

Other notable systems



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Fancade: a 3D data-flow game building language

Data-flow computation WITH VARIABLES

Typed links (Number, Boolean, Position, Rotation, Object, Constraint, ...)

NO text! (except for code comments and menus)

Executed 60 times for second (implicit forever loop)

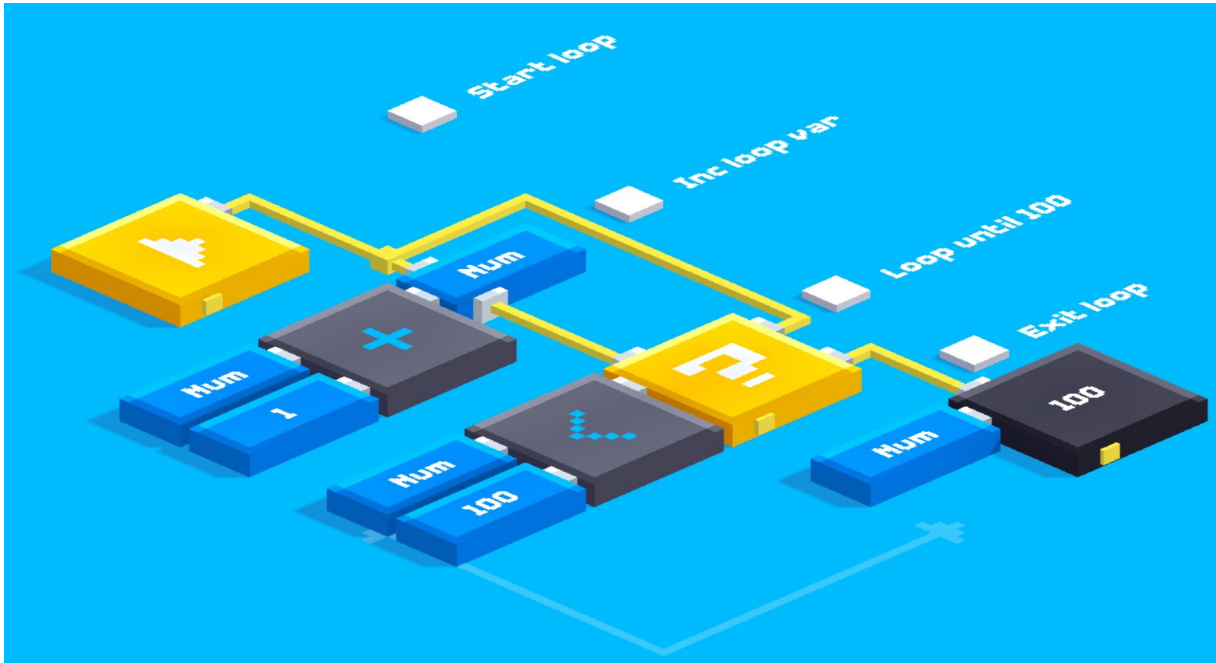
Execution order: left-right and top-down (with respect to the isometric positions)

Explicit Variables (used also to reduce wires and increase fan-out)

Code can read/write game blocks properties (position/speed/bounce ...)

Can add or change movement/rotation constraints for blocks/agents

Explicit Control = before/after links (jellow wires)



Loops

do:

