# Homework: Test Levels and Test Types

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

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| --- | --- |
| **Test #1** | Take a **bulb 1.5V** and check if the battery is works as expected: the bulb should light up after connection properly |
| **Test #2** | The **multimeter** and check the voltage. It should be ~ 1.5V |
| **Test #3** | Take the battery and check it **visually**   * Check **length** * Check its **diameter** * Check if it has a form of **cylinder** * Check for **corrosion**, **leaks**, et. |
| **Test #4** | Check with a compatible **flashlight**. This will check two things.   * Whether battery size matches the flashlight * Whether the batteries work as expected (light the bulb) |
| **Test #5** | Check the **labels** on the battery.   * The denoted size should be “AA”. * The denoted voltage should “1.5V” |
| **Test #6** | Check if “**+**” and “**-**” are correctly positioned. Use a multimeter. |
| **Test #7** | Environmental test:   * Low temperature, e.g. 2 degrees Celsius * High temperature, e.g. 35 degree Celsius |
| **Test #8** | Check the expiration date label. It should be in the future |
| **Test #9** | Overheating test. |

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

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| --- | --- |
| **Test #1** | **Continuity Test**: Measure the **resistance** of the light bulb using a multimeter to check if it is intact or if it has a broken filament. |
| **Test #2** | The **multimeter** and check the voltage. It should be ~ 1.5V |
| **Test #3** | Take the battery and check it **visually**   * Check **length** * Check **height** * Check its **diameter** * Check for **physical damage** or obvious **defects**. |
| **Test #4** | Check the **labels** on the battery.   * The denoted size should be “E10”. * The denoted voltage should “1.5V” |
| **Test #5** | Environmental test:   * Low temperature, e.g. 2 degrees Celsius * High temperature, e.g. 35 degree Celsius |
| **Test #6** | Overheating test. |
| **Test #7** | Power Test: **Connect** the light bulb to a **1.5V power source** and observe if it illuminates. |
| **Test #8** | Check if “**+**” and “**-**” are correctly positioned. Use a multimeter |
| **Test #9** |  |
| **Test #10** |  |

## Unit Testing in the Software World: Age Checker

|  |  |
| --- | --- |
| **Test #1** | AgeChecker(0) 🡪 child |
| **Test #2** | Age Checker(5) -> child |
| **Test #3** | Age Checker(12.99) -> child |
| **Test #4** | AgeChecker(13) 🡪 teenager |
| **Test #5** | AgeChecker(19.5) 🡪 teenager |
| **Test #6** | AgeChecker(20) 🡪 adult |
| **Test #7** | AgeChecker(21) 🡪 adult |
| **Test #8** | AgeChecker(50) 🡪 adult |
| **Test #9** | AgeChecker(64.7) 🡪 adult |
| **Test #10** | AgeChecker(65) 🡪 elder |
| **Test #11** | AgeChecker(75.3) 🡪 elder |
| **Test #12** | AgeChecker(150) 🡪 elder |
| **Test #13** | AgeChecker(150.1) 🡪 error |
| **Test #14** | AgeChecker(-5) 🡪 error |
| **Test #15** | AgeChecker(-1) 🡪 error |
| **Test #16** | AgeChecker(12800) 🡪 Error |
| **Test #17** | AgeChecker(“Peter”) 🡪 Error |

## Unit Testing in the Software World: Income Checker

|  |  |
| --- | --- |
| **Test #1** | IncomeChecker(0) 🡪 low |
| **Test #2** | IncomeChecker(250) 🡪 low |
| **Test #3** | IncomeChecker(999.99) 🡪 low |
| **Test #4** | AgeChecker(1000) 🡪 mid |
| **Test #5** | AgeChecker(2300.70) 🡪 mid |
| **Test #6** | AgeChecker(2999.99) 🡪 mid |
| **Test #7** | AgeChecker(3000) 🡪 high |
| **Test #8** | AgeChecker(7000) 🡪 high |
| **Test #9** | AgeChecker(-5) 🡪 error |
| **Test #10** | AgeChecker(-1) 🡪 error |
| **Test #11** | AgeChecker(“Peter”) 🡪 error |

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

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| --- | --- |
| **Test #1** | Implement the following circuit, using the provided components.  A picture containing shape  Description automatically generated  The bulb should light. |
| **Test #2** | Implement the following circuit, using the provided components.  Diagram  Description automatically generated  Switch on the switch button -> The bulb should light |
| **Test #3** | Implement the following circuit, using the provided components.  Diagram  Description automatically generated  Switch off the switch button -> The bulb should not light. |
| **Test #4** | Implement the following circuit, using the provided components.  But switch the “+” and “-“ of the battery.  A picture containing shape  Description automatically generated  The bulb should light. |
| **Test #5** | Implement the following circuit, using the provided components.  But turn the switch button to 180 degrees.  Diagram  Description automatically generated  Switch on the switch button --> The bulb should light |

