

# Final Project Requirements Specification

Version 1.0

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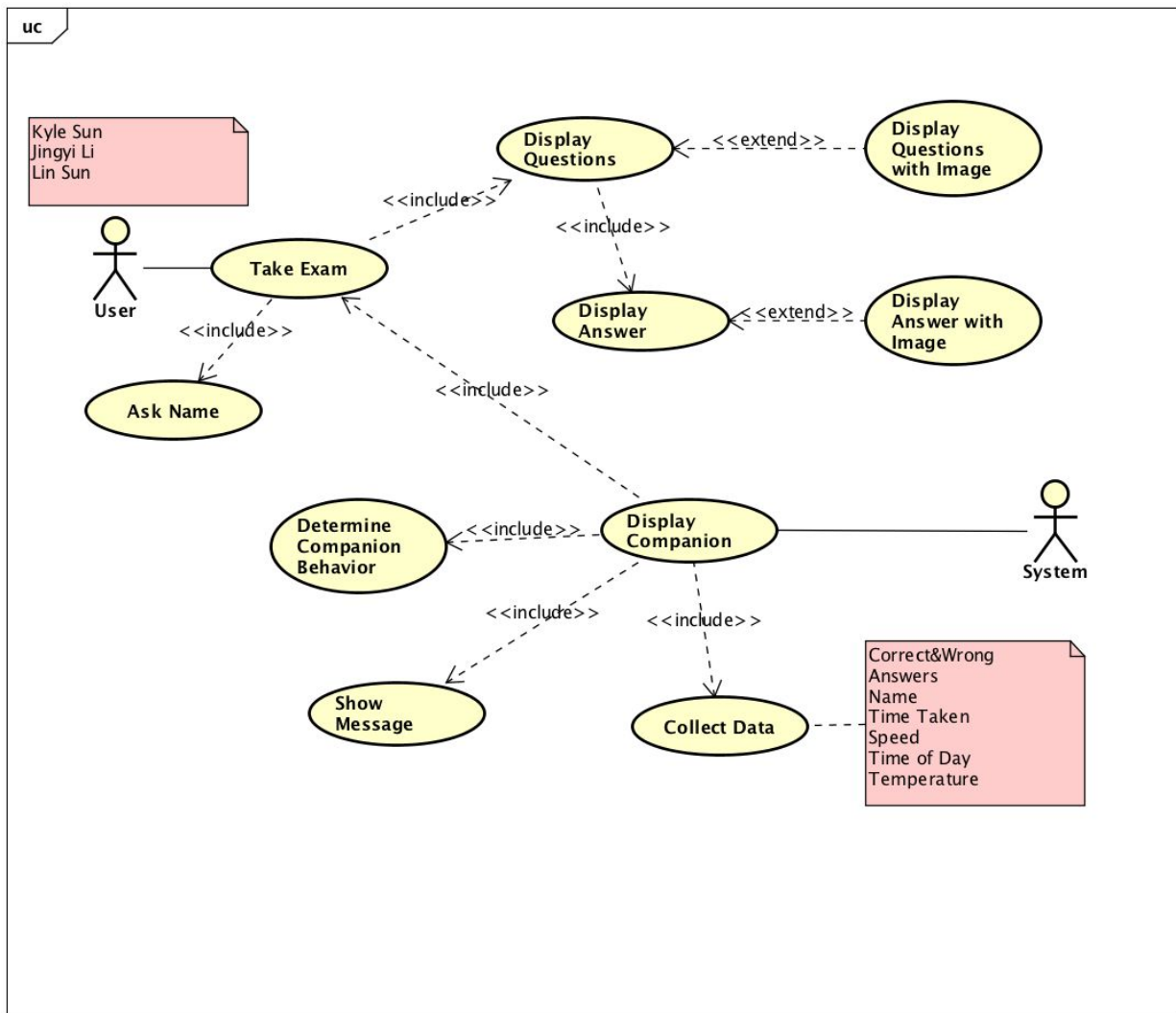
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## I. Introduction:

The purpose of this project is to create a Java-version Exam interface. This interface provides several questions that are related to software engineering, and it provides a companion that interacts with the user based on exam correctness, current time, temperature, randomness, question streak, and time taken on questions. This document describes the requirements of this program.

