



Software Engineering

هندسة البرمجيات

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الهيثم

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المرحلة الثالثة

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Unified Modeling Language (UML)

Topics covered



- ✧ What is Unified Modelling Language (UML)?
- ✧ Why UML is an important?
- ✧ Review kinds of Diagrams (models)
 1. Use Case Diagrams
 2. Activity Diagrams
 3. Class Diagrams
 4. Sequence Diagrams
 5. Collaboration Diagrams
 6. Component Diagrams

What is Unified Modelling Language (UML)?



- ✧ **Unified Modelling Language (UML)**: is a language just as sure as, Pascal, C# (C sharp), German, English, and Latin are languages. And the UML is probably one of the newest languages invented by humankind, invented around 1997.
- ✧ **The UML** is an official of a pictural language where there are common symbols and relational that have one common meaning.

Why UML is an important?



- ✧ A relation person might ask: Why then, if **Bill Gates** is making billions writing software without a significant emphasis on formal modeling, should I care about UML? **The answer is that 80% of all software project fail. These projects exceed their budget, don't provide the features customers need or desire or worse, are never delivered.**
- ✧ So, in this case more time need needs to be spent on software analysis and design, and this means **diagrams (models).**

1. Use Case Diagrams



Use Case Diagrams are the equivalent of modern cave art. A use case's main symbols are the actor and the use case oval.

2. Activity Diagrams



An activity diagram is the UML version of a flowchart. Activity diagrams are used to analyze processes and, if necessary, perform process reengineering.

3. Class Diagrams



Class Diagrams are used to show the classes in a system and the relationship between those classes.

4. Sequence Diagrams



Sequence diagrams shows the classes along the top and messages sent between those classes, modeling a single flow through the objects in the system.

5. Collaboration Diagrams



Collaboration diagrams use the same classes and messages but are organized in a spatial display.

6. Component Diagrams



Component Diagrams an example of implementation model.

Diagram



<https://app.diagrams.net/>



Thanks