STA PROJECT REPORT

CS-589

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**PROJECT REPORT**

# **1 Model-based testing of the GasPump class:**

**State 0**

(T1, T2) Test#1

(T1, T6) Test#3

(T1, T20) Test#5

(T3, T2) Test#2

(T3, T6) Test#4

(T3, T20) Test#7

(T5, T2) Test#3

(T5, T6) Test#4

(T5, T20) Test#3

(T19, T2) Test#3

(T19, T6) Test#9

(T19, T20) Test#6

(T13, T2) Test#3

(T13, T6) Test#3

(T13, T20) Test#1

(T14, T2) Test#4

(T14, T6) Test#8

(T14, T20) Test#2

**State 1**

(T17, T17) Test#3

(T17, T16) Test#1

(T18, T17) Test#1

(T18, T16) Test#8

**State 2**

(T2, T3) Test#2

(T2, T4) Test#1

**State 3**

(T4, T5) Test#3

(T4, T15) Test#3

(T4, T7) Test#2

(T4, T8) Test#1

(T6, T5) Test#3

(T6, T15) Test#3

(T6, T7) Test#4

(T6, T8) Test#4

**State 4**

(T7, T19) Test#3

(T7, T9) Test#4

(T7, T18) Test#2

(T15, T19) Test#9

(T15, T9) Test#3

(T15, T18) Test#3

(T8, T19) Test#6

(T8, T9) Test#4

(T8, T18) Test#1

**State 5**

(T9, T10) Test#3

(T9, T11) Test#8

(T9, T12) Test#4

(T10, T10) Test#3

(T10, T11) Test#3

(T10, T12) Test#10

**State 6**

(T12, T14) Test#4

(T12, T13) Test#10

(T11, T14) Test#4

(T11, T13) Test#3

(T16, T14) Test#2

(T16, T13) Test#1

# **2. Testing default (ghost) transitions of the GasPump class**

**Default transitions at State 0**

Test#11: Activate 2.5 2.5 2.6 Cancel

Test#12: Activate 2.5 2.5 2.6 Approved

Test#13: Activate 2.5 2.5 2.6 Regular

Test#14: Activate 2.5 2.5 2.6 Super

Test#15: Activate 2.5 2.5 2.6 Diesel

Test#16: Activate 2.5 2.5 2.6 StartPump

Test#17: Activate 2.5 2.5 2.6 PumpLiter

Test#18: Activate 2.5 2.5 2.6 StopPump

Test#18: Activate 2.5 2.5 2.6 NoReceipt

Test#19: Activate 2.5 2.5 2.6 Receipt

Test#20: Activate 2.5 2.5 2.6 PayCash 0

Test#21: Activate 2.5 2.5 2.6 Activate 2.5 2.5 2.6

Test#22: Activate 2.5 2.5 2.6 Reject

**Default transitions at State 1**

Test#23: Activate 2.5 2.5 2.6 PayCredit Approved Diesel StartPump PayCredit

Test#24: Activate 2.5 2.5 2.6 PayCredit Approved Diesel StartPump Approved

Test#25: Activate 2.5 2.5 2.6 PayCredit Approved Diesel StartPump Reject

Test#26: Activate 2.5 2.5 2.6 PayCredit Approved Diesel StartPump Cancel

Test#27: Activate 2.5 2.5 2.6 PayCredit Approved Diesel StartPump PayCash 5

Test#28: Activate 2.5 2.5 2.6 PayCredit Approved Diesel StartPump Regular

Test#29: Activate 2.5 2.5 2.6 PayCredit Approved Diesel StartPump Super

Test#30: Activate 2.5 2.5 2.6 PayCredit Approved Diesel StartPump Diesel

Test#31: Activate 2.5 2.5 2.6 PayCredit Approved Diesel StartPump Receipt

Test#32: Activate 2.5 2.5 2.6 PayCredit Approved Diesel StartPump NoReceipt

Test#33: Activate 2.5 2.5 2.6 PayCredit Approved Diesel StartPump Activate 2.5 2.5 2.6

