# Software Requirements Specification

for

# Trivia Maze

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## 1. Introduction

### 1.1 Purpose

This SRS describes the software requirements of the Trivia Maze project for CSCD350. This document is to be used by the team Fast Fire File Flyers that will be building this project.

### 1.2 Scope

This will be a single player, millionaire themed, trivia maze game; that tests a players knowledge and problem solving ability.

### 1.3 Software Context

This software is intended to function as entertainment for a single user; as well as teach the user new information.

## 2. Overall Description

### 2.1 Functional Overview

In full functionality, this software will allow a user to traverse a two dimensional grid of rooms that make up a maze. Each room has four doors, with the exception of rooms on the edge of the grid. When the user tries to move between rooms, they will be asked a multiple choice question at each door. If the user answers correctly, they will be able to move into that room, otherwise the door is locked and the user must choose a different path.  The user will have the limited option to use "Who Wants To Be A Millionaire" styled life lines, in order to pass difficult questions. With life lines, the user can either jump a question or have two answer attempts. Life line options will be presented, when trivia questions are asked. The user may also unlock doors, with the limited use of keys. Enemy AI will also be implemented. The AI will start a certain distance from the player, and each time the player moves or fails a question, the AI will move one room towards the player. Game play will end when: 1) The player reaches the end and wins the game. 2) All paths to the end are blocked by locked doors, as a result of incorrect question answers. 3) The enemy AI catches up to the player.

## 2.2 Generic Use-Case

The player is given a starting point in the maze. The player chooses to move towards the exit. The player is asked a question. The player answers correctly and is allow to move towards the exit. The player tries to move another step towards the exit. The player is asked a question. The player answers incorrectly and is blocked from moving towards the exit. The player will continue in a similar manner until the player either wins or loses the game.

## 2.3 Operation environment

This software will be used in a Windows environment that supports Java JRE 7.

## 2.4 Design Constraints

All code will be written in and must conform to Java 7.

## 2.5 User Data

No user data or state will be saved after the game has ended.

## 2.6 Dependencies

This software will depend on a SQLite database, in order to retrieve questions and answers for the user.

## 2.7 Assumptions

The user is able to read and use a mouse/keyboard to interact with the software.

# 3. Software Model Description

## 3.1 Classes

This software model is comprised of six Java classes.

### 3.1.1 Room Class

The Room class has two to four door values that can be set to represent open or closed. It also has values for if a particular room is occupied by the player or if it is the maze exit.

### 3.1.2 Maze Class

The Maze class stores a 2D representation of a grid of Room objects. The Maze class also contains functionality for manipulating, printing, and error checking itself.

### 3.1.3 Play Class

The play class outlines the game rules, gets input from the user for maze options, asks if the player is ready to start, then creates a manager abject to run game behaviors.

### 3.1.4 TriviaQuestion Class

The TriviaQuestion class is responsible for connecting to a SQLite database, preparing a trivia question, asking the question, and returning true or false based on the player's answer.

### 3.1.5 Player Class

The player class will store useful information about the player, such as: Name, score, remaining keys, and remaining life lines. Methods will also be in place to set or retrieve data.

### 3.1.6 Manager Class

The Manger class implements the main program behavior by initializing other class objects, and needed variables, to manipulating them while interacting with the users decisions.

# 4. Interface Requirements

## 4.1 User Interfaces

The user is expected to view and interact with the Windows command line, in order to play the Trivia Maze game.

## 4.2 Hardware Interfaces

The user is expected to use a mouse and keyboard, in order to supply decision data that is required from the user.

# 5. Testing Requirements

## 5.1 Maze Traversal

A test will be implemented to check if the maze is still possible to complete, after doors are locked.

## 5.2 J-Unit

J-Unit tests will be implemented in order to test maze bounds, valid user movements, maze completion, and various core functionality concerns.

