CPT203 Software Engineering 1

Tutorial: testing 1

Suggested answers

1. Identify the equivalence partitions for the following. Suggest the input data for testing the following unit.
    a. The ticketing department of a subway company decided that children get the free ride, age between 12 and 21 as well as age 60 and over pay half price, the rest pay full price. Children is defined as age less than 11.

    Suggested answers:

    Free Ride : 0 to 11

    Test data: 1, 11, 4

    Half price: 12 to 21 ; and >= 60

    Test data: 12, 21, 15, 60, 130

    Full price: 22- 59

    Test data: 22, 59, 35

2. The following Java method accept an ArrayList<Integer> as parameter and return the sum of all the integer in the list. Suggest the test data you want to use to test the method.

    ```
    public int addAll(ArrayList<Integer> items)
    ```

    Suggested answers:

    addAll(null)
    addAll(new ArrayList<Integer>());

3. Suggest a template a developer can use to develop test case.

    Suggested answers using examples:

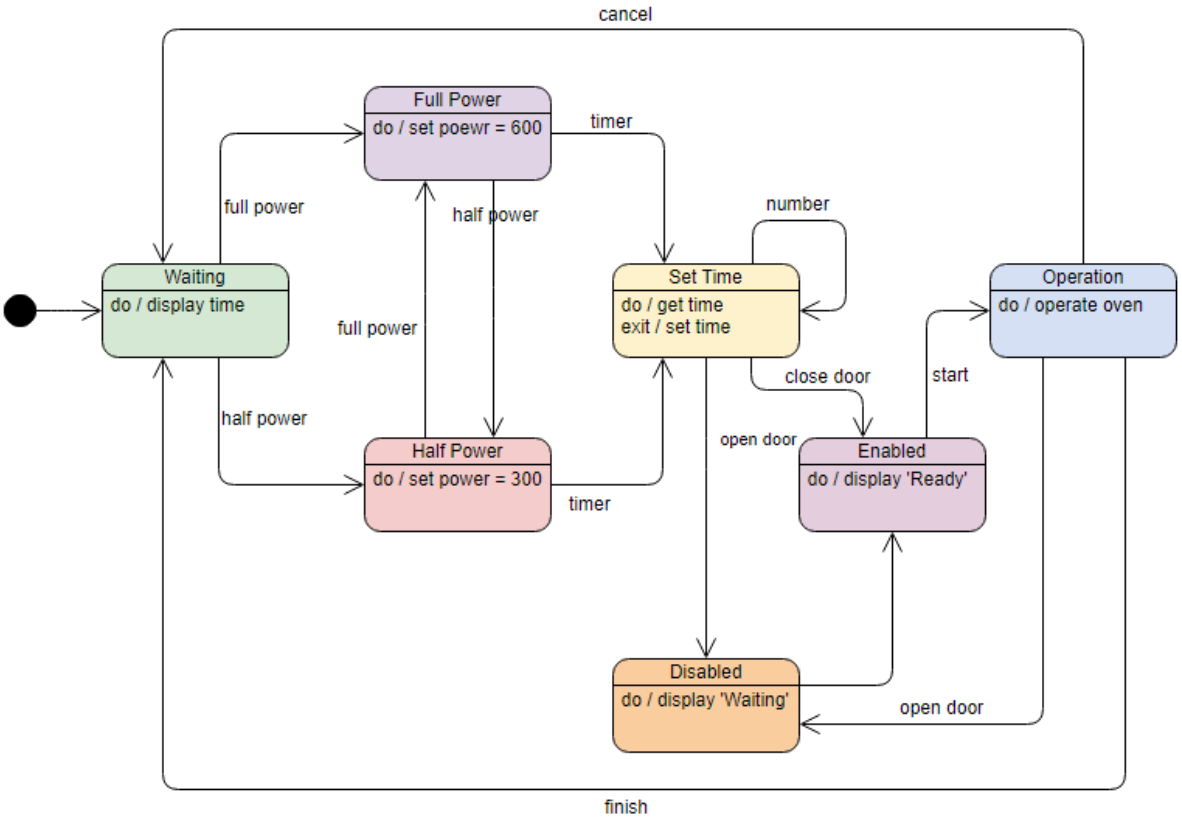
    Action , input data, expected outputs, actual output , status
    Two examples are as below

