

Gleeb-Glob

Video Game Edutainment

Presented By

The Moose

(Brian Hansen, Maggie Hewitt, Jason Greaves and Brian Spates)

Sponsored By

Prof. Joseph Lanzafame

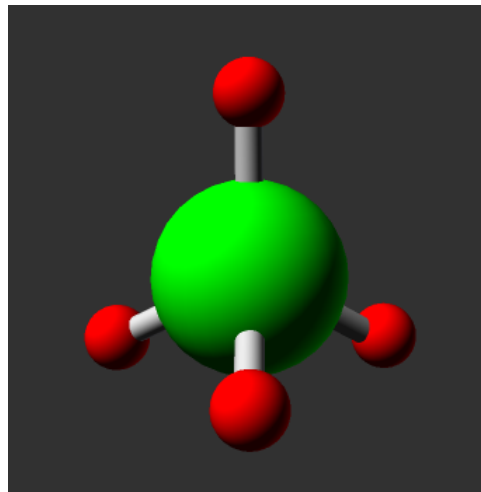
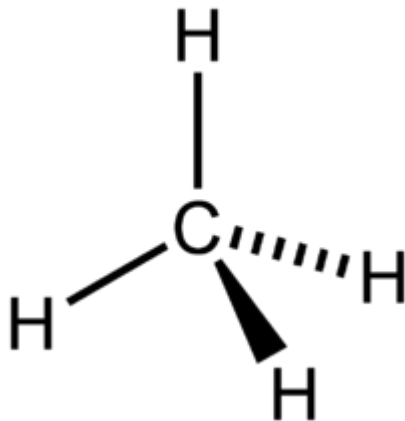
Agenda

- Project/Requirements Description
- Game Design
- Student Management System
- Risks
- Process
- The Future
- Challenges

Initial Project Description

- Make a game to help students visualize simple molecule structure.
- Focus on emphasizing static molecular structure.

Connecting Hieroglyphs To Reality



Requirements

Students

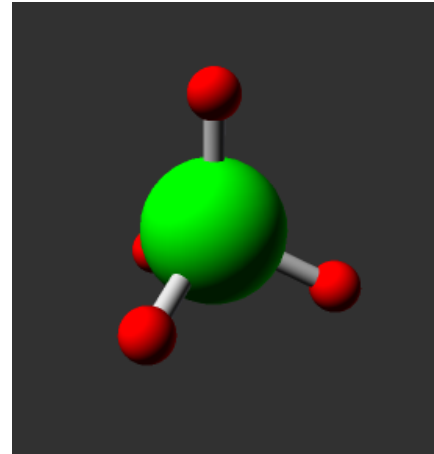
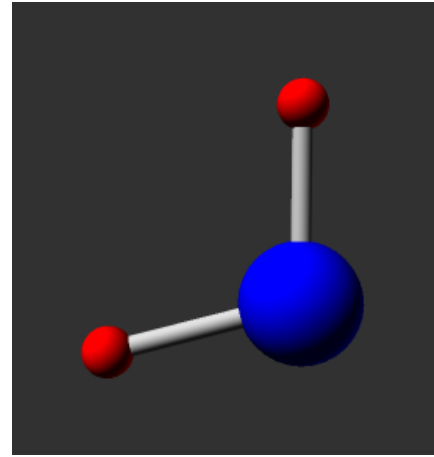
- Connect hieroglyphs to reality
- Access game easily

Professor

- Track user progress

Molecular Geometries

- Geometries:
 - linear
 - bent linear
 - trigonal planar
 - tetrahedral
 - pyramidal
- Modeled using blender



Game Technologies



- Unity supports many platforms
- MonoDevelop for script editing
- Blender for modeling 3D



Game Design

- Story
 - 3-Dimensional space adventure on the molecular level where users race against the clock to collect molecules.
- Prototyping
 - Still moving forward

Gameplay

- Flow
- Level Design
- Controls
- Winning and Losing



Student Management System

- Track students gameplay.
- Requirements
 - Produce a game play metric that will accurately depict a student's game progress.
 - Provide the professor with an system to manage and review student information securely.
 - Easy to deploy and manage.

