

Phase 1 CRC

# Main

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Public static void Main  
Runs a session

Session

# Session

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Public void run - calls Update and Draw  
in a loop  
Private void Update  
Private void Draw  
Stores the player.

Main  
OpenGL  
Level  
CollisionManager  
EntityManager  
InteractionManager  
Player

# InputController

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Takes keyboard input

Session

# Level

Stores all the information of a level

Stores an instance of GraphGenerator and uses it to generate the layout of the level.

Populates each state in the graph with a Room object.

Stores current room

Public Room GetCurrentRoom - returns the current room

Public void WalkThroughDoor - takes a value that represents which door the player has walked through. This updates the current room.

Session  
GraphGenerator  
Room

# GraphGenerator

Generates a connected planar graph  
with given number of states.

Level

# Room

Stores a collection of Entities.  
Stores the dimensions of the room.  
Stores the background image of the room.

Level  
Drawable  
Enemy

# Drawdata

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Represents an image and coordinates to be drawn on screen. (and which layer to draw on)



# Drawable

# Interface

Has a method draw() which returns drawdata to be drawn.

Room  
Item  
Entity

# Collidable

# Interface

Has a method `getHitBoxArray()` which returns an array of circles. These circles represent that hitbox of whoever implements `Collidable`.

Contains functions that specify how to react when collided with any other object that also implements `Collidable`. For example, `public void CollideWith(player)`, `public void CollideWith(Rat)`, etc.

Player  
Enemy  
Item

# Entity

# Abstract

Represents an object on the screen which changes state over time

Sprite (image representing the entity)

Has an update function.

Level  
Room  
Drawable  
Enemy

## Item

## Abstract

Represents a collectable item like sword or bandages

Inherits entity

Implements Collidable

Returns ItemData to the player when picked up

Level

Room

Entity

Collidable

ItemData

# Sword

Implements Item.  
Contains sword image.

Contains an instance of ItemData

Item

# Player

Inherits from Entity  
Implements Drawable  
Stores xp  
Stores players health  
Stores collection of ItemData (inventory)

Session  
Drawable  
Collidable

## Enemy

## Abstract

Inherits from Entity

Has an update function

Act: abstract method

Room

Drawable

Collidable

# Rat

Inherits from Enemy

Has an update function, defined:  
“move toward player”

Deals damage on impact

Drops xp when killed (directly transferred  
to the player)

Room  
Drawable  
Collidable



# Chest

Inherits from Entity

Allows interaction when collided with.

Spawns random items when opened.

Level

Room

Drawable

Collidable

# ItemData

Represents items that are not entities. All the details that the player class needs in order to use that item. For example, damage per shot, speed factor, type of ammo, image to be displayed in inventory, number of available uses, etc.

Player  
Item