The Rules to Evaluate Use Case Diagrams

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There are two categories of rules: The general rules and the user-defined rules. The general rules are defined by the system i.e. Any use case diagram must obey the general rule. The user-defined rules are defined by the manager and are usually for use case diagrams of a particular project. The manager can set the user-defined rules or there can be no user-defined rules at all. If any user-defined rule is set the use case diagram must obey that rule.

General Rules

1. **Every use case must have only one initializing actor**
   A use case can have multiple actors but only one of them can be the initializing actor and a use case must have a initializing actor. So a use case must have at least one actor-the initializing actor.

2. **The name of the use case must be a verb phrase**
   The use case describes an interaction between the user and the system. So the name of the use case should begin with a verb i.e. the name should be a verb phrase.

3. **The name of any actor cannot begin with the word actor**
   Any actor in a use case diagram must have a name. Since the default actor name generated by most UML tools begins with the word actor. The default name usually makes no sense. In order to avoid the drawer leaving the default name unchanged, we set this rule.

4. **The name of any actor must be a noun**
   Actor is the role of the user or another system that interacts with the modeled system. So it should be a noun.

User-defined Rules

1. **A use case must include/extend another use case**
   The manager can specify that a use case must include or extend another use case. Accordingly, the two use cases in the specified inclusion/extension relationship become must-have use cases.

2. **The maximum number of use cases that an actor can be associated with and the maximum number of actors a use case can be associated with**
   If a use case is associated with too many actors or an actor is associated with too many use cases, the use case or the actor is too general, it may be better to divided into several smaller ones.

3. **The order of use cases in a use case diagram**
   The manager can put restrictions on the order of use cases in a use-case diagram by

specifying its precursor and successor.

4. **Must-have and must-not-have use cases and associations**
   The manager can set the must-have actors, must-have use cases and must-have associations between these actors and use cases. The manager can also define "there must be no association between a particular use case and a particular actor". The one who draws the use case diagram can add other actors,use cases and associations as long as the added ones do not violate the rules.
   Here is an example: Suppose the manager defined the two must-have actors Student and Instructor and also the two must-have use cases Grade and View scores. Then he can define the following rules:

   1 There must be an association between the actor Student and the use case View Scores.

   2 There must be no association between the actor Student and the use case Grade.

   So it is OK for the uploaded use case diagram to have association between Instructor and View Sores because this association does not violate any rule above.
   But it is wrong to have association between Student and Grade because this association violates the second rule.