Technologies



Jasmine

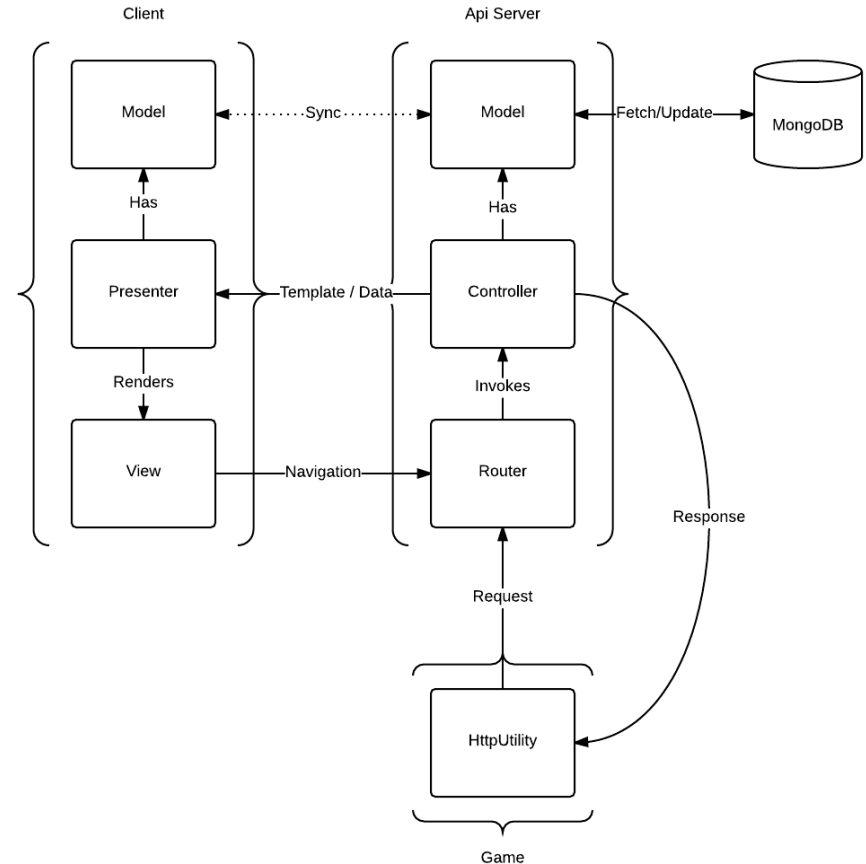


VAGRANT



High Level Architecture

- Student API
 - RESTful
 - Access Control Lists govern actions
 - Passport used for Auth
- Student Management
 - One Page JS application
 - Isomorphic JS Rendering
 - Async Polling



Students

Search

Status

Sort By

Limit

	name	age	levels completed	time played	course	semester
Edit	Wang Jackson	19 days old			CHEM101	fall - 2014
Edit	Zed Thompson	19 days old			CHEM101	fall - 2014
Edit	Maggie Hewitt	19 days old			SWEN-500	fall - 2014

Risks

- Minimal chemistry knowledge
- Minimal prior experience with 3D modeling
- No prior experience with Unity
- Lack of designers, artists and producers
- Typical software project risks

Process Selection

- Scrum

- Process as a form of risk management
 - (lack of domain knowledge + vague requirements) == requirements churn
 - Iterative Sprint Cycle conducive to making mistakes and learning from them.
- Many of the requirements would be generated from our Game Design
- Game Design was dependent on assessing feasibility

