



DungeonBots

Team Undead Pixels

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Overview

DungeonBots is the coding education game.

Fills multiple functions

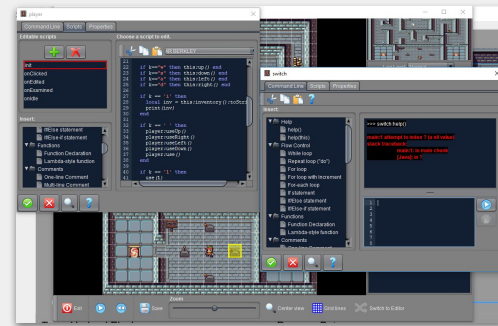
Graphically stylish and interesting

A curriculum delivery vehicle

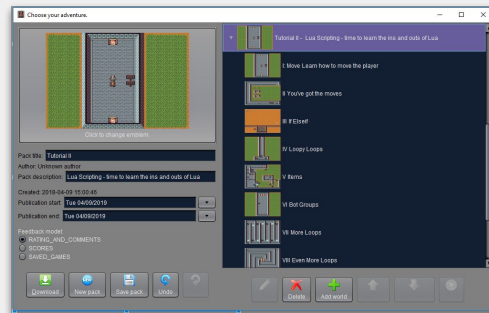
Is it a level? Is it a lesson?



