Iteration 3 Kick Off, Domain Model Refinement

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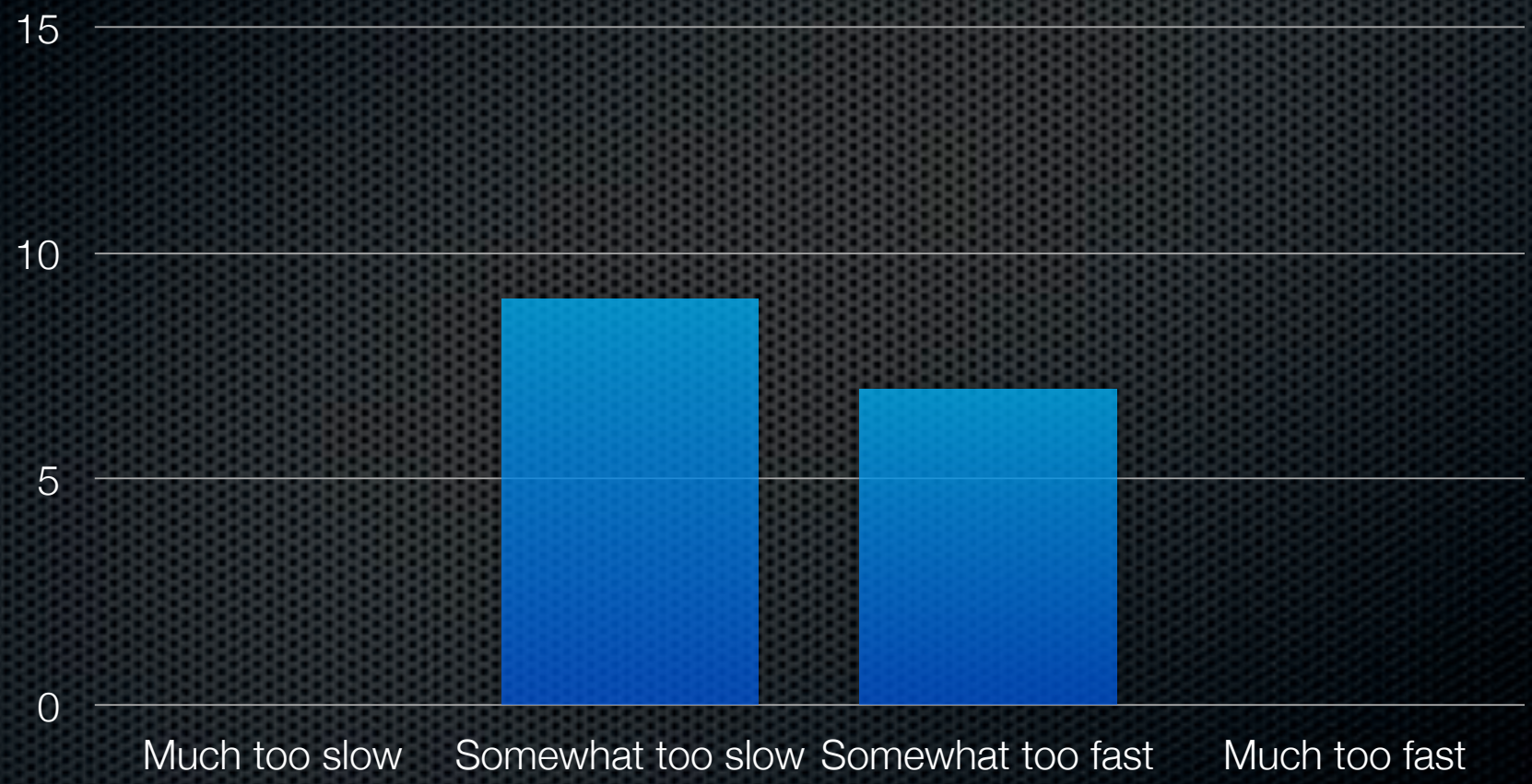
2/3 Course Evaluation Results