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

|  |  |
| --- | --- |
| **Test #1** | Login -> right login |
| **Test #2** | Ot login na user home |
| **Test #3** | Ako |
| **Test #4** | Buton nazad kade ni otvejda -> trqbva v home (log in, log out) |
| **Test #5** |  |
| **Test #6** |  |
| **Test #7** |  |
| **Test #8** |  |

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

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Test | CreditRisk(age: 5, income: 700) 🡪 100%  CreditRisk(age: 6, income: 2000) 🡪 100%  CreditRisk(age: 7, income: 6000) 🡪 100%  CreditRisk(age: 15, income: 700) 🡪 80%  CreditRisk(age: 16, income: 2000) 🡪 72%  CreditRisk(age: 17, income: 6000) 🡪 64%  CreditRisk(age: 21, income: 700) 🡪 55%  CreditRisk(age: 32, income: 2000) 🡪 37%  CreditRisk(age: 43, income: 6000) 🡪 19%  CreditRisk(age: 67, income: 700) 🡪 60%  CreditRisk(age: 78, income: 2000) 🡪 44%  CreditRisk(age: 89, income: 6000) 🡪 28%  Regression test:  CreditRisk(age: 17, income: 0) 🡪 80%  CreditRisk(age: 0, income: 1000) 🡪 1000% | | | | |
|  | child | teenager | adult | elder | negative |
| low | 100% | 80% | 55% | 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** | Test switch on / switch off the light  We take the flashlight. Put new batteries correctly. Switch on the flashlight 🡪 the bulb should light. Switch off the light 🡪 the bulb should light off |
| **Test #2** | Test battery replacement |
| **Test #3** | Test bulb replacement |
| **Test #4** | Test battery duration. At least 1 hour of lighting with new batteries. |
| **Test #5** | Test the illumination distance. It should illuminate cleanly at distance of 30 meters or less(with new batteries). |
| **Test #6** | Shock resistance test |
| **Test #7** | Operation under high / low temperature |
| **Test #8** | Water resistant |
| **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** | Calc(5 + 3) 🡪 8  Test Passed |
|  | Calc(5+ -3) 🡪 2  Test Passed |
|  | Calc(5 - -3) 🡪 8  Test Passed |
|  | Calc(5 - 3) 🡪 2  Test Passed |
|  | Calc(4 / 2) 🡪 2  Test Passed |
|  | Calc(4 \* 2) 🡪 8  Test Passed |
| **Test #2** | Calc(5 + 0) 🡪 5  Test Passed |
|  | Calc(5 - 0) 🡪 5  Test Passed |
|  | Calc(5 \* 0) 🡪 0  Test Passed |
|  | Calc(5 / 0) 🡪 infinity  Test Passed |
| **Test #3** | Calc(Infinity + 1) 🡪 Infinity  Test Passed |
| **Test #4** | Calc(-Infinity + 1) 🡪 -Infinity  Test Passed |
| **Test #5** | Calc(-Infinity + “Pesho”) 🡪 Error  Test Passed |
|  | Calc(+ + +) 🡪 Error  Test Passed |
| **Test #6** | 1e10 |
|  | 10text1 + 3 🡪 13  Test Failed |
|  | Razlika . ,  12,3  12.5 |
|  | Без да слагаме знак |
| **Test #7** | Calc(10000000000000000000000 + 5) 🡪 10000000  Test Failed.  Bug found! |
| **Test #8** | Infinity, pesho, vsqka edna operaciq, golemi chisla – zakraglqne, 70/5.5 |
|  | UX/UI |

## Acceptance Testing in the Real Life: Flashlight

|  |  |
| --- | --- |
| **Test #1** | The customer takes the flashlight, **switch on / off** the light, and assure it works. |
| **Test #2** | The customer checks the flash **illumination**. |
| **Test #3** | The customer checks how easy it is to **replace the batteries**. |
| **Test #4** |  |
| **Test #5** |  |
| **Test #6** |  |

## Acceptance Testing in the Real Life: Digital Scale

|  |  |
| --- | --- |
| **Test #1** |  |
| **Test #2** |  |
| **Test #3** |  |
| **Test #4** |  |
| **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** |
|  |  |
|  |  |
|  |  |
|  |  |