Test#34: Activate 2.5 2.5 2.6 PayCredit Approved Diesel StartPump StartPump

**Default transitions at State 2**

Test#35: Activate 2.5 2.5 2.6 PayCredit Activate 2.5 2.5 2.6

Test#36: Activate 2.5 2.5 2.6 PayCredit PayCredit

Test#37: Activate 2.5 2.5 2.6 PayCredit Cancel

Test#38: Activate 2.5 2.5 2.6 PayCredit PayCash 4

Test#39: Activate 2.5 2.5 2.6 PayCredit Regular

Test#40: Activate 2.5 2.5 2.6 PayCredit Diesel

Test#41: Activate 2.5 2.5 2.6 PayCredit Super

Test#42: Activate 2.5 2.5 2.6 PayCredit StartPump

Test#43: Activate 2.5 2.5 2.6 PayCredit PumpLiter

Test#44: Activate 2.5 2.5 2.6 PayCredit StopPump

Test#45: Activate 2.5 2.5 2.6 PayCredit NoReceipt

Test#46: Activate 2.5 2.5 2.6 PayCredit Receipt

Test#47: Activate 2.5 2.5 2.6 PayCredit TurnOff

**Default transitions at State 3**

Test#48: Activate 2.5 2.5 2.6 PayCredit Approved Activate 2.5 2.5 2.6

Test#49: Activate 2.5 2.5 2.6 PayCredit Approved PayCredit

Test#50: Activate 2.5 2.5 2.6 PayCredit Approved Approved

Test#51: Activate 2.5 2.5 2.6 PayCredit Approved Reject

Test#52: Activate 2.5 2.5 2.6 PayCredit Approved PumpLiter

Test#53: Activate 2.5 2.5 2.6 PayCredit Approved PayCash 5

Test#54: Activate 2.5 2.5 2.6 PayCredit Approved StartPump

Test#55: Activate 2.5 2.5 2.6 PayCredit Approved StopPump

Test#56: Activate 2.5 2.5 2.6 PayCredit Approved Receipt

Test#57: Activate 2.5 2.5 2.6 PayCredit Approved NoReceipt

Test#58: Activate 2.5 2.5 2.6 PayCredit Approved TurnOff

**Default transitions at State 4**

Test#59: Activate 2.5 2.5 2.6 PayCredit Approved Diesel Activate 2.5 2.5 2.6

Test#60: Activate 2.5 2.5 2.6 PayCredit Approved Diesel PayCredit

Test#61: Activate 2.5 2.5 2.6 PayCredit Approved Diesel Approved

Test#62: Activate 2.5 2.5 2.6 PayCredit Approved Diesel Diesel

Test#63: Activate 2.5 2.5 2.6 PayCredit Approved Diesel Regular

Test#64: Activate 2.5 2.5 2.6 PayCredit Approved Diesel Super

Test#65: Activate 2.5 2.5 2.6 PayCredit Approved Diesel PumpLiter

Test#66: Activate 2.5 2.5 2.6 PayCredit Approved Diesel StopPump

Test#67: Activate 2.5 2.5 2.6 PayCredit Approved Diesel Reject

Test#68: Activate 2.5 2.5 2.6 PayCredit Approved Diesel PayCash 5

Test#69: Activate 2.5 2.5 2.6 PayCredit Approved Diesel Receipt

Test#70: Activate 2.5 2.5 2.6 PayCredit Approved Diesel NoReceipt

Test#71: Activate 2.5 2.5 2.6 PayCredit Approved Diesel TurnOff

**Default transitions at State 5**

Test#72: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump Activate 2.5 2.5 2.6

Test#73: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump PayCash 5

Test#74: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump Super

Test#75: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump StartPump

Test#76: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump PayCredit

Test#77: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump Approved

Test#78: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump Reject

Test#79: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump Diesel

Test#80: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump Regular

Test#81: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump Receipt

Test#82: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump NoReceipt

Test#83: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump TurnOff

Test#84: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump Cancel

**Default transitions at State 6**

Test#85: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump StopPump Activate 2.5 2.5 2.6

Test#86: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump StopPump PayCash 5

Test#87: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump StopPump Super

Test#88: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump StopPump StartPump

Test#89: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump StopPump StopPump

Test#90: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump StopPump Diesel

Test#91: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump StopPump Regular

Test#92: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump StopPump PayCredit

Test#93: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump StopPump Approved

Test#94: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump StopPump Reject

Test#95: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump StopPump Cancel

Test#96: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump StopPump TurnOff

Test#97: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump StopPump PumpLiter

# **3. Multiple-condition testing**

**Condition 1 (k==1)&&(a>0)&&(b>0)&&(d>0)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |
| **K==1** | **a>0** | **b>0** | **d>0** | **Test#** |
| T | T | T | T | Test#98: Activate 2.5 2.5 2.6 |
| T | T | T | F | Test#99: Activate 2.5 2.5 -2.6 |
| T | T | F | T | Test#100: Activate 2.5 -2.5 2.6 |
| T | T | F | F | Test#101: Activate 2.5 -2.5 -2.6 |
| T | F | T | T | Test#102: Activate -2.5 2.5 2.6 |
| T | F | T | F | Test#103: Activate -2.5 2.5 -2.6 |
| T | F | F | T | Test#104: Activate -2.5 -2.5 2.6 |
| T | F | F | F | Test#105: Activate -2.5 -2.5 -2.6 |
| F | - | - | - | Not Executable(N.E.) because input cannot be taken without activating and once you activate k becomes 1 |

|  |  |  |
| --- | --- | --- |
| Condition 2 ( k==0) |  |  |
| **K==0** | **Test#** |
| T | Test#106: Activate 2.5 2.5 2.6 PayCredit |
| F | Test#107: PayCredit |

