

## FINDING ERRORS IN REQUIREMENTS

### Software Engineering, Course 2022-2023

**A-The objective of this game is to find common errors when writing requirements.**

- Type of activity: group
- Procedure:
  1. A requirement will be displayed on the screen.
  2. You will have then 2 minutes to detect common errors and decide whether it is a functional or non-functional requirement.
  3. You will have to bet how many errors you have detected.
  4. The winner of the round (+1 point) will be those groups that have guessed the number of errors and can explain how to fix them.
  5. After 6 rounds, the winner will be the group with more points.

### Requirements

ID	Requirement text	Type	Error(s)
R1	The guidance and control subsystem shall control attitude to 2+/- 0.2 kg.		
R2	It shall identify all internal and external events triggering a transition.		
R3	Mode/State transitions with duration longer than -10 seconds shall be indicated in the telemetry.		
R4	The system shall follow WCAG2.0 guidelines for accessibility and material design principles.		
R5x	<p>"In the event of a LN spill, a 30db audible alarm shall be activated and continued until launch tower LN sensors."</p> <p>"Personnel in the area of the launch tower during taking operations shall wear hearing protective devices that provide a minimum of 35 kg of audio attenuation."</p>		
R6	In the case of a reactor melt-down, the system shall reduce the deaths of personnel within a 20 mile radius by at least 80%.		

### “Good” Requirements

ID	Requirement text	Type	Errors
R1	The <b>system</b> shall control attitude to 2+/- 0.2 <b>degrees</b> .	Functional	<ol style="list-style-type: none"> <li>Two subjects. It is a system level requirement.</li> <li>The unit of measurement is not correct.</li> </ol>
R2	The <b>unit supplier</b> shall identify all internal and external events triggering a <b>mode/state</b> transition.	Functional	<ol style="list-style-type: none"> <li>Subject is undefined.</li> <li>Type of transition is undefined.</li> </ol>
R3	<b>The system shall display</b> mode/state transitions with duration longer than <b>10 seconds</b> .	Functional	<ol style="list-style-type: none"> <li>Typo: -10 is not acceptable.</li> </ol> <p>It is better to rewrite using a proper grammar.</p>
R4	<ul style="list-style-type: none"> <li>The system shall follow WCAG2.0 guidelines for accessibility.</li> <li>The system shall follow material design principles for usability.</li> </ul>	Non-functional	<ol style="list-style-type: none"> <li>It is not atomic.</li> </ol> <p>Split into two requirements</p>
R5x	<p>“In the event of a <b>liquid nitrogen (LN)</b> spill, a <b>30db</b> audible alarm shall be activated and continued until launch tower LN sensors <b>return to a null reading</b>.”</p> <p>“Personnel in the area of the launch tower during taking operations shall wear hearing protective devices that provide a minimum of <b>35 db</b> of audio attenuation.”</p>	Functional	<ol style="list-style-type: none"> <li>Unit of measurement.</li> <li>Missing acronym description.</li> <li>Inconsistency between 30db and 35 db.</li> <li>State of the sensors to finish the alarm.</li> </ol>
R6	In the case of a reactor melt-down, the system shall reduce the deaths of personnel within a 20 mile radius by at least 80%.	System	<ol style="list-style-type: none"> <li>Not realistic.</li> <li>Not verifiable.</li> </ol>

**B-Now, we repeat the exercise with a real specification.**

Find a requirements specification:

E.g. [https://climate.esa.int/sites/default/files/glaciers\\_cci\\_D5.1\\_SRDfull\\_v1.0.pdf](https://climate.esa.int/sites/default/files/glaciers_cci_D5.1_SRDfull_v1.0.pdf)

[http://esa-cci.nersc.no/?q=webfm\\_send/215](http://esa-cci.nersc.no/?q=webfm_send/215)

<https://swehb.nasa.gov/display/SWEHBVB/C.+Project+Software+Requirements>

Select 10 requirements

Try to find the problems of such requirements and provide an alternative version.