

SAGE Scratch: Parson's Puzzles

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Outline

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- Create Parson's Puzzles
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- Play Parson's Puzzles
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Motivation

- Allow instructors to easily create and edit Parson's Puzzles
- Provide an easy to use interface for students to solve puzzles
- Detect Parson's Puzzles within Scratch
- Detect students and instructors within Scratch
- Remove distracting palettes for students in Parson's mode
- Remove ability to edit puzzles for students in Parson's mode

Related Work

- [Hot Potatoes](#)
- [ViLLE](#)
- [CORT](#)
- [js-parsons](#)
- [Fall 2016 Parson's Puzzles](#)


Order the codelines by dragging and dropping from right to left.

Check

1	def traverse_postorder(tree_node):
2	visit(tree_node)
3	traverse_postorder(tree_node.right)
4	if tree_node is not None:
5	traverse_postorder(tree_node.left)

Sort code lines	Exercise description
<pre>def main(): a = 1 b = -1 a = b tmp = a b = tmp</pre>	<p>Order the codelines so that it swaps contents of variables a and b.</p>

Initial State (Create Game)



Game Design

Instructor Id : {{iid}}

Game Id : {{aid}}

{{course.courseName}}

Elements

Console

Sources

Network

Performance

Memory

2

×

top

Filter

Default levels

Group similar

testing_index

InstructorIndexController.js:3

Failed to load resource: the server responded with a status of 403 (Forbidden)

/stats/instructors/5...dc1bfb23c4ced8e20:1

testing_home

InstructorHome1Controller.js:4

testing_courses

InstructorHome1Controller.js:9

testing_course

InstructorCourseController.js:4

testing_LP

InstructorCourseController.js:18

Array(3)

InstructorCourseController.js:22

testing_coursesby in InstructorCourseController

InstructorCourseController.js:28

Object

InstructorCourseController.js:29

Object

InstructorQuestManag...ntController.js:214

Object

InstructorQuestManag...entController.js:57

5ad7d323e1f02c3409fa0ecc

InstructorQuestManag...entController.js:59

Object

InstructorGameCreationController.js:118

5b911e929fc93d0ce4beaff3

InstructorGameCreationController.js:128

/coursePage/59f8c6fdc1bfb23c4ced8e20/course/5a586

InstructorGameCreationController.js:132

85aa2d4a83044b7fa7f/createAssignment/5b911e929fc93d0ce4beaff3/design

TypeError: Cannot set property 'innerHTML' of null

angular.js:13920

at new <anonymous> (http://uat.cu-sage.org/public/js/controllers/instructor/Instructo

rDesignController.js:10:53)

at Object.instantiate (https://ajax.googleapis.com/ajax/libs/angularjs/1.5.8/angular.

min.js:42:56)

at https://ajax.googleapis.com/ajax/libs/angularjs/1.5.8/angular.min.js:90:32

at Object.link (https://ajax.googleapis.com/ajax/libs/angularjs/1.5.8/angular-route.m

in.js:7:274)

at https://ajax.googleapis.com/ajax/libs/angularjs/1.5.8/angular.min.js:16:71

at la (https://ajax.googleapis.com/ajax/libs/angularjs/1.5.8/angular.min.js:81:90)

at p (https://ajax.googleapis.com/ajax/libs/angularjs/1.5.8/angular.min.js:66:341)


at q (https://ajax.googleapis.com/ajax/libs/angularjs/1.5.8/angular.min.js:58:481)

at https://ajax.googleapis.com/ajax/libs/angularjs/1.5.8/angular.min.js:58:119

at https://ajax.googleapis.com/ajax/libs/angularjs/1.5.8/angular.min.js:63:39 <div

ng-view="" class="ng-scope" data-ng-animate="1">

Initial State (Update Game)



SOUTH BRONX EARLY COLLEGE ACADEMY
A Public Charter School

Instructor

Account

Home

Classes

Mission Management

Libraries

Hide / Show

Instructor Id : 59f8c6fdc1bfb23c4ced8e20

Game Id : 5ae7f46999a5a81836915268

File Edit

Pro Dev Bas

start solving!

