# Homework: Software Quality Assurance Introduction

## Think Testing: Gas Station

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| **Problem #1** | The woman put wrong type of fuel in the car. |
| **Problem #2** | There is a mechanical issue with the car. |
| **Problem #3** | The car key does not work properly. |
| **Problem #4** | The car key is missing. |
| **Problem #5** | The woman tries to start a wrong car. |
| **Problem #6** | There is something wrong with the woman. |

## Think Testing: Tooth Brushing

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| **Step #1** | Take the toothpaste. |
| **Step #2** | Open the toothpaste’s lid. |
| **Step #3** | Put the lid on the counter. |
| **Step #4** | Take the toothbrush. |
| **Step #5** | Put a little paste on the brush. |
| **Step #6** | Start brushing your teeth. Firstly, move the brush horizontally starting from the left side of your mouth, then the right side. Approx. 2 mins. |
| **Step #7** | Continue brushing by moving the brush vertically up and down. Approx. 2 mins. |
| **Step #8** | Rinse your mouth with water. |
| **Step #9** | Wash the brush with water. |
| **Step #10** | Put the lid back on the paste. |
| **Step #11** | Put paste and the brush in their container. |

## Think Testing: 5 Kg Bag

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| **Test #1** | Put 2,000 kg of products in the bag and test if it does not tear up. |
| **Test #2** | Put 5,000 kg of products in the bag and test if it does not tear up. |
| **Test #3** | Put 5,100 kg of products in the bag and test if it tears up. |
| **Test #4** | Put 5,000 kg of products in the bag by selecting mainly round packages and test if the bag does not tear up. |
| **Test #5** | Put 5,000 kg of products in the bag by selecting mainly square packages and test if the bag does not tear up. |
| **Test #6** | Put 5,000 kg of various products, but distribute them randomly in the space of the bag and test if the bag does not tear up. |

## Login Form UX Problems

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| **Problem #1** | The name of the shop ("My Wonderful Shop") is wrong in the website address (your-wonderful-shop.com). |
| **Problem #2** | The Log In form’s address should not be “add-to-basket”. |
| **Problem #3** | The buttons are not aligned. |
| **Problem #4** | The Log Out button should not be visible on the Log In screen. |
| **Problem #5** | The Password field should be below the Username field. |

## Weather Forecast Bug

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| **Mistake** | The developer made the following mistake: they did not convert the degrees to Celsius. |
| **Bug (location)** | The bug in the code should be in the module / function, responsible for: degree conversion. |
| **Failure (symptoms)** | When the buggy code goes in production, it fails as follows: it shows wrong temperature data. |

## Age Checking Machine

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| • The mistake is not including age = 18 in the logic.  • The wrong logic in the code is called a Bug.  • It will result in failure when age is equal to 18. |

## Testing an Electric Water Kettle

### Test Scenario #1: Boil Water

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| Test case #1 | **Boil 1 liter of water 🡪 success** |
| Description | Pour 1 liter of water, start the kettle, and wait until it gets hot. |
| Steps | 1. Open the lid with the button. 2. Fill 1 liter of cold water in the kettle and close the boiler lid. 3. Plug the power base in the electrical network. 4. Plug the boiler into the power base. 5. Switch on the kettle. 6. Wait until the water gets hot (2-3 minutes). 7. Monitor if the kettle automatically switches off. |
| Expected results | The boiling process should complete in less than 4 minutes.  The water should get hot.  The kettle should automatically power off when the water gets too hot.  The kettle lid should stay closed. |

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| Test case #2 | **Boil an empty kettle 🡪 fail** |
| Description | Try to boil an empty kettle (no water inside) and make sure the boiling stops (automatically switches off) almost immediately after starting. |
| Steps | 1. Pour out all the water from the kettle. 2. Plug the power base in the electrical network. 3. Plug the boiler into the power base. 4. Switch on the kettle. 5. Monitor if the kettle automatically switches off. |
| Expected results | There should not be any boiling process.  The kettle should automatically power off due to missing water within 0.5 and 2 seconds.  The kettle lid should stay closed. |

