Software engineering uses diagrams, primarily [UML diagrams](https://www.google.com/search?sca_esv=3dd5e06a00554f5a&cs=0&sxsrf=AE3TifP_W31_64_fQj8fVVJKjADg9pMtog%3A1758074624431&q=UML+diagrams&sa=X&ved=2ahUKEwizyeOr2t6PAxUvwjgGHWUrKmcQxccNegQIAxAB&mstk=AUtExfCRExcCE5vI5X0H9A2RHuoVzscGOPhHdr4fjpAcEvQ6jT0ZVEP-IieNetuorT6nKoMs1pDiIS15ok4taDPrfh4KdSZpCGwUeCKPEDcYiTjN8lgt_bPmvxXXV9y1ICApQ-Qm7DDByfbm1qcX9RMqSa60S7xZPRbThSg1NXZ-7e9Xy38&csui=3), to model systems. These are broadly categorized into Structural diagrams, which show the system's static parts like Class, Component, and Deployment diagrams, and Behavioral diagrams, which illustrate system dynamics such as Use Case, Sequence, and Activity diagrams. Other common diagrams include ER diagrams for databases and general flowcharts for workflows.

Structural Diagrams

These diagrams show the static, underlying parts of a system.

* [**Class Diagram**](https://www.google.com/search?sca_esv=3dd5e06a00554f5a&cs=0&sxsrf=AE3TifP_W31_64_fQj8fVVJKjADg9pMtog%3A1758074624431&q=Class+Diagram&sa=X&ved=2ahUKEwizyeOr2t6PAxUvwjgGHWUrKmcQxccNegQIGxAB&mstk=AUtExfCRExcCE5vI5X0H9A2RHuoVzscGOPhHdr4fjpAcEvQ6jT0ZVEP-IieNetuorT6nKoMs1pDiIS15ok4taDPrfh4KdSZpCGwUeCKPEDcYiTjN8lgt_bPmvxXXV9y1ICApQ-Qm7DDByfbm1qcX9RMqSa60S7xZPRbThSg1NXZ-7e9Xy38&csui=3)**:** Details classes, their attributes, methods, and their relationships.
* **Component Diagram:** Visualizes how different components in a system are organized and how they interact.
* **Deployment Diagram:** Models the physical hardware components where software components are deployed and their relationships.
* **Object Diagram:** A more concrete view of a system, showing instances of classes and their relationships at a specific point in time.
* **Package Diagram:** Shows how elements are grouped into packages for better organization within the system.
* **Composite Structure Diagram:** Reveals the internal structure of a class and how its internal parts interact.
* [**Profile Diagram**](https://www.google.com/search?sca_esv=3dd5e06a00554f5a&cs=0&sxsrf=AE3TifP_W31_64_fQj8fVVJKjADg9pMtog%3A1758074624431&q=Profile+Diagram&sa=X&ved=2ahUKEwizyeOr2t6PAxUvwjgGHWUrKmcQxccNegQIMRAB&mstk=AUtExfCRExcCE5vI5X0H9A2RHuoVzscGOPhHdr4fjpAcEvQ6jT0ZVEP-IieNetuorT6nKoMs1pDiIS15ok4taDPrfh4KdSZpCGwUeCKPEDcYiTjN8lgt_bPmvxXXV9y1ICApQ-Qm7DDByfbm1qcX9RMqSa60S7xZPRbThSg1NXZ-7e9Xy38&csui=3)**:** Used to extend the UML model by creating new kinds of modeling elements.

Behavioral Diagrams

These diagrams illustrate how a system functions and changes over time.

* [**Use Case Diagram**](https://www.google.com/search?sca_esv=3dd5e06a00554f5a&cs=0&sxsrf=AE3TifP_W31_64_fQj8fVVJKjADg9pMtog%3A1758074624431&q=Use+Case+Diagram&sa=X&ved=2ahUKEwizyeOr2t6PAxUvwjgGHWUrKmcQxccNegQIRxAB&mstk=AUtExfCRExcCE5vI5X0H9A2RHuoVzscGOPhHdr4fjpAcEvQ6jT0ZVEP-IieNetuorT6nKoMs1pDiIS15ok4taDPrfh4KdSZpCGwUeCKPEDcYiTjN8lgt_bPmvxXXV9y1ICApQ-Qm7DDByfbm1qcX9RMqSa60S7xZPRbThSg1NXZ-7e9Xy38&csui=3)**:**

Depicts how users interact with a system and its different functionalities.