Process In Action

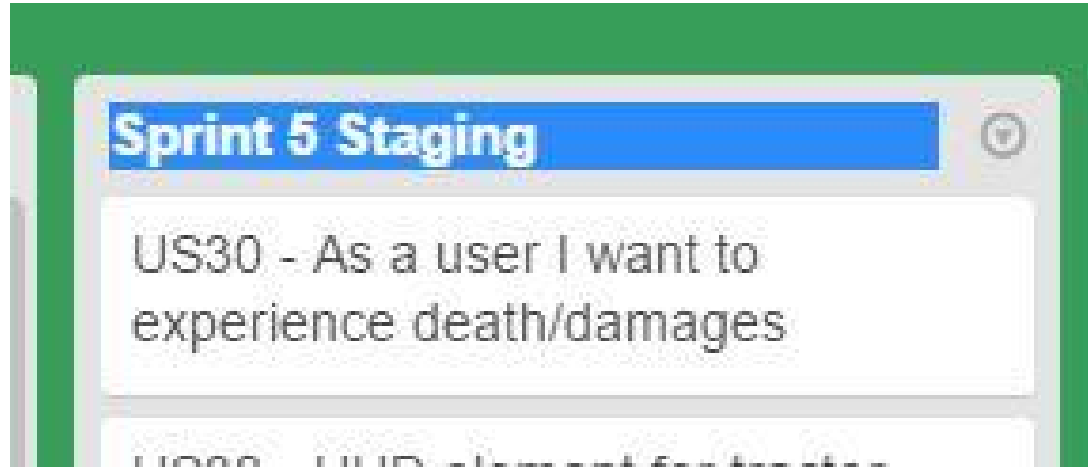
- 2 Week Sprints
- Planning Poker
- Code reviews for QA and domain experience sharing.
- Kanban board in Trello
- Fibonacci Story Points
- Hour estimations for tasks
- Daily Standup over Slack