Points: 0

Scripts Backdrops Sounds

Motion Control Sensing Operators More Blocks Parsons

Looks Sound Pen Data Events

Stage selected:
No motion blocks

x: -240 y: 180

Sprites

New sprite:

Initial State (Student Play)

sage.org/student/#/courses/5a58685aa2d4a83044b7fa7f/assessment/5a5f0a049a71ec3518fb8a8b/59f369cc748499467c32a414

SAGE

File Edit

start solving! Points: 0

Play Mode a049a71ec3518fb8a8b

Undelete

Small stage layout

Turbo mode

SAGE Design mode

✓ SAGE Play mode

Edit block colors

Scripts Backdrops Sounds

Motion

Looks

Sound

Pen

Data

Events

Control

Sensing

Operators

More Blocks

Parsons

Stage selected:
No motion blocks

repeat 10 0

forever 0

Create Parson's Puzzle

The screenshot shows the Scratch IDE interface. At the top, the 'Instructor Id' is 5ae3b35129db6d32acef8164 and the 'Game Id' is 5b90c30c28da6f15ac821dc9. A blue button labeled 'INSTRUCTION' is visible. The 'Edit' menu is open, showing options: 'Undelete', 'Small stage layout', 'Turbo mode', '✓ SAGE Design mode', 'SAGE Play mode', and 'Edit block colors'. The 'SAGE Design mode' option is selected. The 'Console' tab is active, showing two log messages: 'SCRATCH : game type is parsons' and 'SCRATCH : ===== interp.gameType: parsons'. The 'Motion' block category is selected in the right sidebar.

