

Design Document

The Dungeon Crawler you'll create is quite a small project to wrap-up the Codecta Academy lessons on the Quarkus framework and building APIs with Quarkus.

Naming Your Game

Project Name: Quest for the Orb of Quarkus (QoQ)

Short Description

Keeping with the theme of a Dungeon Crawler, the game sees the adventurer arrive in a randomly generated dungeon. The player guides their adventurer around the dungeon, defeating monsters and collecting power-ups until they find the Orb of Quarkus ("The Orb of Quarkus Framework Ancient Masters") and win the game. Here's the short description for QoQ:

A dungeon crawler with procedurally generated levels, monsters of increasing difficulty, and turn-based movement.

Story

QoQ has a very simple story. Feel free to write a better one for your version. The story entry for the short design document is as follows:

Story

The hero's hometown is suffering from a plague of poor API endpoints. Welling up from the depths of bad programming practice, they seem unstoppable. Legend tells of the Orb of Quarkus that can be used to stem the tide. After a long night spent coding in PHP, the hero promises to save the day - and sets forth into the dungeon.

Basic Game Loops

The game loop for the book's Dungeon Crawler looks like this:

1. Enter a dungeon level.
2. Explore, revealing the map.
3. Encounter enemies whom the player fights or flees from.
4. Find power-ups and use them to strengthen the player.
5. Locate the exit to the level - go to 1.

Minimum Viable Product

The Minimum Viable Product (MVP) is probably the most important part of a short design document. It tells you what you must accomplish to make the game—everything else is a bonus. The MVP is as follows:

Short Description

Minimum Viable Product

1. Create a basic dungeon map upon creating a new Game (POST /game)
2. Place the player and let them walk around (POST /game/{id}/move)
3. Spawn monsters, and let the player kill them by engaging in a fight with them. (POST /game/{id}/fight or ../flee)
4. Add health and a combat system that uses it.
5. Add healing potions. (game/{id}/heal)
6. Display a “game over” status when the player dies. (in response)
7. Add the Orb of Quarkus to the level and let the player win by reaching it.

Stretch Goals

Stretch goals are niceties that improve the basic game design. Once QoQ MVP is in place, you'll add these features:

Stretch Goals

1. Add more interesting dungeon designs.
2. Add some dungeon themes.
3. Add multiple layers to the dungeon, with the Orb on the last one.
5. Add varied weapons to the game.
6. Move to a data-driven design for spawning enemies.
7. Consider keeping score.

Guidelines

Key entities:

1. Game

- a. Start (create game, player, level map dungeons and spawn items/monsters)

b. Actions

- i. Move (to another dungeon in the map)

- ii. Fight (only if a monster is in the dungeon)

- 1. Fight logic is in pseudo code:

- a. While (player.health > 0 and monster.health > 0)
monster.health = monster.health - player.damage *
rand((1-6)/5); player.health = player.health -
monster.damage * rand((1-6)/5)

- b. When monster health falls to 0 or below player wins the battle

- c. If player health falls to 0 or below before monster, the game is over.

- d. Optional: each monster has a powerup item, final/big boss monster holds the Orb of Quarkus.

- iii. Collect (items in the dungeon/room/)

- 1. Collect can happen only in the room where there is no monster or the monster is killed by the player.

- iv. Flee (runaway from battle, inflicting some handicap on the player)

2. Player

- a. Health: int

- b. Damage: int

- i. Weapon (optional)

- c. Healing poting: int (healing value)

3. Level

- a. Level keeps the map

- b. Level weight factor (how strong are monsters, level complexity)

4. Map

- a. Map keeps the track of Dungeons (rooms) in the game and the player's progress (current dungeon, etc.)

5. Dungeon

- a. Can have:

- i. Items (power-ups: health increase, damage increase, healing potion)

- ii. Monsters (monster damage, monster health points + optional: items)

6. Monster

- a. Health
 - b. Damage
 - c. Optional: items
- 7. Items
 - a. Healing potion
 - b. Power-ups (increase strength, increase damage level, etc.)
 - c. Orb of Quarkus