Lecture Pace

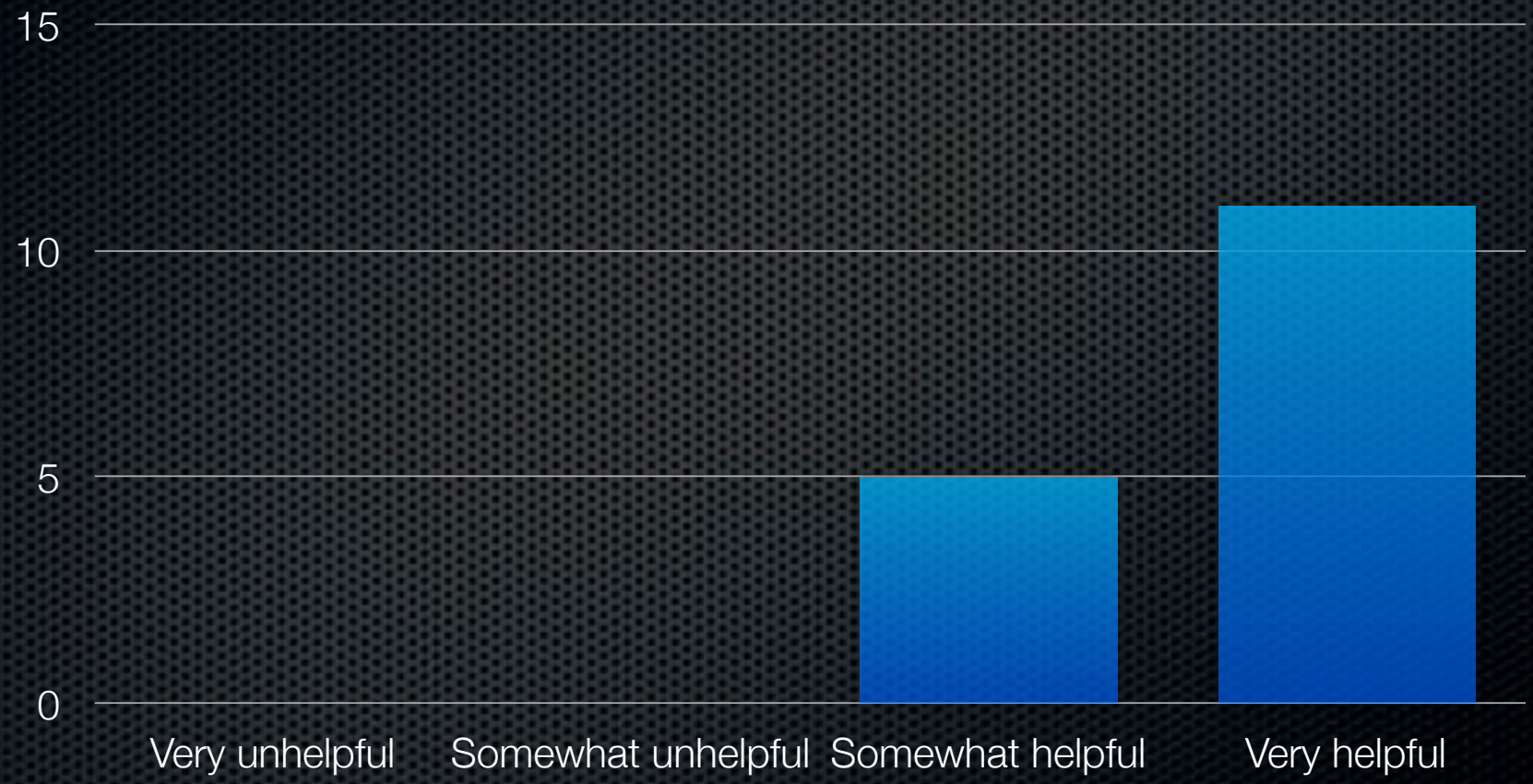


Lecture +/∂

+ Quizzes (5)
+ In-class examples (4)
+ Slides (3)
+ Style/enthusiasm (3)
+ Group work (3)

∂ Detailed example of everything (2)
∂ PDFs of slides sometimes jumbled (1)

