**SE627**

**Assignment 2**

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| ID | Original Requirement | Violatation | Rationale | Rewritten requirement | Remove |
| 1 | The race car shall be designed to race in many weather conditions | R2  R7  R10  R22 | Avoid "shall be" - change the "be" to the an action verb  Many is a vague term  Be designed to is a superfluous infinitive  “Many” is a pronoun | The race car shall race in sunny weather  The race car shall race in raining weather  The race car shall race in foggy weather | No |
| 2 | The race car shall be about 5 feet wide | R2  R7 | Avoid "shall be" - change the "be" to the an action verb  About is a vague term | The race car shall have 5 feet width | No |
| 3 | The race car shall be about 10 feet long | R2  R7 | Avoid "shall be" - change the "be" to the an action verb  About is a vague term | The race car shall have 10 feet length | No |
| 4 | The race car shall minimize its height | R24  R34 | “Its” is a pronoun  Minimize is not measurable | The race car shall have less than 3 feet height | No |
| 5 | The race car shall be made from materials like steel, aluminum, etc | R2  R9 | Avoid "shall be" - change the "be" to the an action verb  No etc | The race car shall made from steel OR aluminum | No |
| 6 | The weight shall be about 1 ton(s) | R1  R2  R7 | No subject  Avoid "shall be" - change the "be" to the an action verb  About is a vague term | The race car shall have 1 ton weight | No |
| 7 | The race car shall not cost a signicant amount of money | R5  R7  R13  R16  R34 | Convert "a" into "the"  Significant is a vague term  Wrong spelling  Avoid “not”  Significant is not measurable | The race car shall cost less than 20,000 dollars | No |
| 8 | The race car shall use commercially available parts for most of the car | R7  R22  R24 | Most of is a vague term  Commercially available parts is a group noun  “Most” is a pronoun |  | Yes, the original requirement is too general, and needs further classification. The same requirement is mentioned below. |
| 9 | The race car shall fabricated parts if it should prove necessary | R8  R12  R22  R24 | Should prove necessary is a escape clauses  Wrong grammar  Fabricated parts is a group noun  “It” is a pronoun | The race car shall fabricate parts. | No |
| 10 | The race car shall be capable of using an engine to power the car | R2  R5  R10 | Avoid "shall be" - change the "be" to the an action verb  Convert "an" into "the"  Be capable of is a superfluous infinitive  “To” is the bad phrases that indicate the purpose of the requirement |  | Yes, a detailed engine requirement is mentioned below. |
| 11 | The race car shall use the PA Special 1 Engine | R38 | PA is abbreviation | The race car shall use the Pennsylvania Special 1 Engine | No |
| 12 | The race car shall be capable of accelerating to 52 mi/hr2 | R2  R6  R10  R17 | Avoid "shall be" - change the "be" to the an action verb  Use explicit units  Be capable of is a superfluous infinitive  Avoid “/” symbol | The race car shall accelerate to 52 miles per square hour | No |
| 13 | The race car shall stop within 100 feet if necessary | R8 | If necessary is a escape clauses | The race car shall stop within 100 feet. | No |
| 14 | The race car shall be able to turn on the track | R10 | Be able to is a superfluous infinitive | The race car shall turn on the track | No |
| 15 | The race car shall be as fast as possible | R2  R8  R34 | Avoid "shall be" - change the "be" to the an action verb  As fast as possible is a escape clauses  “Fast” is not measurable | The race car shall drive 60 miles per hour. | No |
| 16 | The race car shall use Pirelli tires | R22 | Pirelli tires is a group noun | The race car shall use Pirelli P Zero All Season Plus tire | No |
| 17 | The race car shall inflate tires to 38 | R6 | Missing units | The race car shall inflate tires to 38 pound per square inch | No |
| 18 | The race car shall have easy to change tires | R7  R22 | Easy to change is a vague term  Easy to change tires is a group noun |  | Yes, a detailed, similar requirement is mentioned above. |
| 19 | The race car shall accelerate from 0 to 60 in 2 seconds | R6 | Missing units | The race car shall accelerate from 0 miles per hour to 60 miles per hour in 2 seconds | No |
| 20 | The race car shall have a gas tank | R5 | Convert "a" into "the" | The race car shall have the gas tank | No |
| 21 | The race car shall have an easy to refuel capability | R5  R7  R21  R34 | Convert "a" into "the"  Easy to refuel is a vague term  Easy to refuel is not measurable | The race car shall have the refuel tube | No |
| 22 | The human driver shall watch the race car's fuel consumption and fuel level | R3  R11  R18  R19 | The "system" shall NOT The "user" shall  And separates the object from the verb  Avoid “and”  “And” is combinator |  | Yes, the requirement is for the system, not for the user. |
| 23 | The race car shall pit as quick as possible | R8  R12  R34 | As quick as possible is a escape clauses  Wrong grammar  Quick is not measurable | The race car shall pit in 2 seconds | No |
| 24 | The race car's pit shall be large enough to fit the car | R2  R7  R34 | Avoid "shall be" - change the "be" to the an action verb  Large enough is a vague term  Large is not measurable | The race car’s pit shall have 66 square feets | No |
