# Homework: Software Quality Assurance Introduction

## Think Testing: Gas Station

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| **Problem #1** | Може да не е затворен капака на отвора за зареждане на гориво. |
| **Problem #2** | Може да не вкаран ключа за автомобила. |
| **Problem #3** | Може да е сипано грешно гориво (примерно бензин вместо дизел). |
| **Problem #4** | Проблем с акумулатора. |
| **Problem #5** | Може да се е качила в чужда кола. |
| **…** | … |

## Think Testing: Tooth Brushing

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| **Step #1** | Взимаме четката и пастата за зъби. |
| **Step #2** | Намокряме четката с вода. |
| **Step #3** | Trivia Fun: The History of Toothbrushes and Toothpaste - City DentalСлагаме паста за зъби върху четката.   * Отвинтваме капачката на пастата. * Леко стискаме, внимателно, за да изтече малко паста, колкото грахово зърно. * Поставяме я върху четката: там където е нейната глава. |
| **Step #4** | How to Brush Your Teeth Better, Dowagiac Family Dentistry, MIИзтъркваме си зъбите.   * Първо горния ред отвън. * След това долния ред отвън. * След това горния ред отвътре. * След това горния ред в средата. * … |
| **Step #5** | Изплакваме устата |
| **Step #6** | Измиваме четката с чиста вода. |
| **Video** | Видео с целия процес: [https://www.mouthhealthy.org/all-topics-a-z/brushing-your-teeth](https://www.mouthhealthy.org/all-topics-a-z/brushing-your-teeth/). |

## Think Testing: 5 Kg Bag

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| **Test #1** | **Оглеждаме чантата**  Оглеждаме чантата и проверяваме следното:   * прилича ли на чанта (торбичка за пазаруване) * дали чантата е от хартия * дали има дръжки * дали има дъно (дали не е пробита) |
| **Test #2** | **Пълним няколко ябълки**  **Стъпки**: Взимаме чантата. Пълним 2 средно-големи ябълки.  **Проверки**:   * Вдигаме чантата и проверяваме дали издържат дръжките. * Проверяваме дали ябълките не са изпадали. * Изваждаме ябълките 🡪 трябва да е лесно. |
| **Test #3** | **Проверяваме с 5 кг ябълки**  **Стъпки**: Взимаме чантата. Пълним точно **5 кг** ябълки (измерваме ги преди това на кантар).  **Проверки**:   * Вдигаме чантата и проверяваме дали издържат дръжките. * Носим чантата 5 минути, като даже я друсаме и размятаме леко, тичаме с нея. * Проверяваме дали ябълките не са изпадали. * Проверяваме дали чантата е здрава (няма дупки, разкъсвания и подобни). |
| **Test #4** | **Тест за препълване: 8 кг. / 10 кг. / 12 кг. ориз**  Препълваме чантата (с повече от 5 кг.) и тичаме с нея и проверяваме дали е здрава след това и дали оризът е вътре. |
| **Test #5** | **Тест за мирис**  Пробваме дали мирише. |
| **Test #6** | **Стрестест при изпускане**  Взимаме празна чанта. Поставяме 2 пакета ориз по 1 кг в нея. Вдигаме я на височина 1 м. над пода. Подът трябва да е паркет. Изпускаме чанатата. Проверяваме дали е здрава. Трябва да няма разкъсвания и повреди. |
|  | **Чантата дали оцветява ръцете при носене** |

## Login Form UX Problems

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| **Problem #1** | … |
| **Problem #2** | … |
| … | … |

## Weather Forecast Bug

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| **Mistake** | Temperatures in the weather forecast are displayed in Fahrenheit, instead of Celsius.  Example: min temp: 46 degrees; max temp: 61 degrees 🡪 should be min 7.7; max 16  The developer **didn’t consider that the weather forecast temperatures come in °F**. |
| **Bug (location)** | The **bug in the code, which displays the temperature on the screen**. The temperature should be displayed in °C. It should be converted before displayed on the screen. |
| **Failure (symptoms)** | Temperatures are displayed wrongly in °F, instead of °C. When the temperature is displayed, it should be shown in °C, not in °F. |