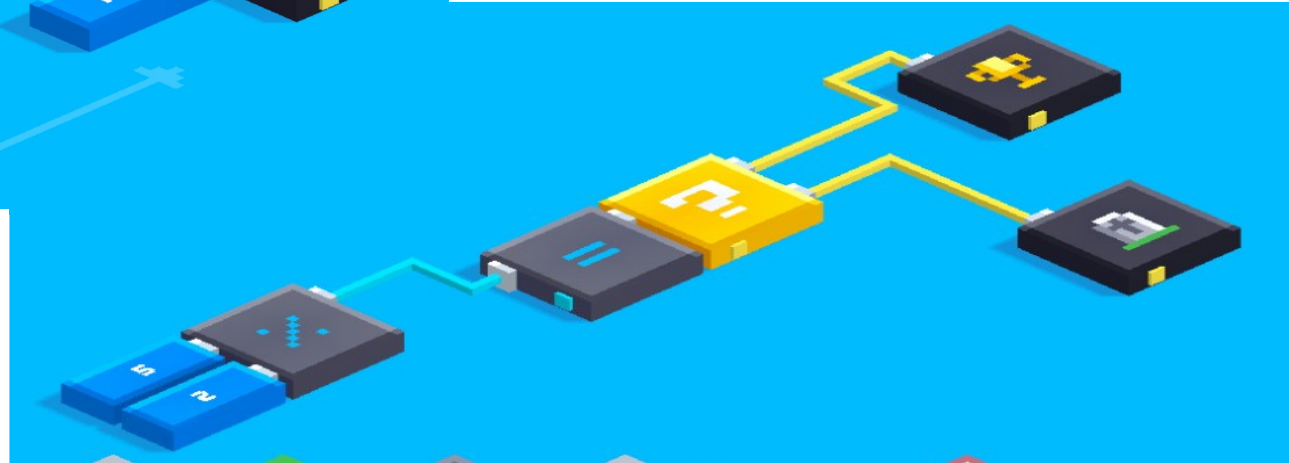
Num += 1

while num < 100

If-then-else

if $5 \% 2 == 0$:

then: win else: lose



Functions: custom blocks

Functions? YES

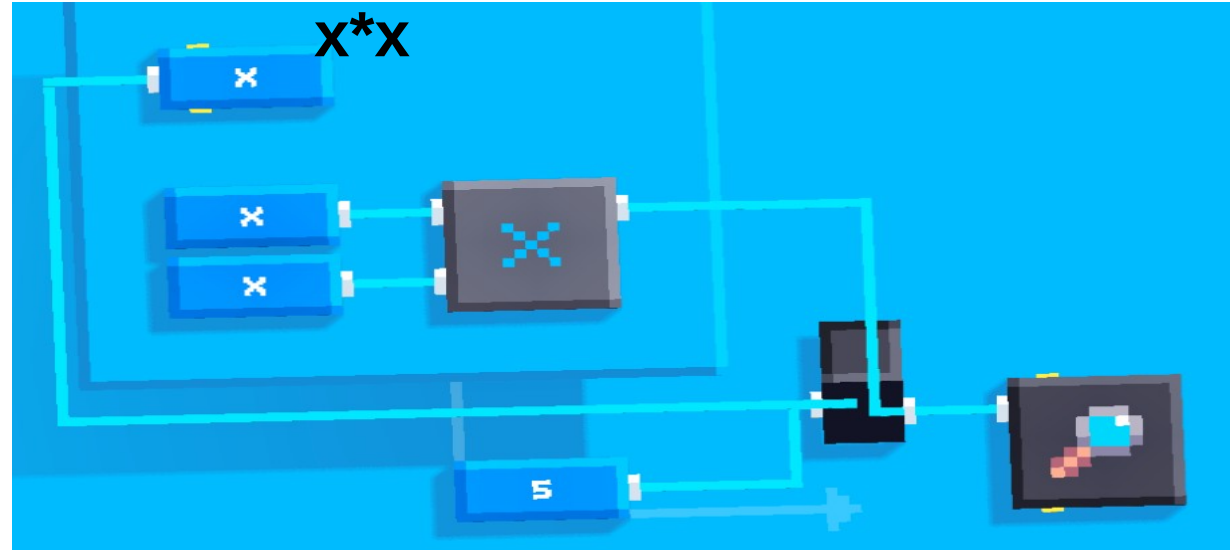
Just put “code” inside a block, with external connectors

Modularization:

- custom blocks can be placed inside other blocks
- BUT: NO recursion is allowed (direct or indirect)