**Condition 3 ( k==2)**

|  |  |
| --- | --- |
|  |  |
| **K==O** | **Test#** |
| T | Test#108: Activate 2.5 2.5 2.6 PayCredit Reject |
| F | Test#109: Reject |

**Condition 4 ((K==3)||(K==4))**

|  |  |  |
| --- | --- | --- |
|  |  |  |
| **K==3** | **K==4** | **Test#** |
| T | T | N.E |
| T | F | Test#110: Activate 2.5 2.5 2.6 PayCredit Approved Cancel |
| F | T | Test#111: Activate 2.5 2.5 2.6 PayCredit Approved Diesel Cancel |
| F | F | Test#112: Activate 2.5 2.5 2.6 Cancel |

**Condition 5 (K==0 && C>0)**

|  |  |  |
| --- | --- | --- |
|  |  |  |
| **K==0** | **C>0** | **Test#** |
| T | T | Test#113: Activate 2.5 2.5 2.6 PayCash 5 |
| T | F | Test#114: Activate 2.5 2.5 2.6 PayCash -5 |
| F | T | Test#115: PayCash 5 |
| F | F | Test#116: PayCash -5 |

**Condition 6 (K==3)**

|  |  |
| --- | --- |
|  |  |
| **K==3** | **Test#** |
| T | Test#117: Activate 2.5 2.5 2.6 PayCash 5 Regular |
| F | Test#118: Activate 2.5 2.5 2.6 Regular |

**Condition 7 ( K==4)**

|  |  |
| --- | --- |
|  |  |
| **K==4** | **Test#** |
| T | Test#119: Activate 2.5 2.5 2.6 PayCash 5 Regular StartPump |
| F | Test#120: Activate 2.5 2.5 2.6 PayCash 5 StartPump |

**Condition 8 (K==5)**

|  |  |
| --- | --- |
|  |  |
| **K==5** | **Test#** |
| T | Test#121: Activate 2.5 2.5 2.6 PayCash 5 Regular StartPump PumpLiter |
| F | Test#122: Activate 2.5 2.5 2.6 PayCash 5 Regular PumpLiter |

**Condition 9 ((w==1)||(cash>=price\*(L+1))&&(w==0)))**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
| **w==1** | **cash>=price\*(L+1)** | **w==0** | **Test#** |
| T | T | T | N.E.(both w==0 and w==1 cannot be True) |
| T | T | F | Test#123: Activate 2.5 2.5 2.6 PayCash 50 Cancel PayCredit Approved Regular StartPump PumpLiter |
| T | F | T | N.E.(both w==0 and w==1 cannot be True) |
| T | F | F | Test#124: Activate 2.5 2.5 2.6 PayCredit Approved Regular StartPump PumpLiter |
| F | T | T | Test#125: Activate 2.5 2.5 2.6 PayCash 50 Regular StartPump PumpLiter |
| F | T | F | N.E.(both w==0 and w==1 cannot be False) |
| F | F | T | Test#126: Activate 2.5 2.5 2.6 PayCash 1 Regular StartPump PumpLiter |
| F | F | F | N.E.(both w==0 and w==1 cannot be False) |

**Condition 10 (cash<price\*(L+1))**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
| **w==0** | **Cash<price\*(L+1)** | **Test#** |
| T | T | Test#127: Activate 2.5 2.5 2.6 PayCash 1 Regular StartPump PumpLiter PumpLiter |
| T | F | Test#128: Activate 2.5 2.5 2.6 PayCash 25 Regular StartPump PumpLiter PumpLiter |
| F | T | Test#129: Activate 2.5 2.5 2.6 PayCash 1 Regular StartPump PumpLiter |
| F | F | Test#130: Activate 2.5 2.5 2.6 PayCash 25 Cancel PayCredit Approved Regular StartPump PumpLiter |

**Condition 11 ((w==0)&&(total<cash))**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
| **w==0** | **total<cash** | **Test#** |
| T | T | Test#131: Activate 2.5 2.5 2.6 PayCash 25 Regular StartPump PumpLiter PumpLiter |
| T | F | Test#132: Activate 2.5 2.5 2.6 PayCash 25 Regular StartPump PumpLiter PumpLiter |
| F | T | Test#133: Activate 2.5 2.5 2.6 PayCash 1 Regular StartPump PumpLiter |
| F | F | Test#134: Activate 2.5 2.5 2.6 PayCash 25 Cancel PayCredit Approved Regular StartPump PumpLiter |

