# Homework: Test Levels and Test Types

## Unit Testing in the Real Life: Testing a Battery

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| --- | --- |
| **Test #1** | Check the battery size. It should comply with the AA standard. |
| **Test #2** | Check the battery label. Does it have everything in the AA standard. |
| **Test #3** | Check the physical condition. Does is have any marks on it. |
| **Test #4** | Check the voltage with digital multimeter. Does it comply with the AA standard. |
| **Test #5** | Use external devise as a test framework. Does it work with the battery. |

## Unit Testing in the Real Life: Testing a Light Bulb

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| --- | --- |
| **Test #1** | Check the glass. Is it ok as expected. |
| **Test #2** | Check the metal parts. Does it look ok as per the E10 standard. |
| **Test #3** | Check the internal mechanism. Does it look ok. |
| **Test #4** | Check if the circuit can be closed with digital multimeter. |
| **Test #5** | Use external devise as a test framework. Does it work with the light bulb. |
| **Test #6** |  |
| **Test #7** |  |
| **Test #8** |  |
| **Test #9** |  |
| **Test #10** |  |

## Unit Testing in the Software World: Age Checker

|  |  |
| --- | --- |
| **Test #1** | Age Checker(-5) -> error |
| **Test #2** | Age Checker(0) -> child |
| **Test #3** | Age Checker(5) -> child |
| **Test #4** | Age Checker(13) -> teenager |
| **Test #5** | Age Checker(19.5) -> teenager |
| **Test #6** | Age Checker(20) -> adult |
| **Test #7** | Age Checker(64.9) -> adult |
| **Test #8** | Age Checker(65) -> elder |
| **Test #9** | Age Checker(150) -> elder |
| **Test #10** | Age Checker(150.1) -> error |
| **Test #11** | Age Checker(“ten”) -> error |
| **Test #12** |  |
| **Test #13** |  |
| **Test #14** |  |
| **Test #15** |  |
| **Test #16** |  |

## Unit Testing in the Software World: Income Checker

|  |  |
| --- | --- |
| **Test #1** | IncomeChecker(-5) 🡪 error |
| **Test #2** | IncomeChecker(250) 🡪 low |
| **Test #3** | IncomeChecker(999.9) 🡪 low |
| **Test #4** | IncomeChecker(1000) 🡪 mid |
| **Test #5** | IncomeChecker(2300.70) 🡪 mid |
| **Test #6** | IncomeChecker(2999.99) 🡪 mid |
| **Test #7** | IncomeChecker(3000) 🡪 high |
| **Test #8** | IncomeChecker(4201.70) 🡪 high |
| **Test #9** | IncomeChecker(0) 🡪 low |
| **Test #10** | IncomeChecker(“ten”) 🡪 high |
|  |  |
|  |  |

## Integration Testing in the Real Life: Lighting the Bulb

|  |  |
| --- | --- |
| **Test #1** | Connect the battery directly to the light bulb with 1 wire one way. Check if is working. |
| **Test #2** | Connect the battery directly to the light bulb with 1 wire other way. Check if is not working. |
| **Test #3** | Connect the battery directly to the light bulb with 2 wire one way. Check if is working. |
| **Test #4** | Connect the battery directly to the light bulb with 2 wire other way. Check if is not working. |
| **Test #5** | Connect the battery directly to the light bulb with 3 wire and a switch with the switch on one way. Check if is working. |
| **Test #6** | Connect the battery directly to the light bulb with 3 wire and a switch with the switch on other way. Check if is not working. |
| **Test #7** | Connect the battery directly to the light bulb with 3 wire and a switch with the switch off one way. Check if is not working. |
| **Test #8** | Connect the battery directly to the light bulb with 3 wire and a switch with the switch off other way. Check if is not working. |

## \* Integration Testing in the Software World: Ads

|  |  |
| --- | --- |
| **Test #1** |  |
| **Test #2** |  |
| **Test #3** |  |
| **Test #4** |  |
| **Test #5** |  |
| **Test #6** |  |
| **Test #7** |  |
| **Test #8** |  |

## \* Integration Testing in the Software World: Credit Risk

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | child | teenager | adult | elder | negative |
| low | 100 % | 80 % | 65 % | 60 % | error |
| mid | 100 % | 72 % | 37 % | 44 % | error |
| high | 100 % | 64 % | 19 % | 28 % | error |
| negative | error | error | error | error | error |

