pump
120,001lb	Shut down the Boiler, shut down water pump
Degraded mode	Shut down the Boiler
Steam meter fails	Shut down the Boiler
Water is boiled	Shut down the Boiler
Water pump is opened	Start the Boiler

Question 3

Imagine that you were testing how Blackboard's password manager saves login passwords.

(a) Describe two approaches to develop a set of scenario tests that test this feature. (4 marks)

- EP Testing

The password should be

Input	Type	ECs
Password	40 Characters and Digits start with a Character	[blank],[Only Characters within 40], [too many Characters], [Only Digits within 40], [too many Digits], [Characters and Digits within 40 start with a Character], [Characters and Digits start with a Digit], [Characters containing an invalid character]

- CT Testing

(b) Describe a scenario test that you would use to test this feature. (3 marks)

I would use the EP testing to test this feature.

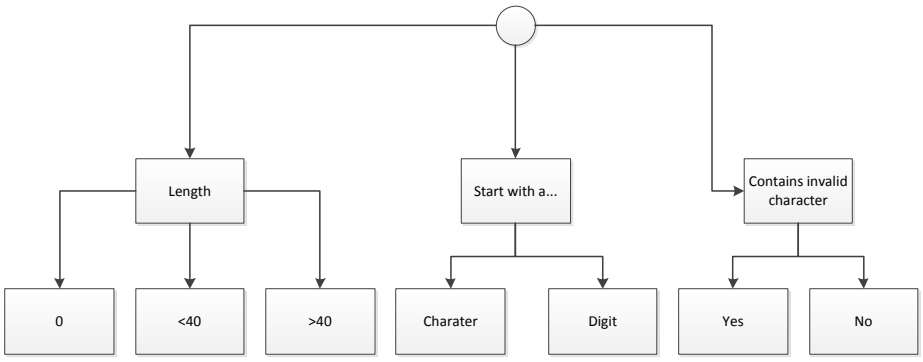

Figure 3: CT Testing

(c) Explain why this is a particularly good scenario test. (5 marks)

The test cases are much less than other methods. And the test is more thorough and consice.

Question 4

(a) A software team follows this process for software development: (6 marks)

- Develop requirements
- Develop system tests
- Design
- Develop integration tests
- Code
- Develop unit tests
- Execute unit tests
- Execute integration tests
- Execute system tests

Where can we add inspection to this process?

- Develop requirements, requirements doc inspection
- Develop system tests, test plan inspection
- Design, design doc inspection
- Develop integration tests, test plan inspection
- Code, code inspection
- Develop unit tests, test plan inspection

(b) Both code inspection and white-box testing focus on finding faults. Identify 3 advantages of doing code inspection over white-box testing. (3 marks)

1. In white-box testing, we have to write test cases. In inspection, we don't. It requires much more effort.
2. In white-box testing, we have to cover all the path. In inspection, we follow our own logic.
3. In white-box testing, only testers and programmers involved. In inspection, the project manager is also involved. The communication is better.

(c) Identify which of the following tasks should not be performed by the moderator of the inspection team? (Deduct 1 mark for each incorrect selection) (3 marks)

1. Inspection Scheduling
2. Determine need for Overview
3. Determine Inspection team
4. Ensuring availability of materials
5. Give an overview
6. Preparation
7. Inspection Meeting
8. Data Recording
9. Rework

10. Follow-up

The answers are,

(4). Ensuring availability of materials
(5). Give an overview
(8). Data Recording