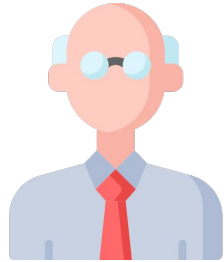# Sage Project-Final Presentation

Active Hierarchical Feedback System

Da An, Yuan Tian

2 Overview

- Introduction
- Backgrounds and Design
- Data Model and Relations
- User Interfaces
- More features
- Result
- Bug fixes
- Future work
- Conclusion

Columbia | Engineering
The Fu Foundation School of Engineering and Applied Science

3   Introduction

Feedbacks

- Parson's Feedback Authoring
- Parson's Feedback Presentation
- Parson's Objective Presentation
- Parson's Hint Presentation
- Parson's Submit Presentation
- Parson's code visualization
- Identifying Loops in Program Construction

Figure 1. Screenshot of Main Related User Stories

Columbia | Engineering
The Fu Foundation School of Engineering and Applied Science

4
Backgrounds & Design

❑ **The need to hear feedback for improvement -- More Incentive**
❑ **Interaction with instructor -- Active Learning**
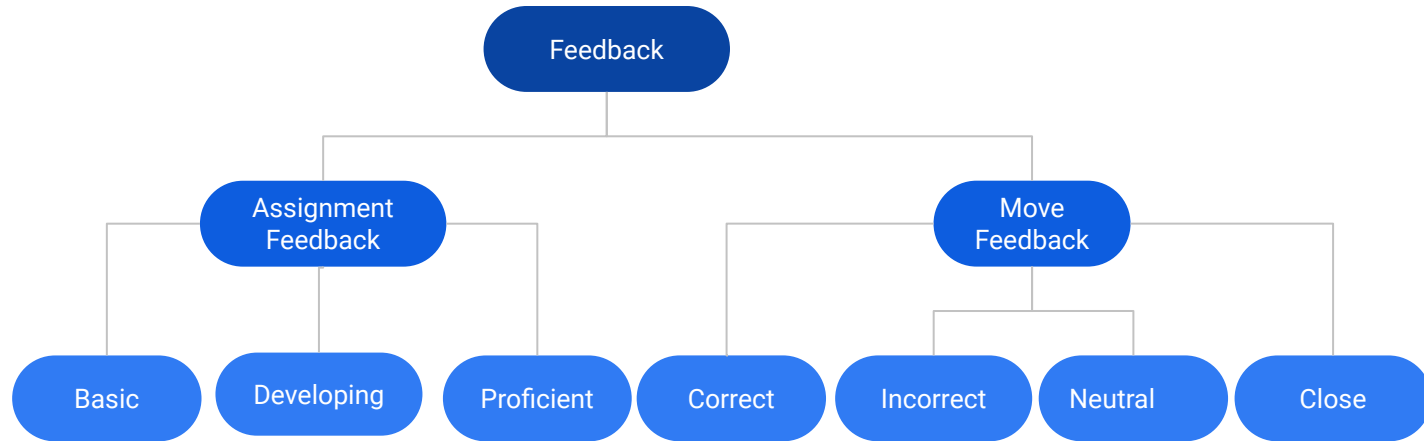❑ **Link CT concept to games/quests -- With Focus, Better Training Result**

Figure 2. Feedback Classification and Type
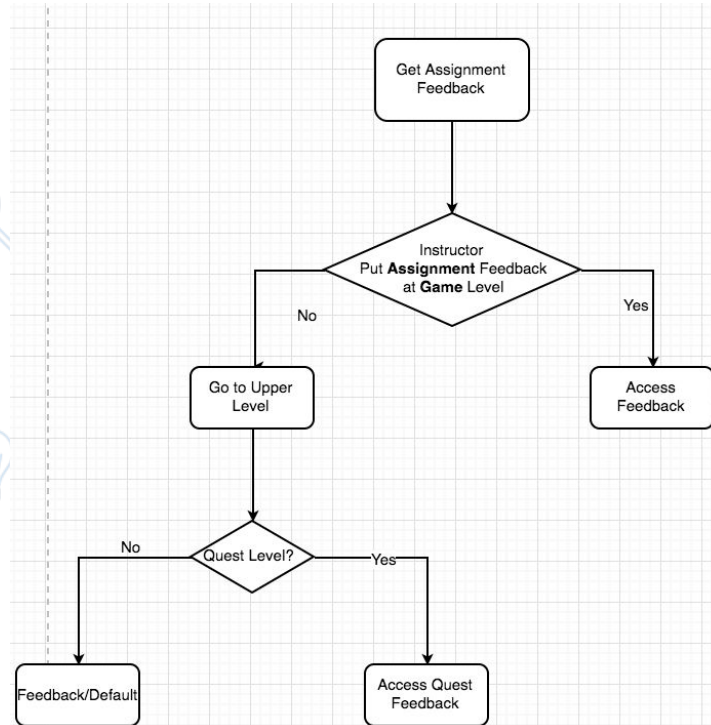
5   Data Models and Relations