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| Test case #3 | **Boil 0,190 liters of water 🡪 fail** |
| Description | Pour 0,190 liters of water, start the kettle, and wait until it automatically switches off (almost immediately after starting). |
| Steps | 1. Open the lid with the button. 2. Fill 0,190 liters of cold water in the kettle and close the boiler lid. 3. Plug the power base in the electrical network. 4. Plug the boiler into the power base. 5. Switch on the kettle. 6. Monitor if the kettle automatically switches off. |
| Expected results | There should not be any boiling process.  The kettle should automatically power off due to insufficient water within 0.5 and 2 seconds.  The kettle lid should stay closed. |

### Test Scenario #2: Lid Test

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| Test case #1 | **Open the lid 🡪 success** |
| Description | Press the Open lid button. The lid opens. |
| Steps | 1. Press the Open lid button. 2. Monitor if the lid opens. |
| Expected results | The lid should open. |

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| Test case #2 | **Open the lid without button pressed 🡪 fail** |
| Description | Do not press the Open lid button. The lid should not open. |
| Steps | 1. Do not press the Open lid button. 2. Watch the lid open. |
| Expected results | The lid should not open. |

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| Test case #3 | **Close the lid 🡪 success** |
| Description | Press the lid with your hand. The lid should close. |
| Steps | 1. Press the lid with your hand. 2. Confirm that the lid is closed. |
| Expected results | The lid should close. |

### Test Scenario #3: Power base Test

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| Test case #1 | **Kettle on with base plugged in 🡪 success** |
| Description | Turn the kettle on while on the base and the base is plugged in. |
| Steps | 1. Plug the power base in the electrical network. 2. Plug the boiler into the power base. 3. Switch on the kettle. |
| Expected results | The kettle should turn on. |

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| Test case #2 | **Kettle on with base plugged out 🡪 fail** |
| Description | Turn the kettle on while on the base and the base is plugged out. |
| Steps | 1. Plug the power base out of the electrical network. 2. Plug the boiler into the power base. 3. Switch on the kettle. |
| Expected results | The kettle should not turn on. |

### Test Scenario #4: Power button Test

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| Test case #1 | **Press the power button to switch On 🡪 success** |
| Description | Press the power button to switch On |
| Steps | 1. Plug the power base in the electrical network. 2. Plug the kettle into the power base. 3. Switch on the kettle. |
| Expected results | The kettle switches on. |

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| Test case #2 | **Press the power button to switch Off 🡪 success** |
| Description | Press the power button to switch Off |
| Steps | 1. Open the lid with the button. 2. Fill enough cold water in the kettle and close the boiler lid. 3. Plug the power base in the electrical network. 4. Plug the kettle into the power base. 5. Plug the power base in the electrical network. 6. Switch on the kettle. 7. After the boiling process starts, press the power button to switch off**.** |
| Expected results | The kettle switches off. |

## Testing a Coffee Machine

### Test Scenario #1: Brew a Coffee

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| Test case #1 | **Brew a small coffee 🡪 success** |
| Description | Start the coffee machine, put water, put ground coffee in the outlet, and brew a cup of coffee. |
| Steps | 1. Power on the machine. 2. Put ground coffee blend in the coffee outlet. 3. Fill the water container to its max level. 4. Wait until the "hot water" indicator lights up. 5. Put an empty coffee cup under the coffee outlet. 6. Press the "brew small coffee" button. 7. Wait until the brew process finishes. |
| Expected results | The brew process should complete in less than 50 seconds.  The coffee cup should hold a hot small coffee (60 ml).  The machine should stay powered on.  The "hot water" indicator light could be on or off (both states are correct).  The machine should have enough water in its water container (it should not beep). |

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| Test case #2 | **Brew a coffee with no water 🡪 fail** |
| Description | Start the coffee machine, empty the water container, try to brew a cup of coffee, expect the coffee machine to start beeping to indicate that the water is not enough. |
| Steps | 1. Power on the machine. 2. Put ground coffee blend in the coffee outlet. 3. Empty the water container. 4. Press the "brew small coffee" button. 5. Watch the machine start beeping. |
| Expected results | The brew process should not start.  The machine should start beeping. |

