SAGE Parson's Puzzles

Final Presentation

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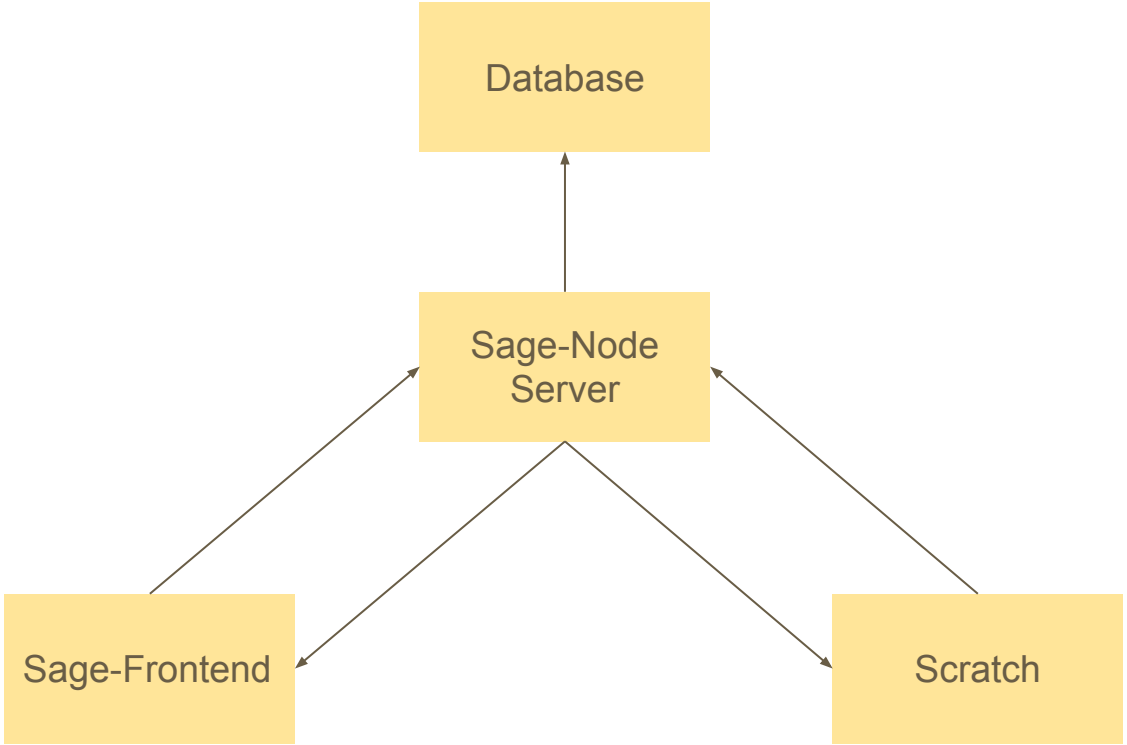
AGENDA

- Abstract
- Structure
- Frontend
  - UI Component
  - API Calls
- Backend
  - Student Submission
  - Saving Game Setting
  - Save/Load Block Point Configuration
- Future Work
- Demo

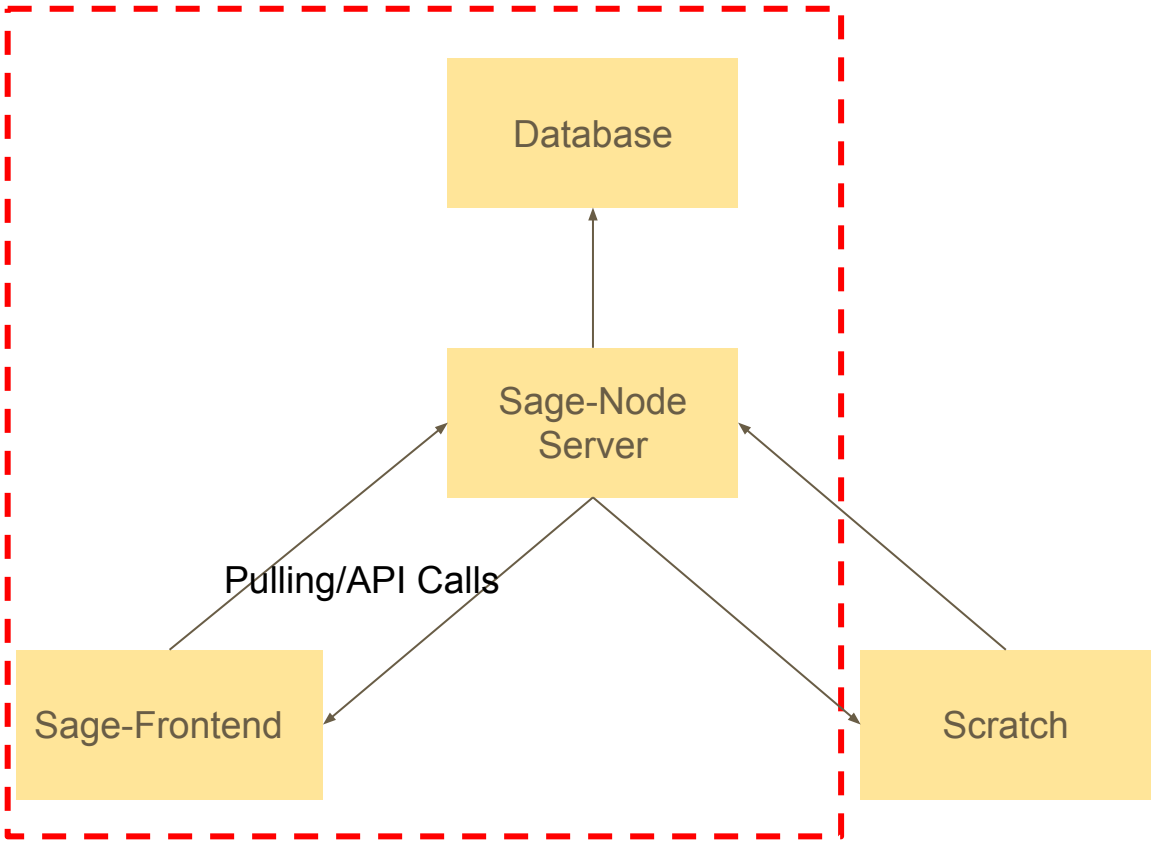
ABSTRACT

- Bring Scratch components to the outer frontend
- Improve UI system
- Introduce self-evaluation from student
- Database schema design and improvement
- Connect Node server with Scratch by using WebSocket
- Improve Scratch user experience
- Local IO -> Cloud IO

STRUCTURE



FRONTEND


Database
Sage-Node Server
Pulling/API Calls
Sage-Frontend
Scratch

Student

- Home
- Metrics
- Missions
- Account
- Hide / Show

SAGE

File ▾ Edit ▾

Proficient: 0
Developing: 0
Basic: 0

Hey! Let's start solving!

