UML Diagram Types Guide: Learn About All Types of UML Diagrams with Examples

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UML stands for **U**nified **M**odeling **L**anguage. It's a rich language to model software solutions, application structures, system behavior and business processes. There are **14 UML diagram types** to help you model these behaviors.

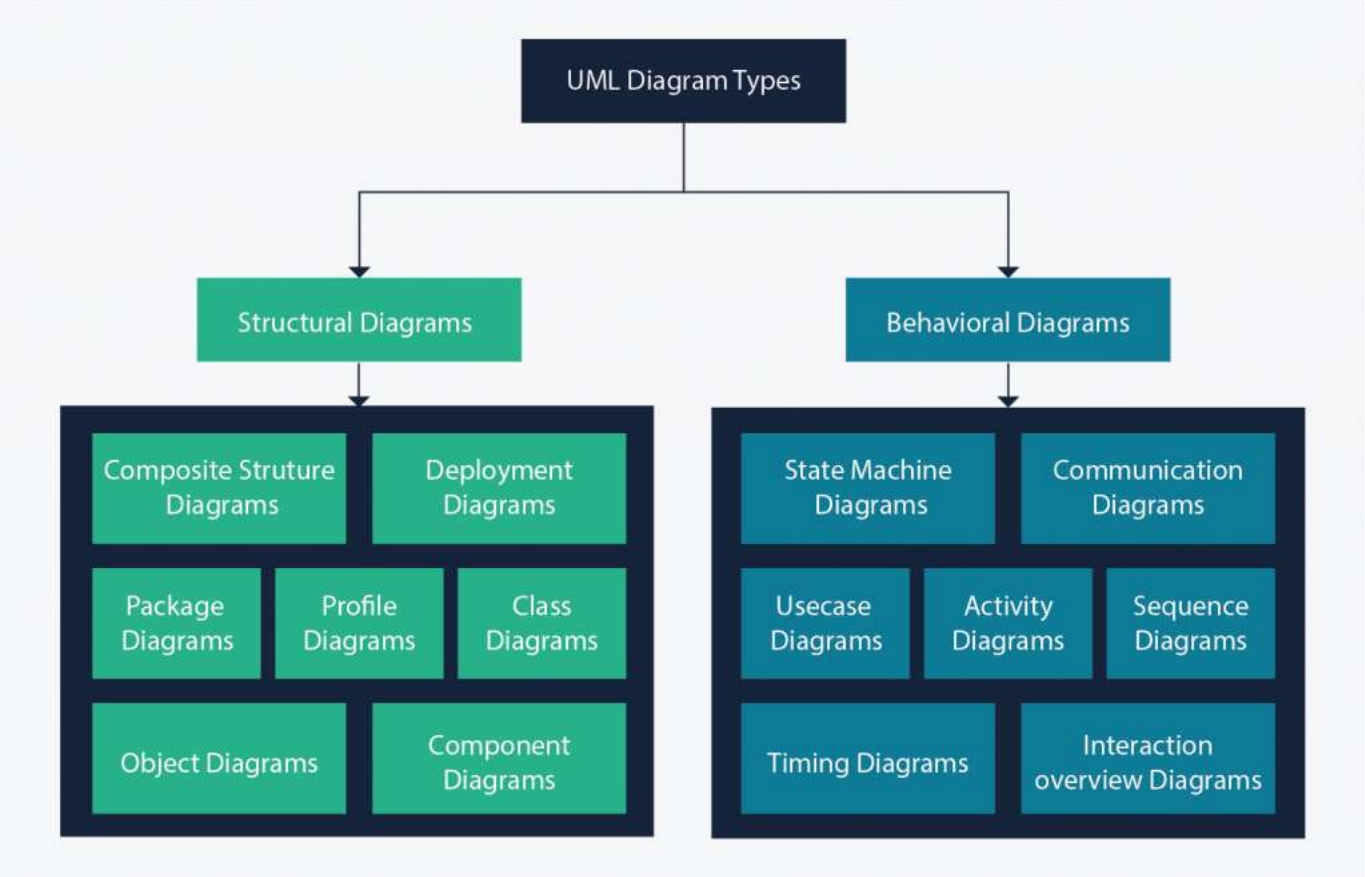
You can draw UML diagrams online using our software, or check out some UML diagram examples at our diagramming community.

List of UML Diagram Types

So what are the different UML diagram types? There are two main categories; **structure diagrams** and **behavioral diagrams**. Click on the links to learn more about a specific diagram type.

- Structure Diagrams
  - Class Diagram
  - Component Diagram
  - Deployment Diagram
  - Object Diagram
  - Package Diagram
  - Profile Diagram
  - Composite Structure Diagram
- Behavioral Diagrams
  - Use Case Diagram
  - Activity Diagram
  - State Machine Diagram

- Sequence Diagram
- Communication Diagram
- Interaction Overview Diagram
- Timing Diagram



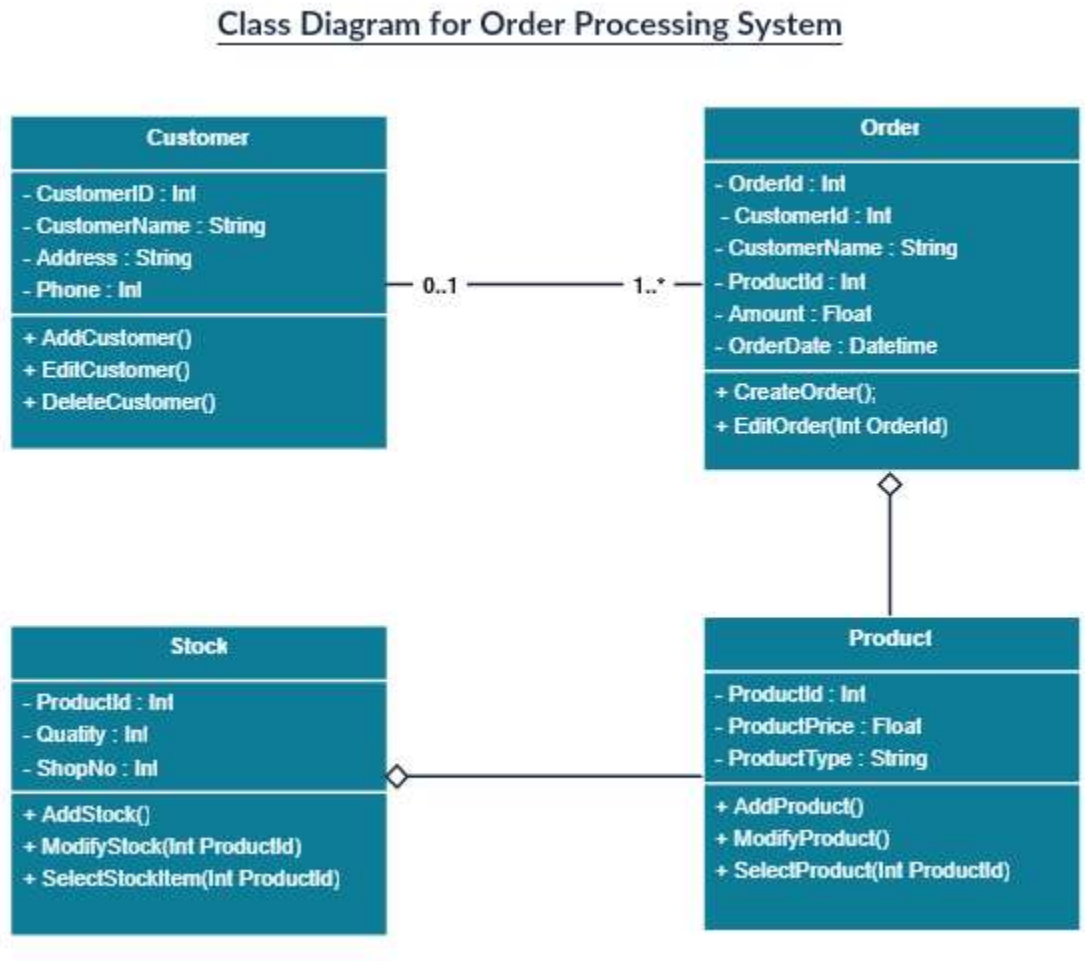
Structure diagrams show the things in the modeled system. In a more technical term, they show different objects in a system. **Behavioral diagrams** show what should happen in a system. They describe how the objects interact with each other to create a functioning system.