**Condition 12 (K==6)**

|  |  |
| --- | --- |
|  |  |
| **K==6** | **Test#** |
| T | Test#135: Activate 2.5 2.5 2.6 PayCredit Approved Regular StartPump StopPump |
| F | Test#136: Activate 2.5 2.5 2.6 PayCredit Approved Regular StopPump |

**Condition 13 (K==7)**

|  |  |
| --- | --- |
|  |  |
| **K==7** | **Test#** |
| T | Test#137: Activate 2.5 2.5 2.6 PayCredit Approved Regular StartPump PumpLiter |
| F | Test#138: Activate 2.5 2.5 2.6 PayCredit Approved Regular StartPump PumpLiter |

# **4. A Test Suit**

Test#1: Activate 2.5 2.5 2.6 PayCredit Approved Super StartPump PumpLiter StopPump Receipt TurnOff

Test#3: Activate 2.5 2.5 2.6 PayCredit Reject PayCredit Approved Regular StartPump PumpLiter StopPump NoReceipt TurnOff

Test#3: Activate 2.5 2.5 2.6 PayCash 5.0 Diesel StartPump PumpLiter PumpLiter StopPump Receipt PayCredit Approved Cancel PayCredit Approved Regular Cancel PayCredit Approved Diesel StartPump PumpLiter PumpLiter StopPump Receipt PayCash Cancel TurnOff

Test#4: Activate 2.5 2.5 2.6 PayCredit Reject PayCash 1 Regular StartPump PumpLiter NoReceipt PayCredit Approved Cancel Paycash 5 Super StartPump PumpLiter StopPump NoReceipt Turnoff

Test#5: Activate 2.5 2.5 2.6 TurnOff

Test#6: Activate 2.5 2.5 2.6 PayCash 3 Super Cancel TurnOff

Test#7: Activate 2.5 2.5 2.6 PayCredit Reject TurnOff

Test#8: Activate 2.5 2.5 2.6 PayCash 10 Super StartPump StopPump NoReceipt PayCash 5 Cancel PayCredit Approved Regular StartPump StopPump NoReceipt PayCash 5 StartPump StopPump NoReceipt TurnOff

Test#9: Activate 2.5 2.5 2.6 PayCash 1 Cancel PayCash 5 Diesel Cancel PayCash 5 Cancel PayCredit Approved Super StartPump StopPump Receipt TurnOff

Test#10: Activate 2.5 2.5 2.6 PayCash 5 Regular StartPump PumpLiter PumpLiter Receipt TurnOff

Test#11: Activate 2.5 2.5 2.6 Cancel

Test#12: Activate 2.5 2.5 2.6 Approved

Test#13: Activate 2.5 2.5 2.6 Regular

Test#14: Activate 2.5 2.5 2.6 Super

Test#15: Activate 2.5 2.5 2.6 Diesel

Test#16: Activate 2.5 2.5 2.6 StartPump

Test#17: Activate 2.5 2.5 2.6 PumpLiter

Test#18: Activate 2.5 2.5 2.6 StopPump

Test#18: Activate 2.5 2.5 2.6 NoReceipt

Test#19: Activate 2.5 2.5 2.6 Receipt

Test#20: Activate 2.5 2.5 2.6 PayCash 0

Test#21: Activate 2.5 2.5 2.6 Activate 2.5 2.5 2.6

Test#22: Activate 2.5 2.5 2.6 Reject

Test#23: Activate 2.5 2.5 2.6 PayCredit Approved Diesel StartPump PayCredit

Test#24: Activate 2.5 2.5 2.6 PayCredit Approved Diesel StartPump Approved

Test#25: Activate 2.5 2.5 2.6 PayCredit Approved Diesel StartPump Reject

Test#26: Activate 2.5 2.5 2.6 PayCredit Approved Diesel StartPump Cancel

Test#27: Activate 2.5 2.5 2.6 PayCredit Approved Diesel StartPump PayCash 5

Test#28: Activate 2.5 2.5 2.6 PayCredit Approved Diesel StartPump Regular

Test#29: Activate 2.5 2.5 2.6 PayCredit Approved Diesel StartPump Super

Test#30: Activate 2.5 2.5 2.6 PayCredit Approved Diesel StartPump Diesel

Test#31: Activate 2.5 2.5 2.6 PayCredit Approved Diesel StartPump Receipt

Test#32: Activate 2.5 2.5 2.6 PayCredit Approved Diesel StartPump NoReceipt

Test#33: Activate 2.5 2.5 2.6 PayCredit Approved Diesel StartPump Activate 2.5 2.5 2.6