SAGE Play Mode

Points: 0

5c0d7d0f1da8bb164894dce0

x: 240 y: 26

Sprites

New sprite:

Stage
1 backdrop

New backdrop:

Scripts | Backdrops | Sounds

Motion | Control
Looks | Sensing
Sound | Operators
Pen | More Blocks
Data | Parsons
Events

Stage selected:
No motion blocks

Hello !

Sage Orbs Found

INSTRUCTION

START TIMER

Time Remaining:
10:00

Student

- Home
- Metrics
- Missions
- Account
- Hide / Show

SAGE

File Edit

Proficient: 0
Developing: 0
Basic: 0

Hey! Let's start solving!
SAGE Play Mode

Points: 0

x: 240 y: 180

Sprites

New sprite:

Stage
1 backdrop

New backdrop:

Scripts | Backdrops | Sounds

Motion | Control
Looks | Sensing
Sound | Operators
Pen | More Blocks
Data | Parsons
Events

Stage selected:
No motion blocks

Hello !

INSTRUCTION

QUESTION | HINT

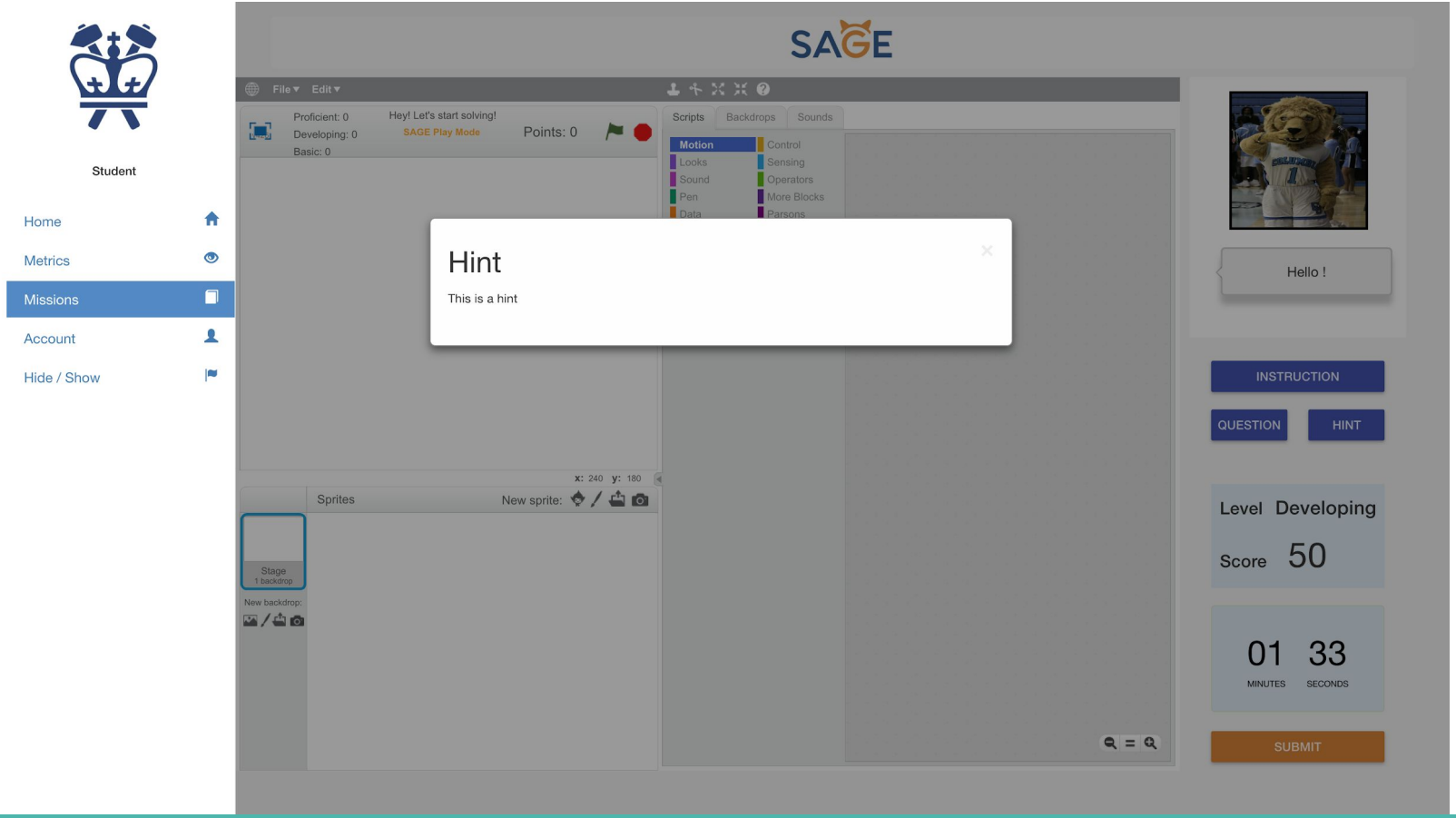
Level Developing

Score 50

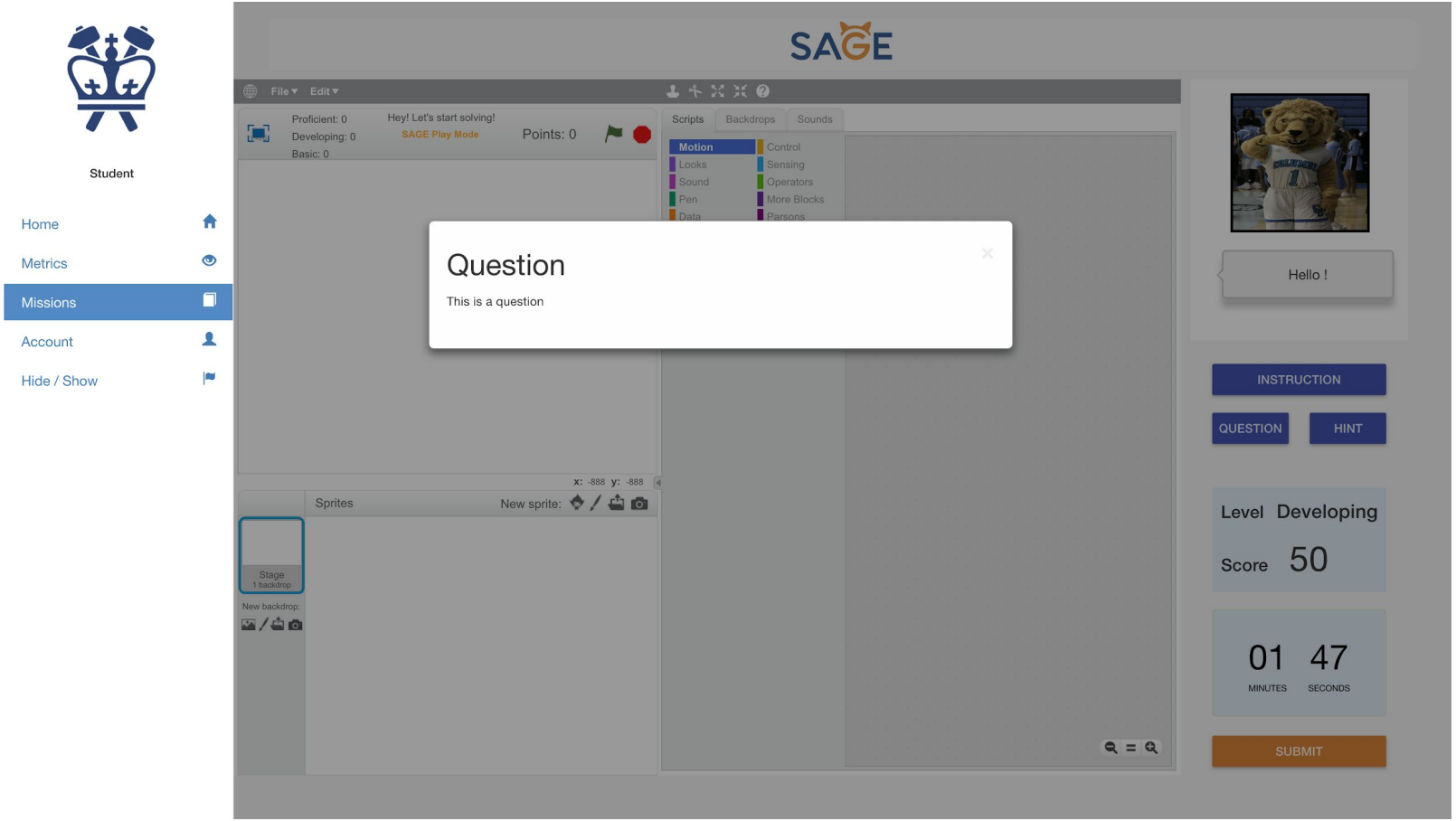
01 MINUTES 46 SECONDS

SUBMIT

HINT PANEL


SAGE
Student
Home
Metrics
Missions
Account
Hide / Show
File
Edit
Proficient: 0
Developing: 0
Basic: 0
Hey! Let's start solving!
SAGE Play Mode
Points: 0
Scripts
Backdrops
Sounds
Motion
Looks
Sound
Pen
Data
Control
Sensing
Operators
More Blocks
Parsons
Hint
This is a hint
x: 240 y: 180
Sprites
New sprite:
Stage
1 backdrop
New backdrop:
Hello !
INSTRUCTION
QUESTION
HINT
Level Developing
Score 50
01 MINUTES
33 SECONDS
SUBMIT

QUESTION PANEL



Student

- Home
- Metrics
- Missions
- Account
- Hide / Show

SAGE

File Edit

Proficient: 0
Developing: 0
Basic: 0

Hey! Let's start solving!
SAGE Play Mode

Points: 0

x: 240 y: 180

Sprites

New sprite:

Stage
1 backdrop

New backdrop:

Scripts | Backdrops | Sounds

Motion | Control
Looks | Sensing
Sound | Operators
Pen | More Blocks
Data | Parsons
Events

Stage selected:
No motion blocks

Hello !

