

# Test Driven Requirements

Phil Robinson

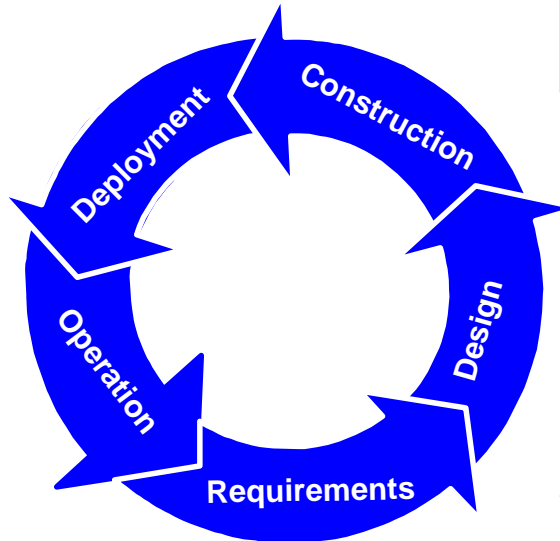
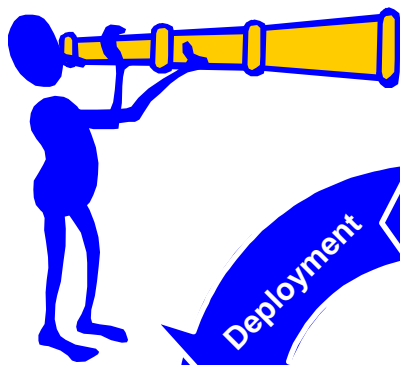


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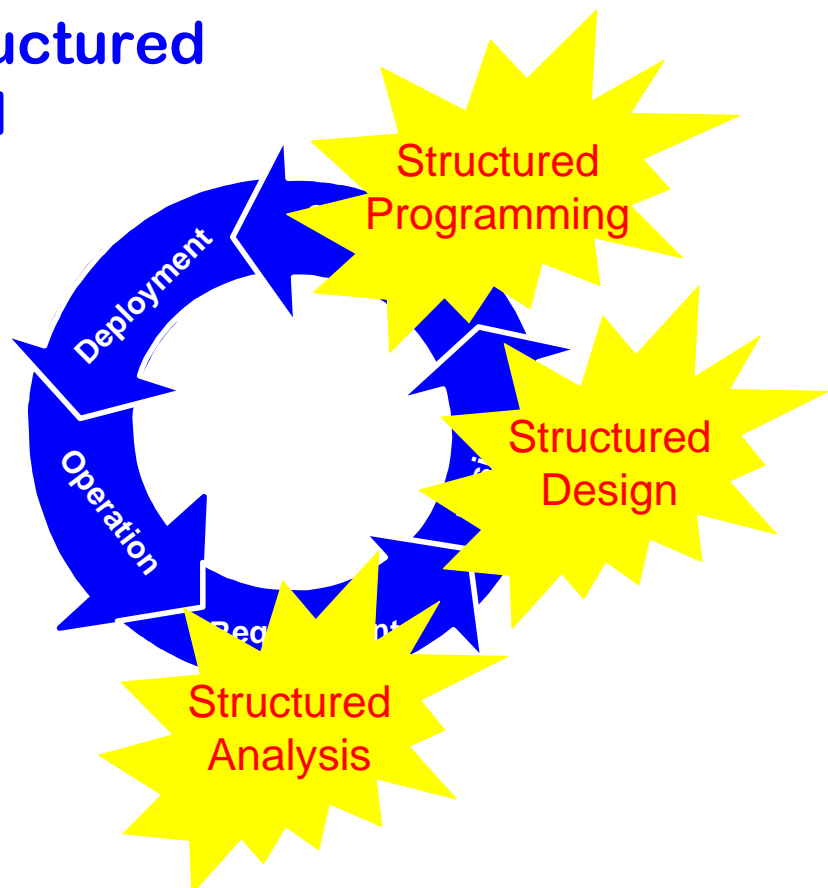
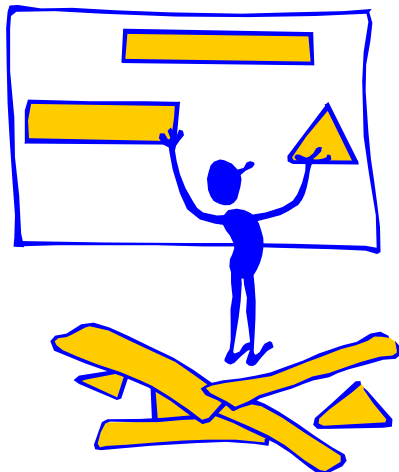
# Software Development Trends