Test#34: Activate 2.5 2.5 2.6 PayCredit Approved Diesel StartPump StartPump

Test#35: Activate 2.5 2.5 2.6 PayCredit Activate 2.5 2.5 2.6

Test#36: Activate 2.5 2.5 2.6 PayCredit PayCredit

Test#37: Activate 2.5 2.5 2.6 PayCredit Cancel

Test#38: Activate 2.5 2.5 2.6 PayCredit PayCash 4

Test#39: Activate 2.5 2.5 2.6 PayCredit Regular

Test#40: Activate 2.5 2.5 2.6 PayCredit Diesel

Test#41: Activate 2.5 2.5 2.6 PayCredit Super

Test#42: Activate 2.5 2.5 2.6 PayCredit StartPump

Test#43: Activate 2.5 2.5 2.6 PayCredit PumpLiter

Test#44: Activate 2.5 2.5 2.6 PayCredit StopPump

Test#45: Activate 2.5 2.5 2.6 PayCredit NoReceipt

Test#46: Activate 2.5 2.5 2.6 PayCredit Receipt

Test#47: Activate 2.5 2.5 2.6 PayCredit TurnOff

Test#48: Activate 2.5 2.5 2.6 PayCredit Approved Activate 2.5 2.5 2.6

Test#49: Activate 2.5 2.5 2.6 PayCredit Approved PayCredit

Test#50: Activate 2.5 2.5 2.6 PayCredit Approved Approved

Test#51: Activate 2.5 2.5 2.6 PayCredit Approved Reject

Test#52: Activate 2.5 2.5 2.6 PayCredit Approved PumpLiter

Test#53: Activate 2.5 2.5 2.6 PayCredit Approved PayCash 5

Test#54: Activate 2.5 2.5 2.6 PayCredit Approved StartPump

Test#55: Activate 2.5 2.5 2.6 PayCredit Approved StopPump

Test#56: Activate 2.5 2.5 2.6 PayCredit Approved Receipt

Test#57: Activate 2.5 2.5 2.6 PayCredit Approved NoReceipt

Test#58: Activate 2.5 2.5 2.6 PayCredit Approved TurnOff

Test#59: Activate 2.5 2.5 2.6 PayCredit Approved Diesel Activate 2.5 2.5 2.6

Test#60: Activate 2.5 2.5 2.6 PayCredit Approved Diesel PayCredit

Test#61: Activate 2.5 2.5 2.6 PayCredit Approved Diesel Approved

Test#62: Activate 2.5 2.5 2.6 PayCredit Approved Diesel Diesel

Test#63: Activate 2.5 2.5 2.6 PayCredit Approved Diesel Regular

Test#64: Activate 2.5 2.5 2.6 PayCredit Approved Diesel Super

Test#65: Activate 2.5 2.5 2.6 PayCredit Approved Diesel PumpLiter

Test#66: Activate 2.5 2.5 2.6 PayCredit Approved Diesel StopPump

Test#67: Activate 2.5 2.5 2.6 PayCredit Approved Diesel Reject

Test#68: Activate 2.5 2.5 2.6 PayCredit Approved Diesel PayCash 5

Test#69: Activate 2.5 2.5 2.6 PayCredit Approved Diesel Receipt

Test#70: Activate 2.5 2.5 2.6 PayCredit Approved Diesel NoReceipt

Test#71: Activate 2.5 2.5 2.6 PayCredit Approved Diesel TurnOff

Test#72: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump Activate 2.5 2.5 2.6

Test#73: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump PayCash 5

Test#74: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump Super

Test#75: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump StartPump

Test#76: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump PayCredit

Test#77: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump Approved

Test#78: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump Reject

Test#79: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump Diesel

Test#80: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump Regular

Test#81: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump Receipt

Test#82: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump NoReceipt

Test#83: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump TurnOff

Test#84: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump Cancel

Test#85: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump StopPump Activate 2.5 2.5 2.6

Test#86: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump StopPump PayCash 5

Test#87: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump StopPump Super

Test#88: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump StopPump StartPump

Test#89: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump StopPump StopPump

Test#90: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump StopPump Diesel

Test#91: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump StopPump Regular

Test#92: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump StopPump PayCredit

Test#93: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump StopPump Approved

Test#94: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump StopPump Reject

Test#95: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump StopPump Cancel

Test#96: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump StopPump TurnOff

