



LUND
UNIVERSITY

Exercise 3: Test 1

ETSA01 INGENJÖRSPROCESSEN 1 - METODIK VT15



-
- **Requirements coverage (T.1-4)**
 - **Writing test cases (T.5-8)**
 - *Work on Test Plan (T.15-16)*

 - **Feedback on projects**



Test Levels

- Unit Testing (code)
- Integration Testing (design)
- System Testing (requirements)
- Acceptance Testing (client needs)
- *Regression Testing (evolution)*



T1: Why Can Testing Only Detect Presence of Faults?



T.2-3 Requirements Coverage Matrix

	Test case												
Req	1	2	3	4	5	6	7	8	9	10	11	12	13
2.5.1.1													
2.5.2.1													
2.5.2.2													
2.5.2.3													
2.5.3.1													
2.5.3.2													
2.5.4.2													
2.5.5.1													
2.5.5.2													
2.5.6.1													
2.5.7.3													



T3: Requirements Coverage Matrix

Test → Req

	Test case												
Req	1	2	3	4	5	6	7	8	9	10	11	12	13
2.5.1.1													
2.5.2.1	x	x	x Y										
2.5.2.2												x	
2.5.2.3													
2.5.3.1													x Y
2.5.3.2				Y									
2.5.4.2													
2.5.5.1						x			x				
2.5.5.2													
2.5.6.1			Y										
2.5.7.3													

T5: Scope of TC6 #2-6

Test case 6: Timeout

Pre-condition: Machine in start state.

Post-condition: Machine in start state. A water can is received.

1. Press the beer selection button.
2. Wait 2 minutes.
3. Press the water selection button.
4. Insert a 5 SEK coin.
5. Insert 2 x1 SEK.
6. Receive a water can.



T5: Scope of TC6 # 2-6

Test case 6: Timeout

Pre-condition: Machine in start state.

Post-condition: Machine in start state. A water can is received.

1. Press the beer selection button.
2. Wait 2 minutes.
3. Press the water selection button.
4. Insert a 5 SEK coin.
5. Insert 2 x1 SEK.
6. Receive a water can.

Only observable actions
Need to check that the system is back in start state
Use common sense



T6: Out of Cans?

Test case 13: Out of can

Pre-condition: Machine in start state. There is no cola in the machine.

Post-condition: Machine in start state. There is no cola in the machine.

1. Press the cola selection button.
2. Cola is out so nothing happens.



T.7-8: Test Cases for the Bike Computer Requirements

Req 1

The alarm shall beep for 1 minute or until the snooze button is pressed.

Req 2

After reading the manual, 4 out of 5 users should be able to set the alarm within one minute.



T.7-8: Test Cases for the Bike Computer Requirements

Req 1

The alarm shall beep for 1 minute or until the snooze button is pressed.

Test 1.1: Alarm time-out

1. Set the alarm on current time +1min (alarm starts after 1min)
2. Wait 1 minute for alarm to start
3. Wait 1 min (alarm stops)

Test 1.2: Alarm snoozed

1. Set the alarm on current time +1min (alarm starts after 1min)
2. Wait 1 minute for alarm to start
3. Press snooze-button within 1 min (alarm stops)

Req 2

After reading the manual, 4 out of 5 users should be able to set the alarm within one minute.

Test 2.1: Alarm usability

For 10 beginners:

1. Give them bike computer and manual
2. Start timer on 60 s
3. Check bike computer alarm setting
4. Count nbr-of-success



Allmänna Granskningskommentarer:

- Kontextdiagram med fördefinierade signaler (kompendiet) till och från hårdvaran
- Beskriv användningsfall (och krav) utifrån interaktion med systemet input/output inte vad som händer runt omkring "cyklist går till administratören" eller inne i systemet "timer 2 startas"
- Konkretisera för testbarhet:
 - "meddelas operatören" – vilket meddelande får operatören? Och hur?
 - "information om användaren" – personnummer?, blodgrupp?
- Viktiga definitioner bör finnas i ordlistan inte inbakade i kraven!
- Interaktioner mellan funktionalitet
- Gruppera krav logiskt
- Flexibel numrering (stoppa in fler krav) Aldrig ändra nummer!
- Granskningar går ut på att identifiera brister, inte hitta på lösningar
- Lämna inte återstående kravarbete till en person (ni behöver vara överens om vad ni ska bygga och de problem som återstår behöver ni bolla med varandra)

Now

- **SRS feedback**
- **T.11:** Discuss and decide on the outline of the test plan.
- **T.12:** Develop and evaluate two different test cases and discuss them with the exercise leader.

After this exercise you should be able to continue developing your test specification. You will, of course, have to spend time on the specifications after this exercise.