Class Diagram

Class diagrams are the main building block of any object-oriented solution. It shows the classes in a system, attributes, and operations of each class and the relationship between each class.

In most modeling tools, a class has three parts. Name at the top, attributes in the middle and operations or methods at the bottom. In a large system with many related classes, classes are grouped together to create class diagrams. Different relationships between classes are shown by different types of arrows.

Below is an image of a class diagram. Follow the link below for more class diagram examples or get started instantly with our class diagram templates.

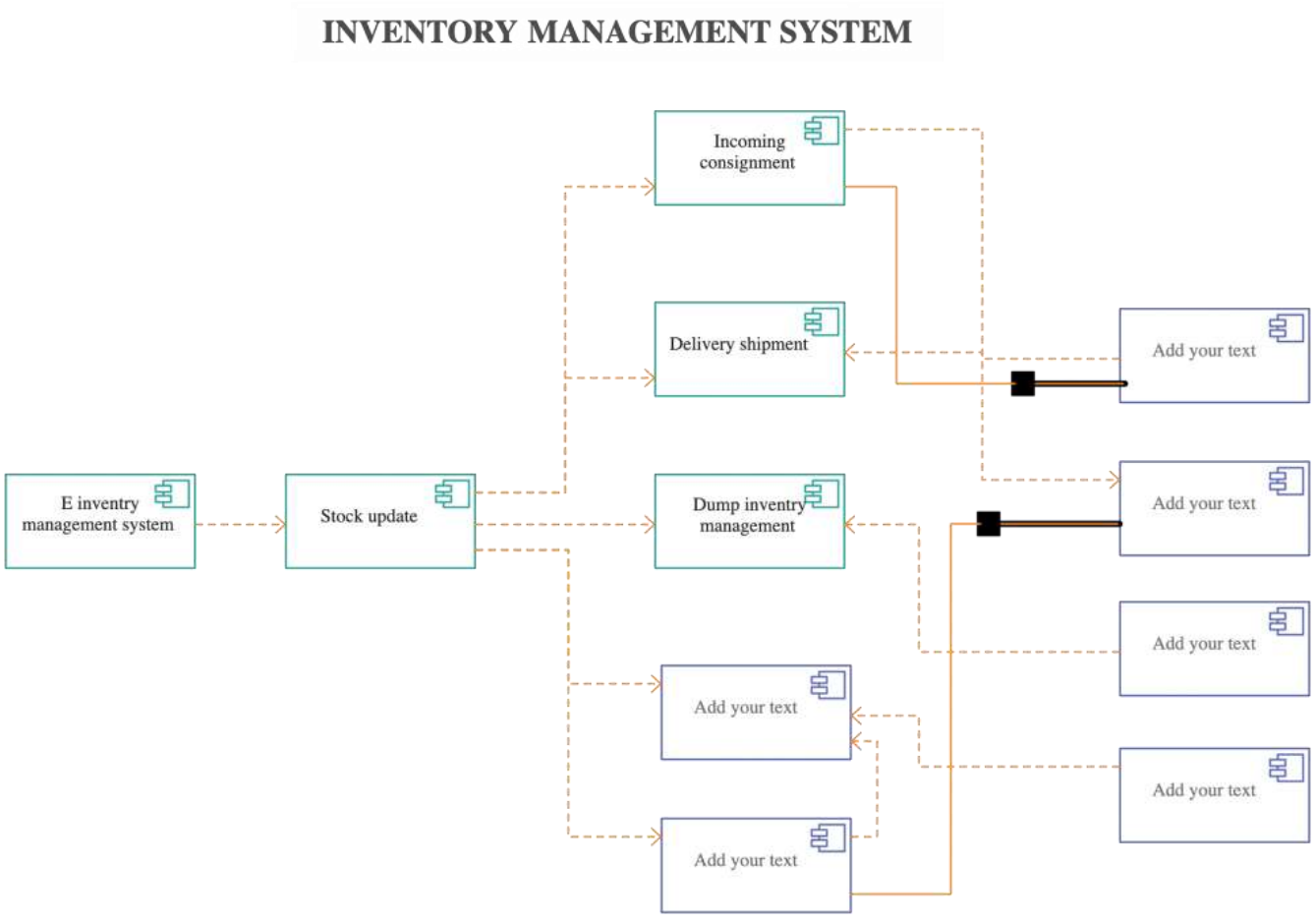


Click on the image to edit the above class diagram (opens in new window)

Get More UML Class Diagram Examples >>

Component Diagram

A component diagram displays the structural relationship of components of a software system. These are mostly used when working with complex systems with many components. Components communicate with each other using interfaces. The interfaces are linked using connectors. The image below shows a component diagram.