## 5.3 User Testing

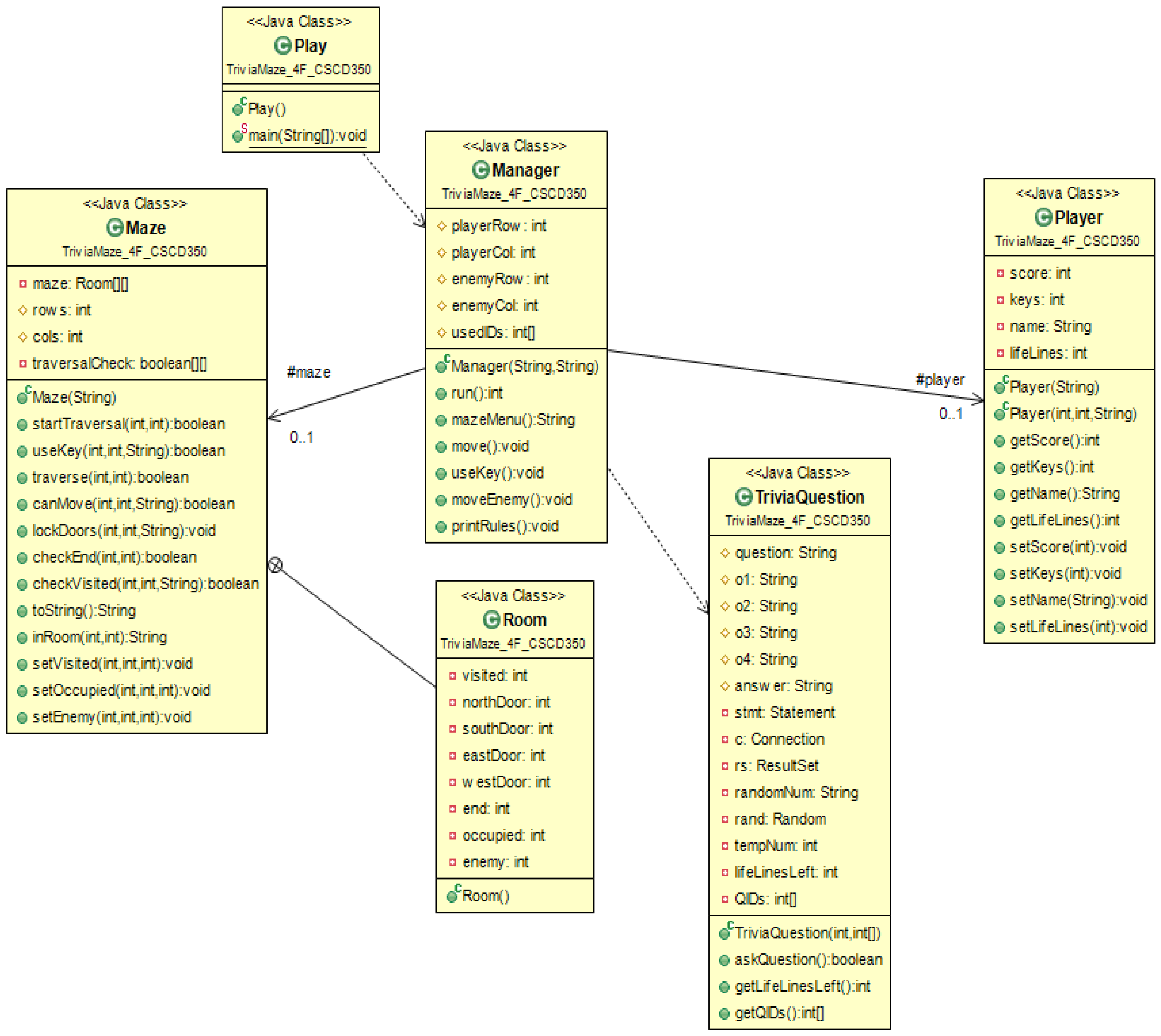
Extensive user testing will be done by the project development team to test presentation, functionality, and possible programming errors.

