

# Aspect-Oriented Programming



# Aspects

- Definition
  - [ privileged ] Modifiers aspect Id [ extends Type ]  
[ implements TypeList ] [ PerClause ] { Body }
- Example
  - public aspect CheckInCustomer { Body }



# Pointcuts

- Definition
  - call(Signature)
  - execution(Signature)
  - get(field pattern)
  - set(field pattern)
  - etc.



# Advices

- Definition
  - [ strictfp ] AdviceSpec [ throws TypeList ] : Pointcut  
{ Body }
- Example
  - after() throwing(NoRoomException e) :  
makingReservation() { Body }



# AdviceSpec

- before( Formals )
- after( Formals ) returning [ ( Formal ) ]
- after( Formals ) throwing [ ( Formal ) ]
- after( Formals )
- Type around( Formals )



# Other declarations

- `declare warning : Pointcut : String ;`
- `declare error : Pointcut : String ;`
- `etc.`





# Hotel Reservation System

- ReserveRoom.aj
- CheckInCustomer.aj
- CheckOutCustomer.aj
- HandleAuthorization.aj
- HandleWaitingList.aj
- NoSystemOuts.aj



# Other uses

- Control field accesses
- Parameter checking
- Logging
- Etc.