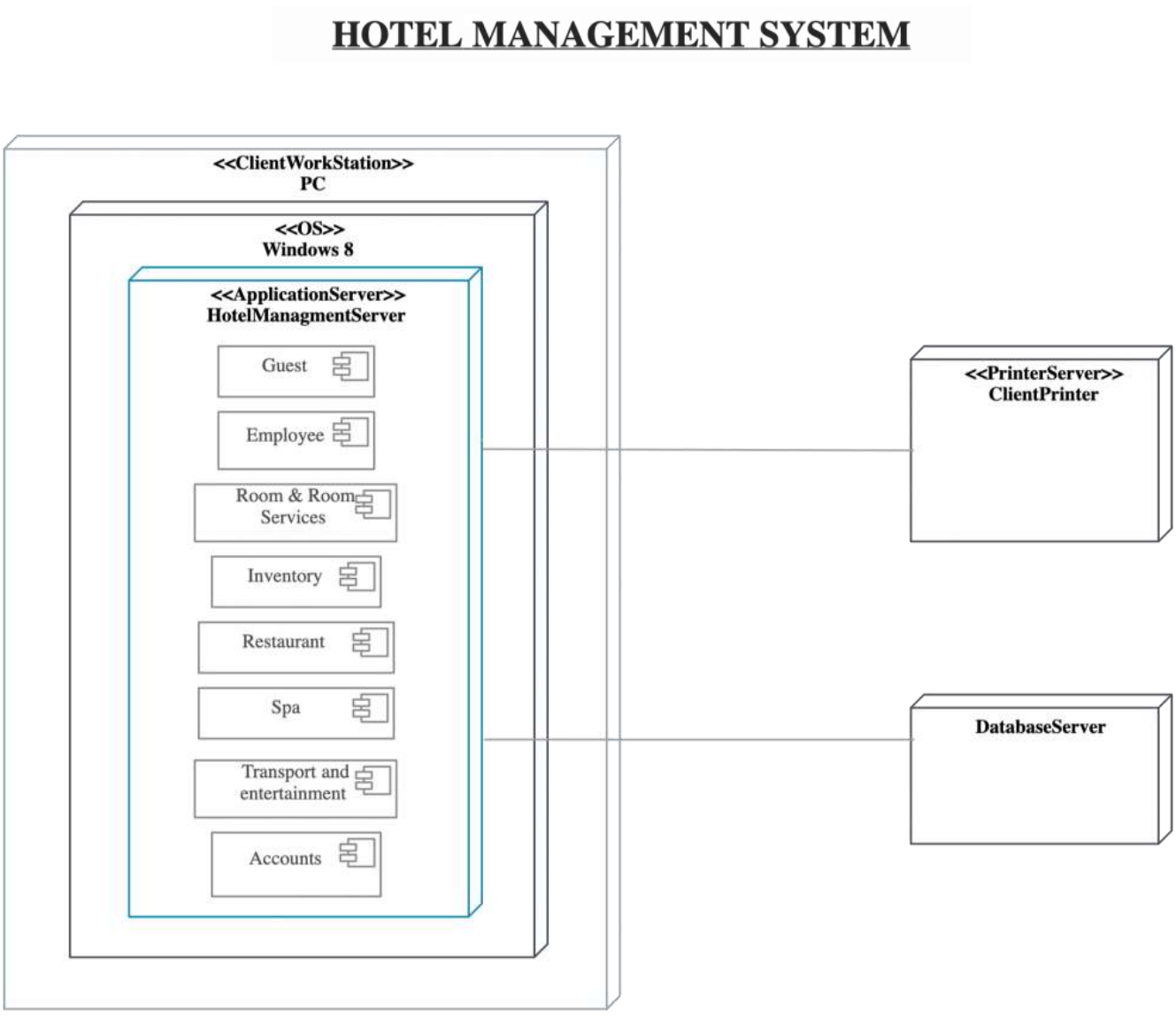


Click on the image to edit the component diagram above

Get More Component Diagram Templates >>

Deployment Diagram

A deployment diagram shows the hardware of your system and the software in that hardware. Deployment diagrams are useful when your software solution is deployed across multiple machines with each having a unique configuration. Below is an example deployment diagram.



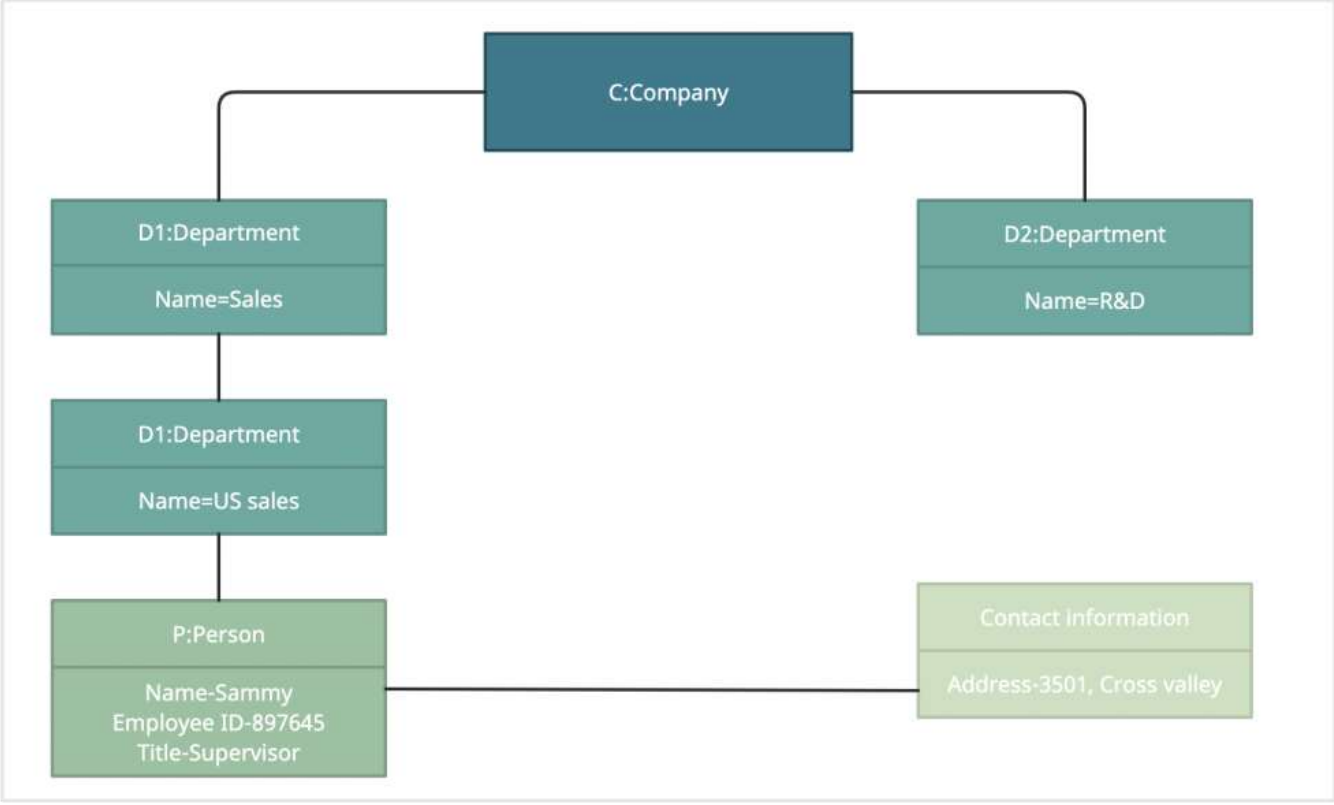
Click on the image to edit the deployment diagram above

Get More Deployment Diagram Templates >>

Object Diagram

Object Diagrams, sometimes referred to as Instance diagrams are very similar to class diagrams. Like class diagrams, they also show the relationship between objects but they use real-world examples.

