2805ICT System and Software Design
3815ICT Software Engineering
7805ICT Principles of Software Engineering

Lab 9 Software Testing and BECIE

1. Comparing the difference between black box testing and white box testing in four aspects: suitability, techniques, advantages, limitations.

	Black box testing	White box testing
Suitability	•	
Techniques		
Advantages		
Limitations		

2. Build test cases:

Examine the test case example below:

PROJECT :	COES			
MODULE:	Order Entry			
RQUIREMENT:	Authentication (R3,R4)			
TEST CASE ID:	**Auth_1**			
TEST OBJECTIVE:	**To check whether the entered User name and Password are valid or Invalid**			
TEST DATE and TIME				
Step No	**Steps**	**Data**	**Expected Results**	**Actual Results**
1	Enter User Name and press LOGIN Button	User Name= COES	Should Display Warning Message Box "Please Enter User name and Password"	
2	Enter Password and press LOGIN Button	Password= COES	Should Display Warning Message Box "Please Enter User name and Password"	
3	Enter user Nameand Password and press LOGIN Button	USER = COES AND Password = XYZ	Should Display Warning Message Box "Please Enter User name and Password"	
4	Enter User Name and Password and press LOGIN Button	USER = ADMIN AND Password = ADMIN	Should navigate to Maintenance page page.	

There is *Sorting* function used by an ERP software system to sort arrays of integers. The function specification is listed below:

- *R1: The function takes one array of integers as input and returns another array with all the integers sorted in an ascending way. For example, if the input is {3,2,2,1}, the output will be {1,2,2,3}*

- *R2: If the input array is empty, it will also return an empty array.*

- *R3: If the input array includes values other than integers e.g. floats, strings, the Sorting function will return an error message "invalid input".*

You need to design a set of inputs to test this function regarding to the specifications. Please fill your test cases in the table below. You should apply technique of equivalence partitioning and boundary value analysis when you select the input data. Please note that you need to test both valid and invalid cases. You need to provide at least 10 different inputs and try to cover as many cases as possible.

PROJECT :				
MODULE:				
RQUIREMENT:				
TEST CASE ID:				
TEST OBJECTIVE:				
TEST DATE and TIME				
Step No	**Remarks**	**Input ({.,.,.,.,.})**	**Expected Results**	**Actual Results**
1				
2				
3				
4 5 6 7 8				

3. Study BECIE

BECIE is a software tool developed in Java to simulate Behavior Trees (BT) Study the documentation of BECIE. In MacOS and in Linux you need to run the command

```
java -cp becie.jar berp.BERP
```

Play around all the examples, following the example of Light, develop and run a similar

Insert screenshot to show you've run BECIE successfully

4. Develop a simple House system

Use BECIE to model and run a simple House system. The House has two component: Door and Lock. You could use the Door component in BECIE examples, but you need to develop a simple lock component that has two states [locked] and [unlocked]. The Lock can accept two event ??lock?? and ??unlock??.

The House is initially in the state of [locked], and it has two more state [unlock] and [open]. The House state can change from [locked]->[unlocked], [unlocked]->[locked], [unlocked]->[open], and [open]->[unlocked].

Show screenshot of the trees for House, Door and Lock

5. Additional exercises for 3815ICT and 7805ICT

Write a reflective report on the previous activities. Analyse and evaluate their relevancy to your future work.

6. Additional exercises for 7805ICT

Design an open-ended question (that means there may be several correct answers) that could be suitable for

1. A final exam
2. A job interview for software engineer.