## 5.4 Error Handling And Input Validation

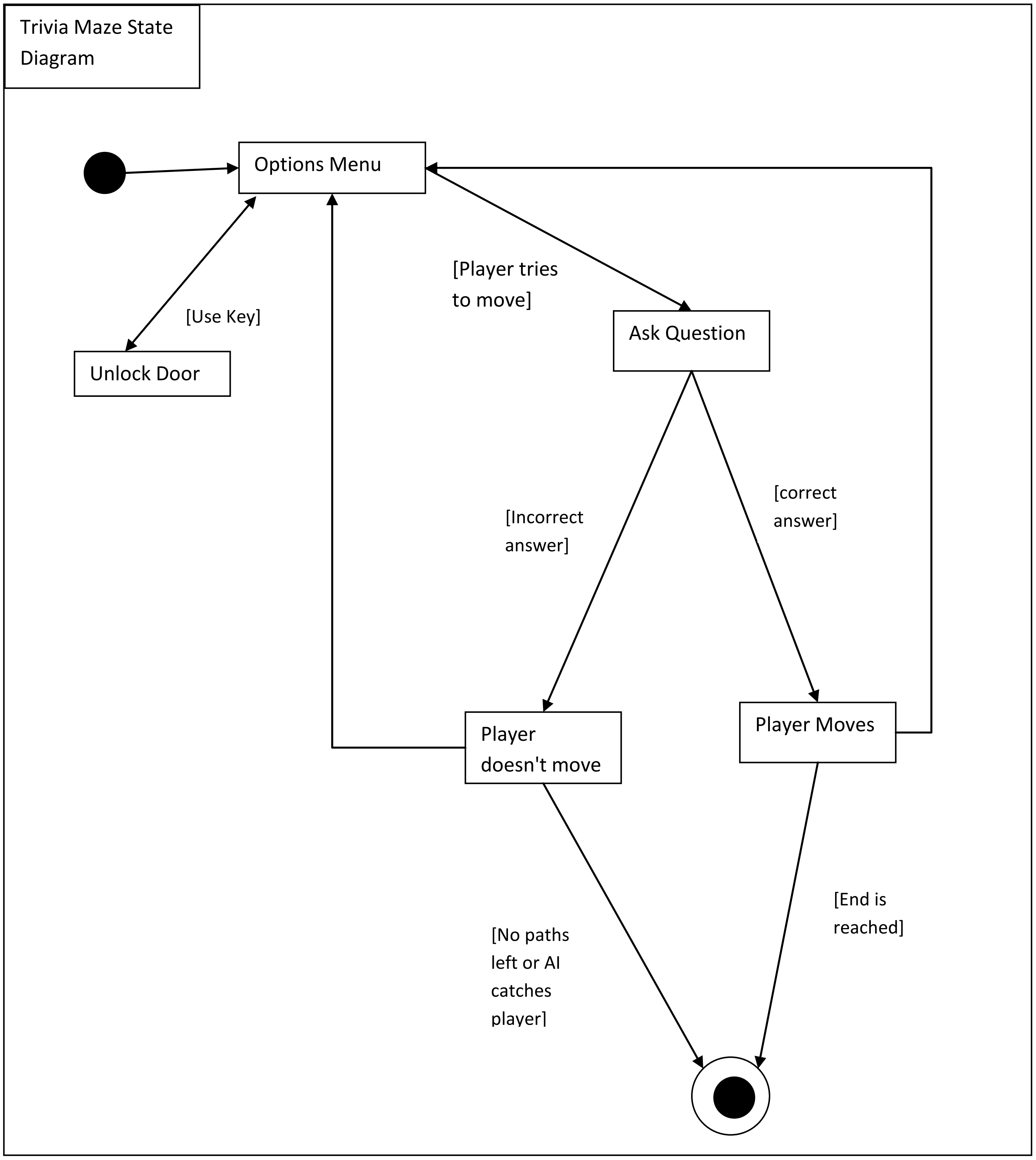
All input from user will be validated as useable input. If invalid input is provided by the user, then the user will be prompted until valid input is given. Known, possible complications that can cause errors, will be handled without program failure. If a situation occurs, where a complication can cause the program to fail; the complication will be detected and the program will exit properly. If at any time the program is forced to exit, useful information about the failure will be given.