Test#97: Activate 2.5 2.5 2.6 PayCash 5 Super StartPump StopPump PumpLiter

Test#98: Activate 2.5 2.5 2.6

Test#99: Activate 2.5 2.5 -2.6

Test#100: Activate 2.5 -2.5 2.6

Test#101: Activate 2.5 -2.5 -2.6

Test#102: Activate -2.5 2.5 2.6

Test#103: Activate -2.5 2.5 -2.6

Test#104: Activate -2.5 -2.5 2.6

Test#105: Activate -2.5 -2.5 -2.6

Test#106: Activate 2.5 2.5 2.6 PayCredit

Test#107: PayCredit

Test#108: Activate 2.5 2.5 2.6 PayCredit Reject

Test#109: Reject

Test#110: Activate 2.5 2.5 2.6 PayCredit Approved Cancel

Test#111: Activate 2.5 2.5 2.6 PayCredit Approved Diesel Cancel

Test#112: Activate 2.5 2.5 2.6 Cancel

Test#113: Activate 2.5 2.5 2.6 PayCash 5

Test#114: Activate 2.5 2.5 2.6 PayCash -5

Test#115: PayCash 5

Test#116: PayCash -5

Test#117: Activate 2.5 2.5 2.6 PayCash 5 Regular

Test#118: Activate 2.5 2.5 2.6 Regular

Test#119: Activate 2.5 2.5 2.6 PayCash 5 Regular StartPump

Test#120: Activate 2.5 2.5 2.6 PayCash 5 StartPump

Test#121: Activate 2.5 2.5 2.6 PayCash 5 Regular StartPump PumpLiter

Test#122: Activate 2.5 2.5 2.6 PayCash 5 Regular PumpLiter

Test#123: Activate 2.5 2.5 2.6 PayCash 50 Cancel PayCredit Approved Regular StartPump PumpLiter

Test#124: Activate 2.5 2.5 2.6 PayCredit Approved Regular StartPump PumpLiter

Test#125: Activate 2.5 2.5 2.6 PayCash 50 Regular StartPump PumpLiter

Test#126: Activate 2.5 2.5 2.6 PayCash 1 Regular StartPump PumpLiter

Test#127: Activate 2.5 2.5 2.6 PayCash 1 Regular StartPump PumpLiter PumpLiter

Test#128: Activate 2.5 2.5 2.6 PayCash 25 Regular StartPump PumpLiter PumpLiter

Test#129: Activate 2.5 2.5 2.6 PayCash 1 Regular StartPump PumpLiter

Test#130: Activate 2.5 2.5 2.6 PayCash 25 Cancel PayCredit Approved Regular StartPump PumpLiter

Test#131: Activate 2.5 2.5 2.6 PayCash 25 Regular StartPump PumpLiter PumpLiter

Test#132: Activate 2.5 2.5 2.6 PayCash 25 Regular StartPump PumpLiter PumpLiter

Test#133: Activate 2.5 2.5 2.6 PayCash 1 Regular StartPump PumpLiter

Test#134: Activate 2.5 2.5 2.6 PayCash 25 Cancel PayCredit Approved Regular StartPump PumpLiter

Test#135: Activate 2.5 2.5 2.6 PayCredit Approved Regular StartPump StopPump

Test#136: Activate 2.5 2.5 2.6 PayCredit Approved Regular StopPump

Test#137: Activate 2.5 2.5 2.6 PayCredit Approved Regular StartPump PumpLiter

Test#138: Activate 2.5 2.5 2.6 PayCredit Approved Regular StartPump PumpLiter

# **5. Source code of the GasPump class and the test driver(s)**

**import** java.util.Scanner;

**public** **class** GasPump {

**private** **float** Rprice;

**private** **float** Sprice;

**private** **float** Dprice;

**private** **int** w;

**private** **float** price;

**private** **int** L;

**private** **float** total;

**private** **float** cash;

**private** **int** k;

**public** GasPump() {

Rprice = 0;

Sprice = 0;

Dprice = 0;

w = 0;

price = 0;

L = 0;

total = 0;

cash = 0;

k = -1;

}

**public** **final** **int** Activate(**float** a, **float** b, **float** d) {

**if** ((k == -1) && (a > 0) && (b > 0) && (d > 0)) {

k = 0;

Rprice = a;

Sprice = b;

Dprice = d;

System.***out***.print("GAS PUMP IS ON");

System.***out***.print("\n");

**return** 1;

} **else** {

**return** 0;

}

}

**public** **final** **int** PayCredit() {

**if** (k == 0) {

k = 2;

System.***out***.print("CHECKING CREDIT CARD.");

System.***out***.print("\n");

**return** 1;

} **else** {

**return** 0;

}

}

**public** **final** **int** Reject() {

**if** (k == 2) {

k = 0;

System.***out***.print("CREDIT CARD IS REJECTED.");

System.***out***.print("\n");

**return** 1;

} **else** {

**return** 0;

}

}

**public** **final** **int** Cancel() {

**if** ((k == 3) || (k == 4)) {

k = 0;

System.***out***.print("TRANSACTION IS CANCELLED.");

System.***out***.print("\n");

**if** (w == 0) {

System.***out***.print("$");

System.***out***.print(cash);

System.***out***.print(" OF CASH IS RETURNED");

System.***out***.print("\n");

}

**return** 1;

} **else** {

**return** 0;

}

}

**public** **final** **int** Approved() {

**if** (k == 2) {

k = 3;

w = 1;

System.***out***.print("CREDIT CARD APPROVED.");

System.***out***.print("\n");

System.***out***.print("SELECT TYPE OF GASOLINE:");