# The Software Development Life Cycle

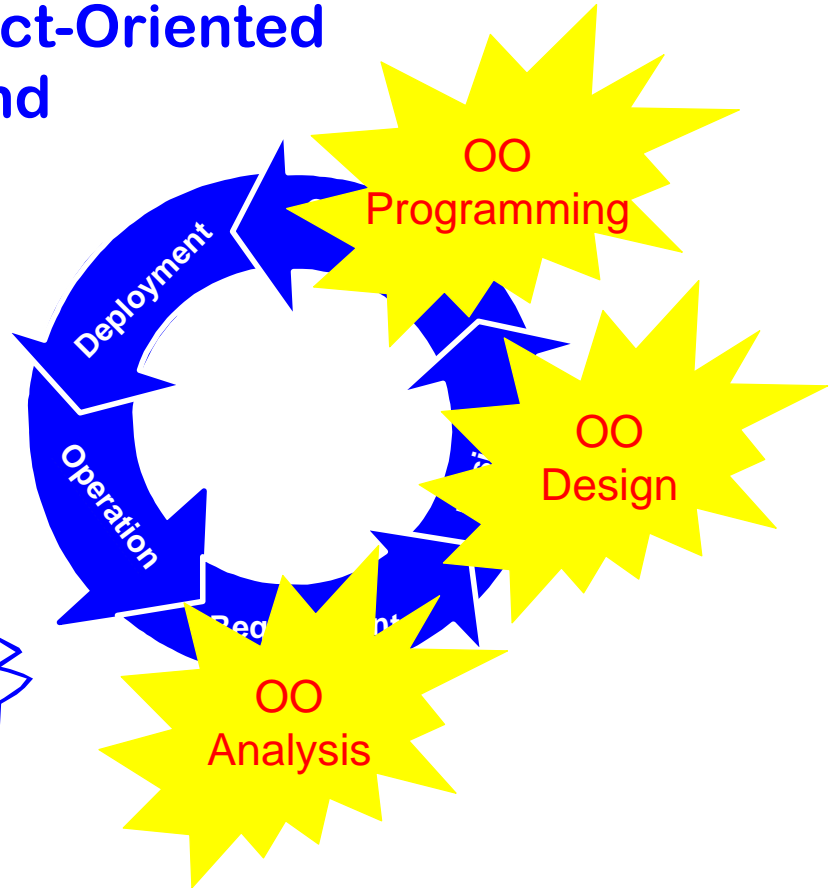


Trends propagate backwards through the development life cycle

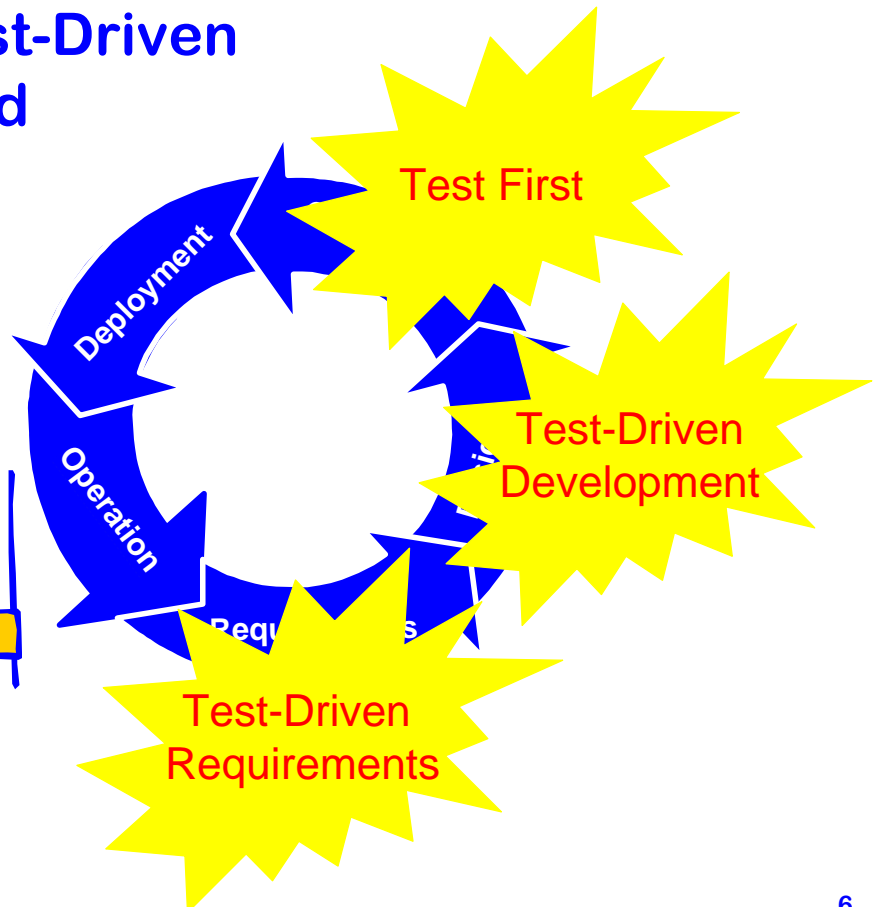
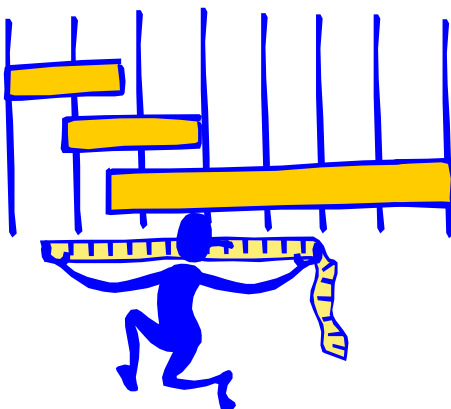
## 80's The Structured Trend