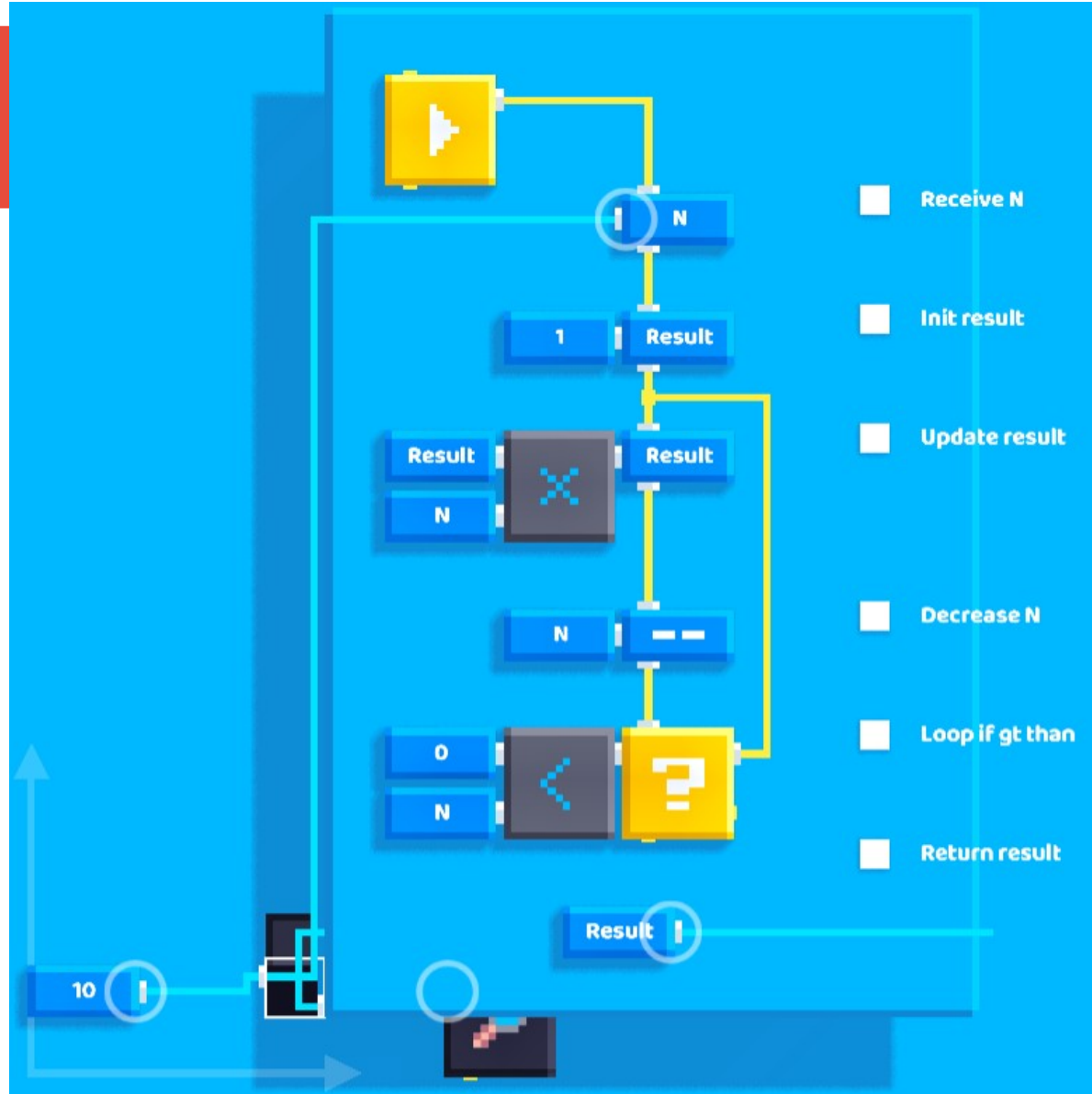
```
def square(x): return
```

$x * x$



No recursion (even implicit)

Iterative factorial(N)



Many game-oriented

VALUES (different types)

VARIABLES (getter/setters)

MATH (operators)

CONTROL (if-then, loops ..)

PHYSICS (gravity, vectors, ..)

GAME (win/lose/score)

SCENERY

SCRIPTS

INSPECTORS

CREATURES



Values



Variables



Control



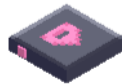
Physics



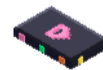
Game



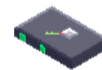
Objects



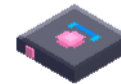
Get Position



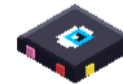
Set Position



Raycast



Get Size



Set Visible



Create Object



Destroy Object

DEMO

PlayOsmo: tangible interaction for small kids (with iPad or Fire)

Your tablet scans the table in front of it (on a stand, with a mirror on the camera)

You play with tiles (instructions / tangram pieces / letters / drawings)

Recognize your “code” / words / drawing depending on the game/app selected



Loops and simple repetitions

Blocks represent action and direction

- modifier: number of repetitions

Loops

The instructions' meaning depends on the game

- Music playing game
- Monster in a labyrinth game



But also many game apps

Drawing (virtual reality helped drawing)

Spell/word games (char recognition)

Tangram (shape recognition)

Pizza shop (shapes + money/math)