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## Use case-based Requirements



## II. Use cases

UC1 Take Exam

UC2 Ask Name

UC3 Display Questions

UC4 Display Question with image

UC5 Display answer

UC6 Display answer with image

UC7 Display Companion

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UC8 Determine Companion behavior

UC9 Show message

UC10 Collect Data

USE CASE 1	Take Exam	
GOAL	Initialize Exam and companion interface	
PRECONDITIONS	The user has opened the Exam page	
FAILED END CONDITION	None	
PRIMARY, SECONDARY ACTORS	User	
DESCRIPTION	step	action
	1	Get files for Exam
	2	Load files for Exam

USE CASE 2	Ask name	
GOAL	Take user's name for future use	
PRECONDITIONS	Started exam	
FAILED END CONDITION	None	
PRIMARY, SECONDARY ACTORS	None	
DESCRIPTION	step	action
	1	Get user's name
	2	Save user's name

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USE CASE 3	Display Questions	
GOAL	To display Questions from file	
PRECONDITIONS	Started exam	
FAILED END CONDITION	None	
PRIMARY, SECONDARY ACTORS	None	
DESCRIPTION	step	action
	1	Get question file
	2	Load question file
	3	Display question

USE CASE 4	Display Questions with image	
GOAL	To display Questions and it's image from file	
PRECONDITIONS	Started exam	
FAILED END CONDITION	None	
PRIMARY, SECONDARY ACTORS	None	
DESCRIPTION	step	action
	1	Get question file and corresponding image
	2	Load question file and corresponding image
	3	Display question and corresponding image

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USE CASE 5	Display answer	
GOAL	To display available choices for corresponding question	
PRECONDITIONS	Started exam	
FAILED END CONDITION	None	
PRIMARY, SECONDARY ACTORS	None	
DESCRIPTION	step	action
	1	Get file for possible answers that corresponding with question
	2	Load file for possible answers that corresponding with question
	3	Display possible answers that corresponding with question

USE CASE 6	Display answer with image	
GOAL	To display available choices and its image for corresponding question	
PRECONDITIONS	Started exam	
FAILED END CONDITION	None	
PRIMARY, SECONDARY ACTORS	None	
DESCRIPTION	step	action
	1	Get file for possible answers and its image that corresponding with question
	2	Load file for possible answers and its image that corresponding with question
	3	Display possible answers and its image

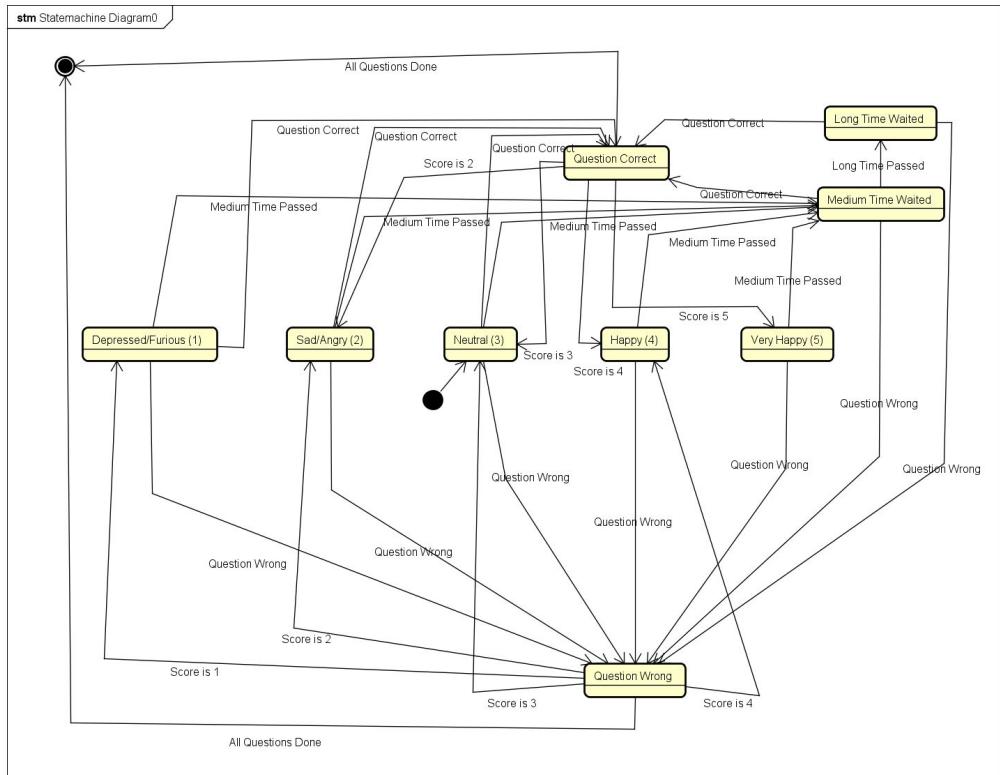
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		that corresponding with question
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USE CASE 7	Display companion	
GOAL	To display a companion that can interact with user	
PRECONDITIONS	Started exam	
FAILED END CONDITION	None	
PRIMARY, SECONDARY ACTORS	System	
DESCRIPTION	step	action
	1	Get companion position
	2	Get companion image that corresponding to current state based off of randomness/temperature/% correct/streak/time of day/questions left
	3	Load companion image
	4	Display companion image at position