| 25 | The race car's pit shall be easy to get in and out of | R2  R7  R11  R18  R19  R34 | Avoid "shall be" - change the "be" to the an action verb  Easy to get is a vague term  And separates the object from the verb  Avoid “and”  “And” is combinator  Easy to get is not measurable | The race car’s pit shall have smooth ground | No |
| 26 | The race car shall allow a human driver | R5  R7 | Convert "a" into "the"  “Allow” is a vague term | The race car shall have a seat | No |
| 27 | The human driver shall be less than 300 | R2  R3  R6 | Avoid "shall be" - change the "be" to the an action verb  The "system" shall NOT The "user" shall  Missing units |  | Yes, the requirement is for the system, not for the user. |
| 28 | The human driver shall be able to accelerate or decelerate | R3  R10  R18  R19 | The "system" shall NOT The "user" shall  Be able to is a superfluous infinitive  Avoid “or”  “Or” is combinator |  | Yes, the requirement is for the system, not for the user. |
| 29 | The human driver shall make routine turns | R3 | The "system" shall NOT The "user" shall |  | Yes, the requirement is for the system, not for the user. |
| 30 | The race car shall turn and change speed simultaneously to successfully race a course | R5  R15 | Convert "a" into "the"  Capitalizing AND | The race car shall turn AND change speed simultaneously. | No |
| 31 | The race car shall communicate with the pit crew so the driver can have a discussion | R5  R20 | Convert "a" into "the"  “So” is the bad phrases that indicate the purpose of the requirement | The race car shall communicate with the pit crew | No |
| 32 | The race car's computer shall have a speaking interface | R5 | Convert "a" into "the" | The race car’s computer shall have the speaking interface | No |
| 33 | The race car's computer shall use gesture motion for input | R20 | “For” is the bad phrases that indicate the purpose of the requirement | The race car’s computer shall use gesture motion | No |
| 34 | The race car's computer shall use Intel processors | R24 | Intel processors is a group noun  “Most” is a pronoun | The race car’s computer shall use Intel i3-8100 | No |
| 35 | The race car shall stop within 100 feet if necessary | R8 | If necessary is a escape clauses | The race car shall stop within 00 feet | No |
| 36 | The race case shall use software to perform simple electronic functions | R7 | Simple is a vague term | The race case shall use electronic software | No |
| 37 | The race car shall be designed to allow for software updates | R2  R10 | Avoid "shall be" - change the "be" to the an action verb  Be designed to is a superfluous infinitive | The race car shall accept software updates | No |
| 38 | The race car's software updates shall have a roll back capability | R5 | Convert "a" into "the" | The race car’s software updates shall have the roll-back option | No |
| 39 | The race car shall have an availability of 100% | R5  R6  R26 | Convert "a" into "the"  Missing units  100% is an absolute | The race car shall have an availability of 99% of the time | No |
| 40 | The race car shall have an reliability of 100% | R5  R6  R12  R26 | Convert "a" into "the"  Missing units  Wrong grammar  100% is an absolute | The race car shall have an reliability of 99% of the system | No |
| 41 | The race car shall have helpful maintainability | R7  R34 | Helpful is a vague term  “Helpful” is not measurable | The race car shall have an maintainability of 99% of the system | No |
| 42 | The race car shall not crash | R16 | Avoid "not" |  | Yes, the similar requirement about reliability is mentioned above |
| 43 | The driver shall avoid crashes | R3 | The "system" shall NOT The "user" shall |  | Yes, the requirement is for the system, not for the user. |
| 44 | The race car shall display engine RPM to provide the driver with the ability to determine engine  trouble | R20  R38 | “TO” is the bad phrases that indicate the purpose of the requirement  RPM is abbreviation | The race car shall display revolutions per minute | No |
| 45 | The race car shall display individual tire pressure sensor data and overall tire stability to the driver | R11  R18  R19 | And separates the object from the verb  Avoid “and”  “And” is combinator | The race car shall display individual tire pressure sensor data.  The race car shall display overall tire stability. | No |
| 46 | The race car shall display engine temperature (usually between 30C and 60C) | R6  R7  R15  R21 | Use explicit units  Usually is a vague term  Consider capitalizing AND  Avoid parentheses | The race car shall display engine temperature between 30 celsius to 60 celsius | No |
| 47 | The race car shall display the car's mode such as race, sport, etc | R9 | No etc | The race car shall display race mode  The race car shall display sport mode | No |
| 48 | The race car shall use storage for saving sensor data for replay | R20 | “For” is the bad phrases that indicate the purpose of the requirement | The race car shall use storage  The storage shall save sensor data | No |
| 49 | The race car shall use storage for saving driver inputs for replay | R20 | “For” is the bad phrases that indicate the purpose of the requirement | The storage shall save driver input | No |
| 50 | The race car shall comply with applicable safety and security standards | R11  R18 | And separates the object from the verb  Avoid “and” | The race car shall have airbag | No |