They show what a system will look like at a given time. Because there is data available in the objects, they are used to explain complex relationships between objects.

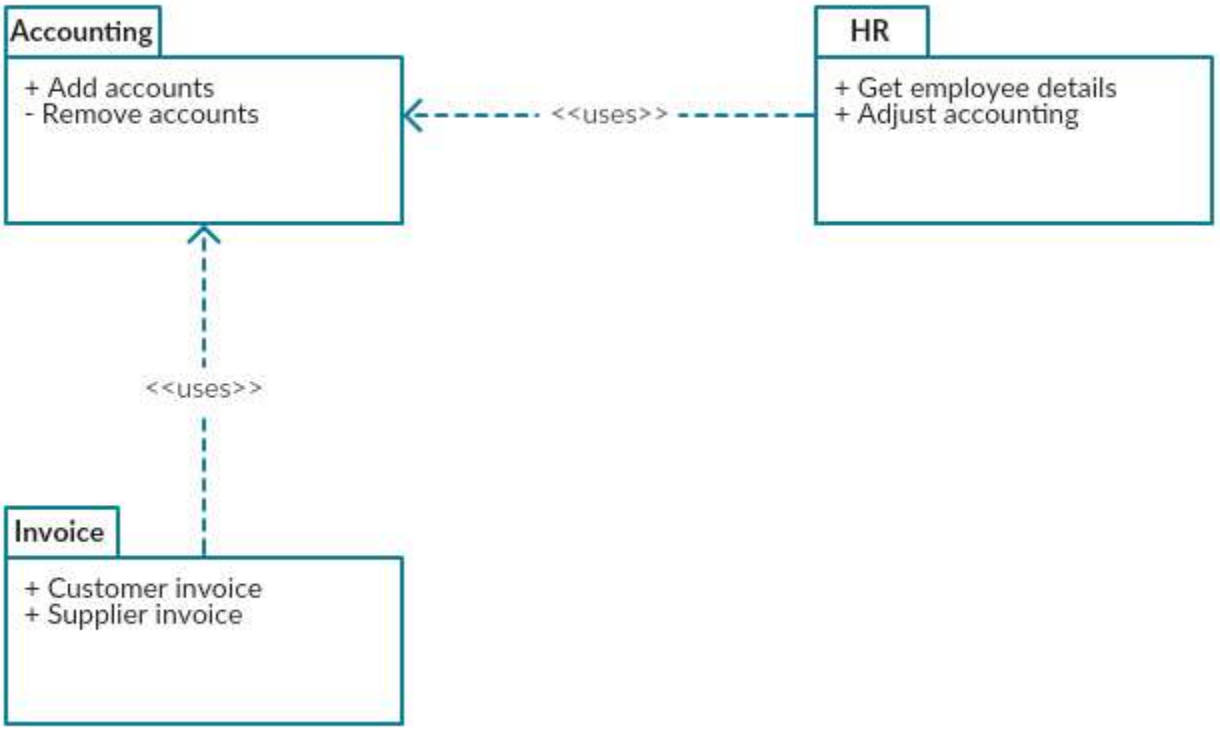


Click on the image to use the object diagram as a template

Get More Object Diagram Templates >>

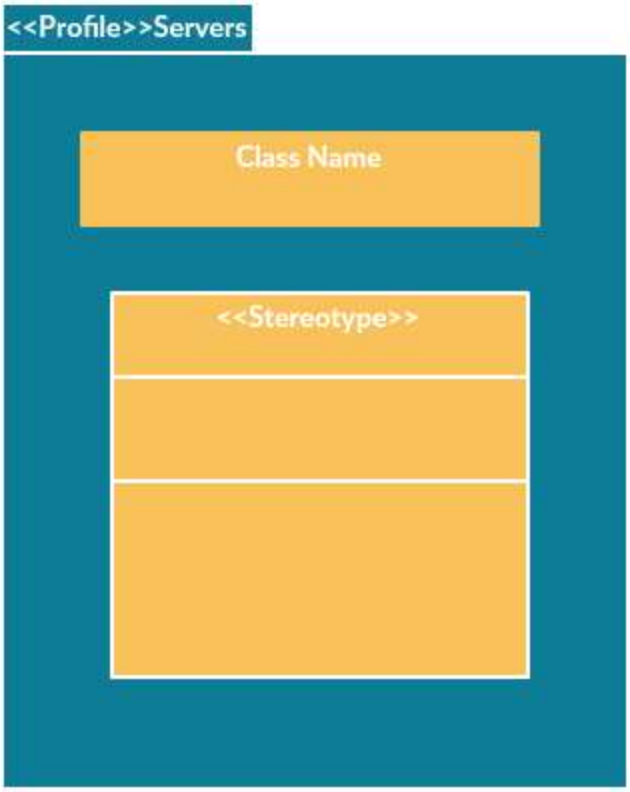
Package Diagram

As the name suggests, a package diagram shows the dependencies between different packages in a system. Check out this wiki article to learn more about the dependencies and elements found in package diagrams.