## System Testing in the Real Life: Flashlight

|  |  |
| --- | --- |
| **Test #1** | With turned off flashlight, press the button and the flashlight turns on. |
| **Test #2** | With turned on flashlight, press the button and the flashlight turns off. |
| **Test #3** | Open the flashlight, change the batteries, close the flashlight. |
| **Test #4** | Turn on the flashlight. Leave for 1 week. Check when it will turn off. |
| **Test #5** |  |
| **Test #6** |  |
| **Test #7** |  |
| **Test #8** |  |
| **Test #9** |  |
| **Test #10** |  |

## System Testing in the Real Life: Digital Scale

|  |  |
| --- | --- |
| **Test #1** |  |
| **Test #2** |  |
| **Test #3** |  |
| **Test #4** |  |
| **Test #5** |  |
| **Test #6** |  |
| **Test #7** |  |
| **Test #8** |  |

## System Testing in the Software World: Number Calculator

|  |  |
| --- | --- |
| **Test #1** | Test nothing / 5 -> invalid input |
| **Test #2** | Test 5 / nothing -> invalid input |
| **Test #3** | Test 8 / 2 -> 4 |
| **Test #4** | Test 2 / 8 -> 0.25 |
| **Test #5** | Test 7.5 / 3 -> 2.5 |
| **Test #6** | Test 0 / 10 -> 0 |
| **Test #7** | Test 10 / 0 -> infinity |
| **Test #8** | Test 0 / 0 -> invalid calculation |
| **Test #9** | Test -5 / 2 -> -2.5 |
| **Test #10** | Test -10 / (-2) -> 5 |
| **Test #11** | Test -10 / 0 -> - infinity |
| **Test #12** | Test 0 / -10 -> 0 |
| **Test #13** | Test nothing \* 5 -> invalid input |
| **Test #14** | Test 5 \* nothing -> invalid input |
| **Test #15** | Test 8 \* 2 -> 4 |
| **Test #16** | Test 8 \* (-2) -> -16 |
| **Test #17** | Test -8 \* (-2) -> 16 |
| **Test #18** | Test 7.5 \* 3 -> 22.5 |
| **Test #19** | Test 7.5 \* 3.5 -> 26.25 |
| **Test #20** | Test 0 \* 10 -> 0 |
| **Test #21** | Test 10 \* 0 -> 0 |
| **Test #22** | Test nothing - 5 -> invalid input |
| **Test #23** | Test 5 - nothing -> invalid input |
| **Test #24** | Test 8 - 2 -> 6 |
| **Test #25** | Test 8 – (-2) -> 6 |
| **Test #26** | Test (-8) – (-2) -> -6 |
| **Test #27** | Test (-8) – 0 -> -8 |
| **Test #28** | Test 0 – 0 -> 0 |
| **Test #29** | Test 0 – 2 -> -2 |
| **Test #30** | Test 0 – (-2) -> 2 |
| **Test #31** | Test nothing + 5 -> invalid input |
| **Test #32** | Test 5 + nothing -> invalid input |
| **Test #33** | Test 5 + 4 -> 9 |
| **Test #34** | Test 340282346638528859811704183484516925440 + 1000 -> 3.40282346639e+38 -> fail |
| **Test #35** |  |

## Acceptance Testing in the Real Life: Flashlight

|  |  |
| --- | --- |
| **Test #1** | With turned off flashlight, press the button 3 times consecutively. The flashlight should turn on. |
| **Test #2** | I want to replace the batteries. Open to check the type of the batteries. Close. |
| **Test #3** | With turned on flashlight I drop it from 1 m height |
| **Test #4** |  |
| **Test #5** |  |
| **Test #6** |  |

## Acceptance Testing in the Real Life: Digital Scale

|  |  |
| --- | --- |
| **Test #1** | With the scale off, press the button 3 times in succession. The scale must be on. |
| **Test #2** | I want to change the batteries. Open to check the type of batteries. Close. |
| **Test #3** | With the scales on, I drop it from a height of 1m. |
| **Test #4** | With the scale on, I measure standing on one leg. |
| **Test #5** |  |
| **Test #6** |  |

## Acceptance Testing in the Software World: Number Calculator

|  |  |
| --- | --- |
| **Test #1** |  |
| **Test #2** |  |
| **Test #3** |  |

## Functional and Non-Functional Tests: Flashlight

|  |  |
| --- | --- |
| **Functional Tests** | **Non-Functional Tests** |
| With turned off flashlight, press the button and the flashlight turns on. | Turn on the flashlight. Leave for 1 week. Check when it will turn off. |
| With turned on flashlight, press the button and the flashlight turns off. |  |
| Open the flashlight, change the batteries, close the flashlight. |  |
|  |  |