USE CASE 8	Determine companion behavior	
GOAL	Based on current user correctness on exam to determine companion's behavior	
PRECONDITIONS	Started exam	
FAILED END CONDITION	None	
PRIMARY, SECONDARY ACTORS	None	

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USE CASE 9	Show message	
GOAL	To display a message that interact with user	
PRECONDITIONS	Started exam	
FAILED END CONDITION	None	
PRIMARY, SECONDARY ACTORS	None	
DESCRIPTION	step	action
	1	Get message corresponding to current state based off of randomness/temperature/% correct/streak/time of day/questions left
	2	Display message

USE CASE 10	Collect Data	
GOAL	Generate informations that can used for show message(UC9)	
PRECONDITIONS	Started exam	
FAILED END CONDITION	None	
PRIMARY, SECONDARY ACTORS	None	
DESCRIPTION	step	action
	1	Get information
	2	Load information
	3	Pass information to show message(UC9)



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### **III. Nonfunctional Requirements**

#### NR1. Performance

When initialize Exam, system shall take less than 10 seconds for 95% of the cases.

Scrolling exam page up or down shall take at most 3 seconds.

##### NR1.1 User response

The system shall respond to the user's input within 1 seconds.

The system shall correctly response to user's input 99% of the cases.

#### NR2. Usability

Novice user shall perform tasks within 1 minute.

Experience user shall perform tasks within 15 seconds.

A user shall know how scores are kept and how to interact with companion.

##### NR2.1 User options

A user shall leave the exam or start new exam in the middle.

##### NR2.3 User Errors

The system shall ignore the improper input from keyboard/mouse.

#### NR3. Availability

The program shall not be available more than 10 minutes out per 1000 minutes of operation.

Less than 15 seconds shall be needed for the program restart after an unexpected failure 95% of the time.

#### NR4. Reliability

The precision of calculation shall be at least  $1/10^6$ .

The Program defect rate shall be less than 1 failure per 500 hours of operation.

### **IV. Constraints**

All code development shall be done with the Java programming language.

### **VI. Project Glossary**

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Companion: The little red ghost that interact with user by displaying message and change states.

Extremely angry ghost: The ghost that indicates user at least got 5 answers wrong.

Angry ghost: The ghost that indicates user got 3 to 5 answers wrong.

Happy ghost: The ghost that indicates user got 1 to 3 answers wrong.

Extremely happy ghost: The ghost that indicates user 0 answer wrong.

## **VII. Document Revision History**

Version 1.0

Name(s): Kyle Sun, Jingyi Li, Lin Sun

Date July 6, 2017

Original creation of the SRS.