Daily Quizzes Helpfulness

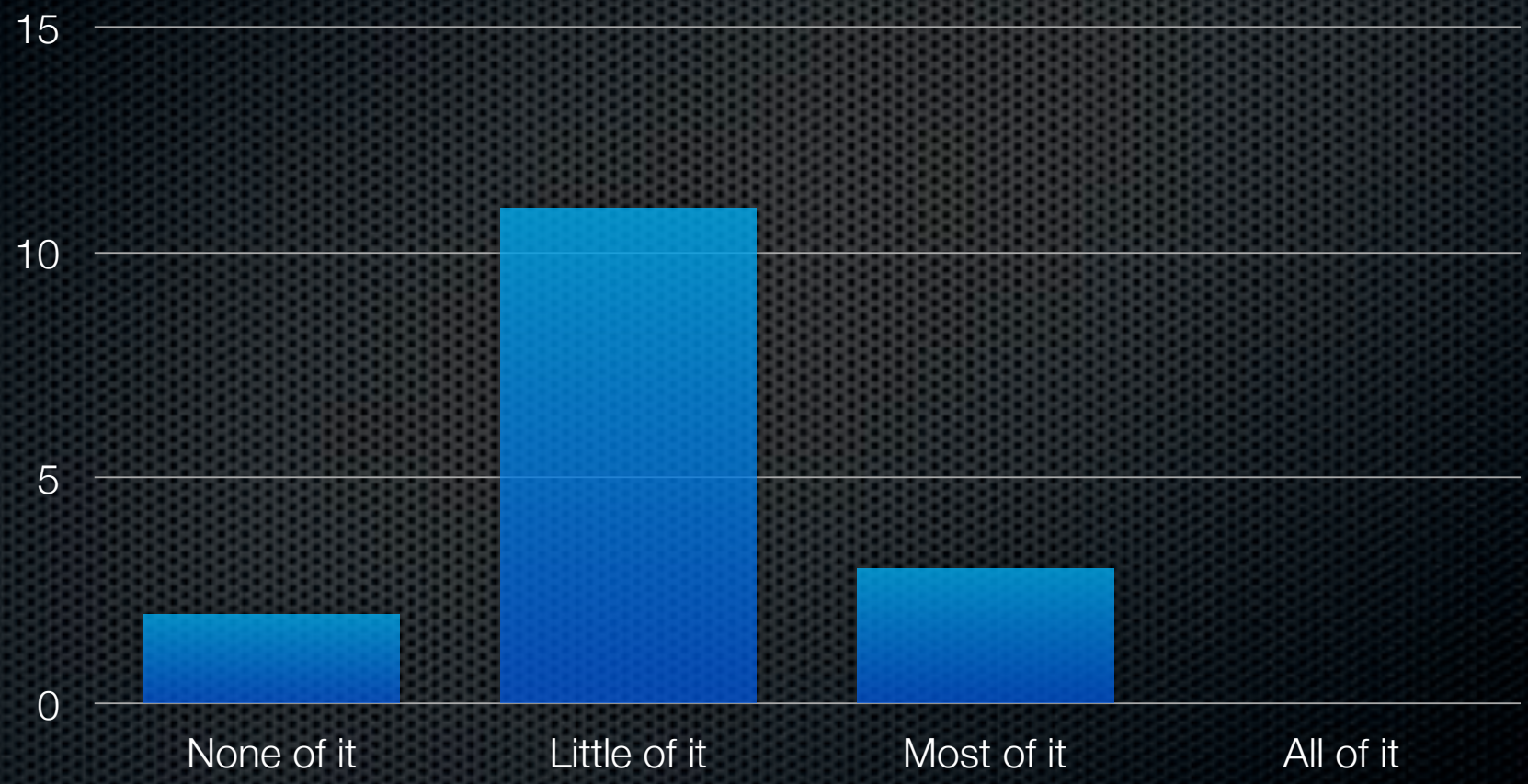


Daily Quizzes +/∂

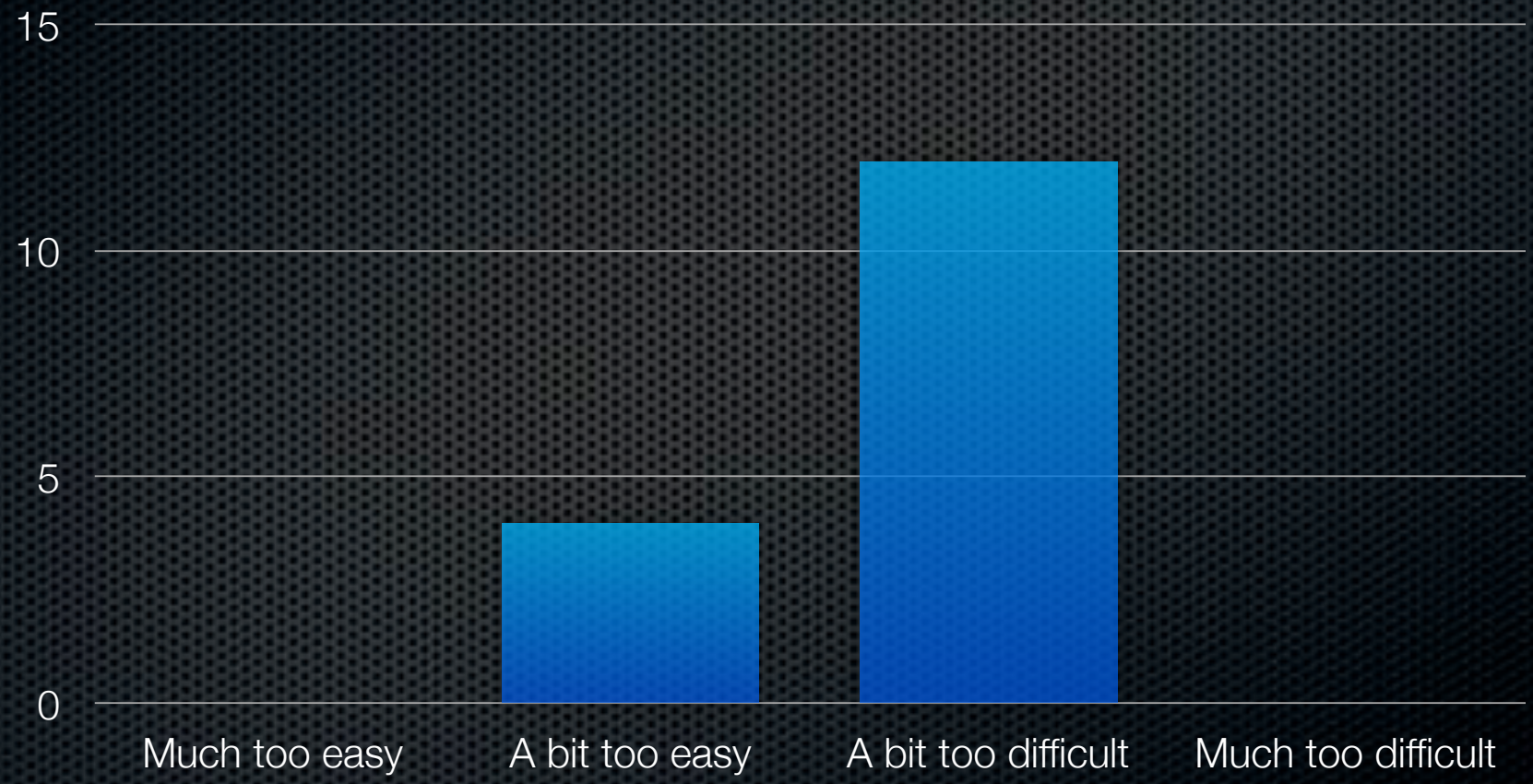
+ Project-related pattern questions (3)
+ Help to pay attention (3)
+ Diagrams (3)
+ Sync with lecture (2)
+ Get-to-know-you questions (2)

∂ Team questions aren't working (2)
∂ More practice problems on quizzes (2)
∂ Fewer practice problems on quizzes (2)

