



United International University

Software Testing and Quality Assurance

JUnit Testing Implementation

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Introduction:

Unit testing is a practical technique to improving software correctness and reliability. Writing unit tests, on the other hand, is a time-consuming, repetitive, complicated, and often difficult process.

To avoid these issues, sufficient unit test code should be written automatically. The goal is to make testing code easier to write and more manageable. One approach is to utilize a framework that automates some of the specifics of testing. JUnit is an example of such a framework. It is a basic yet effective testing framework for Java classes; it enables close testing-development integration by allowing a test suite to be built progressively.

Conducted Test Cases:

We have conducted the following test cases using JUnit 4. Brief descriptions for each class have been mentioned below:

Class Calendar

test_addMeeting():

This test case tests if the addMeeting function works correctly or not, i.e., if the meeting has been properly added to calendar providing the valid values for all variables.

test_addMeeting_holiday() :

It tests if a meeting can be placed in any holidays, which should not be allowed.

testIsBusy():

Verifies if a meeting has been placed or not; providing the date which is has been reserved.

test_isBusy_false():

Verifies if a meeting has been placed or not; providing the date which is has not been reserved.

Class Meeting

testToString_valid():

This test method verifies if the meeting information could be converted to a string properly or not.

testAddAttendee_valid():

Tests if a valid attendee can be added or not to a meeting.

testRemoveAttendee_valid():

Tests if a valid attendee can be removed or not from a meeting.

Class Organization

test_getRoom():

Tests if available room can be searched and retrieved for a organisation properly providing the valid room number.

test_getRoom_invalid():

It verifies if available room can be searched and retrieved for a organisation properly providing the invalid room number.

test_getEmployee():

Tests if available person's name can be searched and retrieved for a organisation properly providing the valid person name.

test_getEmployee_invalid():

It verifies if available person's name can be searched and retrieved for a organisation properly providing the invalid person's name.

Class Person

test_getName():

This method tests whether the function getName() can return the name or not.

testGetName_empty():

It tests if the getName() function can work for empty name.

test_addMeeting():

It checks if a person can be added to a meeting or not providing the valid meeting information.

test_addMeeting_invalid():

It checks if a person can be added to a meeting or not, and if exception will properly be shown.

test_IsBusy():

It tests whether a meeting is scheduled already during a provided valid date and time.

test_removeMeeting():

For a existing meeting, it checks if it can be removed.

test_removeMeeting_noMeeting_exists():

For a non-existing meeting, it checks if it can be removed or not.

Class Room

test_getID():

It checks if the function getID() can return the expected valid id properly or not.

test_getID_invalid():

It checks if the function getID() returns the invalid, i.e., empty id or not.

test_addMeeting():

This function tests whether meeting can be added to calendar provided the available date and time.

test_addMeeting_invalid():

This function tests whether meeting can be added to calendar provided the available date and time, and if it can throw proper exception in case of conflict.

test_isBusy():

It tests if a meeting has been properly placed or not, providing the valid inputs.

Result:

After conducting a total of 23 test cases, 20 have passed and 3 have failed.