POLITECNICO
MILANO 1863

Actor Model – Akka
Evaluation Lab

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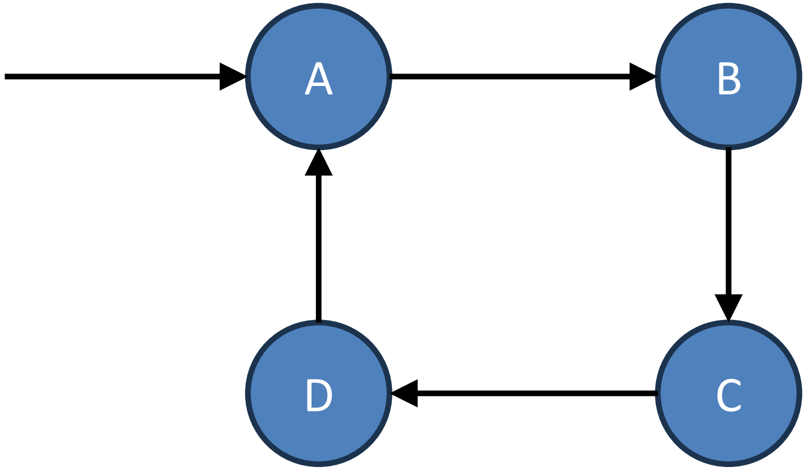
Preliminaries

- "Keep away" is a ball game kids used to play at the beginning of the century
- You are to create a simple ball "keep away" simulation using actors and Akka
  - Players of "keep away" form a ring
  - They pass the ball to the neighboring player **clockwise** or **counterclockwise**
  - When the play that initially sent the ball around receives it back, it drops the ball

Clockwise Example

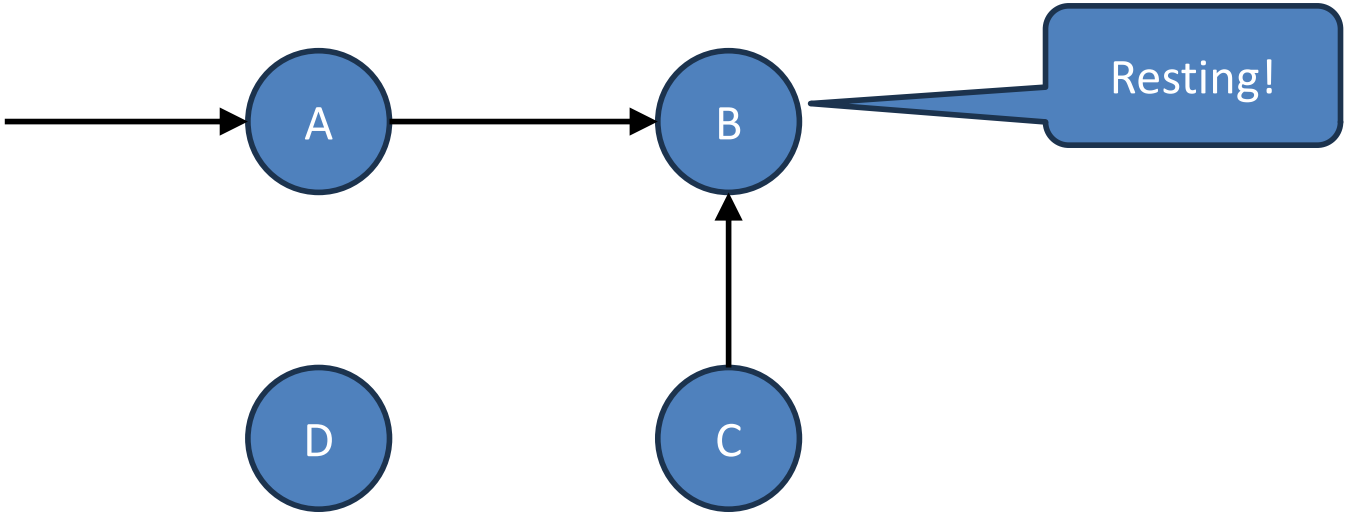


- The ball starts at A
- It goes round A→ B→ C→ D→ A
- A drops the ball

Counting

- Each player keeps track of the number of balls it **passed**
- When the total number exceeds a **threshold W**, the player must **rest**
- When a player is resting, **it holds back the balls it receives up to R more times**
  - The balls it receives in the meantime are set aside