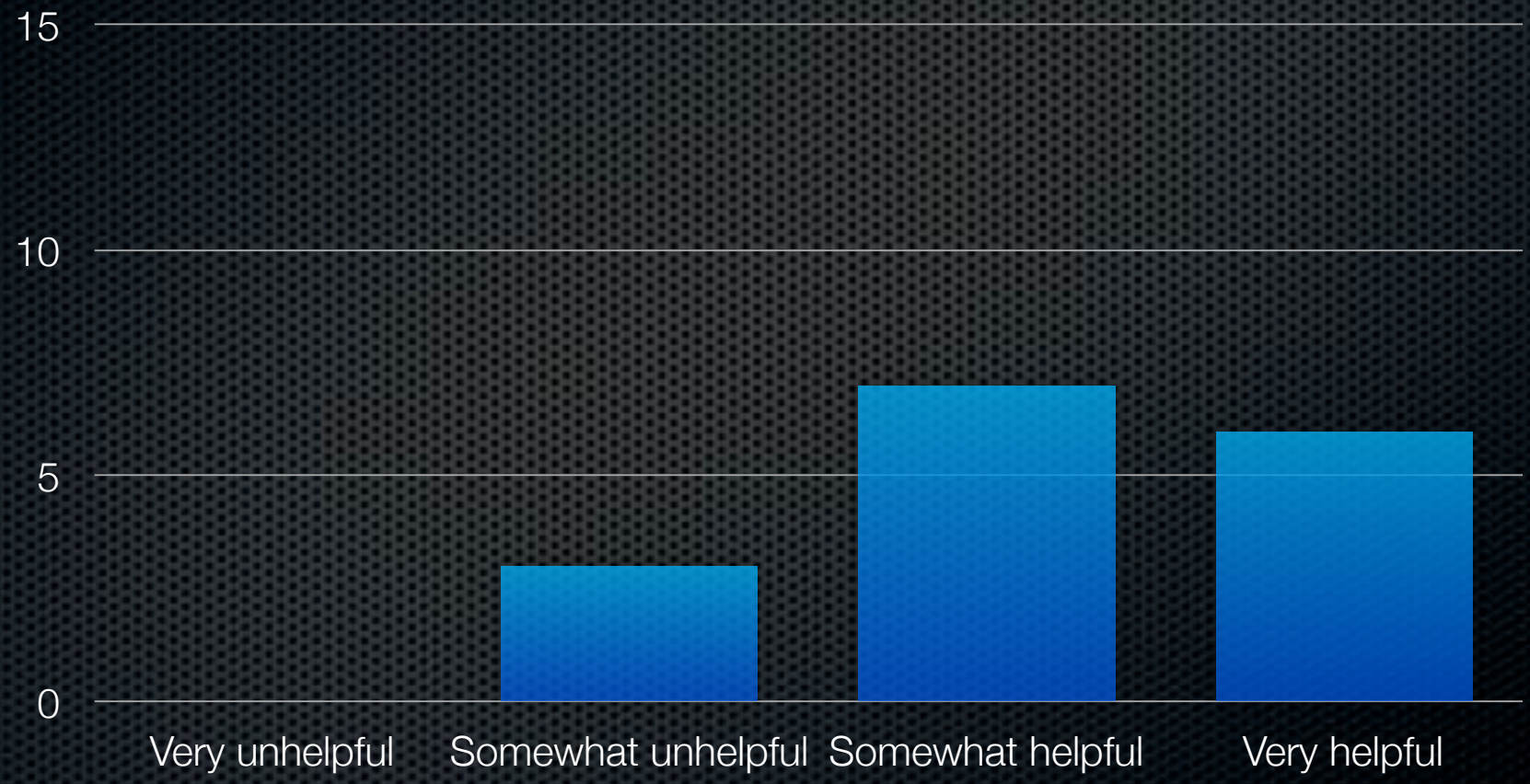
Reading Done



Homework Difficulty



Homework Helpfulness

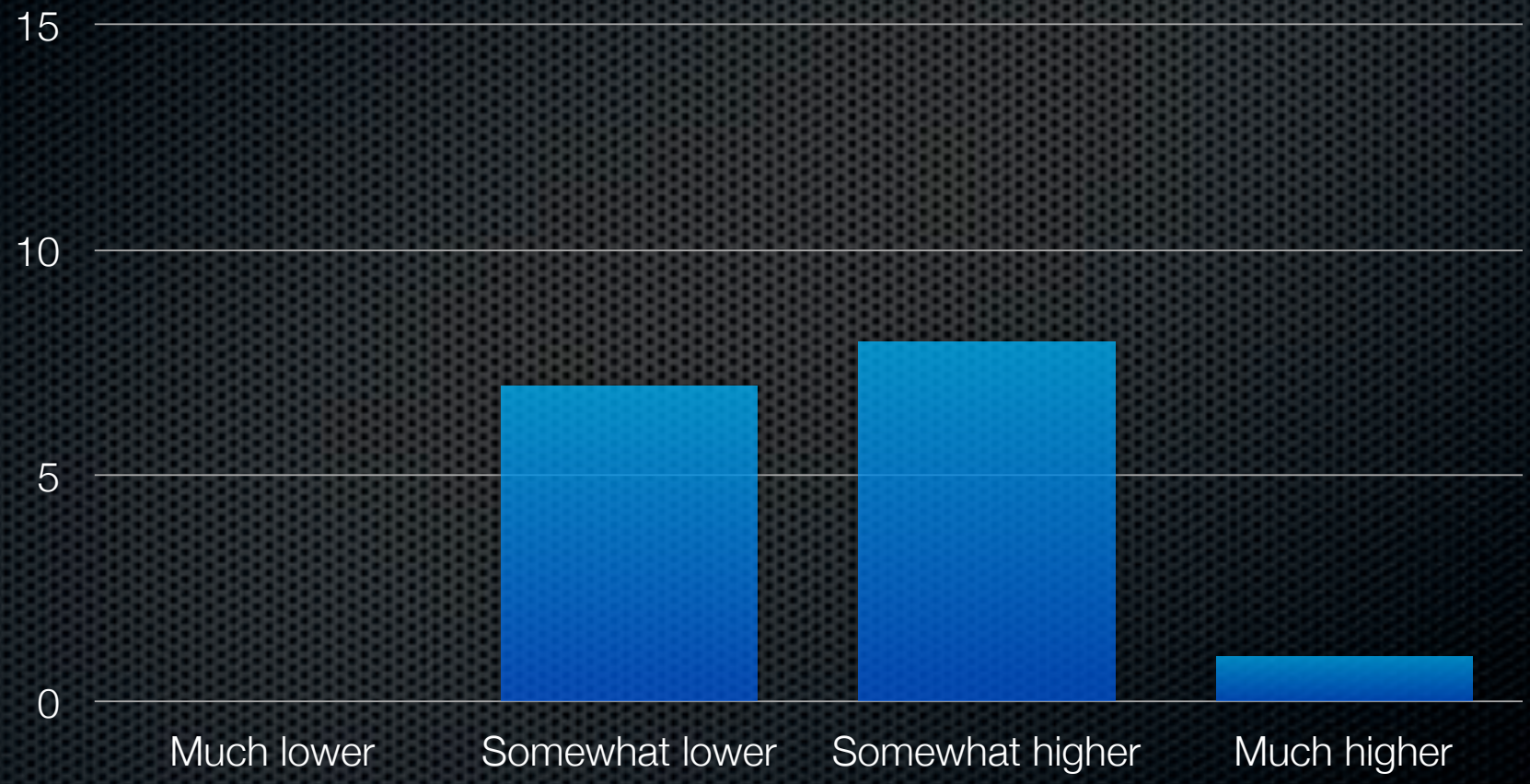


Homework +/∂

+ Reinforcement (5)
+ Hands on learning (3)
+ Good prep for milestones (2)
+ Pattern questions (2)

∂ Not related to our projects (2)

Workload Compared to Average Rose Course



Other Comments

- Direct meetings with me on team projects (1)
- Some team projects are a poor fit for the course (1)
  - Need smaller projects to be able to do them (1)
  - Need bigger projects for the principles to make sense (1)