System.***out***.print("\n");

System.***out***.print("a. REGULAR");

System.***out***.print("\n");

System.***out***.print("b. SUPER");

System.***out***.print("\n");

System.***out***.print("c. DIESEL");

System.***out***.print("\n");

**return** 1;

} **else** {

**return** 0;

}

}

**public** **final** **int** PayCash(**float** c) {

**if** ((k == 0) && (c > 0)) {

k = 3;

w = 0;

cash = c;

System.***out***.print("SELECT TYPE OF GASOLINE:");

System.***out***.print("\n");

System.***out***.print("a. REGULAR");

System.***out***.print("\n");

System.***out***.print("b. SUPER");

System.***out***.print("\n");

System.***out***.print("c. DIESEL");

System.***out***.print("\n");

**return** 1;

} **else** {

**return** 0;

}

}

**public** **final** **int** Regular() {

**if** (k == 3) {

k = 4;

System.***out***.print("REGULAR IS SELECTED.");

System.***out***.print("\n");

price = Rprice;

**return** 1;

} **else** {

**return** 0;

}

}

**public** **final** **int** Super() {

**if** (k == 3) {

k = 4;

System.***out***.print("SUPER IS SELECTED.");

System.***out***.print("\n");

price = Sprice;

**return** 1;

} **else** {

**return** 0;

}

}

**public** **final** **int** Diesel() {

**if** (k == 3) {

k = 4;

System.***out***.print("DIESEL IS SELECTED.");

System.***out***.print("\n");

price = Dprice;

**return** 1;

} **else** {

**return** 0;

}

}

**public** **final** **int** StartPump() {

**if** (k == 4) {

k = 5;

L = 0;

total = 0;

System.***out***.print("PUMP IS READY TO DISPOSE ");

System.***out***.print("\n");

System.***out***.print("# OF LITERS PUMPED: ");

System.***out***.print(L);

System.***out***.print("\n");

System.***out***.print("TOTAL CHARGE: $");

System.***out***.print(total);

System.***out***.print("\n");

**return** 1;

} **else** {

**return** 0;

}

}

**public** **final** **int** PumpLiter() {

**if** (k == 5) {

**if** ((w == 1) || ((cash >= price \* (L + 1)) && (w == 0))) {

L = L + 1;

total = L \* price;

System.***out***.print("# OF LITERS PUMPED: ");

System.***out***.print(L);

System.***out***.print("\n");

System.***out***.print("TOTAL CHARGE: $");

System.***out***.print(total);

System.***out***.print("\n");

System.***out***.print("CONTINUE PUMPING");

System.***out***.print("\n");

**return** 1;

}

**else** **if** ((w == 0) && (cash < price \* (L + 1))) {

k = 6;

System.***out***.print("PUMP STOPPED. NOT SUFFICIENT FUNDS. ");

System.***out***.print("\n");

System.***out***.print("# OF LITERS PUMPED: ");

System.***out***.print(L);

System.***out***.print("\n");

System.***out***.print("TOTAL CHARGE: $");

System.***out***.print(total);

System.***out***.print("\n");

**if** ((w == 0) && (total < cash)) {

System.***out***.print("$");

System.***out***.print(cash - total);

System.***out***.print(" OF CASH IS RETURNED");

System.***out***.print("\n");

}

System.***out***.print("DO YOU WANT A RECEIPT?");

System.***out***.print("\n");

**return** 1;

}

;

}

;

**return** 0;

}

**public** **final** **int** StopPump() {

**if** (k == 5) {

k = 6;

System.***out***.print("PUMP STOPPED. ");

System.***out***.print("\n");

System.***out***.print("# OF LITERS PUMPED: ");

System.***out***.print(L);

System.***out***.print("\n");

System.***out***.print("TOTAL CHARGE: $");

System.***out***.print(total);

System.***out***.print("\n");

**if** ((w == 0) && (total < cash)) {

System.***out***.print("$");

System.***out***.print(cash - total);

System.***out***.print(" OF CASH IS RETURNED");

System.***out***.print("\n");

}

System.***out***.print("DO YOU WANT A RECEIPT?");

System.***out***.print("\n");

**return** 1;

} **else** {

**return** 0;

}

}

**public** **final** **int** NoReceipt() {

**if** (k == 6) {

k = 0;

System.***out***.print("NO RECEIPT IS PRINTED ");

System.***out***.print("\n");

**return** 1;

} **else** {

**return** 0;

}

}

**public** **final** **int** Receipt() {

**if** (k == 6) {

k = 0;

System.***out***.print("RECEIPT IS PRINTED: ");

System.***out***.print("\n");

System.***out***.print("# OF LITERS PUMPED: ");

System.***out***.print(L);

System.***out***.print("\n");

System.***out***.print("TOTAL CHARGE: $");

System.***out***.print(total);

System.***out***.print("\n");