INSTRUCTION

QUESTION | HINT

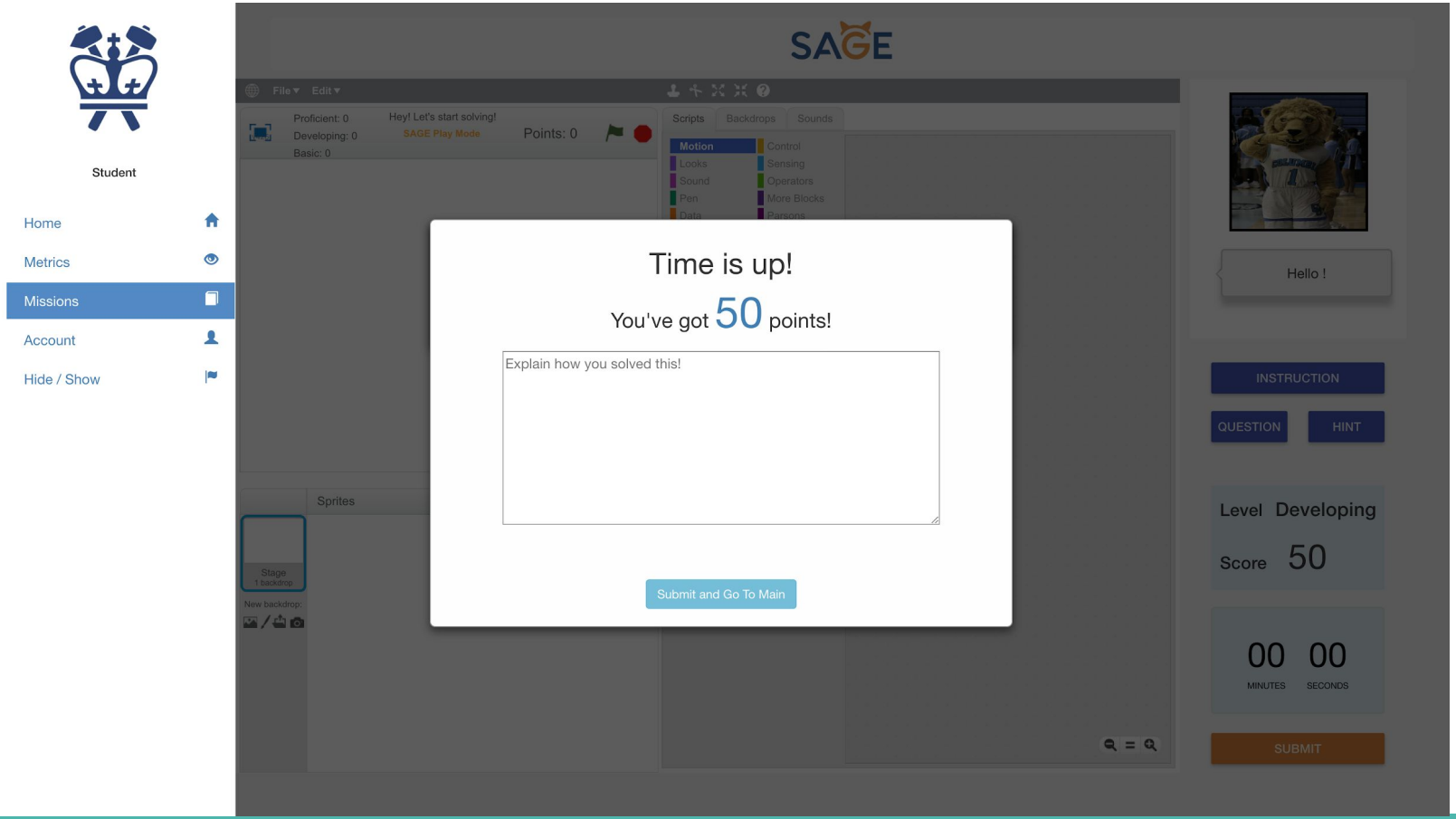
Level Developing

Score 50

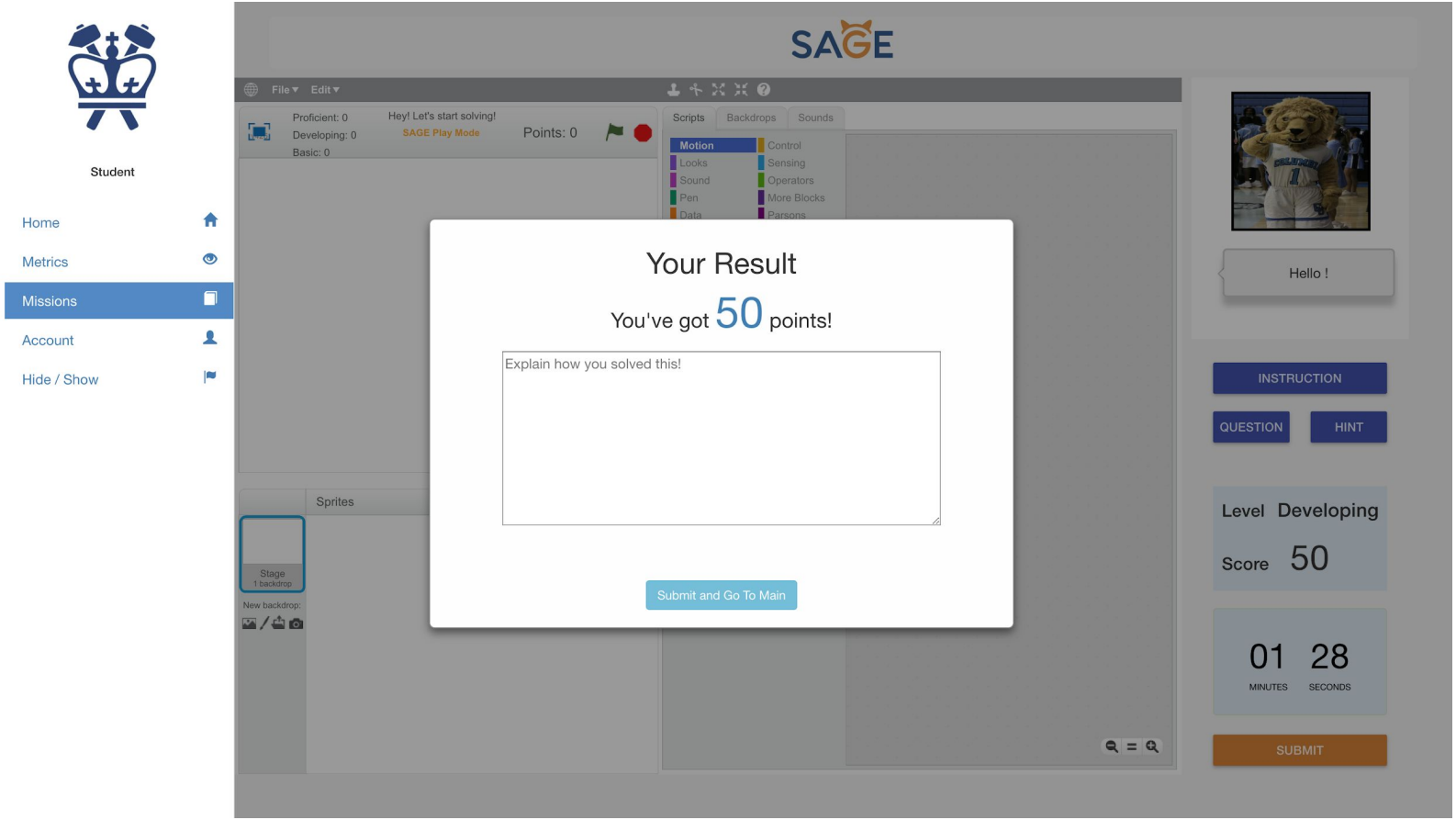
01 MINUTES 46 SECONDS

SUBMIT

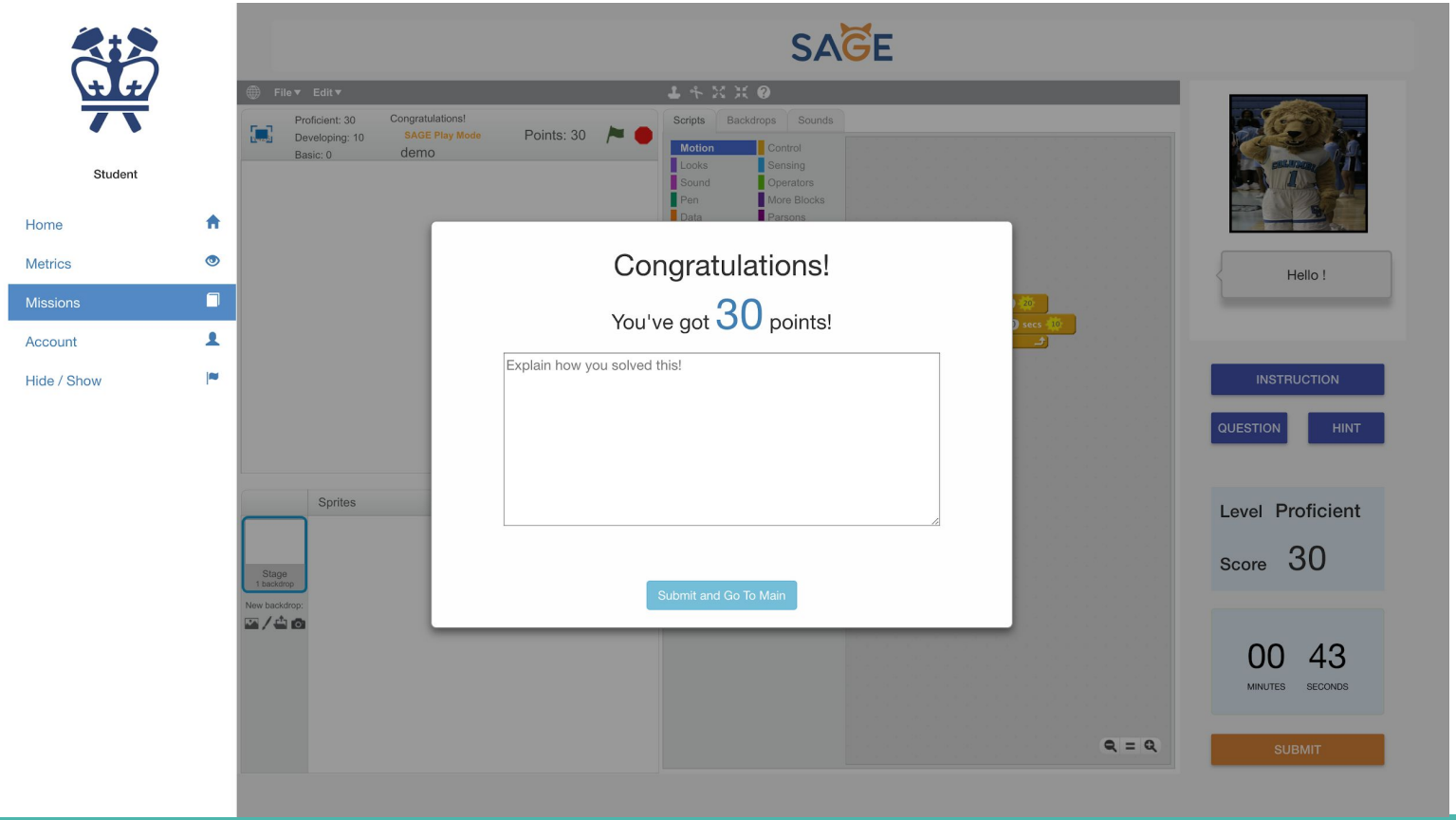
TIME UP SUBMISSION



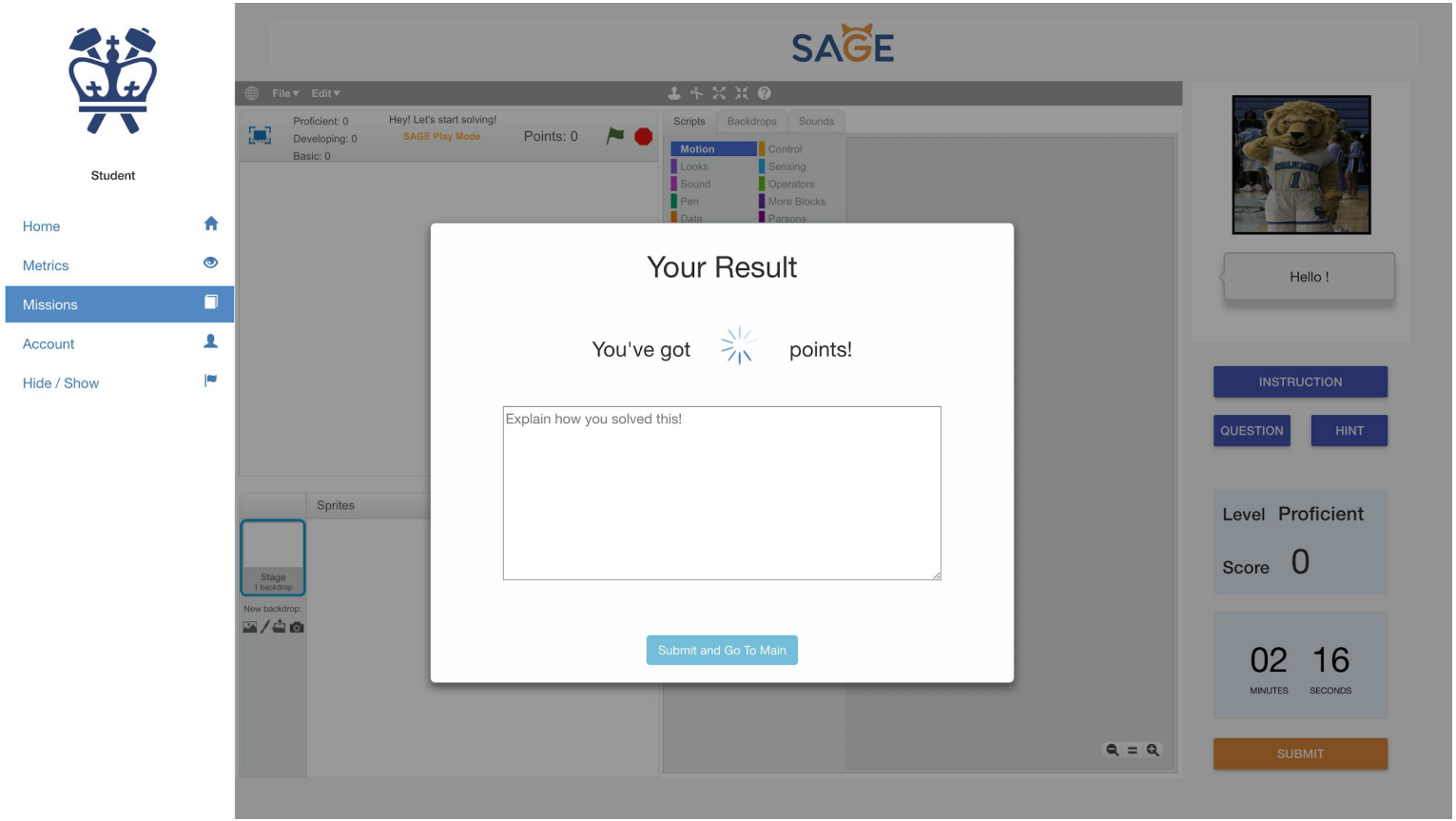
STUDENT SUBMISSION