Domain Model Refinement

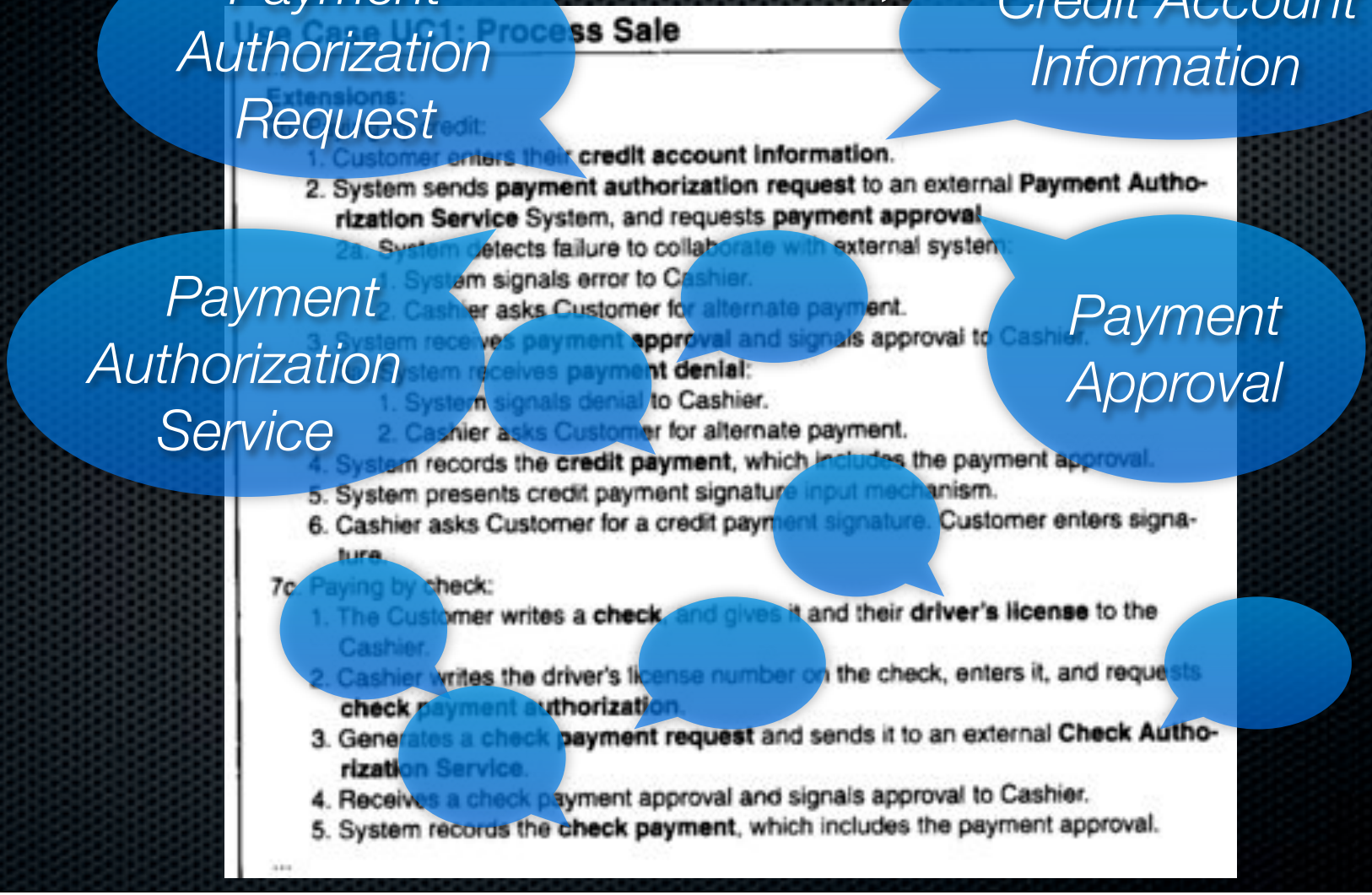
Recall: Techniques for identifying conceptual classes

- Conceptual category lists
- Noun phrase identification
- Existing domain models

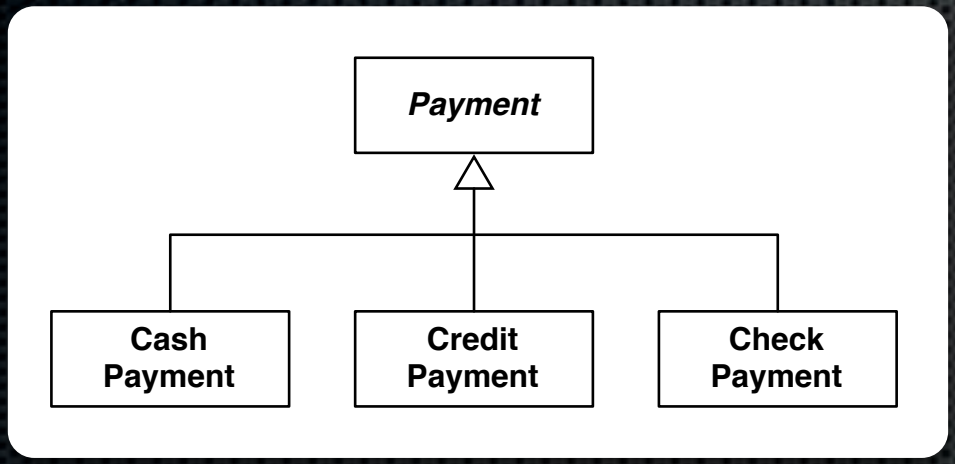
Conceptual Category List on NextGen POS, iteration 3

Category	Examples
physical or tangible objects	*CreditCard, Check*
transactions	*CashPayment, CreditPayment, CheckPayment*
other systems external to ours	*CreditAuthorizationService, CheckAuthorizationService*
organizations	*CreditAuthorizationService, CheckAuthorizationService*
records of finance, work, contracts, legal matters	*AccountsReceivable*