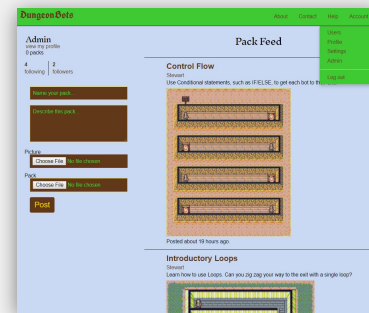
A game and game engine



An IDE



Lesson plans



A community

System Design

Game

Created our own game custom game engine with Java 8

Advanced Lua scripting integrations using Java reflection and annotations

Highly concurrent architecture

Created our own Level Editor from scratch

Website

Back end: Ruby-on-Rails

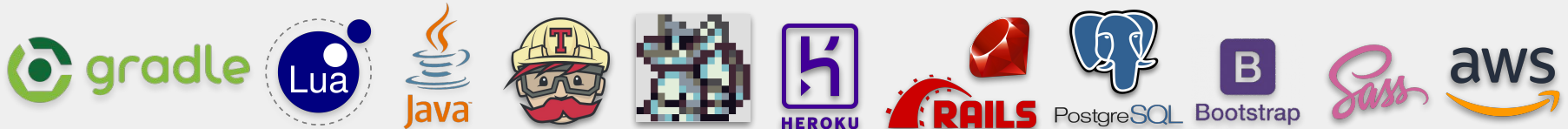
Front end: Bootstrap, SASS

Database: PostgreSQL

Development: Cloud9

Deployment: Heroku, AWS S3

API: Custom



System Capabilities - Game

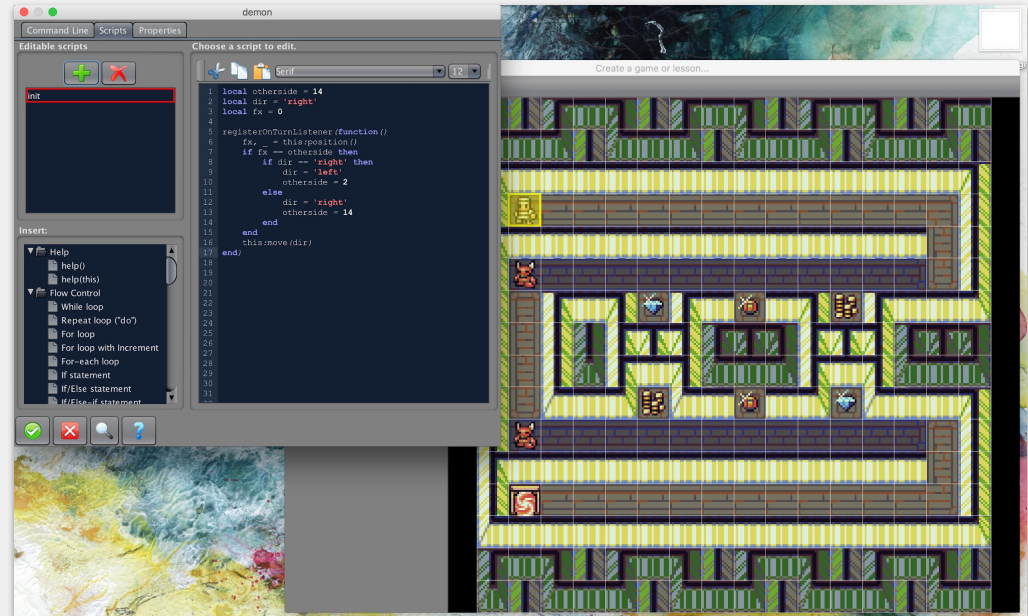
GUI level editor

Lua script editor

Lua grammar / syntax tool

Download levels from website in client

Author-defined help



System Capabilities - Website

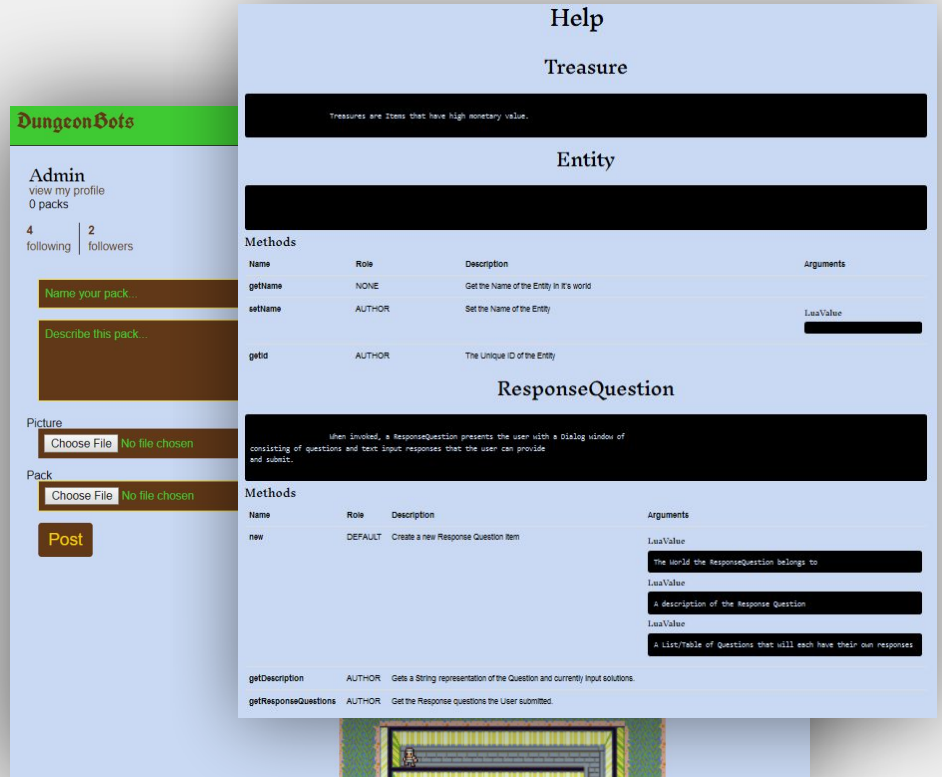
Upload & download Level Packs

Pack Feed of user content

Help content for in-game commands

Normal user features, security

Leave us your feedback!



System Limitations

Supports deletion of entities, but no built-in combat system

Large built-in library of tiles and entities, but doesn't support custom assets

Has GUI for generating code, but no autocompletion

Pack size limitations on website

Unique Features

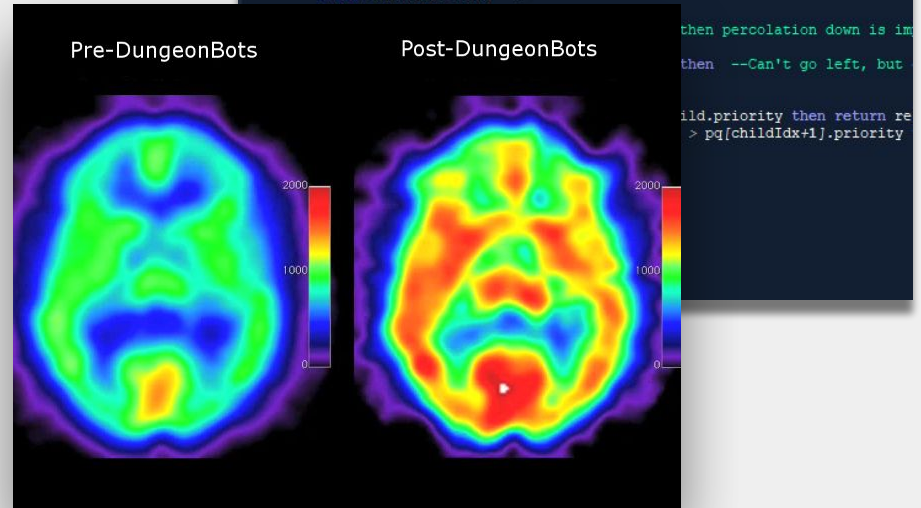
There's nothing like this out there on the market

Learn to program by playing a game

Sandboxed coding environment per entity - every entity has its own "brain"

Endlessly customizable

```
function PriorityQueue.push(item)
  local idx = #pq+1
  pq[idx] = item
  --Percolate up
  local parentIdx = intDivideBy2(idx)
  while parentIdx >= 1 do
    --player:say("idx:" .. idx .. " parentIdx:" .. parentIdx)
    if pq[parentIdx].priority <= pq[idx].priority then break end
    pq[idx] = pq[parentIdx]
    pq[parentIdx] = item
    idx = parentIdx
    parentIdx = intDivideBy2(idx)
  end
end
function PriorityQueue.pop()
  local result = pq[1]
  pq[1] = pq[#pq]
  pq[#pq] = nil
  --Percolate down
  local idx = 1
  while true do
    local childIdx = idx * 2
```



System Demo