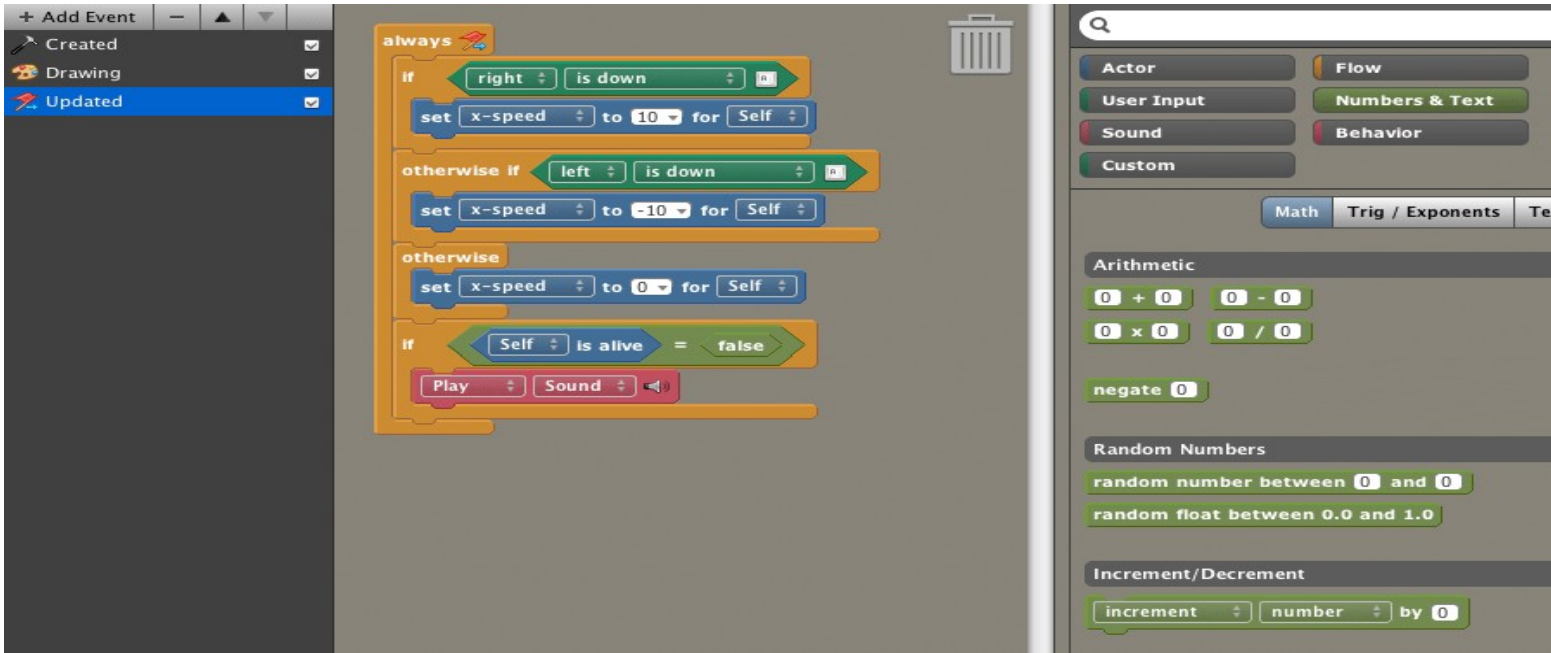
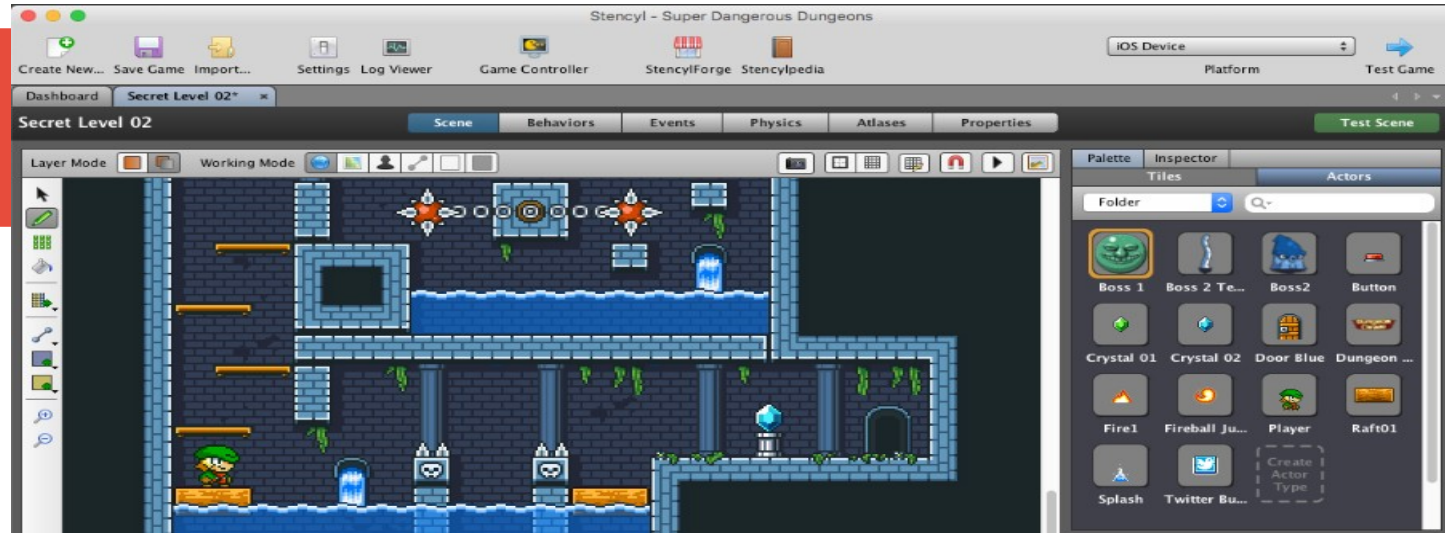
Wizards (math or words)