Noun Phrase Identification on NextGen POS, iteration 3



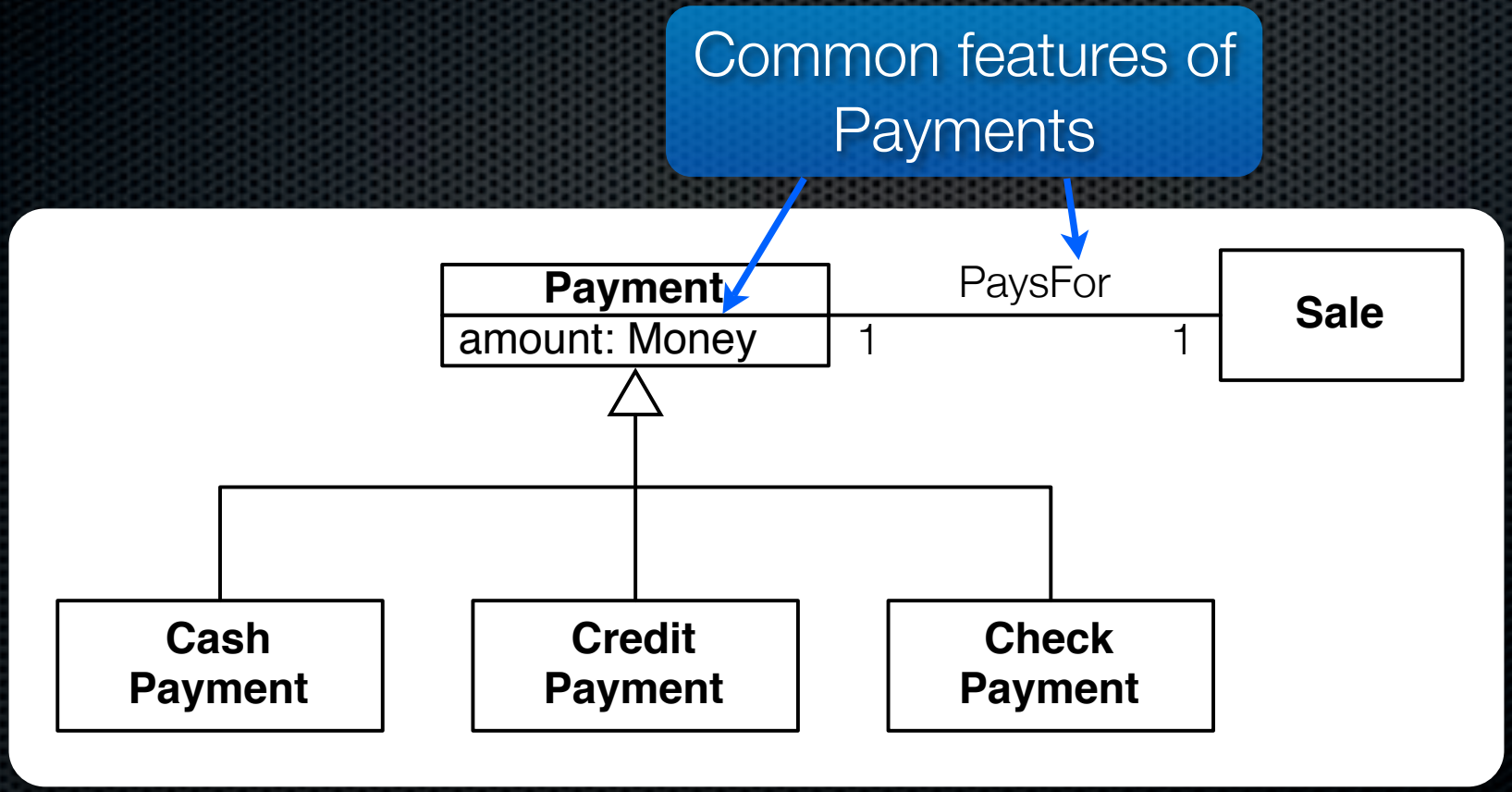
Generalization-Specialization Class Hierarchy

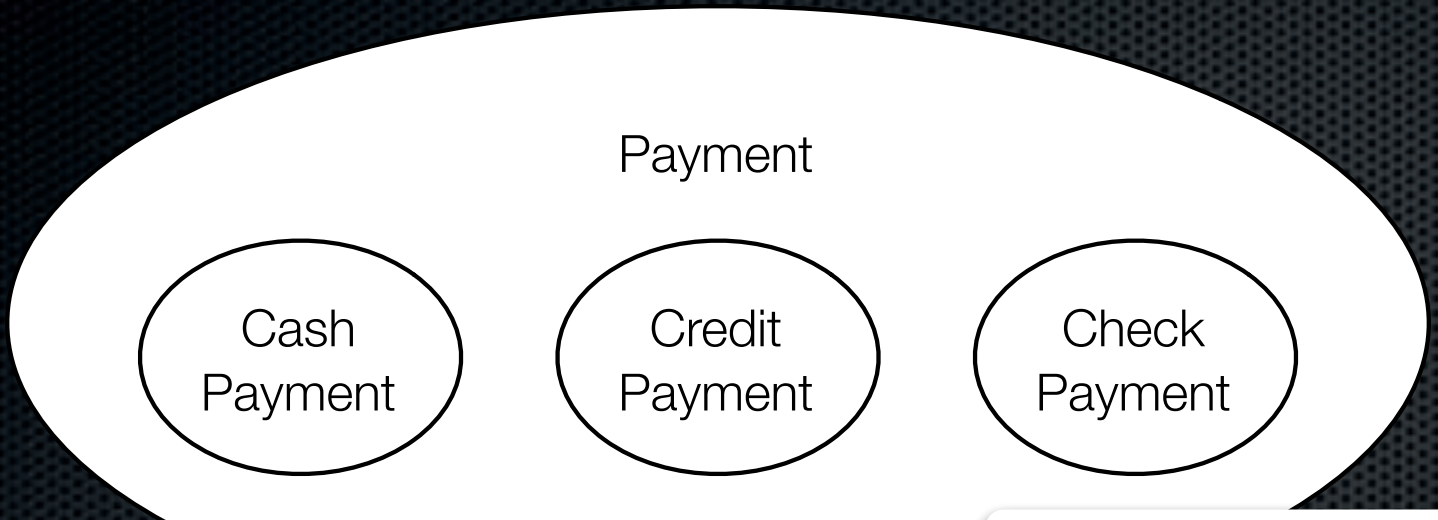


Why? Can understand concepts in more general terms. Payment gives our brains less to deal with.