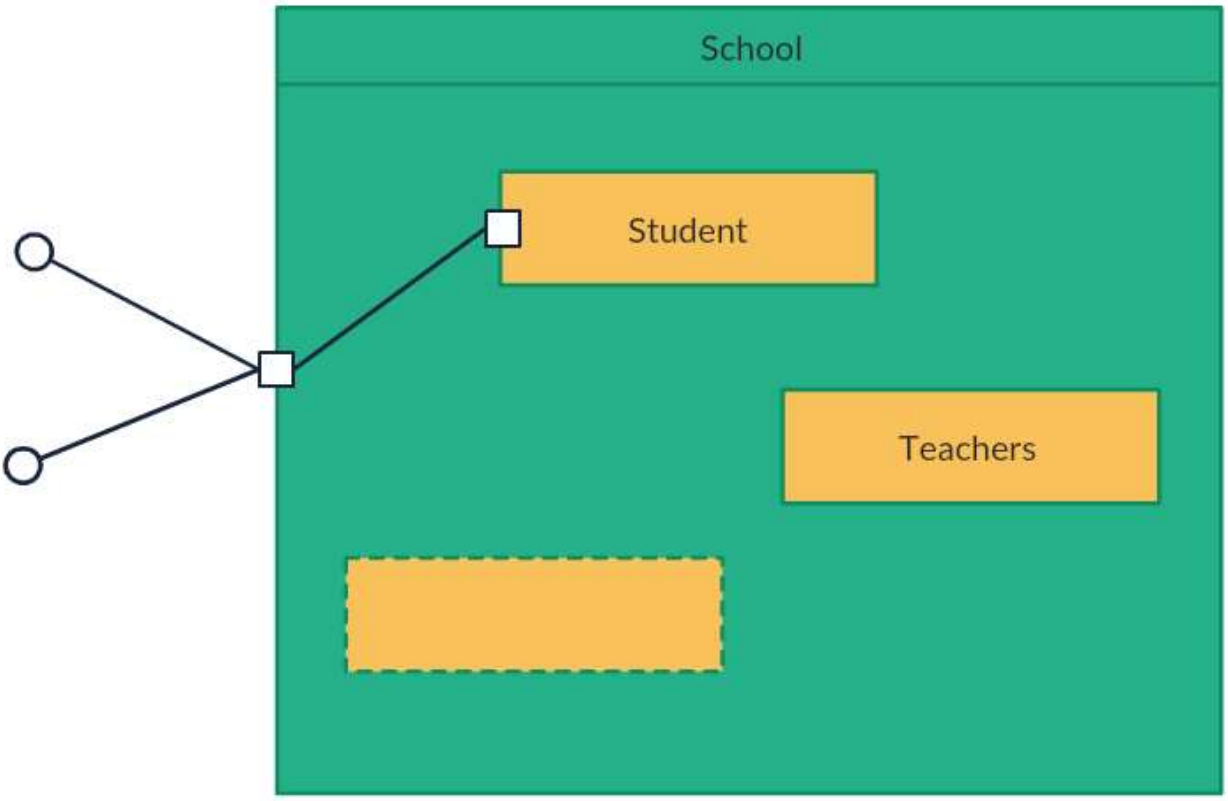
Profile Diagram

Profile diagram is a new diagram type introduced in UML 2. This is a diagram type that is very rarely used in any specification. For more profile diagram templates, visit our diagram community.



Composite Structure Diagram

Composite structure diagrams are used to show the internal structure of a class. Some of the common composite structure diagrams.

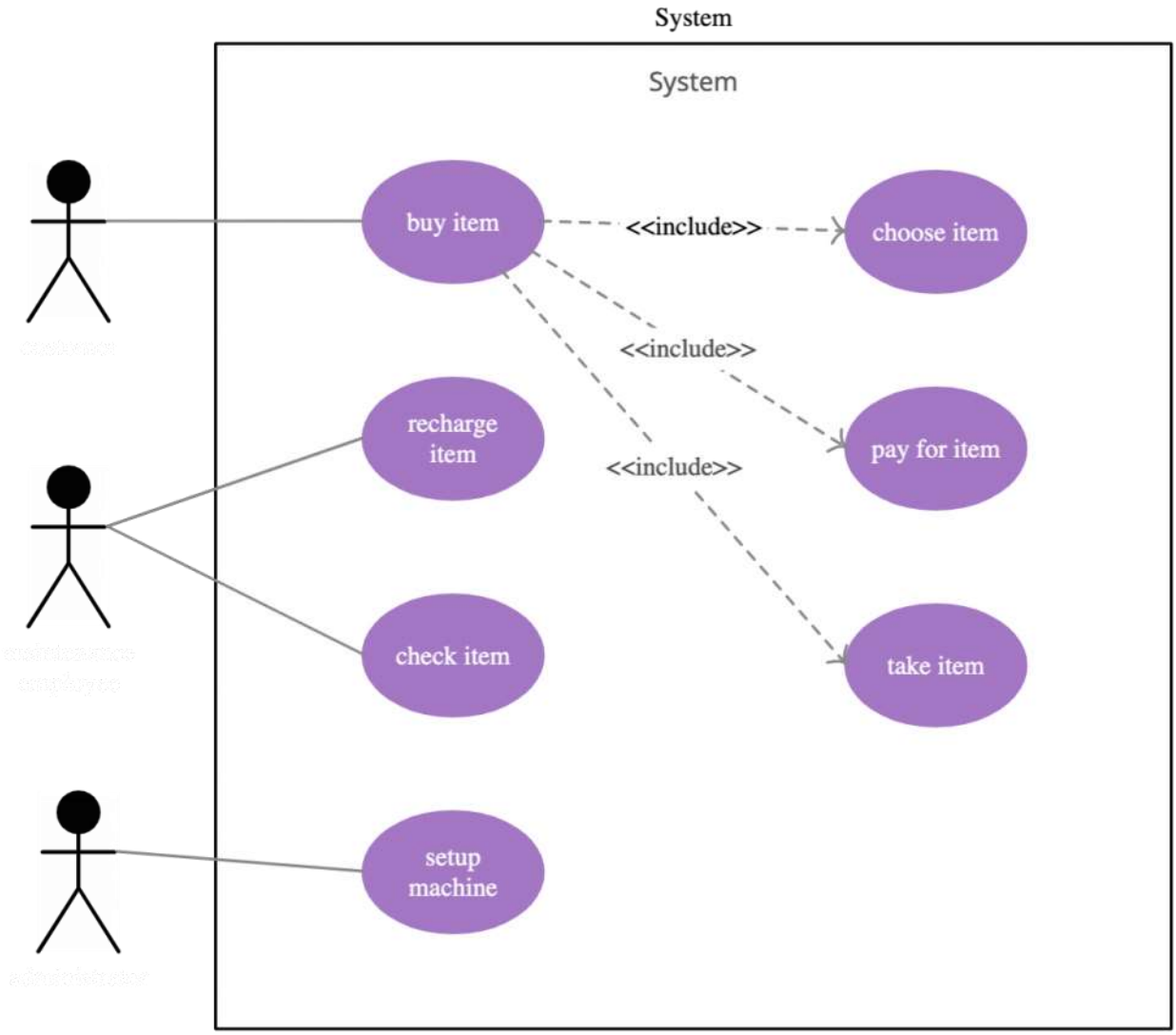


Use Case Diagram

As the most known diagram type of the behavioral UML types, Use case diagrams give a graphic overview of the actors involved in a system, different functions needed by those actors and how these different functions interact.

It's a great starting point for any project discussion because you can easily identify the main actors involved and the main processes of the system. You can create use case diagrams using our tool and/or get started instantly using our use case templates.