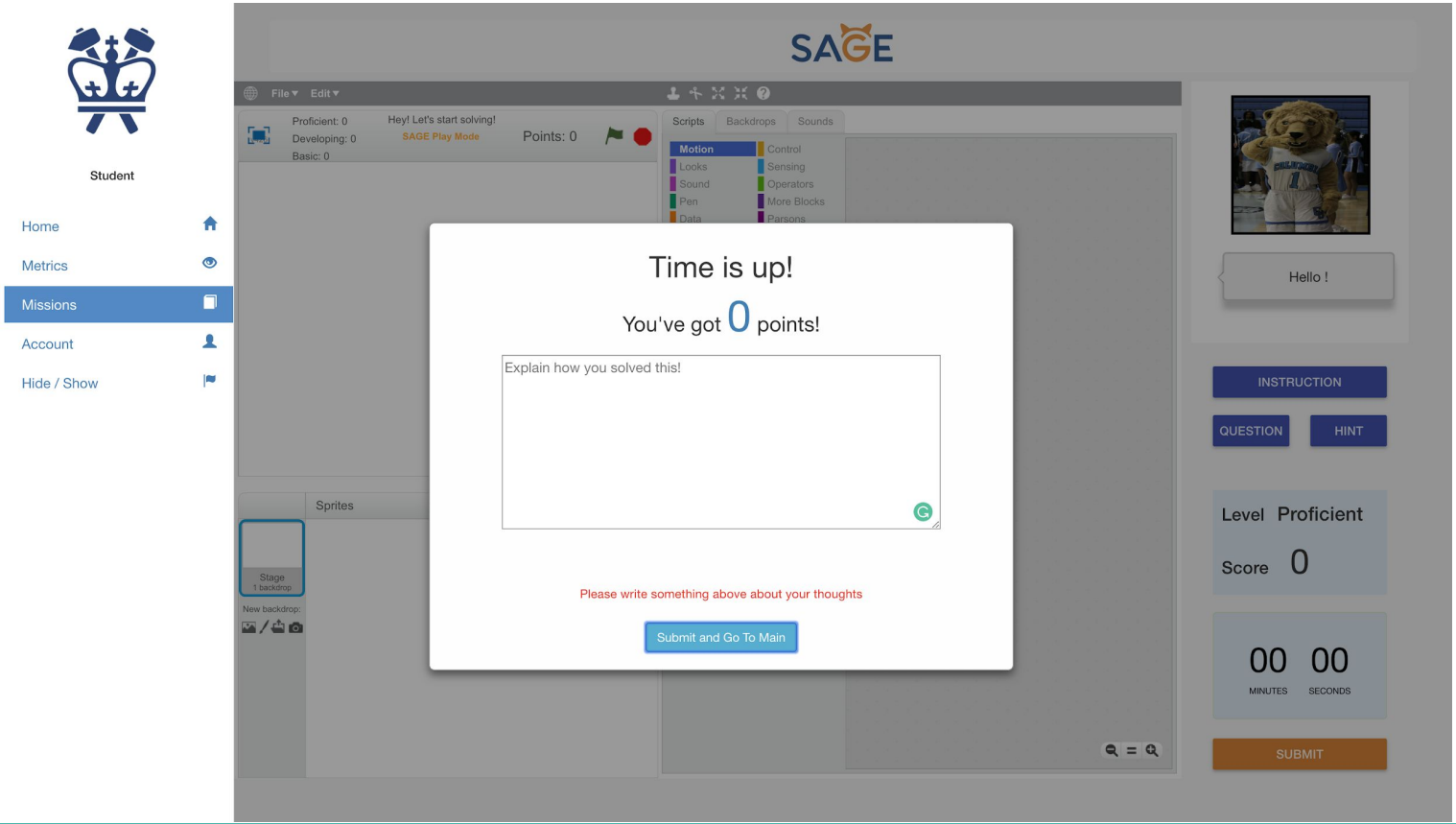
SUBMISSION FROM SCRATCH



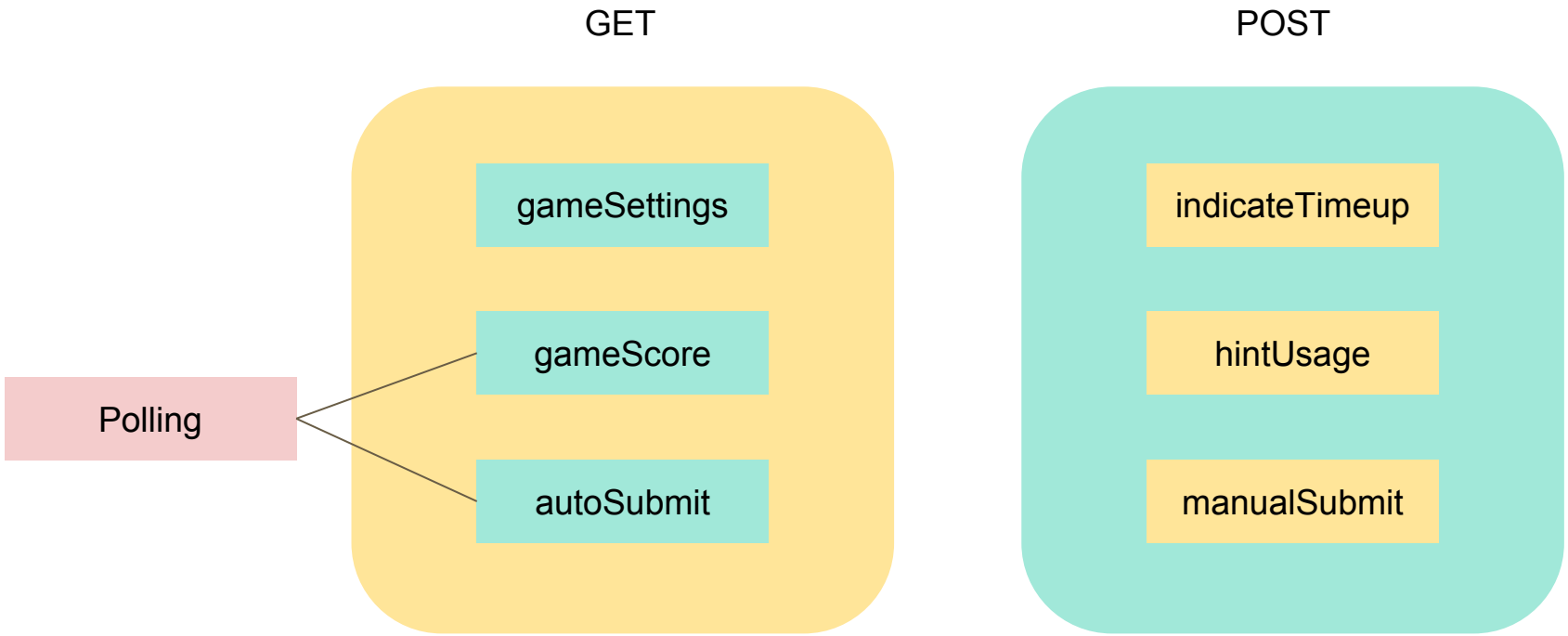
SCORE LOADING



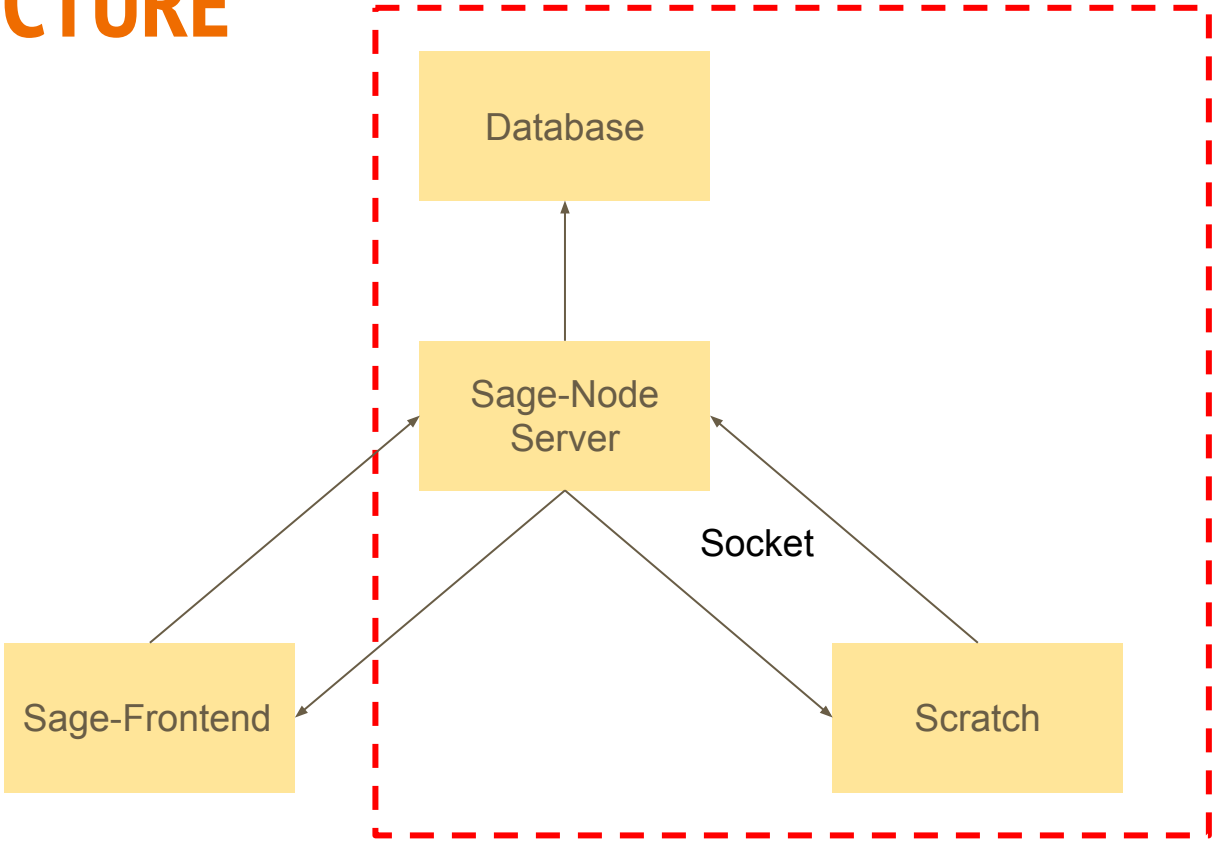
SELF-EXPLANATION EMPTY CHECK



FRONTEND API CALLS



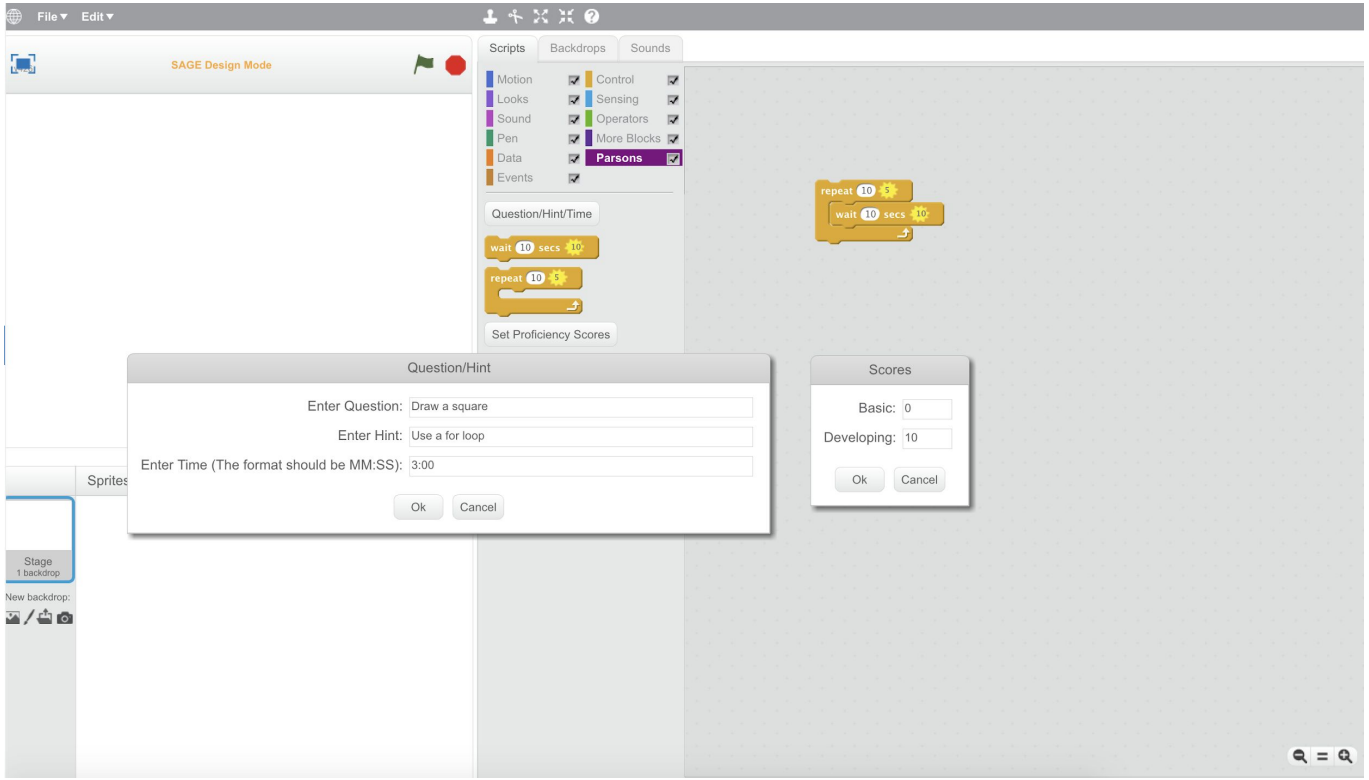
BACKEND STRUCTURE



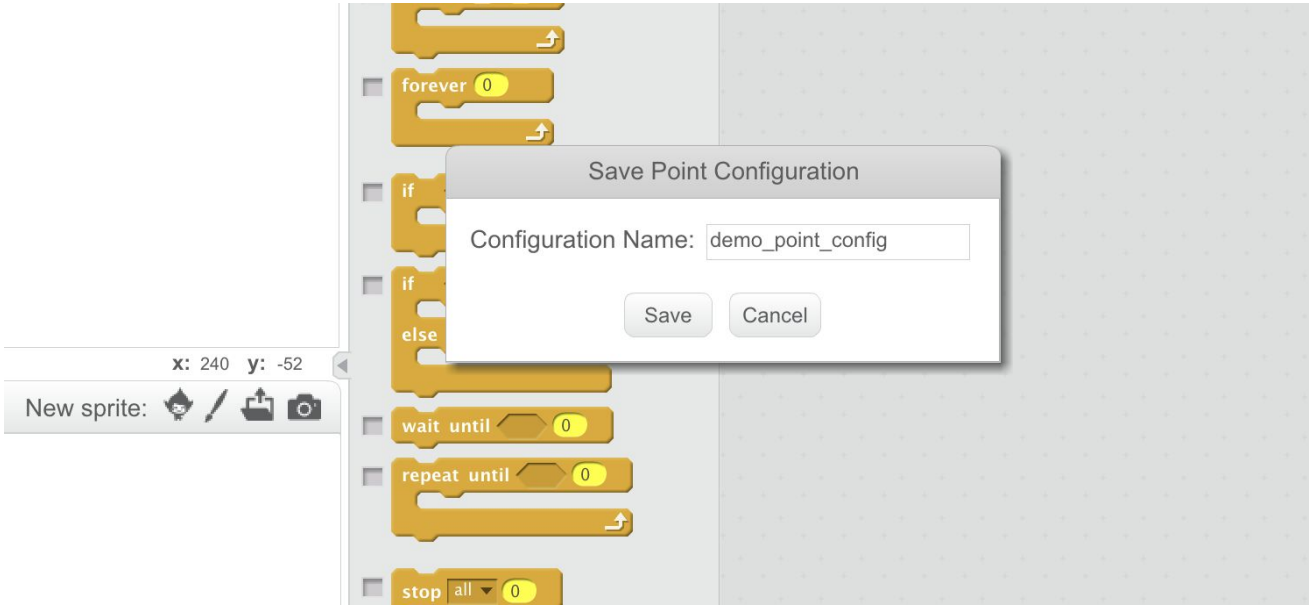