* **Activity Diagram:**

Shows the flow of activities or steps in a process, including decision points and branching.

* **Sequence Diagram:**

Illustrates the step-by-step interactions and message passing between objects in a system over time.

* **Communication Diagram (formerly Collaboration Diagram):**

Focuses on the architecture, showing how objects interact by passing messages.

* **State Machine Diagram:**

Details the different states an object can be in and the transitions between these states.

* **Interaction Overview Diagram:**

Provides a high-level view of multiple interactions within the system.

* **Timing Diagram:**

Emphasizes the precise timing of events and the synchronization of objects over time.

Other Common Diagrams

Beyond UML, other types of diagrams are frequently used in software engineering:

* [**Entity-Relationship Diagram**](https://www.google.com/search?sca_esv=3dd5e06a00554f5a&cs=0&sxsrf=AE3TifP_W31_64_fQj8fVVJKjADg9pMtog%3A1758074624431&q=Entity-Relationship+Diagram&sa=X&ved=2ahUKEwizyeOr2t6PAxUvwjgGHWUrKmcQxccNegUIgwEQAQ&mstk=AUtExfCRExcCE5vI5X0H9A2RHuoVzscGOPhHdr4fjpAcEvQ6jT0ZVEP-IieNetuorT6nKoMs1pDiIS15ok4taDPrfh4KdSZpCGwUeCKPEDcYiTjN8lgt_bPmvxXXV9y1ICApQ-Qm7DDByfbm1qcX9RMqSa60S7xZPRbThSg1NXZ-7e9Xy38&csui=3)**(ER Diagram):** Specifically designed for modeling the structure of databases.
* [**Flowchart**](https://www.google.com/search?sca_esv=3dd5e06a00554f5a&cs=0&sxsrf=AE3TifP_W31_64_fQj8fVVJKjADg9pMtog%3A1758074624431&q=Flowchart&sa=X&ved=2ahUKEwizyeOr2t6PAxUvwjgGHWUrKmcQxccNegUIhQEQAQ&mstk=AUtExfCRExcCE5vI5X0H9A2RHuoVzscGOPhHdr4fjpAcEvQ6jT0ZVEP-IieNetuorT6nKoMs1pDiIS15ok4taDPrfh4KdSZpCGwUeCKPEDcYiTjN8lgt_bPmvxXXV9y1ICApQ-Qm7DDByfbm1qcX9RMqSa60S7xZPRbThSg1NXZ-7e9Xy38&csui=3)**:** A general diagram for visualizing processes and workflows, often used for algorithms or simpler system logic.
* [**Network Diagram**](https://www.google.com/search?sca_esv=3dd5e06a00554f5a&cs=0&sxsrf=AE3TifP_W31_64_fQj8fVVJKjADg9pMtog%3A1758074624431&q=Network+Diagram&sa=X&ved=2ahUKEwizyeOr2t6PAxUvwjgGHWUrKmcQxccNegUIiAEQAQ&mstk=AUtExfCRExcCE5vI5X0H9A2RHuoVzscGOPhHdr4fjpAcEvQ6jT0ZVEP-IieNetuorT6nKoMs1pDiIS15ok4taDPrfh4KdSZpCGwUeCKPEDcYiTjN8lgt_bPmvxXXV9y1ICApQ-Qm7DDByfbm1qcX9RMqSa60S7xZPRbThSg1NXZ-7e9Xy38&csui=3)**:** Used to represent the connections and relationships between network components.
* [**Block Diagram**](https://www.google.com/search?sca_esv=3dd5e06a00554f5a&cs=0&sxsrf=AE3TifP_W31_64_fQj8fVVJKjADg9pMtog%3A1758074624431&q=Block+Diagram&sa=X&ved=2ahUKEwizyeOr2t6PAxUvwjgGHWUrKmcQxccNegUIhgEQAQ&mstk=AUtExfCRExcCE5vI5X0H9A2RHuoVzscGOPhHdr4fjpAcEvQ6jT0ZVEP-IieNetuorT6nKoMs1pDiIS15ok4taDPrfh4KdSZpCGwUeCKPEDcYiTjN8lgt_bPmvxXXV9y1ICApQ-Qm7DDByfbm1qcX9RMqSa60S7xZPRbThSg1NXZ-7e9Xy38&csui=3)**:** Shows the main components of a system and how they are connected.