## Age Checking Machine

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| The machine fails when the age is exactly 18. Fix:   * If **age >= 18**, then **print** "*Welcome to our bar. Enjoy!*" and the door opens.   The machine should also handle the case of “card cannot be read”. Fixed logic:   1. If **age cannot be read**, then print “Card / *age cannot be read*”. The door stays closed. 2. If **age > 0**, and **age < 18**, then **print** "*You are too young to visit our bar*". The door stays closed. 3. If **age >= 18**, then **print** "*Welcome to our bar. Enjoy!*" and the door opens. 4. **Otherwise**, **print** "*Invalid age. Please try again*". |

## Testing an Electric Water Kettle

### Test Scenario: Boil Water

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| Test case | **Boil 1 liter of water 🡪 success** |
| Description | Pour 1 liter of water, start the kettle, and wait until it gets hot. |
| Steps | 1. Fill 1 liter of cold water in the kettle and close the boiler lid. 2. Plug the power base in the electrical network. 3. Plug the boiler into the power base. 4. Switch on the kettle. 5. Wait until the water gets hot and the kettle automatically switches off (2-3 minutes). |
| Expected results | The boiling process should complete in less than 4 minutes. If is does not complete in 4 minutes, we should witch the kettle off and report a failing test.  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 | **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. Empty the kettle (pour out any existing water) and close the boiler lid. 2. Plug the power base in the electrical network. 3. Plug the boiler into the power base. 4. Switch on the kettle. 5. Wait until the kettle automatically switches off (max 2 seconds). |
| Expected results | The process should complete in less than 2 seconds.  The kettle should automatically power off, shortly after the start.  The kettle lid should stay closed.  The kettle should stay not hot. |

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| Test case | **Measure the boiled water temperature** |
| Description | Measure the boiled water temperature 🡪 it should be 90 … 120 °C. |

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| Test case | **Boil not enough water 🡪 fail** |
| Description | Try to boil 150 ml water 🡪 the kettle should refuse to start. |

### Test Scenario: Look and Feel

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| Test case | **Check the look and feel** |
| Description | Check the kettle, the base, the power plug, the cables, etc. for obvious problems. |
| Steps | 1. … 2. … 3. … |
| Expected results | …  …  … |

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| Test case | **Check the kettle and base to match** |
| Description | Check if the kettle can be plugged correctly in the base. |
| Steps | 1. … 2. … 3. … |
| Expected results | …  …  … |

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| Test case | **Check the kettle capacity** |
| Description | Check if the kettle power consumption is ~ 1500 watt. |
| Steps | Use **Shelly Plug S** or other smart plug / wattmeter device to measure the power consumption:   * **0** watts when **off**. * **1400-1600** watts when **on**. |
| Expected results | …  …  … |

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| Test case | **Check power consumption** |
| Description | Check if the kettle capacity is 1 liter. |
| Steps |  |
| Expected results | …  …  … |

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| Test case | **Check for water leaks** |

### Test Scenario: Lid Test

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| Test case | **Open the lid** |

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| Test case | **Close the lid** |

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| Test case | **…** |

### Test Scenario: Extreme / Special Tests

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| Test case | **Boil ice cubes** |

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| Test case | **Boil tea, instead of water** |

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| Test case | **Power off (with the button) during boiling** |

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| Test case | **Power off (from the power plug) during boiling** |

### Test Scenario: Safety Tests

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| Test case | **Check for electrical power at the kettle and base surface** |

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| Test case | **Check the button temperature after boiling** |

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| Test case | **Test the kettle powered by +/- 10% of the typical voltage (220 V)** |

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| Test case | **Little water in the base** |

## Testing a Coffee Machine

### Test Scenario #1: …

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| Test case #1 | **…** |
| Description | … |
| Steps | 1. … 2. … 3. … |
| Expected results | …  …  … |

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| Test case #2 | **…** |
| Description | … |
| Steps | 1. … 2. … 3. … |
| Expected results | …  …  … |

### Test Scenario #2: …

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| Test case #1 | **…** |
| Description | … |
| Steps | 1. … 2. … 3. … |
| Expected results | …  …  … |

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| Test case #2 | **…** |
| Description | … |
| Steps | 1. … 2. … 3. … |
| Expected results | …  …  … |

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