Figure 3: feedback inheritance

6   Data Models and Relations

Data Model Changes
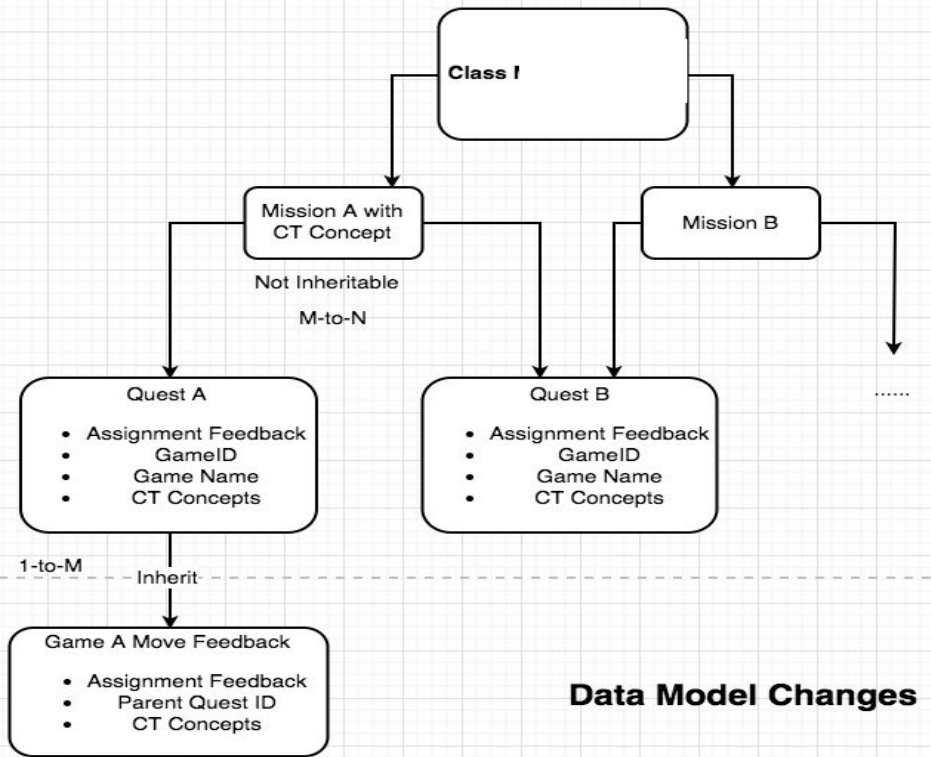
This data model enable us to:

- ❑ Create move/assignment feedback for quests
- ❑ Create move/assignment feedback for games
- ❑ Move/Assignment feedback inherited from quest level
- ❑ Set focus area (CT concepts) at each level
- ❑ Access upper level CT concepts from game level

User Interface

Create Feedback for Mission

Please select the focus of this mission from below:

📁 Sequences
📁 Conditionals
📁 Loops
📁 Parallelism
📁 Event
📁 Operators
📁 Data

🔄 Reset

➡️ Save

Add Feedback

You can add up to 5 feedback for this mission each time

Nice Try

Feedback added: NICE
Feedback added: GOOD MOVE
Feedback added: Nice Try
⚪ Proficient Performance   ⚪ Basic Performance   ⚪ Developing Performance

➡️ Save   Assignment   Feedback

COLUMBIA | ENGINEERING
The Fu Foundation School of Engineering and Applied Science

9

User Interface

Update Assignment Feedback (Quest/Game)

