A Breakout Game Created in Scratch

http://cs.oregonstate.edu/~mjb/scratch

Mike Bailey

mjb@cs.oregonstate.edu

Oregon State University

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Computer Graphics

writinggames.pptx

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Events

when ▶ clicked

when space ▾ key pressed

when this sprite clicked

when backdrop switches to backdrop1 ▾

broadcast message1 ▾

when I receive message1 ▾

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Data

Pen   Operators
Data   More Block

Make a Variable

☑ Speed

set Speed ▾ to 0

change Speed ▾ by 1
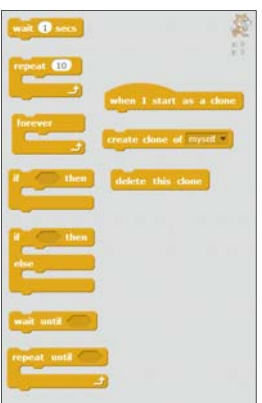
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Control

wait 1 secs

repeat 10

forever

if _ then

if _ then
else

wait until _

repeat until _

when I start as a clone

create clone of myself ▾

delete this clone

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Sensing

touching mouse-pointer ▾ ?

touching edge ▾ ?

touching color ■ ?

distance to mouse-pointer ▾

key space ▾ pressed?

mouse down?

mouse x   mouse y

x position ▾ of Sprite1 ▾

y position ▾ of Sprite1 ▾

direction ▾ of Sprite1 ▾

size ▾ of Sprite1 ▾
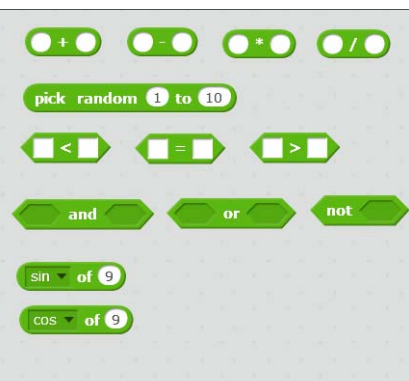
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Operators

○ + ○   ○ - ○   ○ * ○   ○ / ○

pick random 1 to 10

□ < □   □ = □   □ > □

and   or   not

sin ▾ of 9

cos ▾ of 9

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Motion

7

move 10 steps

turn ↻ 15 degrees   turn ↺ 15 degrees

point in direction 90 ▾

point towards mouse-pointer ▾

go to mouse-pointer ▾

go to random position ▾

change x by 10   change y by 10

set x to 0   set y to 0

if on edge, bounce

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when ⚑ clicked

when space ▾ key pressed

broadcast message1 ▾

when I receive message1 ▾

touching mouse-pointer ▾ ?

key space ▾ pressed?

mouse x   mouse y

Make a Variable

☑ Speed

set Speed ▾ to 0

change Speed ▾ by 1

when I start as a clone

create clone of myself ▾

delete this clone

move 10 steps

turn ↻ 15 degrees   turn ↺ 15 degrees

point in direction 90 ▾

if on edge, bounce

◯ + ◯   ◯ - ◯   ◯ * ◯   ◯ / ◯

pick random 1 to 10

◯ < ◯   ◯ = ◯   ◯ > ◯

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Scratch Handles the Directions you are Going Like a Compass Does

```
            0
            360
            -360
             𝒩
   315              45
   -45              -315

270  𝒲         ℰ  90
-90                -270

   225             135
   -135            -225
             𝒮
            180
            -180
```

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Three Actors

Displaying Data Variables

BallsLeft   BricksLeft

Three Actors

Paddle   Button3   Ball

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Paddle

When the program starts, set some good values into the variables, get everyone else going, then have the Paddle continuously follow the mouse pointer

The 'q' key can end the game

when ⚑ clicked

set PaddleY ▾ to -140

set Speed ▾ to 8

set BallsLeft ▾ to 5

set BricksLeft ▾ to 50

broadcast CreateBricks ▾

broadcast StartGame ▾

forever
  go to x: mouse x y: PaddleY

when ⚑ clicked

wait until key q ▾ pressed?

stop all ▾

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Bricks

Create the bricks to start with

Test to see if you've won

x: -57
y: 31

when I receive CreateBricks ▾
show
repeat BricksLeft
  create clone of Button3 ▾
hide

when ⚑ clicked
wait until BricksLeft = 0
broadcast YouWin ▾

Position each brick in a random location. Then, wait for the Ball to hit the brick. When it does, decrease the brick count, bounce the Ball (which will result in a pop sound), and delete this brick.

when I start as a clone
go to x: pick random -240 to 240 y: pick random 50 to 180
forever
  wait until touching Ball ▾ ?
  set BricksLeft ▾ to BricksLeft - 1
  broadcast BounceBall ▾
  delete this clone

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Ball -- top

Ball -- bottom