# 90's The Object-Oriented Trend

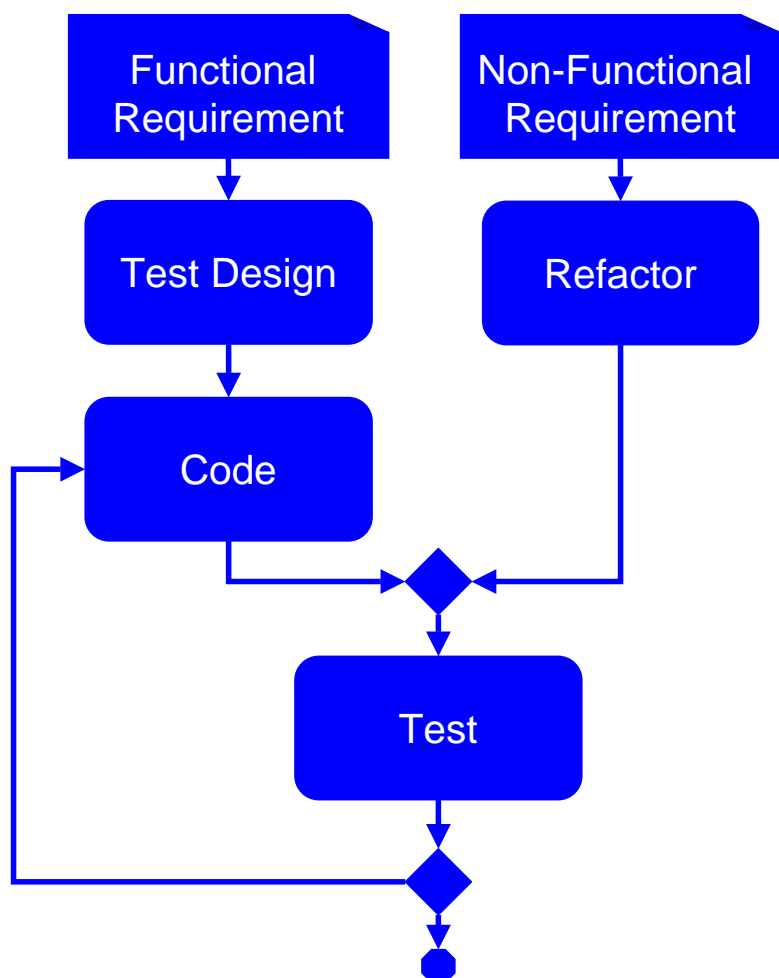


# 00's The Test-Driven Trend



# Brief Overview of Test-Driven Development

## Test-Driven Development

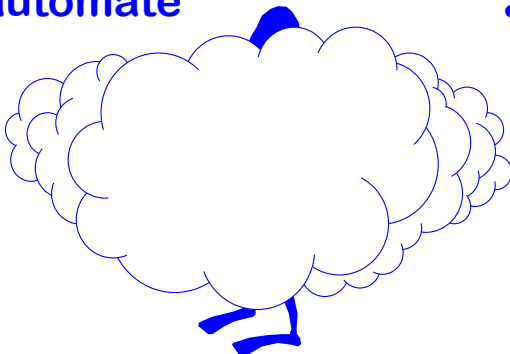


# Test-Driven Requirements

## Requirements vs. Test Cases

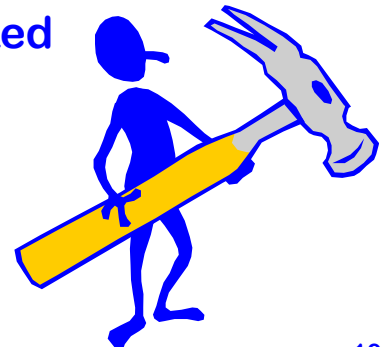
### Requirement

- Abstract
- “What should be”
- Validated by stakeholders
- Validation difficult to automate



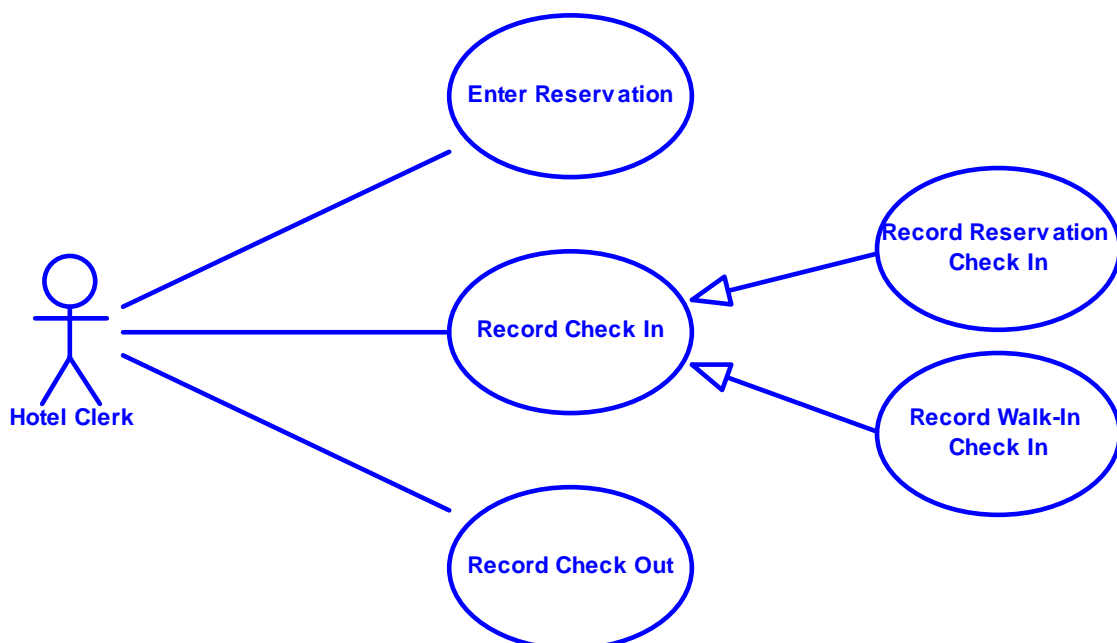
### Test Case

- Concrete
- “What should be
- “What should not be”
- Validated by test oracle
- Test oracle can be automated



# Requirements Models

## Use Case Model Hotel



# Use Case

## Record Check Out

### Main Scenario

1. The hotel staff enter the guest's room number
2. The system displays the guest's stay details
3. The system calculates the room charge

### Alternate Scenarios

- a) **Late check out and no prior arrangement at step 3**
  - a1. The guest is charged for an extra night
- b) **Check out the same day as check in at step 3**
  - b1. The guest is charged for one night