Use Case Diagram Relationships Explained with examples



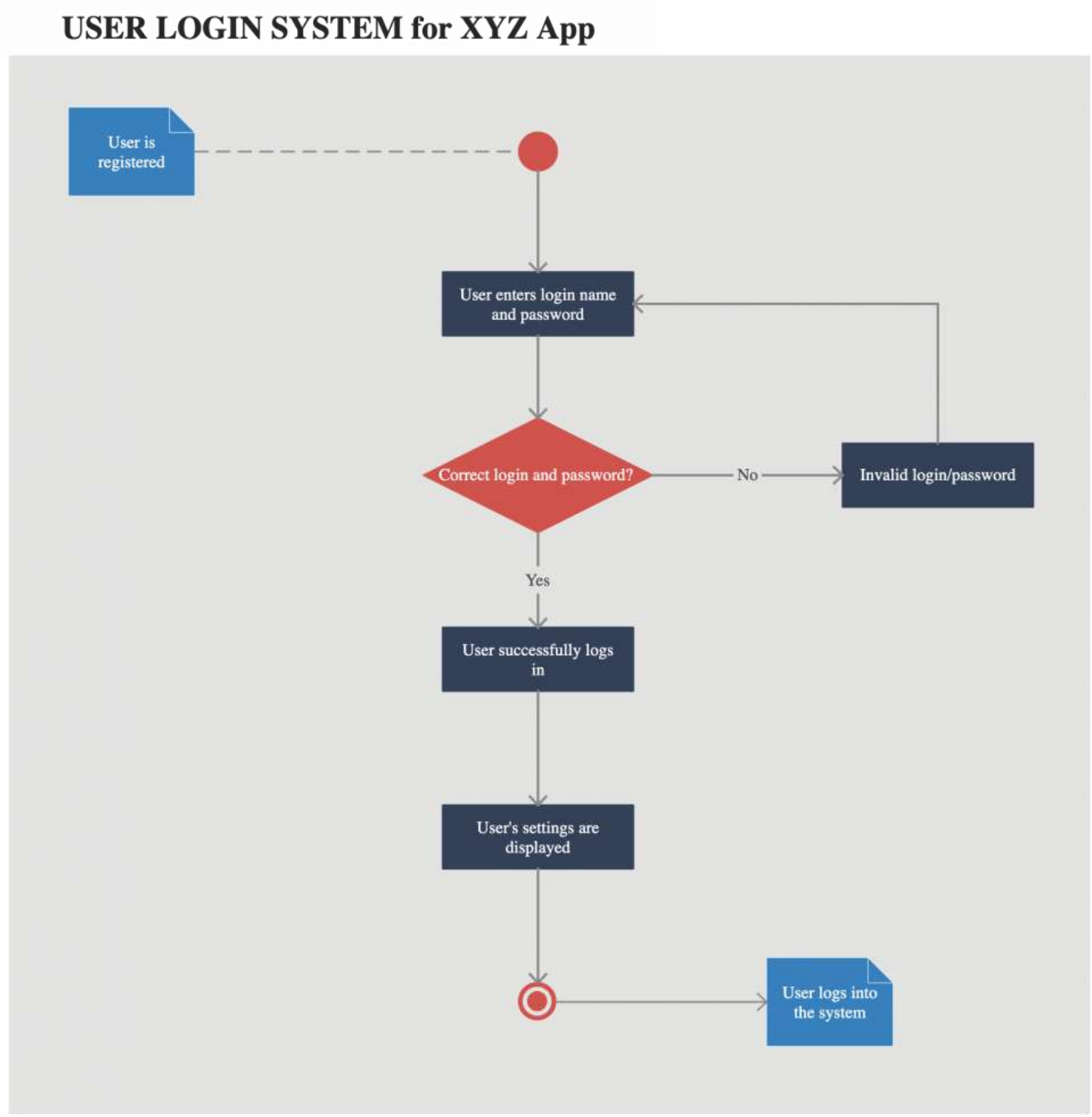
Click on the image to edit this template

[Get More Use Case Diagram Examples >>]

Activity Diagram

Activity diagrams represent workflows in a graphical way. They can be used to describe the business workflow or the operational workflow of any component in a system. Sometimes activity diagrams are used as an

alternative to State machine diagrams. Check out this wiki article to learn about symbols and usage of activity diagrams. You can also refer this easy guide to activity diagrams.



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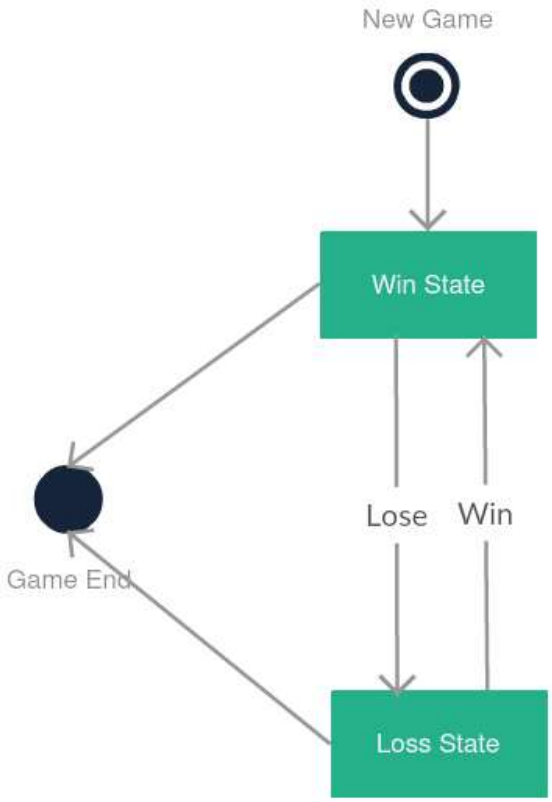
State Machine Diagram

State machine diagrams are similar to activity diagrams, although notations and usage change a bit. They are sometimes known as state diagrams or state chart diagrams as well. These are very useful to describe the behavior of objects that act differently according to the state they are in at the moment. The State machine diagram below shows the basic states and actions.



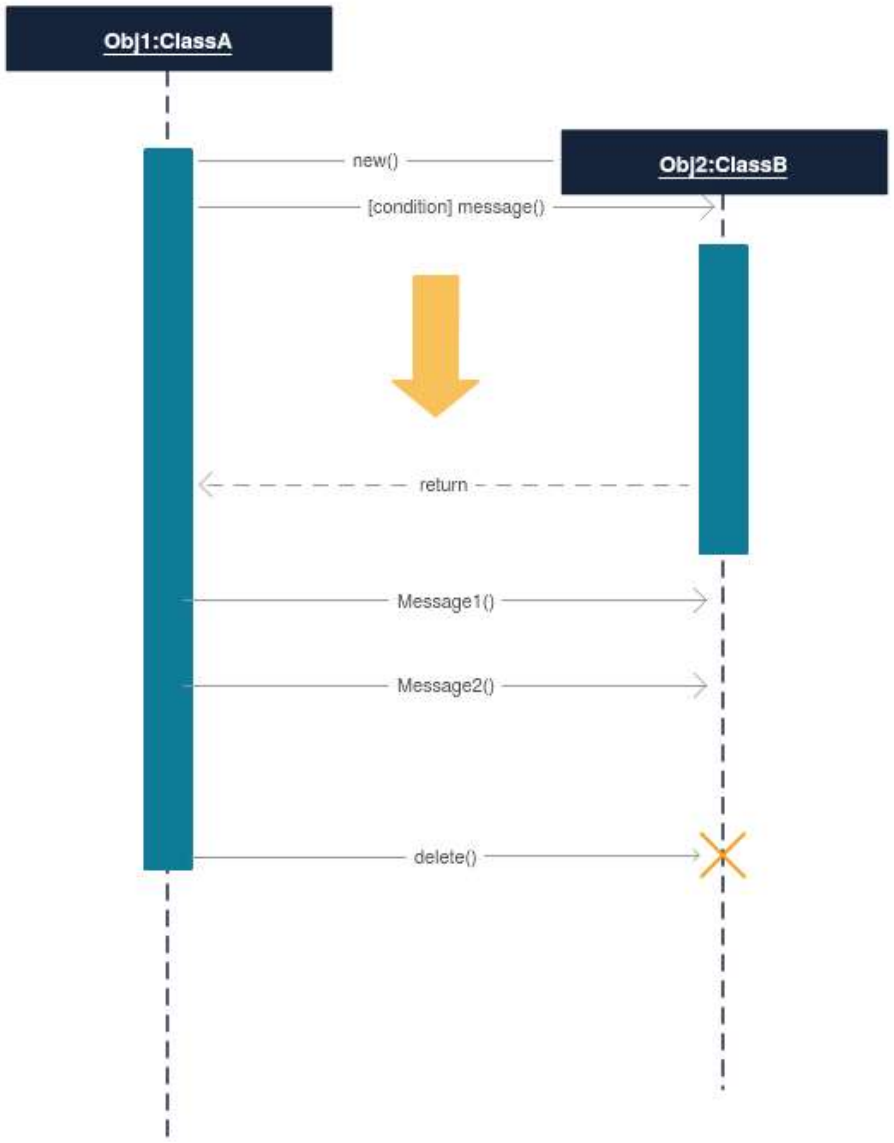
State Machine diagram in UML, sometimes referred to as State or State chart diagram