...



Stencyl

Game designer (platform games)



2023-24 Others

Alice 3 : 3D world programming (Java)

Alice



Alice 3 interface showing a 3D scene and a Java code editor.

Scene View (Left):

- A:** File Edit Project Run Window Help menu bar.
- B:** 3D scene view showing a forest with mushrooms and a table.
- C:** Object list showing **cheshireCat**.
- D:** Procedures and Functions panel for **cheshireCat**, showing methods like **say**, **think**, **move**, **moveToward**, **moveAwayFrom**, **moveTo**, **place**, **turn**, **roll**, and **turnToFace**.
- E:** Run button.
- F:** Setup Scene button.

Code Editor (Right):

- H:** Tab bar showing **Scene**, **initializeEventListeners**, and **myFirstMethod**.
- I:** Save button.
- J:** Code editor area containing the following Java code:

```
declare procedure myFirstMethod
do in order
  <alice> say <Where am I?> , duration =2.0 add detail
  <cheshireCat> say <Where do you want to go?> , duration =2.0 add detail
  <alice> say <I do not know...> , duration =2.0 add detail
  <cheshireCat> say <Then it does not matter where you are...> , duration =2.0 add detail
  <cheshireCat> setOpacity =0.0 , duration =4.0 add detail
```

K: Bottom toolbar with buttons: **do in order**, **count**, **while**, **for each in**, **if**, **do together**, **each in together**, **variable...**, **assign**, **//comment**.

Ren'Py

Dialogue-based adventures (Visual Novels)

Python-inspired simplified syntax (with indentation)

Runs in Python



Others

Kodu: Design 3D games on Xbox (and PC)

Kodular: game editor

Construct: HTML5 game editor

Swift Playground: by Apple

MakeBlock: robots/microcontrollers + Scratch

Tynker: Scratch-inspired

Roblox: 3D game programming

... and many other game-editors

No Code development?

Goal: allow non-programmers to jot-down easy applications

Template-based development environments where you:

- define the data tables and their relations
- define the (web) interface/pages showing and managing the data
 - with a lot of widgets already available
- define the operations applied on the data when you interact with the pages
 - in general very simple operations / computations
- define the workflow steps

Many ready-made templates, apps and modules are available

Systems: [Soifr](#), [Bubble](#), [Glide](#), [Draftbit](#), [Zapier](#), [Bildr](#),
[Backendless](#), [FlutterFlow](#), ...

Low Code development platforms

Simple development with minimal coding

E.g.:

- Microsoft **PowerApps**:
Excel-like formulas + database/spreadsheet + GUI editor + CoPilot (AI)
- Google **AppSheet**:
Actions/Workflows + database/spreadsheet + GUI editor
- **Appian**:
Low-code + Workflows + Process Analysis + AI
- ...