Summary

The completed project will be a game that teaches a lesson, life skill, basic ability, or concept in a way that resonates with the intended audience, in this case, a young child. In designing this game, the goal is to create an experience that is not only educational but also enjoyable and memorable. The developers will collaborate on Bitbucket, using the Confluence workspace, managing their Agile and software development on Jira, and utilizing Swing to assist with the development of Math Match-Up. Math Match-Up will be constantly revisited throughout the course of the application lifecycle to apply all the basic principles of software engineering.

Class Diagrams were used to showcase the structure the Java classes that will be used in Math Match-Up. The class diagrams are made up of the following classes:

- `Card`: create card object and monitor status (flipped/matched) of card object.
- `Gameboard`: Create 2-D matrix of Card objects and assign values to cards depending on difficulty.
- `<<interface>> Game:` interface for game with common methods for general game logic (start, end, checkformatch etc).
- `HighScoreTable:` load/save scores and account info into JSON file. display sorted highscores up to certain limit of scores.
- `Account:` Record and create accounts for unique usernames.
- `CountdownMode:` implements Game, has unique combo mechanism and timer.
- `TimedMode:` implements Game, records time elapsed as score on a 6x6 grid.
- `TutorialMode:` implements Game, displays instructions to user and has different cues for display.
- `TournamentMode`: implements Game, multiplayer mode, player with highest time is eliminated until one person is left.

Additionally, user interface mockups were created using the Balsamiq wireframe software.

Table of Terms

Terms	Definition
Unified Modeling Language (UML)	A way to visualize systems and software using Unified Modelling Language (UML).
Class Diagrams	A class diagram shows the structure of an object-oriented software system by outlining the classes and attributes involved.
JSON File	A JSON file stores data in key-value pairs and arrays for the software it was made for, and then accesses the data.
Wireframe	A wireframe is an illustration of a page's interface. It is a visual guide to the framework of a software system.
Application Programming Interface (API)	A way for two or more computer programs to communicate with each other.
Java Stream API	A set of classes and interfaces included with Java that allow the developer to process a collection of objects concisely and functionally.
Class	A class is a blueprint/template for creating objects in object-oriented programming.
Object	A specific thing that was created based on the blueprint/template defined by a class.
Project Oriented Model (POM)	POM is a file used by developers to help manage the configuration of a Java Project.
pom.xml	This is a POM file in Maven-based Java Projects. It contains important configuration information and dependencies for the project.
	Generalization: An inheritance relationship.
	Aggregation relation: A child element can exist independently of a parent. Has-a relationship.
	Realization: Two elements are connected. Interfaces are where it is used.

	Composition: The child element cannot exist independently of the parent. Strong relationship.