Update Assignment Feedback

Add Up To 5 Feedback

general good performance

Feedback added: nice
Feedback added: nicegood job
Feedback added: general good

Insert new feedback

Select Performance Type:

Proficient   Basic   Developing

Save

Feedback

Type	Response
	nice
	niceceni
😐 basic	nice
😐 basic	niceceni
😊 developing	ceds
😊 developing	ceds
😐 basic	nice
😍 proficient	niceceni
😊 developing	~~nice~~
😊 developing	nice

Delete inherited feedback

User Interface

Update Move Feedback (Quest/Game)

11

User Interface

Edit/Update focus area in the game

12

User Interface

Students get different feedback based on performance

Your Result

You've got [loading] points!

😍 Feedback:

Excellent Job

Write Down Your Thought to Earn Extra Points

How did you solve the puzzle?

Get assignment feedback from instructor

Student send feedback to instructor--Interaction

Submit and Go To Main

Welcome to the Parson's Puzzles!

No hint available

Sage Orbs Found

INSTRUCTION

QUESTION   HINT

Level   Proficient

Score   0

07   07
MINUTES   SECONDS

SUBMIT

Columbia Engineering
The Fu Foundation School of Engineering and Applied Science

Choose different move feedback templates

Please Write Down Move Feedback   ×

Those Feedback will be shared each time after students submit their assignment.

Game Focus Area:

Select existing templates or create move feedback:

⦿ **Choose Existing**   ◯ **Create New**

Choose Template Type:

⦿ **Correct Response Template**   ◯ **Incorrect Response Template**
◯ **Neutral Response Template**   ◯ **Close Response Template**

Templates

| correct template2 | ▾ |

Comments from templates Nice Job2   ☑
Comments from templates Keep Up2   ☑
Comments from templates Nice Try2   ☑
Comments from templates Wonderful Job   ☑
Comments from templates That's right direction   ☑

Send Comment   **Close**

15 More Features

- **Avatar & Submission presentation**
    - Placeholder
    - Time reminder
    - History stats after submission
    - Hint presentation
    - Objective presentation
    - Instruction presentation
- **Expand CT concept**
    - Primary Level (General Direction)
    - Second Level
    - Detailed Level
- **Add move feedback templates of different type for reference when updating games**

- **Edit feedback template when updating game**

Result

Mission Level

- ❏ missions can have focused CT concepts

Quest Level

- ❏ Create move/assignment feedback in quest level
- ❏ Create focus in quest level

Game Level

- ❏ Inherit move/assignment feedback from quest level
- ❏ Inherit focus from quest level
- ❏ Update move/assignment feedback in the game
- ❏ Update focus in the game level
- ❏ Choose default feedback template by type

Student Assessment Panel

- ❏ Get Summary game feedback based on performance
- ❏ Get Move feedback related to game from instructor
- ❏ Get hints based on each step
- ❏ Obtain Game objective
- ❏ Send student side feedback and interact with instructor

COLUMBIA | ENGINEERING
The Fu Foundation School of Engineering and Applied Science

Bug Fix

- ❖ Learning path that student cannot receive feedback
- ❖ Instructor cannot enroll student into a class
- ❖ Student cannot see enrolled class
- ❖ Instructor cannot remove a student from a class
- ❖ Instructor can potentially enroll a students that doesn't exist
- ❖ Add a "add class" button on instructor class management page
- ❖ Instructor class dialog box problem
- ❖ Curricula focus styling and content
- ❖ Mission creation page styling
- ❖ Quest creation page styling
- ❖ Quest objective styling and hidden content
- ❖ Some routing problems
- ❖ Add many error handlers
- ❖ ...

Future Work

- **Intelligent Feedback Template System**
  - The system should choose appropriate feedback template based on CT Concept and type
- **Extend CT Concept**
  - Classify CT Concept into more levels -- field study
- **Construct a preliminary Parson's Puzzle library**
  - Classify Parson's Puzzle with CT Concepts and offer students games with different focus -- more efficiently train and enhance skills with focus
- **Student can see what they learned after submitted an assessment**

Interactive Hierarchical Move/Assignment Summary Feedback System with Focus in Each Game/Quest/Mission

Thanks!

Any questions?

You can reach us at

❖   da2841@columbia.edu

❖   yt2583@columbia.edu