Get More State Chart Diagram Examples >>

Sequence Diagram

Sequence diagrams in UML show how objects interact with each other and the order those interactions occur. It's important to note that they show the interactions for a particular scenario. The processes are represented vertically and interactions are shown as arrows. This article explains the purpose and the basics of Sequence diagrams. Also, check out this complete Sequence Diagram Tutorial to learn more about sequence diagrams.

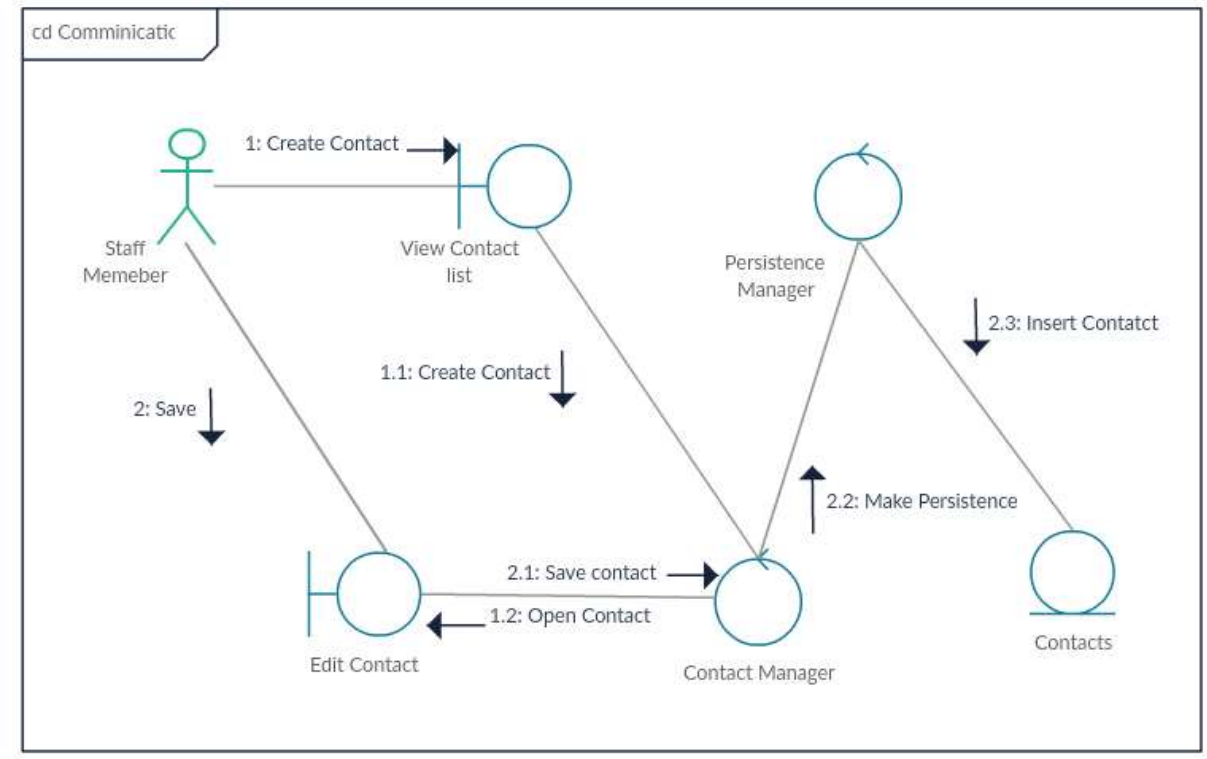
You can also instantly start drawing using our sequence diagram templates.



Sequence diagram drawn using Creately

Communication Diagram

In UML 1 they were called collaboration diagrams. Communication diagrams are similar to sequence diagrams, but the focus is on messages passed between objects. The same information can be represented using a sequence diagram and different objects. Click here to understand the differences using an example.