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| Test case #3 | **Brew a long coffee 🡪 success** |
| Description | Start the coffee machine, put water, put ground coffee in the outlet, and brew a cup of coffee. |
| Steps | 1. Power on the machine. 2. Put ground coffee blend in the coffee outlet. 3. Fill the water container to its max level. 4. Wait until the "hot water" indicator lights up. 5. Put an empty coffee cup under the coffee outlet. 6. Press the "brew long coffee" button. 7. Wait until the brew process finishes. |
| Expected results | The brew process should complete in less than 50 seconds.  The coffee cup should hold a hot long coffee (120 ml).  The machine should stay powered on.  The "hot water" indicator light could be on or off (both states are correct).  The machine should have enough water in its water container (it should not beep). |

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| Test case #4 | **Brew a coffee with cold water 🡪 fail** |
| Description | Start the coffee machine, put water, put ground coffee in the outlet, and immediately press the “brew small coffee” button. |
| Steps | 1. Power on the machine. 2. Put ground coffee blend in the coffee outlet. 3. Fill the water container to its max level. 4. Put an empty coffee cup under the coffee outlet. 5. Immediately press the "brew small coffee" button, before the water gets heated. 6. Watch the brew process not starting. 7. Watch the hot water indicator light being turned off. |
| Expected results | The brew process should not start.  The hot water indicator should remain turned off. |

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| Test case #5 | **Brew a small coffee with misplaced coffee outlet 🡪 fail** |
| Description | Start the coffee machine, put water, put ground coffee in the outlet, misplace the outlet and do not start the brewing process. |
| Steps | 1. Power on the machine. 2. Put ground coffee blend in the coffee outlet. 3. Misplace on purpose the outlet. 4. Fill the water container to its max level. 5. Wait until the "hot water" indicator lights up. 6. Put an empty coffee cup under the coffee outlet. 7. Press the "brew small coffee" button. 8. Watch the machine not start the brewing. |
| Expected results | The brew process should not start.  The machine should stay powered on.  The "hot water" indicator light should be on.  The machine should have enough water in its water container (it should not beep). |

### Test Scenario #2: Test water container

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| Test case #1 | **Prepare for brewing with max level of water 🡪 success** |
| Description | Start the coffee machine, put max level of water, and become ready to start brewing. |
| Steps | 1. Power on the machine. 2. Fill the water container to its max level. 3. Monitor if the machine beeps. |
| Expected results | The machine should stay powered on.  The machine should not start the brewing process.  The machine should not beep. |

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| Test case #2 | **Prepare for brewing with not enough water 🡪 fail** |
| Description | Start the coffee machine, put water below the min level, and monitor the machine start beeping. |
| Steps | 1. Power on the machine. 2. Fill the water container with little water below the minimum level. 3. Watch the machine start beeping. |
| Expected results | The machine should immediately start beeping.  The brew process should not start. |

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| Test case #3 | **Prepare for brewing with min level of water 🡪 success** |
| Description | Start the coffee machine, put min level of water, and become ready to start brewing. |
| Steps | 1. Power on the machine. 2. Fill the water container to its max level. 3. Monitor if the machine beeps. |
| Expected results | The machine should stay powered on.  The machine should not start the brewing process.  The machine should not beep. |

### Test Scenario #3: Test Power On/Off button

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| Test case #1 | **Press the power button to switch On 🡪 success** |
| Description | Press the power button to switch On |
| Steps | 1. Plug the machine in the electrical network. 2. Press the Switch On button. |
| Expected results | The machine should switch on. |

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| Test case #2 | **Press the power button to switch Off 🡪 success** |
| Description | Press the power button to switch Off |
| Steps | 1. Plug the machine in the electrical network. 2. Press the Switch On button. 3. Fill the water container to its max level. 4. Wait until the "hot water" indicator lights up. 5. Press the Switch Off button |
| Expected results | The machine switches off. |