Modelling Behaviour

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Example:
From Use Case to Sequence Diagram

| Actor Action	System Response
1. Customer arrives at a checkout with items to purchase	
2. Cashier records identifier from each item	3. Determines item price and adds item info to running sale transaction. Description and price of current item are presented.
4. On completion of item entry, Cashier indicates to PoS that item entry is complete	5. Calculates and presents the sale total.
6. Cashier tells Customer the total.	
7. Customer gives cash to Cashier.	
8. Cashier records received cash	9. Shows the balance due to the Customer
	10. Prints receipt
11. Cashier deposits the cash and extracts the balance.	
	12. Logs the complete sale
13. C gives printed receipt to B with balance	
14. B leaves with the items and recept.	

More on Sequence Diagrams

Example Sequence Diagram
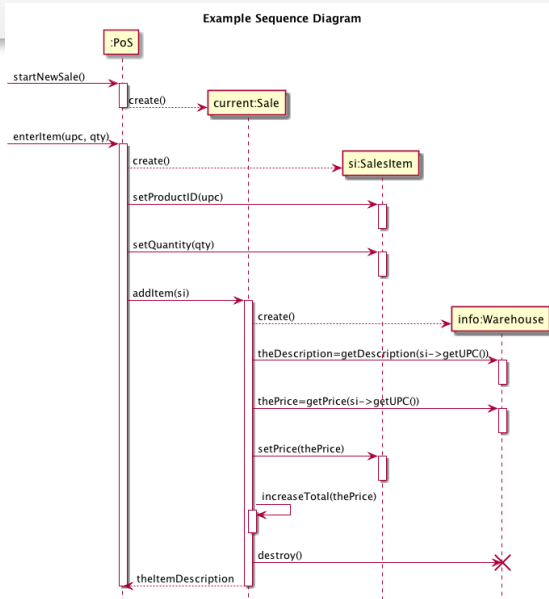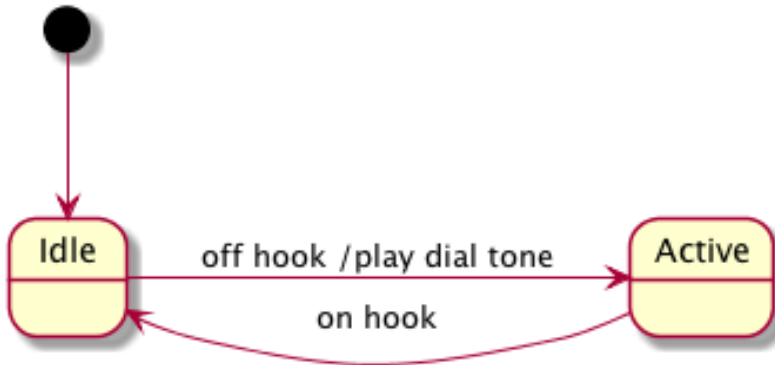
Communication Diagrams (Interaction Diagrams)
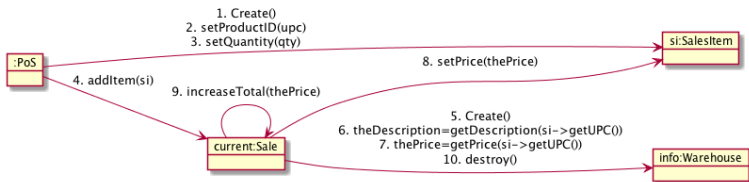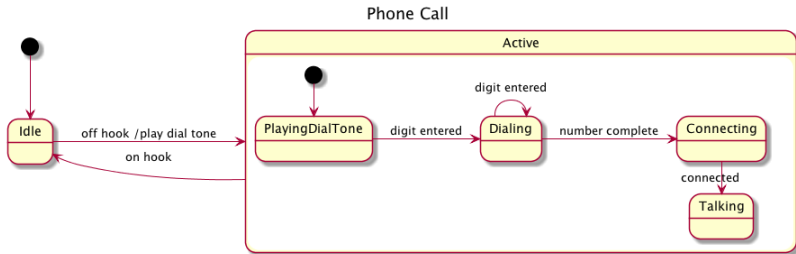
Discuss: Contracts

- What are contracts?
  - Why are we writing them?
- How should you interpret preconditions?
- How to interpret postconditions?
- What are their relation to Sequence Diagrams, Class Diagrams?
- What are extended contracts good for?
  - When might you need Extended Contracts?

State Diagrams

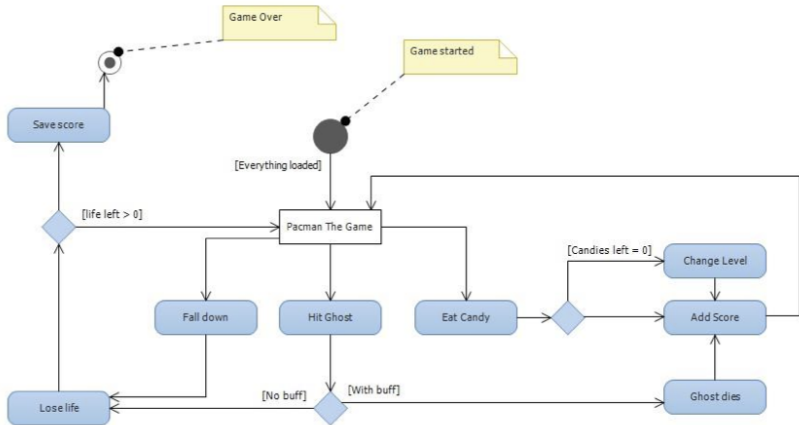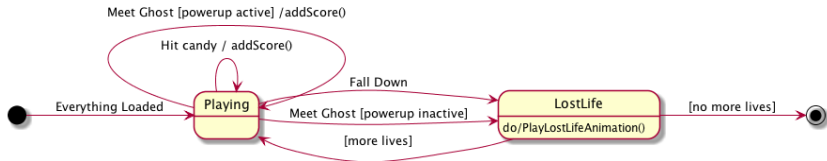## Phone Call

Nested States

Discuss: State Diagrams

- What is a State?
  - When is it meaningful to model states?
- What is an Action and what is a State Change?
  - Also discuss this for Contracts
- How can we use state diagrams in the context of UML to avoid extra work?
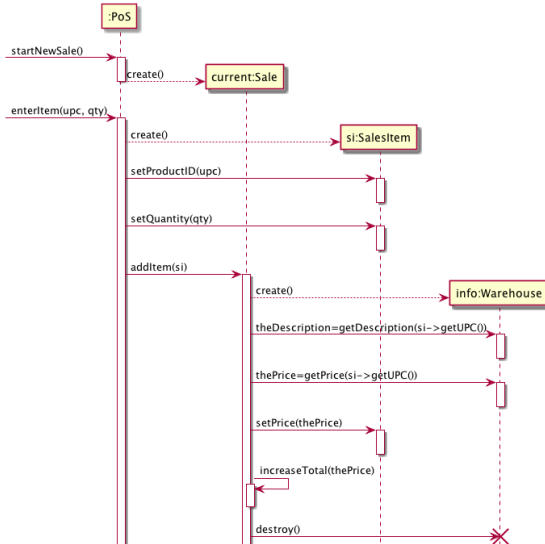
Example State Diagram (bad)

Example State Diagram (better)

Discuss: From Sequence Diagrams to Class Diagrams

Example Sequence Diagram

Discussion: Dynamic Behaviour

- Why should we model the behaviour?