Software Engineering Essentials

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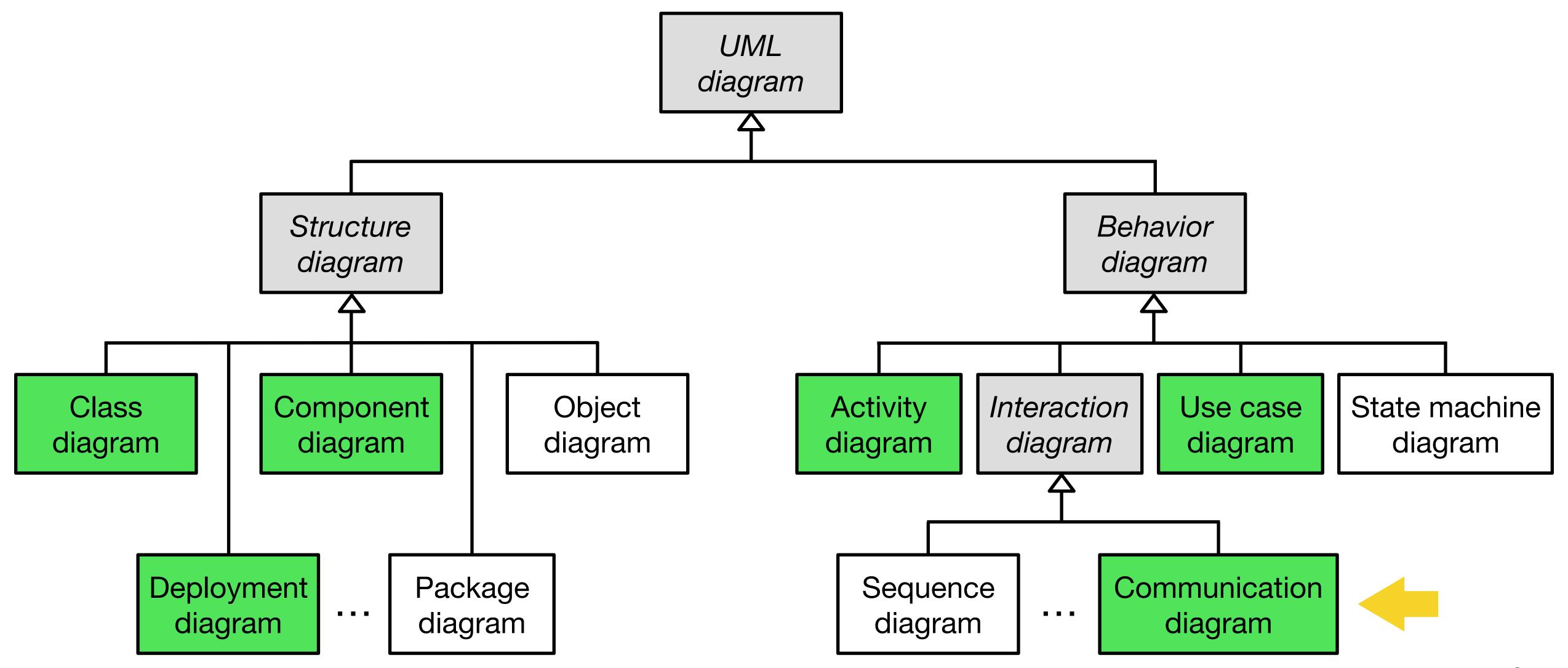
UML Communication Diagram

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UML diagrams covered in this course