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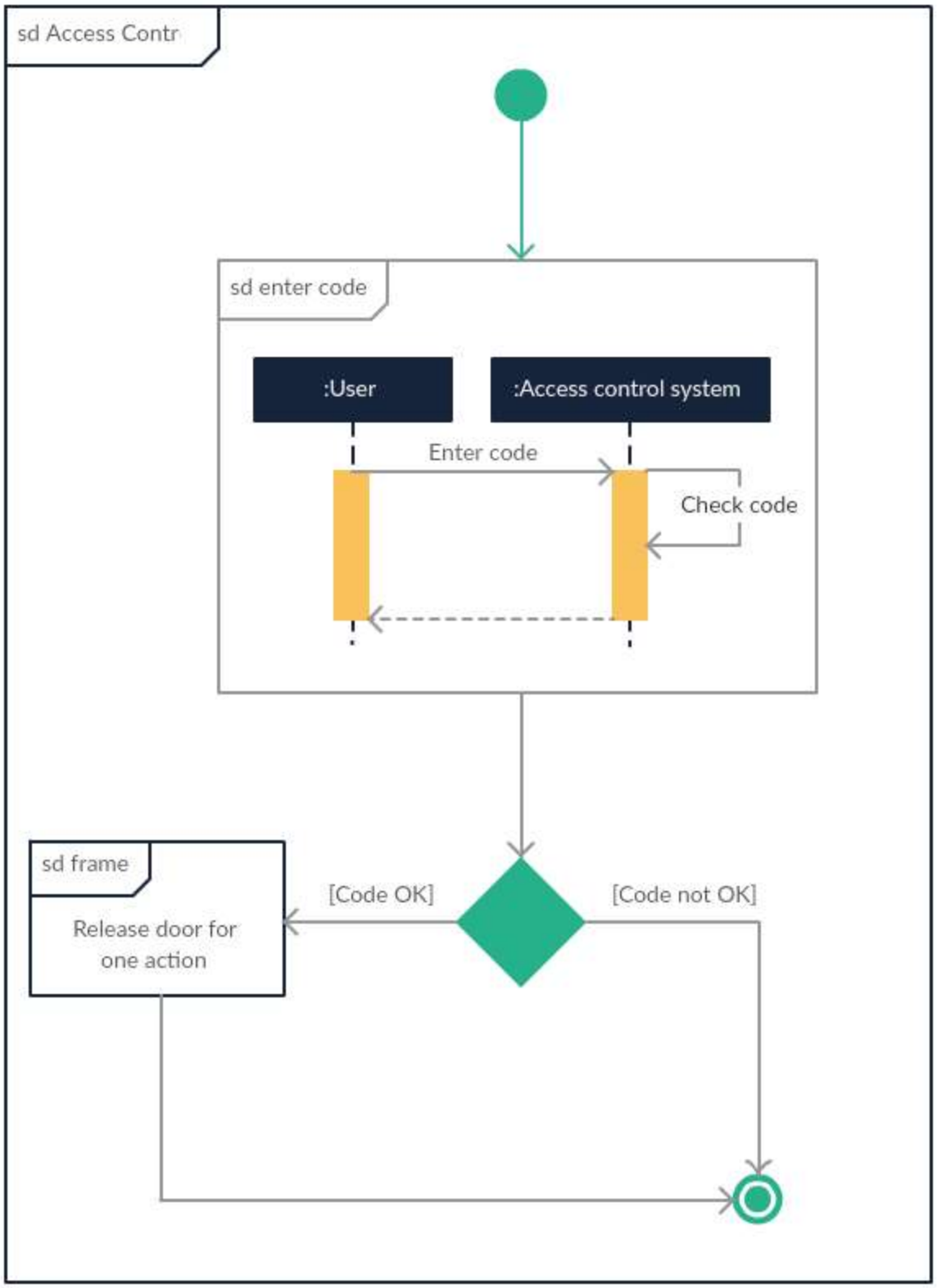
Interaction Overview Diagram

Interaction overview diagrams are very similar to activity diagrams. While activity diagrams show a sequence of processes, Interaction overview diagrams show a sequence of interaction diagrams.

They are a collection of interaction diagrams and the order they happen. As mentioned before, there are seven types of interaction diagrams, so any one of them can be a node in an interaction overview diagram.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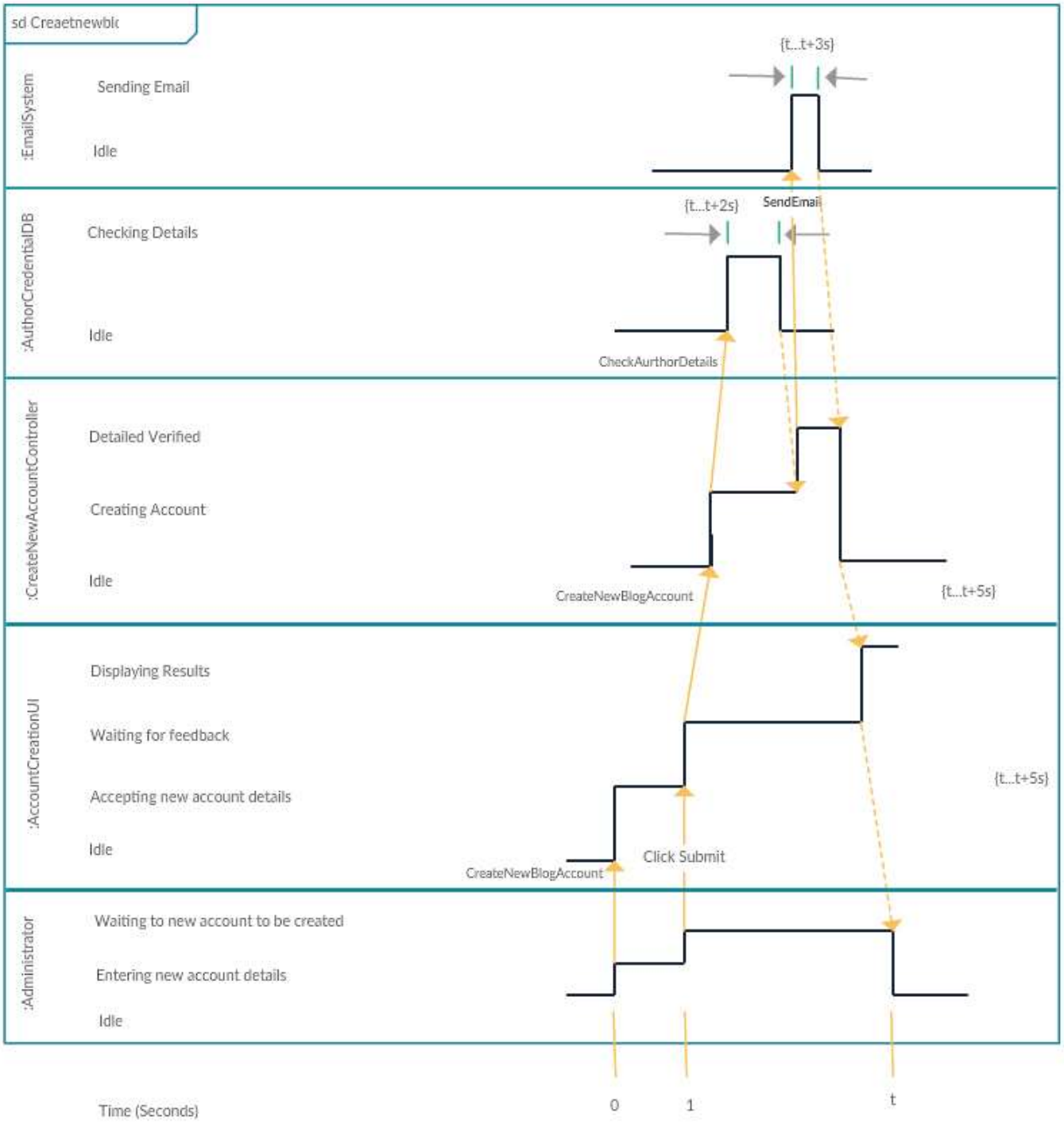
Timing Diagram

Timing diagrams are very similar to sequence diagrams. They represent the behavior of objects in a given time frame. If it's only one object, the diagram is straightforward. But, if there is more than one object is involved, a Timing diagram is used to show interactions between objects during that time frame.

Click here to create your timing diagram.



Mentioned above are all the UML diagram types. UML offers many diagram types, and sometimes two diagrams can explain the same thing using different notations.