Actors
Lecture Question

Task: Add detours to the traffic example and test this functionality

• Start with all the code in the week10.traffic package
• Implement detours for Intersections
• When an intersection receives a Detour message
  • All cars approaching this intersection are told to take the detour
  • Cars should prepend all directions in the detour to the beginning of their list in the same order as they appear in the detour list
• Note: The detour will be the same regardless of which direction the car is approaching from
• Write a test suite named tests.TestTraffic to test this functionality
Traffic Example

- Intersections
  - North/South road intersects with an East/West road
  - Initially Green light East/West
  - Alternate green light at a fixed interval

- Cars
  - Have a List of directions to follow
  - Each direction has:
    - A destination Intersection
    - The time it takes to reach that Intersection
    - Whether the intersection will be approached from the East/West or North/South
Traffic Example

- When a car approaches an intersection:
  - Inform the Intersection
  - Intersection gives the GreenLight for the car to go
    - If the light is red, the Intersection will wait until it's green before sending the GreenLight message

- When a car receives a GreenLight message
  - Proceed to next Intersection in the directions list
Delayed Messages

- There are two cases where we'll have messages that need to be sent with a delay
  - Intersections changing lights at fixed intervals
  - Cars waiting the appropriate amount of time before checking an intersection for a green light
- Similar syntax as repeatedly sending a message (Supervisor example)
- Use scheduleOnce

```java
import context.dispatcher
// ...
context.system.scheduler.scheduleOnce(
  timeInterval.milliseconds,
  self,
  ChangeLight
)
```
Delayed Messages

- Must import the dispatcher from inside the Actor's class
- Specify:
  - The time delay
  - The recipient
  - self contains an ActorRef to this actor
  - The message to be sent

```scala
import context.dispatcher

// ...
context.system.scheduler.scheduleOnce(
  timeInterval.milliseconds,
  self,
  ChangeLight
)
```
To the Code
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