

UML: Use Case Diagrams

Diagramming your application use cases

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Objectives

- Learn how to map application features to use case diagrams
- Learn what components are in a use case diagram

What are UML Diagrams?

UML stands for **Unified Modeling Language**.

UML helps developers visualize the the system's architecture, understand high level components and application features

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Different Types of UML Diagrams

- Use case diagrams - documents how a user may use your application
- Component diagrams - documents the components of larger elements and how they interact with each other
- Activity diagrams - documents the flow of the application; ie. implementation details
- Sequence diagrams - documents the steps your application
- Class diagrams - documents the blueprint of your classes
- State diagrams - documents change of state of a component
- Object diagrams - documents the objects in relation to other objects
- Deployment diagrams - documents the operations and deployments of the software
- Timing diagrams - documents the time certain events happen in different components 4

What will we focus on?

- Use case diagrams
- Sequence diagrams
- Class diagrams

Use Case Diagrams

Use case diagrams help depict different use cases and interactions for which people use an application.

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Use Case Diagram components

- Actors - users of the application
- Extensions - relationship between an actor and another actor or use case
- Stereotypes - categorizing your users
- Notes - additional information for the relationship and interactions

Note: *Terminology is taken from the PlantUML language*

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Tools for Diagramming

Languages that generate diagrams

- PlantUML
- yUML
- Mermaid

Visual Tools

- Microsoft Visio
- Lucidchart
- Google Draw

PlantUML: A UML Tool

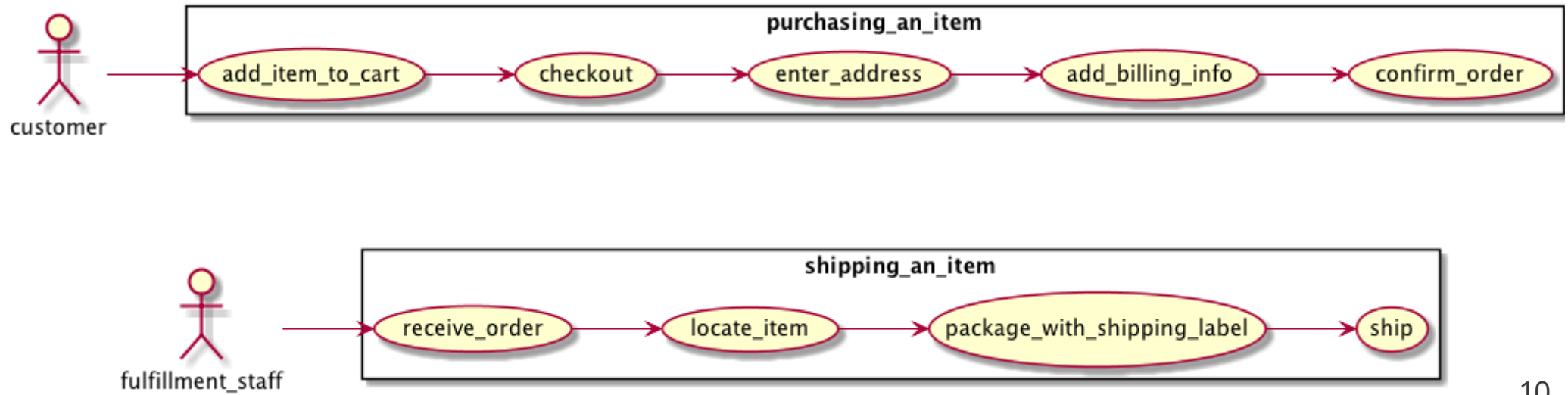
- Is a diagramming language that generates visualizations
- Can easily be version controlled

Installation: <http://plantuml.com/faq-install>

Documentation: <http://plantuml.com/use-case-diagram>

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UML Example: E-commerce Diagrams



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UML Example: E-commerce Diagram PlantUML Code

```
@startuml
left to right direction

actor customer
rectangle purchasing_an_item {
    customer --> (add_item_to_cart)
    (add_item_to_cart) --> (checkout)
    (checkout) --> (enter_address)
    (enter_address) --> (add_billing_info)
    (add_billing_info) --> (confirm_order)
}

newpage
left to right direction

actor fulfillment_staff
rectangle shipping_an_item {
    fulfillment_staff --> (receive_order)
    (receive_order) --> (locate_item)
    (locate_item) --> (package_with_shipping_label)
    (package_with_shipping_label) --> (ship)
}
@enduml
```

Summary

- Use case diagrams are used to visualize and document the application features from a high level
- PlantUML is a modeling language that allows you to version your visualizations

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Thank you

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