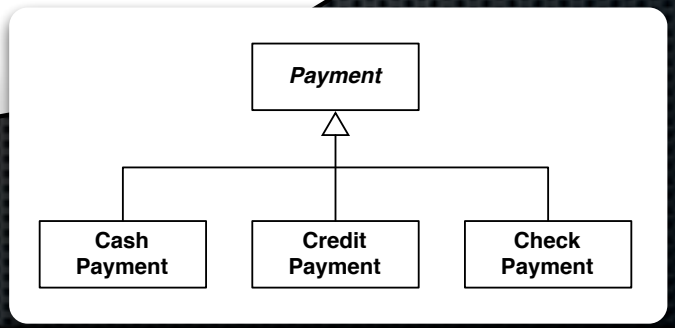
- Conceptual classes, not software classes
  - Domain modeling!
- *Generalization*: finding commonalities among concepts
  - *Superclass*: general concept
  - *Subclass*: specialized concept

Generalization





Is-a rule: Subclass **is a** superclass, e.g., CashPayment is a Payment

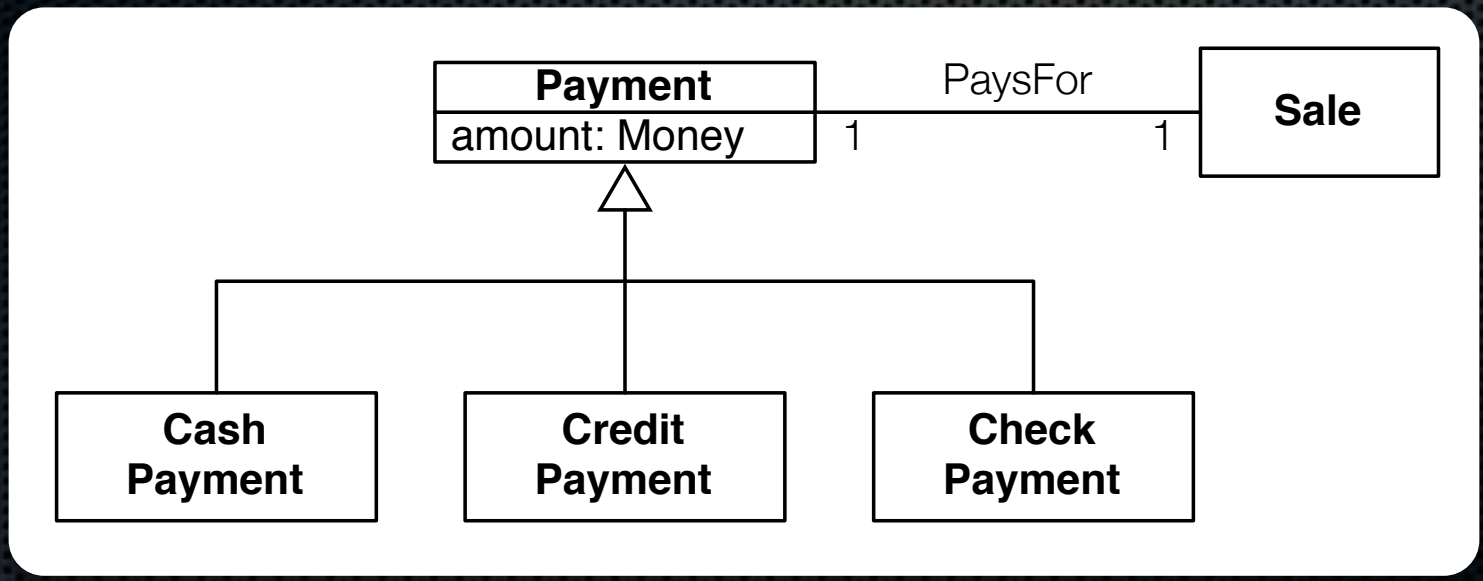


Generalizations and Sets

All members of a conceptual subclass set are members of their superclass set

Q1

Subclass Conformance—The 100% Rule

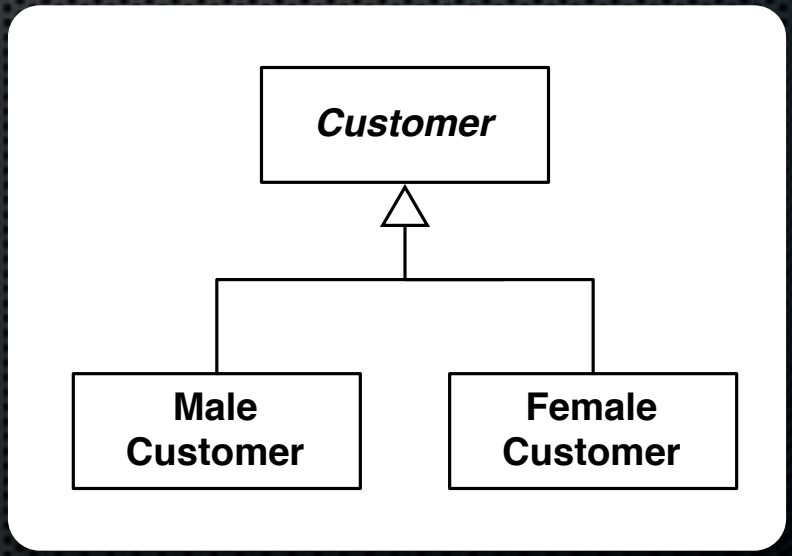


The subclass must conform to all of the superclass's *attributes* and *associations*.

Q2

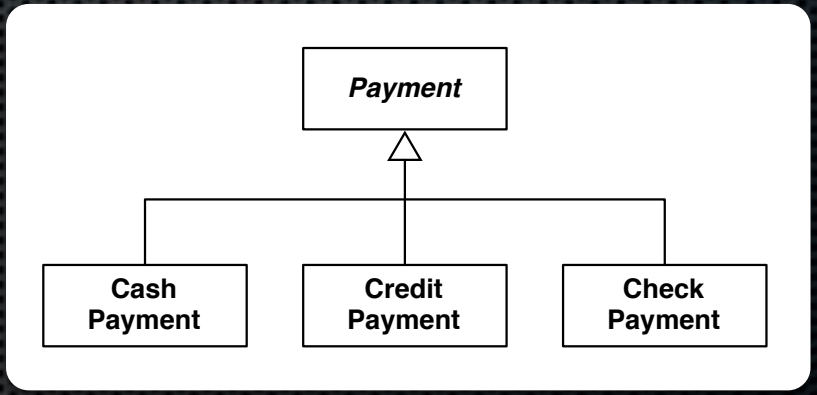
When should we define a Conceptual Subclass?

