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*Advanced Software Engineering Lab-Autumn 2022-23*

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## UML Diagram 2022

# SOFTWARE COMPONENT CATALOGUING SOFTWARE

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# 1 UML DIAGRAMS

## 1.1 USE CASE DIAGRAM

A use case diagram is a graphic depiction of the interactions among the elements of a system.

A use case is a list of actions or event steps typically defining the interactions between a role (known in the Unified Modeling Language as an actor) and a system to achieve a goal. The actor can be a human or other external system.

The main purpose of a use case diagram is to portray the dynamic aspect of a system. It accumulates the system's requirement, which includes both internal as well as external influences. It invokes persons, use cases, and several things that invoke the actors and elements accountable for the implementation of use case diagrams. It represents how an entity from the external environment can interact with a part of the system.

Following are the purposes of a use case diagram given below:

- It gathers the system's needs.
- It depicts the external view of the system.
- It recognizes the internal as well as external factors that influence the system.
- It represents the interaction between the actors.

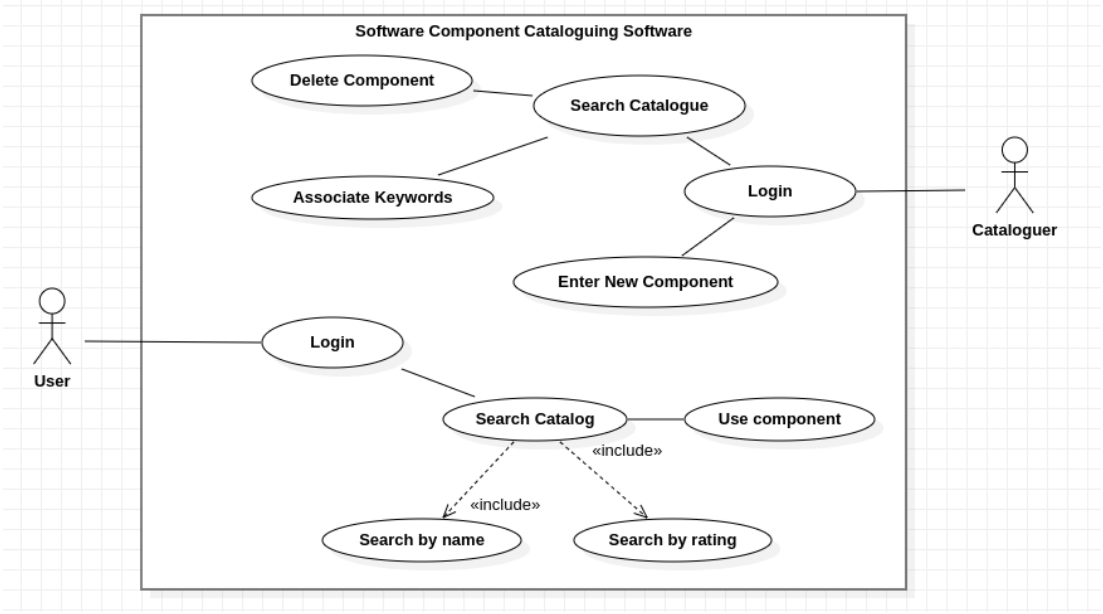


Figure 1: Use case diagram for SCCS

## 1.2 SEQUENCE DIAGRAM

A sequence diagram simply depicts interaction between objects in a sequential order i.e. the order in which these interactions take place. We can also use the terms event diagrams or event scenarios to refer to a sequence diagram. Sequence diagrams describe how and in what order the objects in a system function.

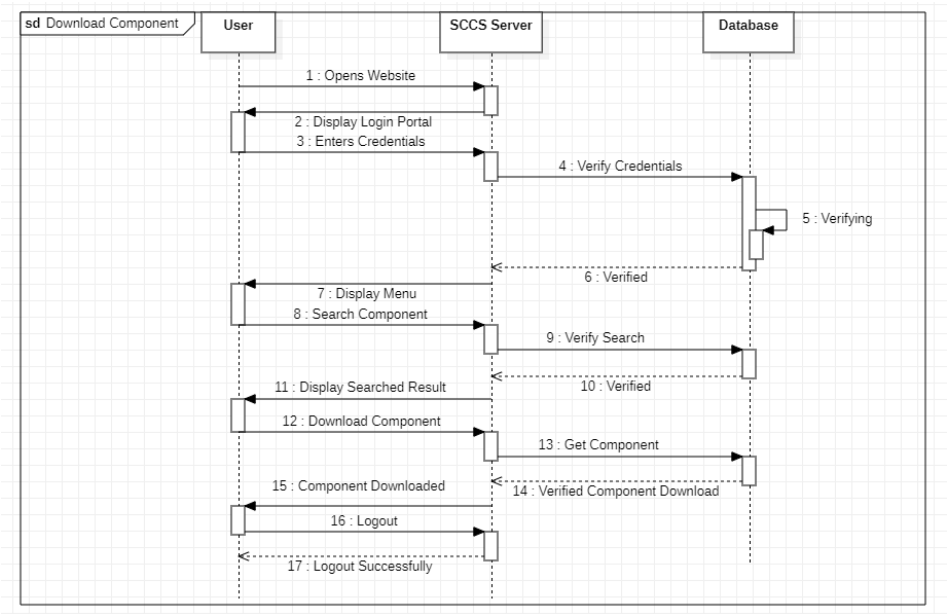


Figure 2: Sequence diagram for SCCS

## 1.3 COLLABORATION OR COMMUNICATION DIAGRAM

The collaboration diagram is used to show the relationship between the objects in a system. Both the sequence and the collaboration diagrams represent the same information but differently. Instead of showing the flow of messages, it depicts the architecture of the object residing in the system as it is based on object-oriented programming. An object consists of several features. Multiple objects present in the system are connected to each other. The collaboration diagram, which is also known as a communication diagram, is used to portray the object's architecture in the system.