### Business Rules

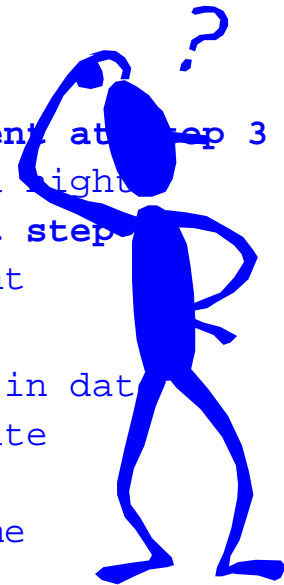
number of nights = today's date - check in date

room charge = number of nights x room rate

Normal check out time is 12pm

Guests may request a later check out time

Late check outs must be before 6pm



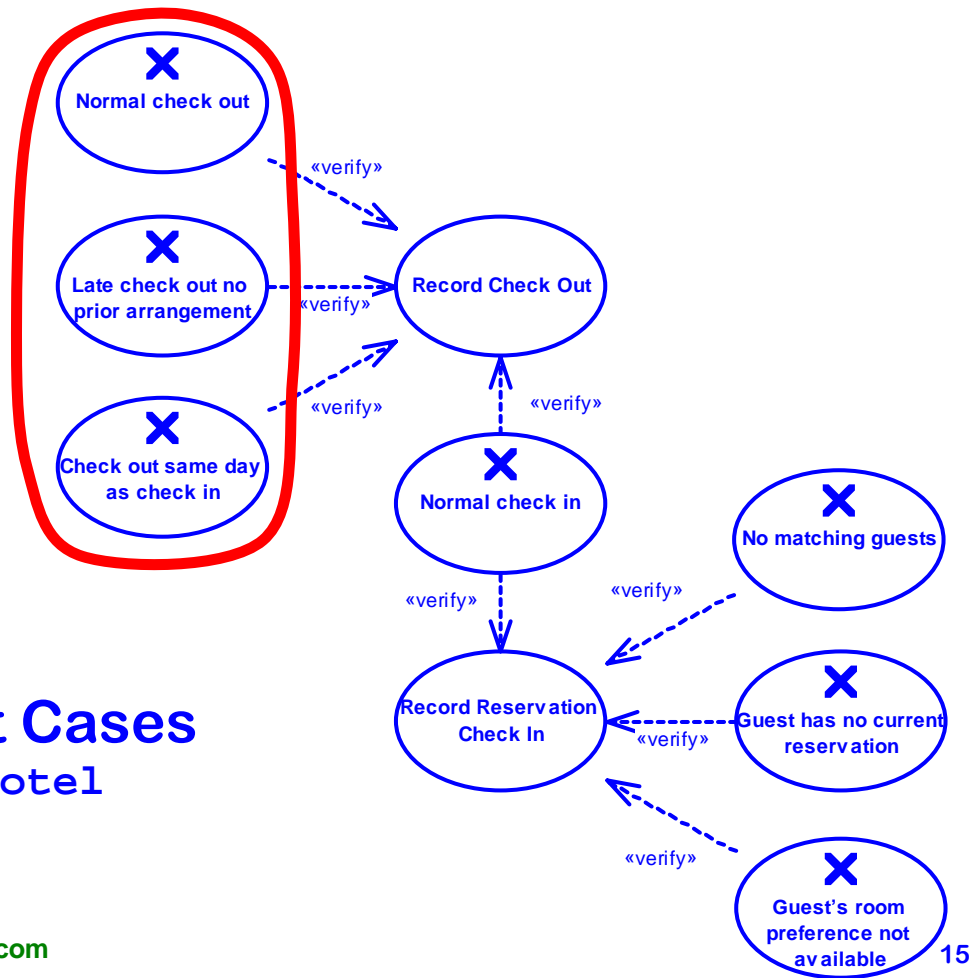
Validation

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# Testing Requirements

## Requirements Verification

## Test Cases Hotel



Today = 17/8/2006

## Requirements Verification Record Check Out

Check in date	Checkout time	Late checkout time	Room rate	Charge	Comment
12/8/2006	11:30 am	None	\$85	\$425	Normal check out
12/8/2006	2:30 pm	None	\$85	\$510	Late check out no prior arrangement
17/8/2006	11:30 pm	None	\$85	\$85	Check out same day as check in