Instructor Id : 5ae3b35129db6d32acef8164

Game Id : 5b90c30c28da6f15ac821dc9

INSTRUCTION

File Edit

Undelete

Small stage layout

Turbo mode

✓ SAGE Design mode

SAGE Play mode

Edit block colors

Sign Mode

Scripts

Motion

Looks

Sound

Pen

Data

Events

Stage select

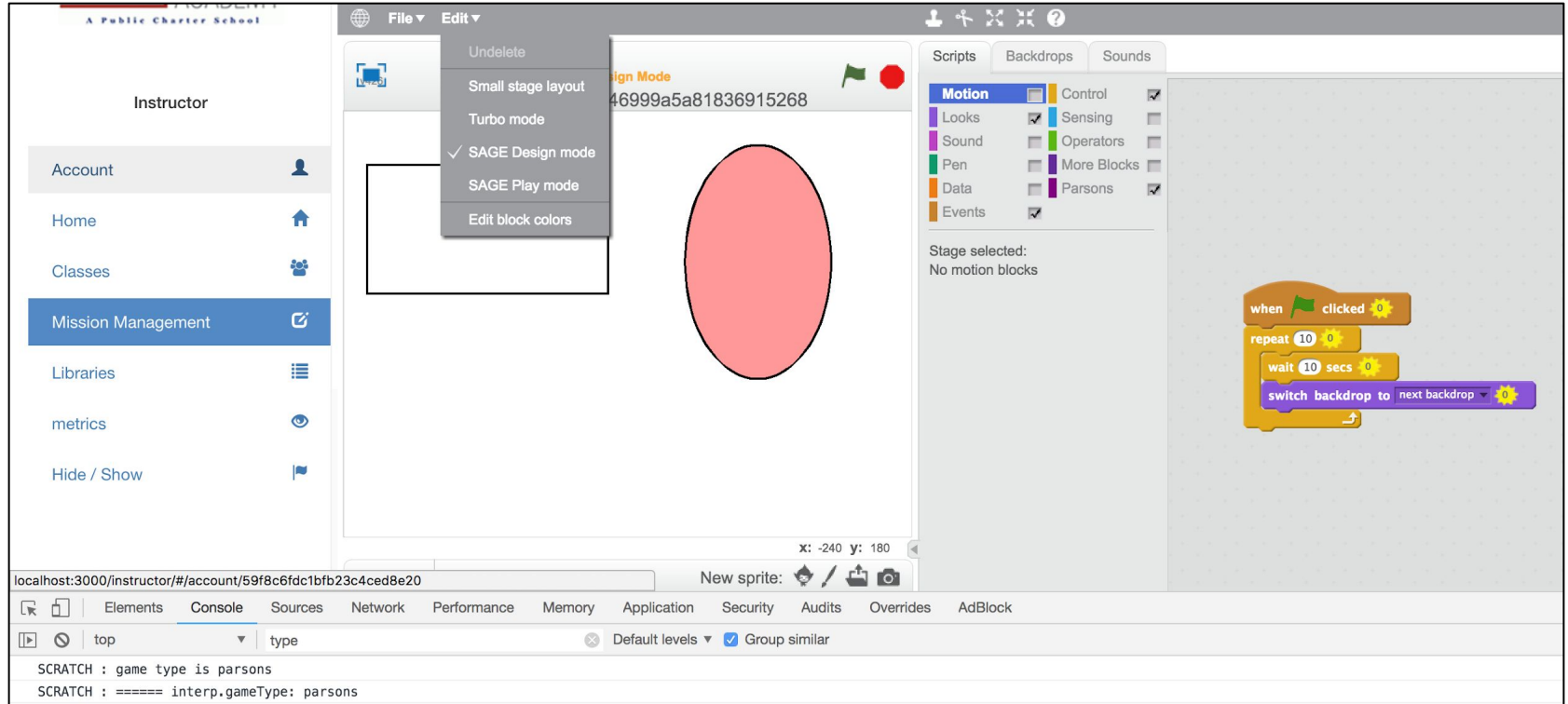
Elements Console Sources Network

top

SCRATCH : game type is parsons

SCRATCH : ===== interp.gameType: parsons

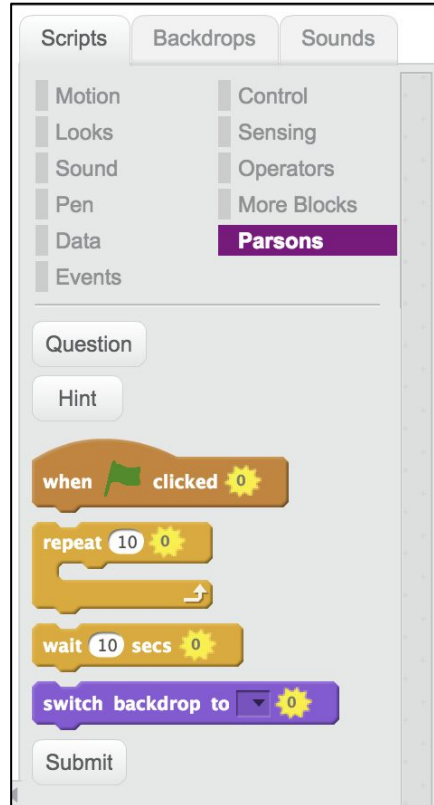
Update Parson's Puzzle



Play Parson's Puzzle

The screenshot displays the SAGE game interface. At the top center is the SAGE logo. Below it, a menu is open with the following options: Undelete, Small stage layout, Turbo mode, SAGE Design mode, **SAGE Play mode** (selected), and Edit block colors. The main stage area contains a large red oval. To the right of the stage, there is a script editor with the following code blocks: a 'when clicked' event block, a 'repeat 10' loop block, a 'wait 10 secs' block, and a 'switch backdrop to' block. Below the script editor is a 'Submit' button. On the right side of the stage, there is a backdrop image of a lion mascot wearing a white jersey with 'COLUMBIA' and the number '1' on it. Below the backdrop is a speech bubble containing the text 'Hello !'. At the bottom right, there is a blue button labeled 'Sage Orbs Found'. The bottom status bar shows 'x: -182 y: 180'. On the far right, a browser console window is open, showing the following log entries: 'SCRATCH : ===== interp.gameType: parsons' and 'SCRATCH : ===== interp.isStudent: true'.

Parson's Play Palette



Limitations and Issues

- Struggles with workflow setup
- Flash debug environment issues
- Parson's scoring still broken
- Inability to access while developing locally

Future Work

- Better scoring metrics (instructor assigned)
- Fix Parson's Puzzles scoring
- Easier reordering of Parson's Puzzle blocks for instructors

Demo