From Class Diagrams to Communication Diagrams



Class diagram

Shows the layout of classes and their associations

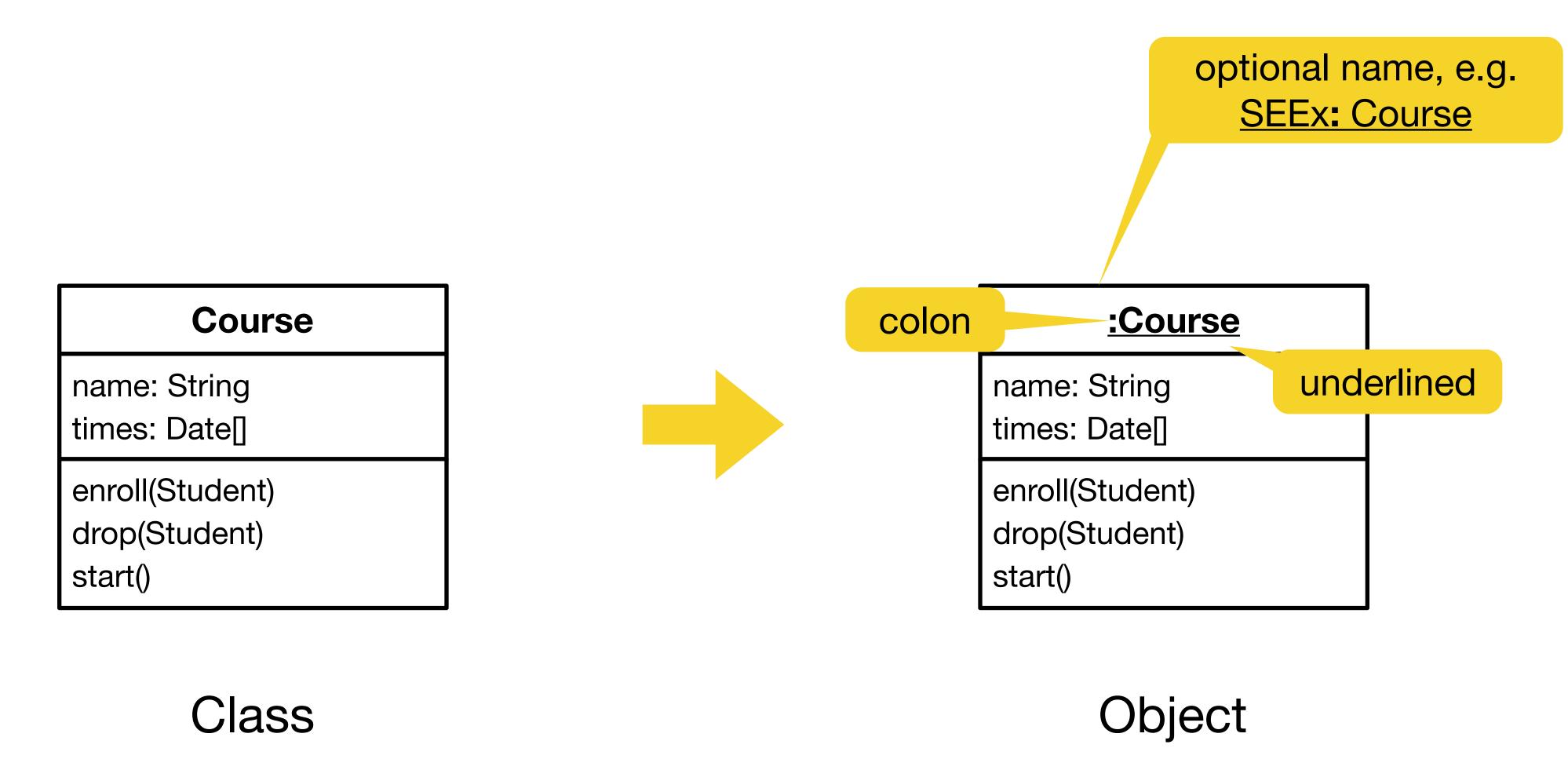
Communication diagram

Shows the interaction between multiple objects (= instances of classes)

- Illustrates the flow of messages between the objects using the same layout as the class diagram
 Not covered in this course
- In comparison: UML sequence diagrams use lifelines (different layout than class diagrams and therefore more difficult to understand)

Objects: Instances of Classes





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Messages in Communication Diagrams



3 different types of messages:

- 1) Sequential message
- 2) Conditional message
- 3) Concurrent message

Peter: Student

matriculationNumber: String

semester: Int major: Subject minor: Subject

profilePicture: Picture

study(): void

updateProfile(): void

receiveCertificate(): void

Simple line instead of association

SEECx: Course

name: String times: Date[]

requiredSemester: Int

enroll(Student): void drop(Student): void

Sequential Messages in Communication Diagrams



Peter: Student

matriculationNumber: String

semester: Int

major: Subject minor: Subject

profilePicture: Picture

study(): void

updateProfile(): void

receiveCertificate(): void

1.1: enroll(Peter)

1.2: drop(Peter)

SEECx: Course

name: String times: Date[]

requiredSemester: Int

enroll(Student): void drop(Student): void

Conditional Messages in Communication Diagrams



Peter: Student

matriculationNumber: String

semester: Int

major: Subject minor: Subject

profilePicture: Picture

study(): void

updateProfile(): void

receiveCertificate(): void

1: [semester>requiredSemester] enroll(Peter)

SEECx: Course

name: String

times: Date[]
requiredSemester: Int

enroll(Student): void

drop(Student): void

Concurrent Messages in Communication Diagrams





matriculationNumber: String

semester: Int

major: Subject minor: Subject

profilePicture: Picture

study(): void

updateProfile(): void

receiveCertificate(): void

1a: enroll(Peter)

1b: start()

SEECx: Course

name: String times: Date[]

requiredSemester: Int

enroll(Student): void drop(Student): void

From Class Diagrams to Communication Diagrams



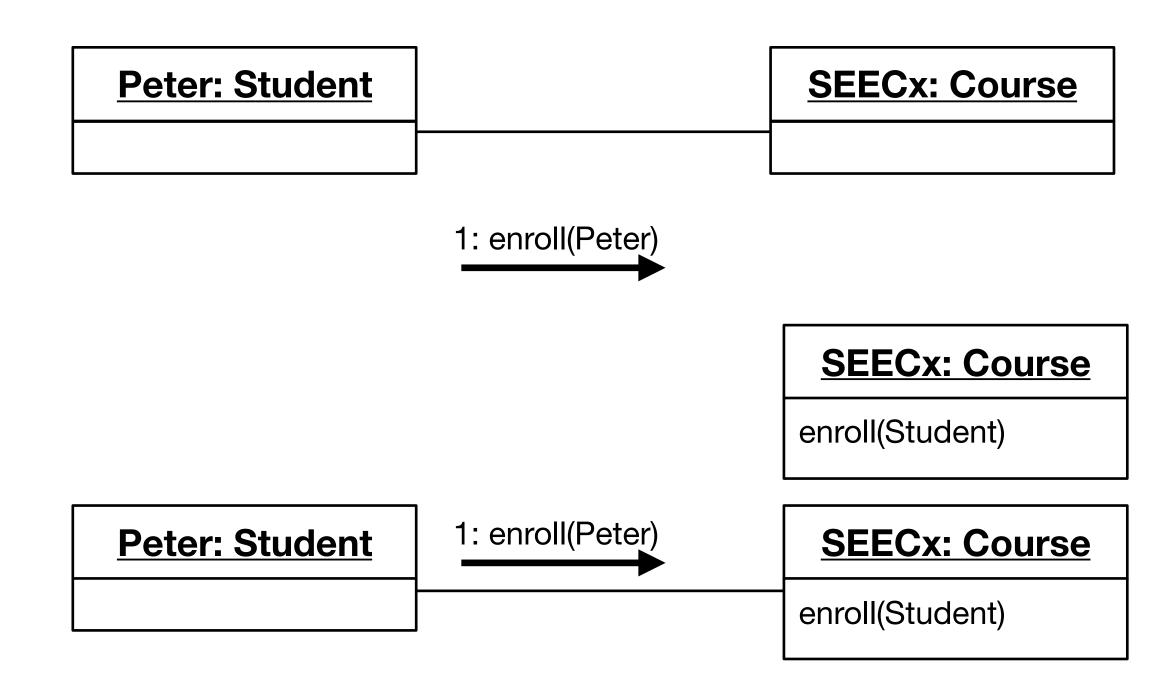
Actions:

- 1. Take all the steps from the event flow from one of the scenario
- 2. Instantiate the participating objects
- 3. Number the messages from each of the steps of the event flow
- 4. Check if there is a corresponding method in the receiver of the message?
- 5. Draw the message from sender to receiver

No? Refine your class diagram by adding a public method to the receiver

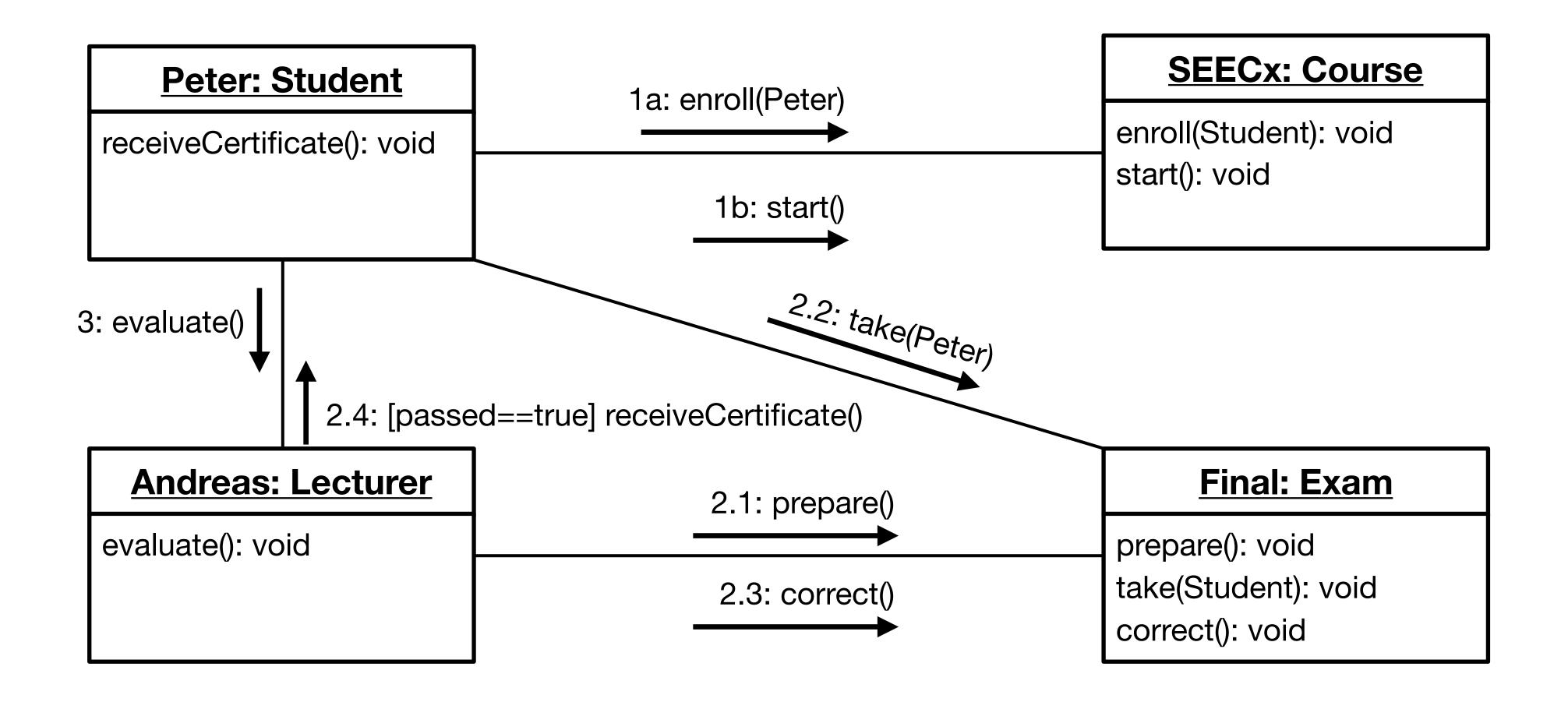
Example:

"Peter joins the course SEECx"



Example





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