## 6. <u>Diagrams</u>

### 6.1 Class Diagram

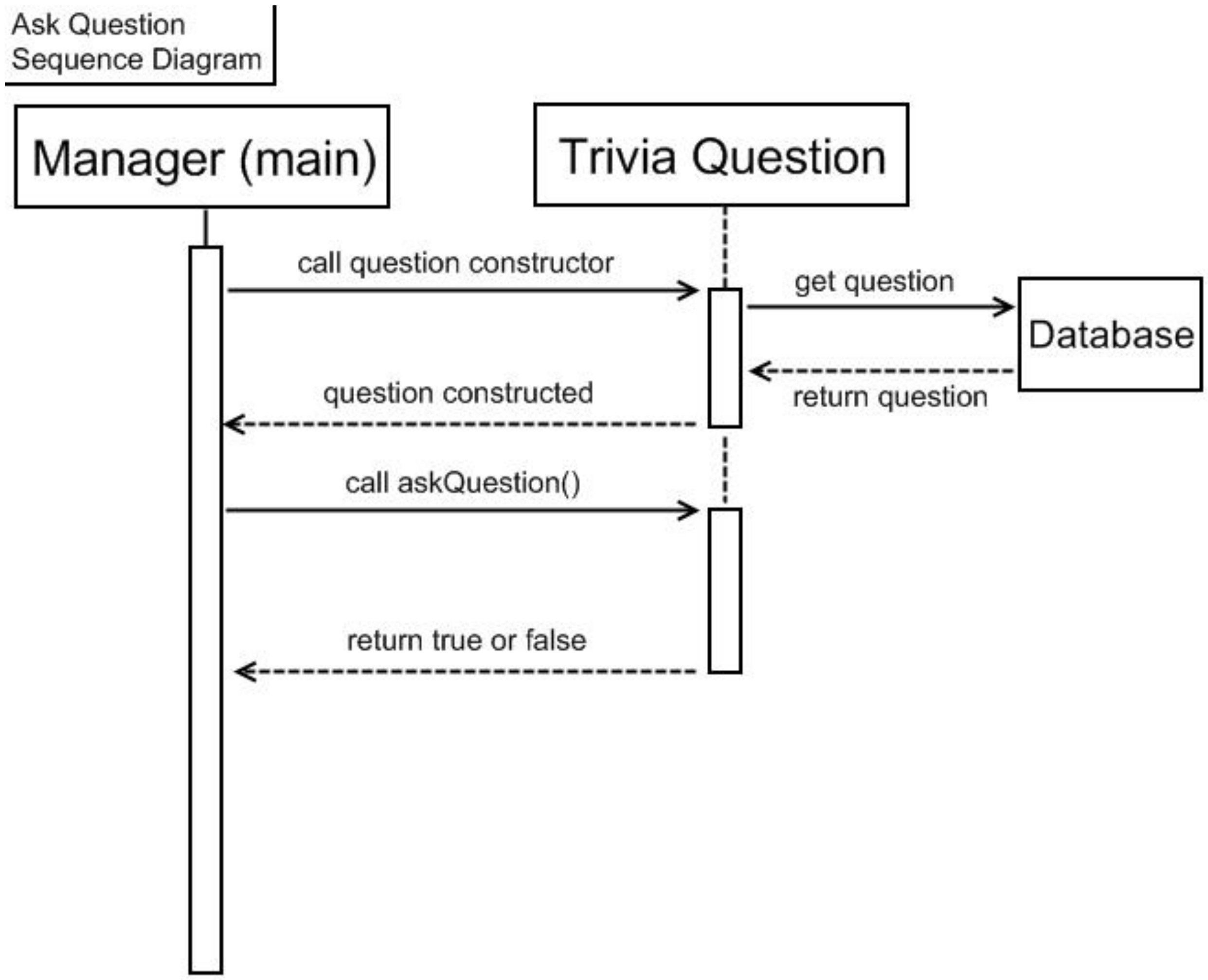


## 6.2 State Diagram



## 6.3 Sequence Diagram

Process of building and asking a trivia question:


Ask Question
Sequence Diagram
Manager (main)
Trivia Question
call question constructor
get question
Database
return question
question constructed
call askQuestion()
return true or false