GitHub



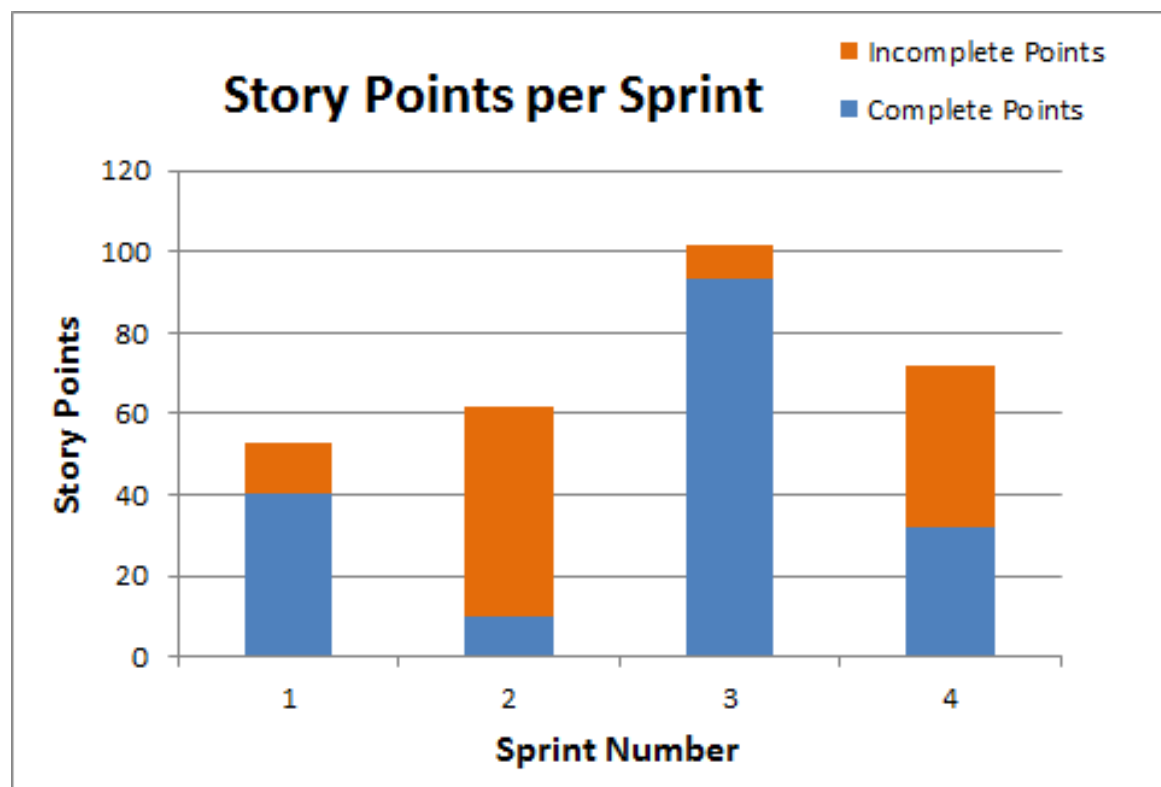
Process In Action



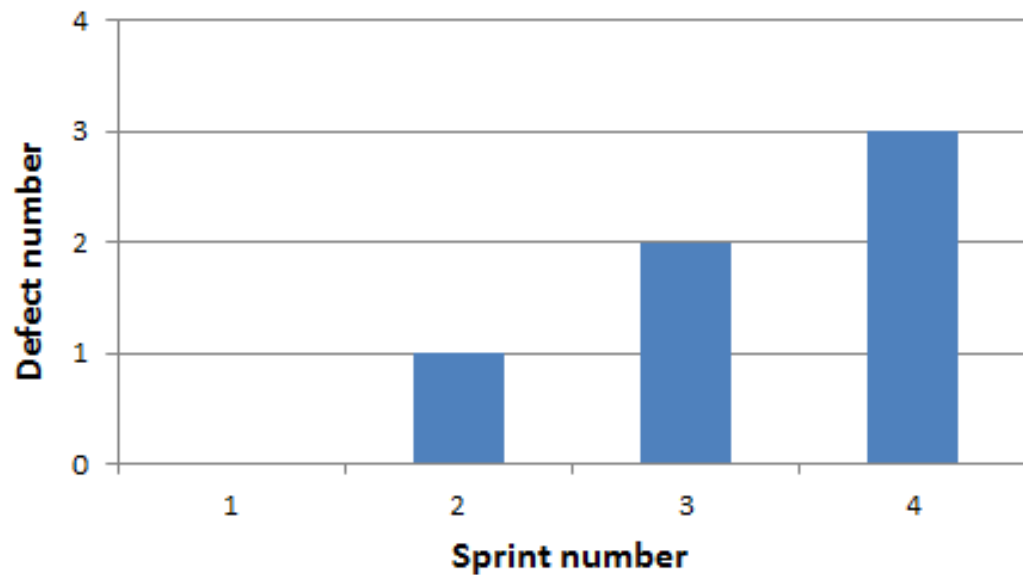
Awkwardly applying Scrum to Game Design

Metrics

- Hours per Week
- Story points closed per Sprint
- Defects found per Sprint
- (future) Game Performance Metrics
 - Several performance risks
 - Easily identify introduce performance issues



Defects found per Sprint ■ Number of defects



Testing

- Usability Evaluation

- Evaluate students enrolled in the chemistry sequence
- Elicit qualitative feedback
 - Game controls
 - Understanding
- Elicit quantitative feedback
 - Time to first molecule collected
 - Tries to complete first level

Demo

Goal: Demo 1
complete level.



Future Release Plan

Milestones

- Skeleton Level (completed)
- Complete Level (next milestone)
- Zone 1, Level Selection, Upgrade Store
- Zone 2, Zone 3, End Screen

Challenges

- Weekly sponsor meetings with two week sprints
- Undefined roles
- Outside the software engineering comfort zone
- Team Morale
 - Reached stage 5 “Acceptance”

What Went Well

- Team Chemistry
 - Get it?
 - No personnel issues
- New technical skills
- Communication
 - Daily standup using Slack
- None of us dropped out.



Questions?