**return** 1;

} **else** {

**return** 0;

}

}

**public** **final** **int** TurnOff() {

**if** (k == 0) {

k = -2;

System.***out***.print("GAS PUMP IS TURNED OFF ");

System.***out***.print("\n");

**return** 1;

} **else** {

**return** 0;

}

}

//Testing Methods

**public** **final** **void** Show\_State()

{

}

**public** **static** **void** main(String[] args) {

// **TODO** Auto-generated method stub

GasPump ga = **new** GasPump();

**int** k = 4;

String val = "";

String State = "";

**float** a=0;

**float** b=0;

**int** c=0;

**float** d=0;

System.***out***.println("\n1. Activate \n2. PayCredit \n3. Reject \n4. "+ "Approved \n5. PayCash \n6. Cancel \n7. Regular \n8. Super \n9. Diesel "+ "\n0. StartPump \n 10. PumpLiter \n11. StopPump \n12. NoReceipt \n13. Receipt "+ "\n14. TurnOff \n15. Show State \n16.Show\_variables" );

System.***out***.println("\nSelect any transition():");

Scanner s = **new** Scanner(System.***in***);

Scanner p = **new** Scanner(System.***in***);

val= s.nextLine();

**do** {

**if** (val != "q")

{

**switch** (val)

{

**case** "0":

**int** z = ga.StartPump();

System.***out***.printf("this function returns %n",z);

**break**;

**case** "1":

System.***out***.println("Enter value of Regular Gas a:");

a = p.nextFloat();

System.***out***.println("Enter value of Super Gas b: ");

b = p.nextFloat();

System.***out***.println("Enter value of Diesel d: ");

d = p.nextFloat();

ga.Activate(a, b, d);

**int** e= ga.Activate(a, b, d);

System.***out***.print("This function returns ");

System.***out***.print(e);

**if** (e==1){

State = "S0";}

**break**;

**case** "2":

**int** f= ga.PayCredit();

System.***out***.print("This function returns ");

System.***out***.print(f);

**if** (f==1){

State = "S2";}

**break**;

**case** "3":

**int** g= ga.Reject();

System.***out***.print("This function returns ");

System.***out***.print(g);

**if** (g==1){

State = "S0";}

**break**;

**case** "4":

**int** h= ga.Approved();

System.***out***.print("This function returns ");

System.***out***.print(h);

**if** (h==1){

State = "S3";}

**break**;

**case** "5":

System.***out***.println("enter cash: $");

c= s.nextInt();

**int** i= ga.PayCash(c);

System.***out***.print("This function returns ");

System.***out***.print(i);

**if** (i==1){

State = "S3";}

**break**;

**case** "6":

**int** j= ga.Cancel();

System.***out***.print("This function returns ");

System.***out***.print(j);

**if** (j==1){

State = "S3";}

**break**;

**case** "7":

**int** l= ga.Regular();

System.***out***.print("This function returns ");

System.***out***.print(l);

**if** (l==1){

State = "S4";}

**break**;

**case** "8":

**int** m = ga.Super();

System.***out***.print("This function returns ");

System.***out***.print(m);

**if** (m==1){

State = "S4";}

**break**;

**case** "9":

**int** o = ga.Diesel();

System.***out***.print("This function returns ");

System.***out***.print(o);

**if** (o==1){

State = "S4";}

**break**;

**case** "10":

**int** t = ga.PumpLiter();

System.***out***.print("This function returns ");

System.***out***.print(t);

**if** (t==1 && State == "S1"){

State = "S1";}

//else if

//(t==1 && State =="S5" && c <price)

//{ State = "S6";}

**else**

State ="S5";

**break**;

**case** "11":

**int** u = ga.StopPump();

System.***out***.print("This function returns ");

System.***out***.print(u);

**if** (u==1){

State = "S6";}

**break**;

**case** "12":

**int** v = ga.NoReceipt();

System.***out***.print("This function returns ");

System.***out***.print(v);

**if** (v==1){

State = "S0";}

**break**;

**case** "13":

**int** w = ga.Receipt();

System.***out***.print("This function returns ");

System.***out***.print(w);

**if** (w==1){

State = "S0";}

**break**;

**case** "14":

**int** x = ga.TurnOff();

System.***out***.print("This function returns ");

System.***out***.print(x);

**if** (x==1){

State = "Exit";}

**break**;

**case** "15":

System.***out***.print(State);

**case** "16":

System.***out***.print("Value of a:");

System.***out***.print(a);

System.***out***.print("Value of b:");

System.***out***.print(b);

System.***out***.print("Value of c:");

System.***out***.print(c);

System.***out***.print("Value of d:");

System.***out***.print(d);

}}

**else**

System.***out***.println("please select from given menu or press q to exit");

val= s.nextLine();

}

**while** (val != "q");

System.*exit*(0);

}

}