Seminar session 3

UML Diagrams.

Unified Modeling Language diagrams are:

Derived from various notations used in object-oriented methods.

It is a widely used method for modeling complex systems.

It is an industry-standard modeling technique that combines functions from different notations into a single powerful unified language.

Useful tool for communication between those involved.

It is neither a programming language nor a methodology of the software development process.

Different types of UML diagrams:

Use case diagrams:

Shows an actor which represents a user of the system und a type of functionality provided by the system.

Class diagrams:

Class diagrams represent the structure of the system. They are useful for requirements analysis for modeling application domain concepts and specifying detailed behavior and attributes of classes.

Statechart diagrams:

Shows the various states a class changes within a system. Statechart diagrams are useful for dynamic view of system to show how functional requirements are achieved. The structure is based on an initial state, transitions from one stage to another which are represented by arrows and states, which shows conditions of the system.

UML behavioral models:

These diagrams are used to capture interaction that defines the behavior of a system. They can also show dataflow and identify missing objects, which are necessary to complete use cases.

Model intended functions based on requirements:

- ➔ Use case diagram
- ➔ Class diagram
- ➔ Statechart diagram
- ➔ Sequence diagram

Model security threats based on functions and security goals:

- ➔ Abuse case
- ➔ Attack trees
- ➔ STRIDE
- ➔ Statechart diagram
- ➔ Sequence diagram

Both types of designs in combination lead to a secure system