DATABASE

- Some information (i.e. .sb2 files and assignment point configs) are stored in the cloud.
- When a student is finishing an assignment, some score changing information is stored in the database in the certain collections.
- Most collection modifications are made by using Mongoose through RESTful APIs and WebSocket connection.
- The current database is still *sage-login*. Collection migration need to be done. But some concerns need to be taken into consideration.

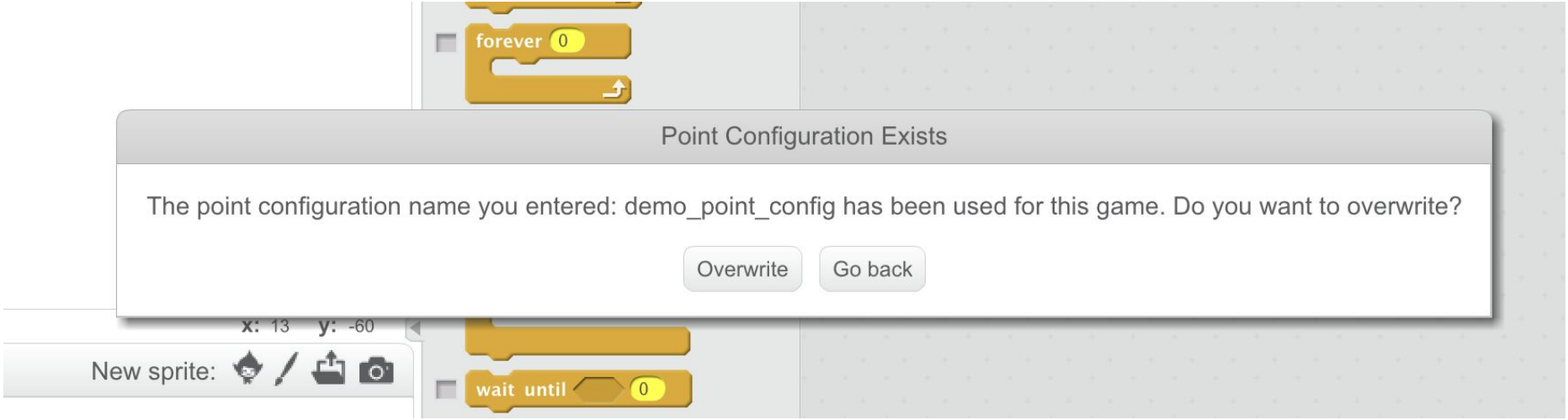
INSTRUCTOR GAME SETTING



BLOCK POINT CONFIGURATION



BLOCK POINT CONFIGURATION



BLOCK POINT CONFIGURATION

FUTURE WORK

- Add score metrics for the student upon submission
- Display feedbacks on frontend
- Update frontend framework (i.e. AngularJS)
- Allow Instructor to configure feedbacks and load preset feedbacks
- Layer Connection Consistency
- Security issues

DEMO

THANK YOU!