Test Case Template

Project Name						
Test Case ID				**Designer**		
Module Name				**Tester**		
Test Title						
Description						
Precondition						
Dependencies						
Step	**Action**	**Test Data**	**Expected Result**	**Actual Result**	**Status**	**Notes**
Postcondition						

	A	B	C	D	E	F	G	H	I	J	K
1	**Test Case ID**		BU_001	**Test Case Description**		Test the Login Functionality in Banking					
2	**Created By**		Mark	**Reviewed By**		Bill		**Version**		2.1	
3											
4	**QA Tester's Log**		Review comments from Bill incorporated in version 2.1								
5											
6	**Tester's Name**		Mark	**Date Tested**		1-Jan-2025		**Test Case (Pass/Fail/Not**		Pass	
7											
8	**S #**	**Prerequisites:**				**S #**	**Test Data**				
9	1	Access to Chrome Browser				1	Userid = mg12345				
10	2					2	Pass = df12@434c				
11	3					3					
12	4					4					
13											
14	**Test Scenario**	Verify on entering valid userid and password, the customer can login									
15											
16	**Step #**	**Step Details**		**Expected Results**		**Actual Results**			**Pass / Fail / Not executed / Suspended**		
17											
18	1	Navigate to http://demo.guru99.com		Site should open		As Expected			Pass		
19	2	Enter Userid & Password		Credential can be entered		As Expected			Pass		
20	3	Click Submit		Cutomer is logged in		As Expected			Pass		
21	4										
22											

4. Create a test case to test the Oven class base on the below state machine diagram.



Example answers:

1 state table

Initial State	Input	Next State	Scenarios
Start	power on	Waiting	1, 2, 3
Waiting	full power	Full Power	1, 2
Waiting	half power	Half Power	3
Full Power	timer	Set Timer	1, 2
Full Power	half power	Half Power	

Initial State	Input	Next State	Scenarios
Start	power on	Waiting	1, 2, 3
Waiting	full power	Full Power	1, 2
Waiting	half power	Half Power	3
Full Power	timer	Set Timer	1, 2
Full Power	half power	Half Power	
Half Power	full power	Full Power	
Half Power	timer	Set Timer	3
Set Timer	number	Set Timer	1, 2
Set Timer	close door	Enabled	1, 2
Set Timer	open door	Disabled	3
Enabled	start	Operation	1, 2
Disabled	close door	Enabled	3
Operation	cancel	Waiting	1, 3
Operation	open door	Diabled	2
Operation	finish	Waiting	2

2. scenarios

Initial State	Input	Next State	Scenarios
Start	power on	Waiting	1, 2, 3
Waiting	full power	Full Power	1, 2
Waiting	half power	Half Power	3
Full Power	timer	Set Timer	1, 2
Full Power	half power	Half Power	
Half Power	full power	Full Power	
Half Power	timer	Set Timer	3
Set Timer	number	Set Timer	1, 2
Set Timer	close door	Enabled	1, 2
Set Timer	open door	Disabled	3
Enabled	start	Operation	1, 2
Disabled	close door	Enabled	3
Operation	cancel	Waiting	1, 3
Operation	open door	Diabled	2
Operation	finish	Waiting	2

Scenario 1	Start > Waiting > Full Power > Set Timer > Set Timer > Enabled > Operation > Waiting
Scenario 2	Start > Waiting > Full Power > Set Timer > Set Timer > Enabled > Operation > Diabled > Enabled > Operation > Waiting
Scenario 3	Start > Waiting > Half Power > Set Timer > Disabled > Enabled > Operation > Waiting

These three scenarios are examples. There are more possible scenarios.
Note: from state Operation to state Waiting, it can have two different inputs, namely cancel or finish.
The three example scenarios have chosen the different inputs.

3. An example of test cases using a template. There are more test cases.

Test Case Template

Project Name	Old Fashion Oven		
Test Case ID		**Designer**	
Module Name	Panel operation	**Tester**	
Test Title	Overall run		
Description	Testing the overall run of the oven using the front panel		

Precondition	Power socket is plugged
Dependencies	

Step	Action	Test Data	Expected Result	Actual Result	Status	Notes
1	power on		display time			
2	full power		power = 600			
3	timer		time set			
4	input number		new time set			
5	close door		Ready			
6	start		oven in operation			
7	cancel		display time			

Postcondition

The oven go back to waiting state without completing the countdown of the time set