

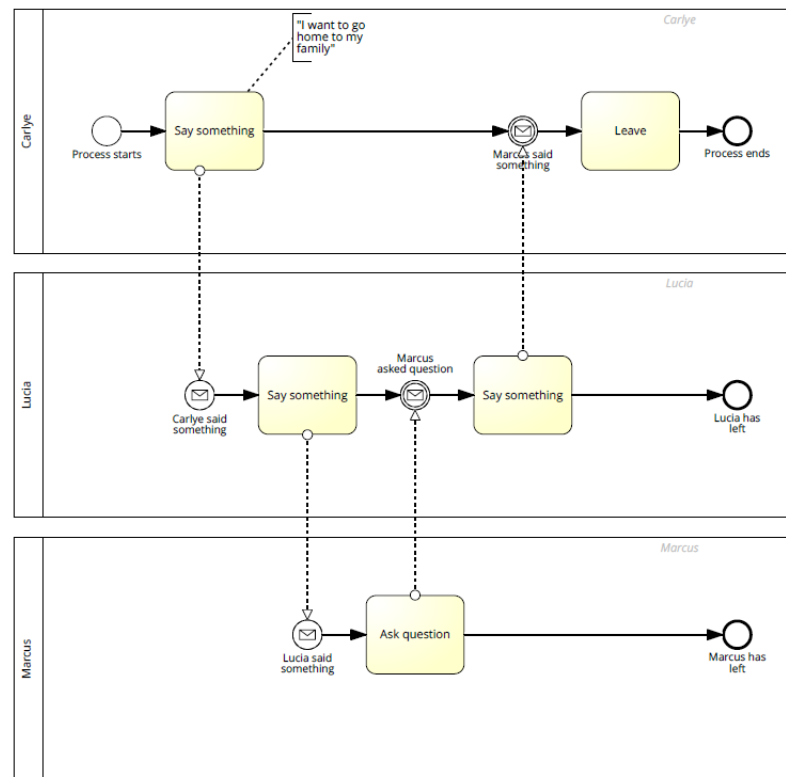
Snap! Events, Concurrency, and Graphical Effects

COR100 Snap! Programming Fall 2022



Events

- A central concept to humans running the world is "process"
- What's a process? What are its elements?
 1. agent or actor or role or pool or swimlane
 2. start event
 3. tasks or intermediate events
 4. decision points or gateways or logical operators
 5. flow (sequence of events or tasks)
 6. end event
- Example: BPMN diagrams with the Signavio Process Manager



- Events in data science:
 1. every digital device produces event logs
 2. event logs can be mined (process mining)
 3. event data mining can lead to pattern detection (EDA)
 4. event data can be labeled to build predictive models (ML)

Birth of the modern novel



- For most of human history, stories were just like "one thing happens, and then another" - a sequence of events between a starting and an ending point. Not overly riveting!
- This changed when Jane Austen wrote her novels ("Pride and Prejudice", "Emma", "Sense and Sensibility" etc.) - these were the first novels with "decision points" in the name of love. Much more fun!

Snap! events



Example:

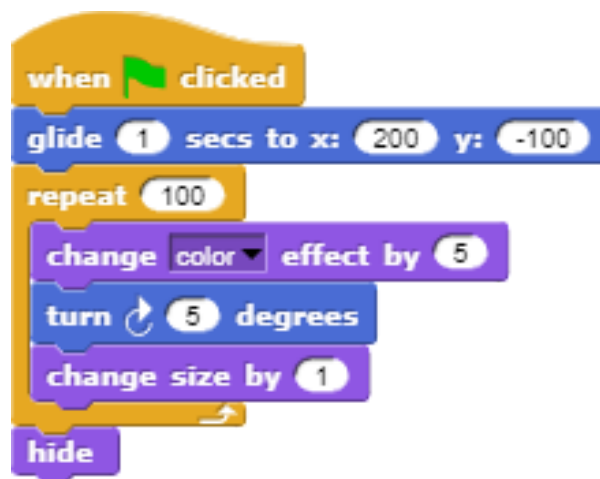


Reset scripts

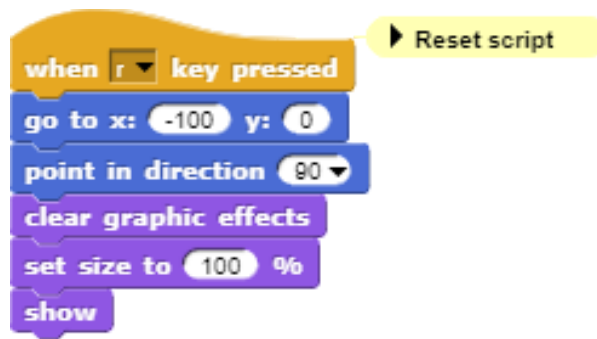
- Events represent a state. Changing events changes the state of a system.
- Every sprite has a set of properties or attributes, which determine its state.
 1. Screen position (default ???)
 2. Orientation angle (default 90 degrees to North)
 3. Color (default 0 for first sprite)
 4. Size (default is 100%)
 5. Visibility (default is visible)
 6. Costume # (default is ???)
 7. Graphic effects (default is ???)

Practice: reset script

1. Create a project "reset"
2. Create a script for a sprite:



3. Run the script. The turtle disappears. It's "expensive" to return the sprite to its original state.
4. Create a reset script:



Concurrency

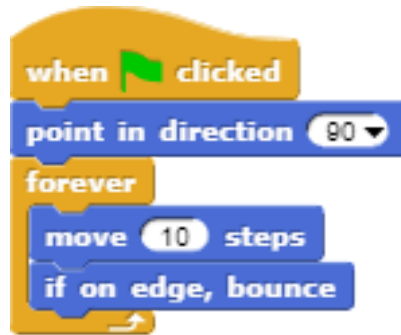
- This is also called parallelism
- Important current concept for system design and operations
- In OS, (true) parallelism is an illusion if you only have 1 core - even with multiple cores, the main job of the OS is to manage processes so fast and so efficiently that the user experiences concurrency
- In database design, concurrency is important (multi-user operation) though the most common database system (SQLite) lacks concurrency
- The following script doesn't quite work. Can you see where the problem lies? Try it in Snap!



The script is held up by the conditional step in the middle.

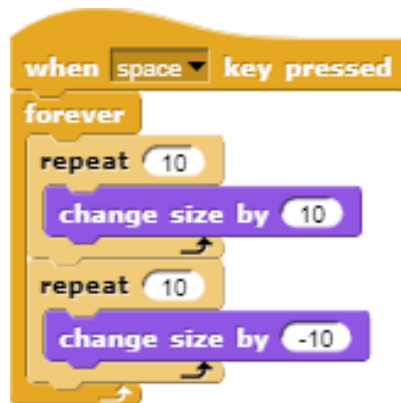
- Split the script up into two concurrent scripts like this:





Practice concurrency

1. Create a new project "concurrency"
2. Create three scripts for one sprite



3. Press the SPACE bar to start the three concurrent actions.

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