

Model-based Risk Assessment

What does model-based mean?

Model-based means based on modelling techniques, as used in, for example, the Unified Modelling Language (UML). This language is used in specifying all aspects of an IT-system. A static picture of the relation between the different components is given through the use of class diagrams. A dynamic picture specifying the functions and actors of the system is given by use case diagrams and sequence diagrams. The complete system is specified with the help of UML-diagrams. It is the architectural drawing of the IT-system.

Why modelling?

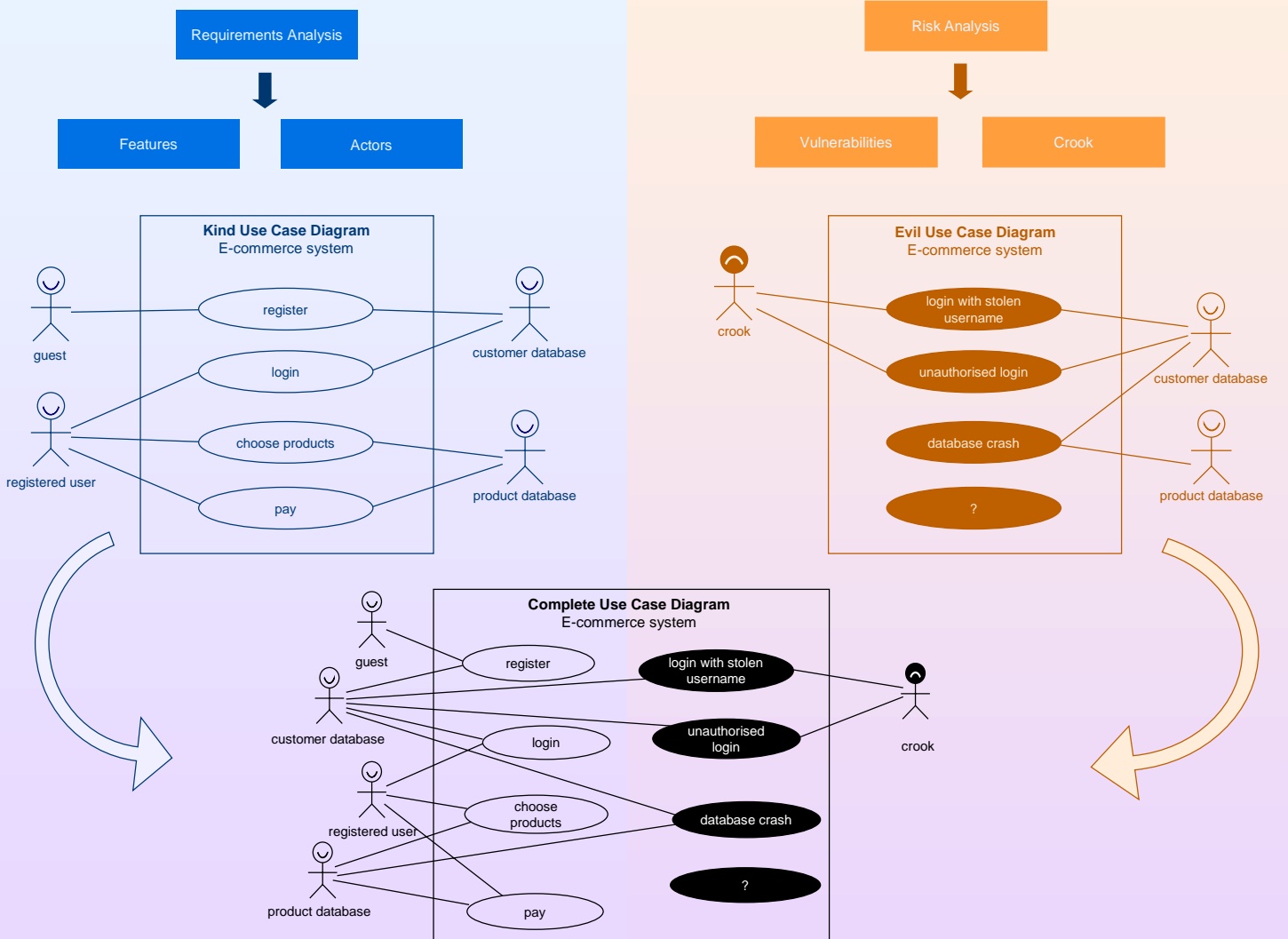
Specifying an IT-system is often a complicated task that demands a method that can provide both the details and the overview of the IT-system. Modelling techniques give us the possibility to specify all aspects of the system while keeping a good overview at the same time.

What does Risk Assessment mean?

A risk assessment is a process applied on, in our case, an IT-system or one of its components. The process indicates what kind of risks are connected to the use of the system, analyses and evaluates them and comes up with treatments on how to change the system in order to reduce these indicated risks.

Why Risk Assessment?

IT-systems get bigger, more complicated and their role in our everyday life gets increasingly important. An inevitable aspect with human made systems like an IT-system is that on top of the designed features we get a bunch of 'anti'-features for free. These 'anti'-features are nothing else than risks connected to operating the system. While designing a system it is important to not only know about these risks but also to be able to reduce them in as many situations as possible. This is the control that a risk assessment gives us.



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The requirements analysis forms the basis for the traditional 'kind' modelling. Risk analysis has a similar role but focuses on evil behaviour. Every designed system carries its own risks and it is important that they are known. It is therefore not enough to only model the desired behaviour but also the unwanted behaviour. In addition the evil actors, crooks, need to be identified just like the normal actors. Model-based risk assessment is about documenting the results of traditional risk analysis techniques in the same way as we are used to doing for system requirements. The design process needs to take into account both wanted and unwanted behaviour and designed actors and evil actors. As shown here modelling can be used for both aspects providing the complete documentation of the system design from both good and bad angles.