- Does this make sense…
  - for NextGen POS?
  - for other domains?



When should we define a Conceptual Subclass?

- When the subclass…
  - has additional attributes
  - has additional associations
  - is operated on or handled differently
  - represents an animate thing that behaves differently



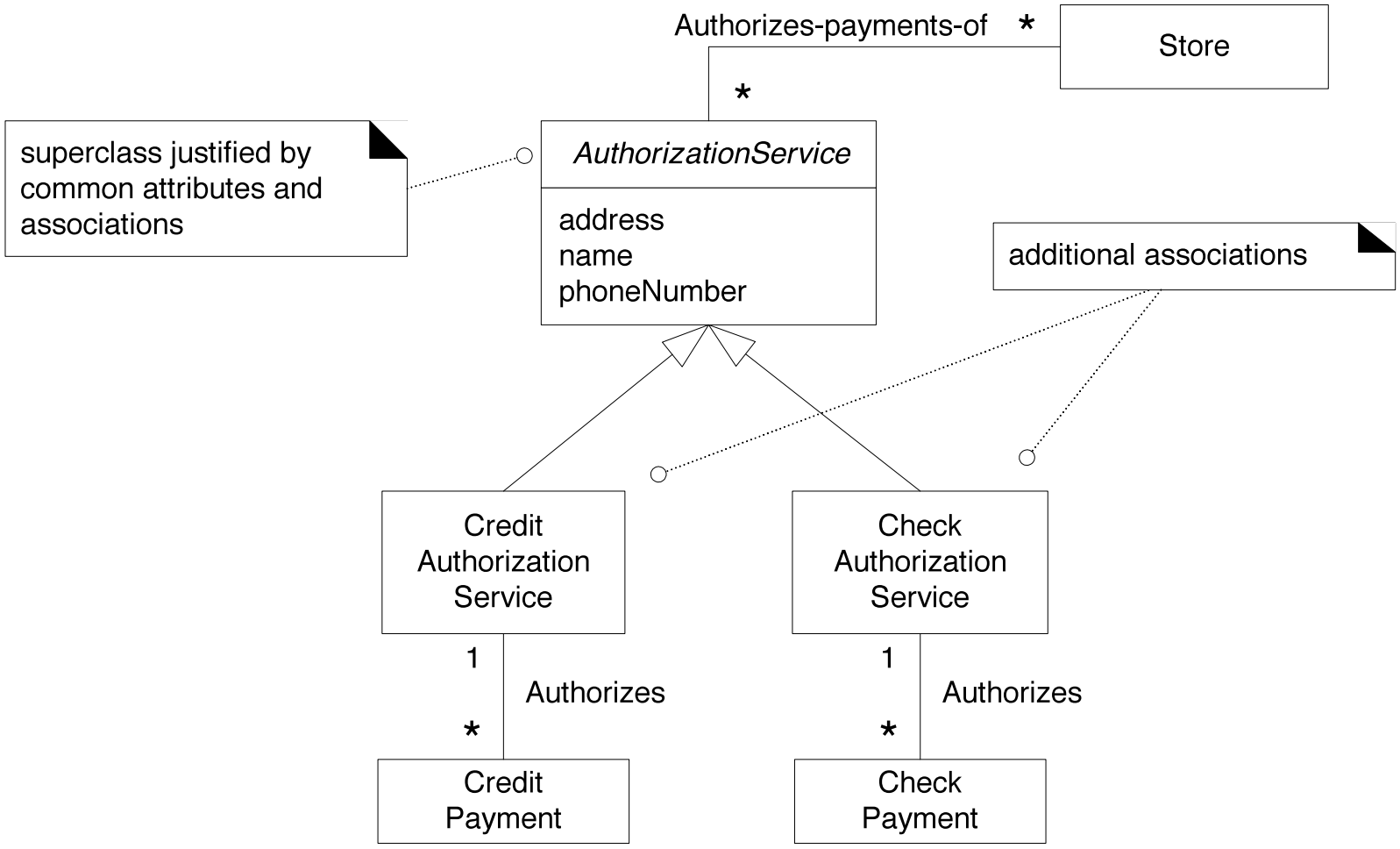
Which of these apply here?

Q3

When should we group classes and extract a superclass?

- Create a superclass when:
  - Potential *subclasses represent variations* of a similar concept (e.g., Video, Game → RentableItem)
  - Subclasses will conform to *100%* and *is-a rules*
  - There are *common attributes or associations* that could be pulled into superclass

Another Example

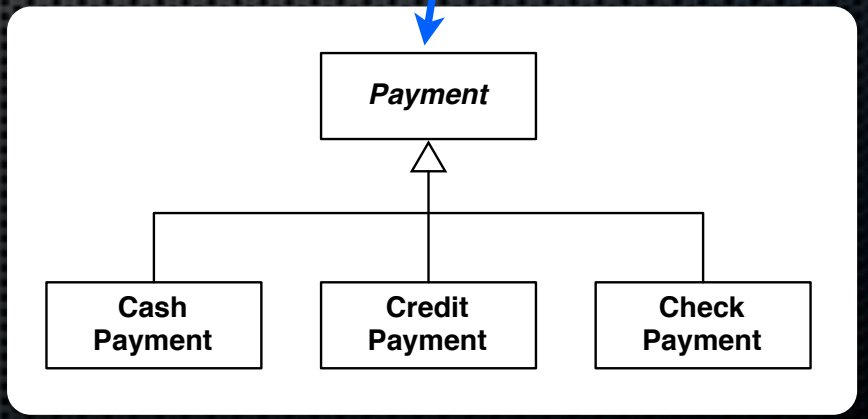


Abstract Conceptual Classes

- If every member of a class C must be a member of a subclass, then C is an *abstract conceptual class*

What does this mean in terms of our set idea?

Italics (or {abstract} keyword) indicate abstract class



Cartoon of the Day

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Thinking Ahead…
Work in teams on Q4

Q4