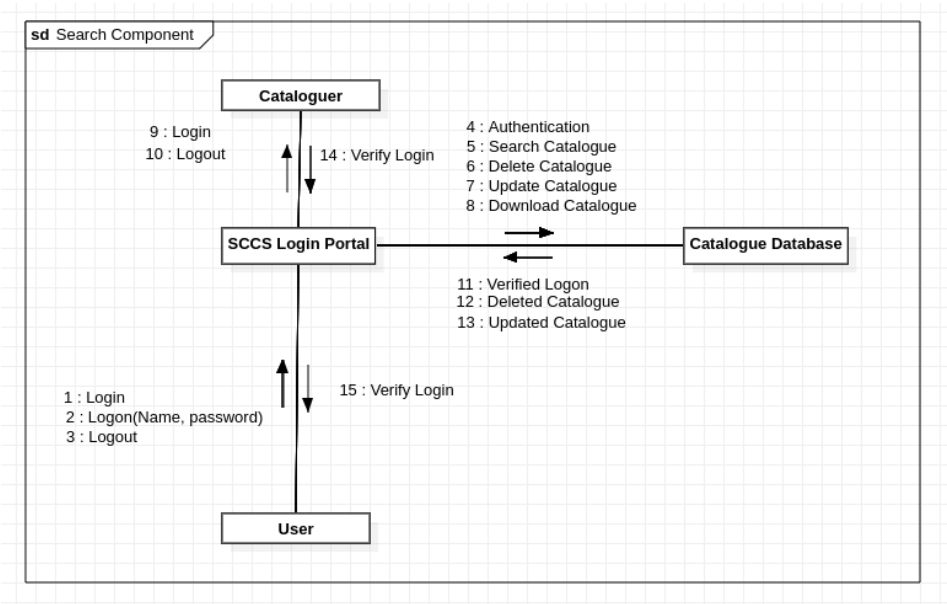


Figure 3: Search Component Collaboration diagram of SCCS

## 1.4 CLASS DIAGRAM

The UML Class diagram is a graphical notation used to construct and visualize object oriented systems. A class diagram in the Unified Modeling Language (UML) is a type of static structure diagram that describes the structure of a system

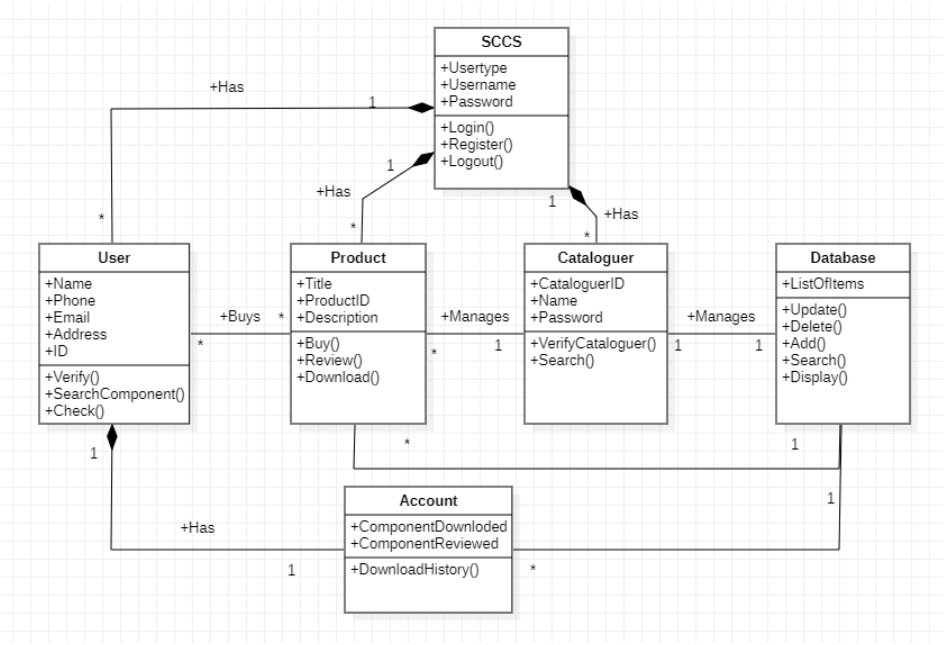


Figure 4: Class case diagram for SCCS

- In the Fig 4 we have use + sigh to represent as it public attribute.
- SCCS and user class have one to many cardinality which means many user can login or register on SCCS server. Similarly product and cataloguer have one to many cardinality with SCCS.
- Each class have certain operation which perform certain functions. For example cataloguer class perform search of component and verification of cataloguer itself.