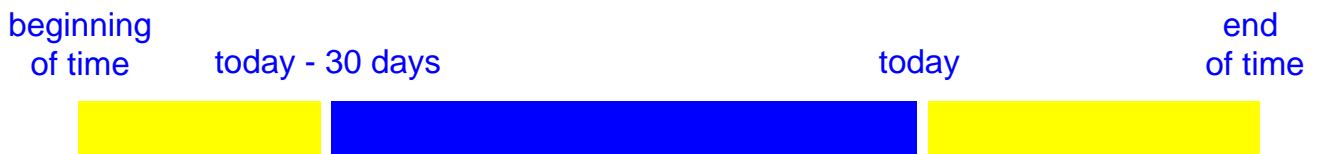
# Unclear Requirements

- Maximum length of stay?
- Maximum and minimum room rates?
- Check out same day as check in
  - With late check out?
  - Check in after 12pm?

# Equivalence Partitioning

## Hotel Check Out

### Check in date



### Charge



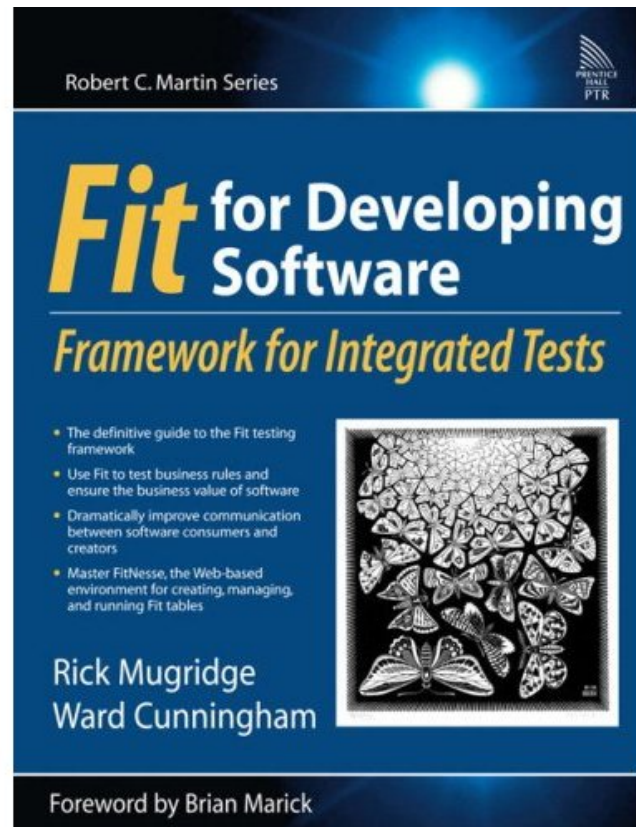
### Late check out time



# Automated Test Oracle

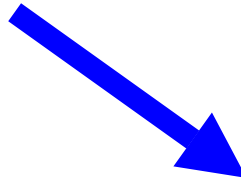
## Framework For Integrated Tests (FIT)

- [fit.c2.com/](http://fit.c2.com/)
- [fitnesse.org/](http://fitnesse.org/)

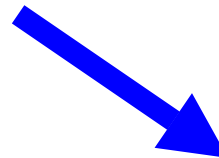


# PHP FIT Hotel

eg::StayColumnFixture				
checkinDate	checkoutTime	lateCheckoutTime	roomRate	charge()
01/07/06	11:30	None	85.00	3995.00
17/07/06	11:30	None	85.00	2635.00
18/07/06	11:30	None	85.00	2550.00
19/07/06	11:30	None	85.00	2465.00
12/08/06	11:30	None	85.00	425.00
16/08/06	11:30	None	85.00	85.00
17/08/06	11:30	None	85.00	85.00
18/08/06	11:30	None	85.00	-85.00
22/08/06	11:30	None	85.00	-425.00



PHPFIT_Fixture_Column	
eg::StayColumnFixture	
+ checkinDate:	var = ""
+ checkoutTime:	var = ""
+ lateCheckoutTime:	var = ""
+ roomRate:	var = 0
+ charge(): var	



stay	
- checkin_date:	var
- room_rate:	var
+ check_in(var, var): var	
+ check_out(var, var): var	

## FIT Demo...

# Questions?

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