Resting Example

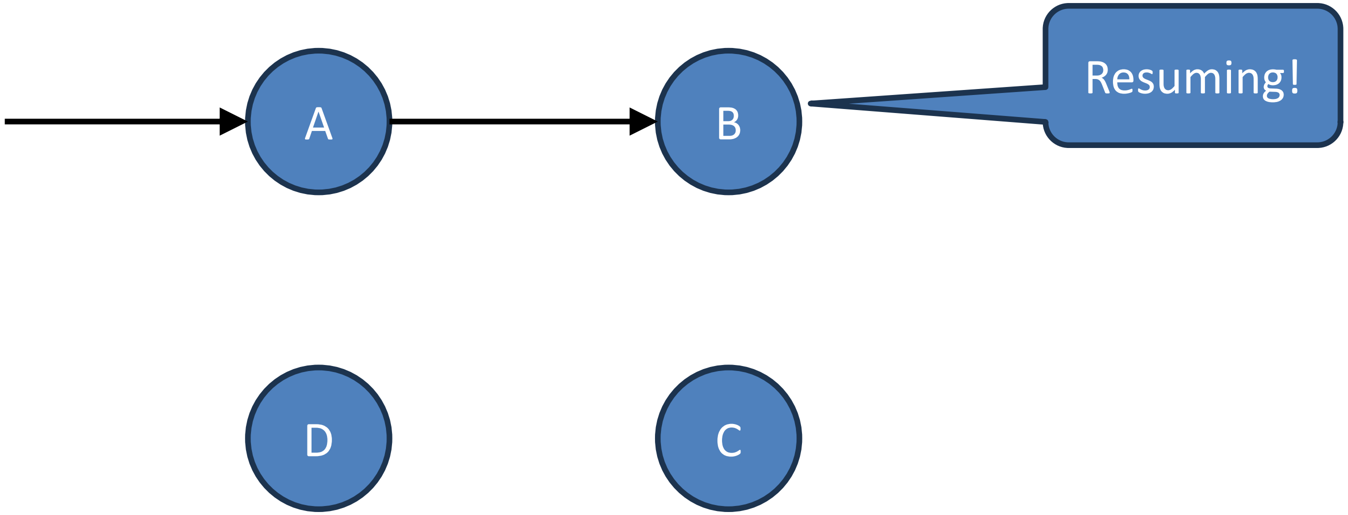


- The ball starts at A
- B already passed 3 balls, W is 4
- When B receives the ball from A, it goes to rest!
  - …because 3+1=4!
- When C throws another ball at B, the ball **stays** at B!

Resuming

- After a **resting player** receives R balls, it restarts to pass balls
  - Including those it set aside previously
  - Those set aside previously must keep going in the same direction toward the original player
- When resuming, the R balls a player passes to other players **do not count** to put the other players to rest!

Resuming Example



- R is 2, B already set aside 1 ball
  - The ball B set aside was going counterclockwise and started at D
- When A passes another ball to B, B restarts passing balls
- Regardless of what the other players did in the past
  - The ball B gets from A travels B→ C→ D→ A
  - The ball B set aside travels B→ A→ D

Code

- In the assignment, you find
  - A definition of a basic message type
    - You are free to **extend** the message definition, but you **cannot change** the existing code
    - You can of course define more message types, if needed
  - A **template** for a test main method
    - This needs to be completed!!
    - It cannot run as it is!!
    - It must run when you submit

Rules and Guidelines

- Proper use of actor abstractions is the **key grading criteria**
- Complete the README.md file with
  - Your group identifier
    - From the group registration document
  - Name of each group member
  - A 200-word (max) description of the message flows in your solution
    - What actor talks to what other actor using what message, when, …
- Create and submit a single zip file with the entire code of your project
  - Do **not** change the package name of the template code!
  - Name of the file: akka-groupXX.zip
    - XX is the group identifier from the group registration document
  - Submit by the user corresponding to the contact email specified in the group registration document