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3. assignment/1. Task 08 December 2021

Task

Yogi Bear

Yogi Bear wants to collect all the picnic baskets in the forest of the Yellowstone National Park. This park contains mountains and trees, that are obstacles for Yogi. Besided the obstacles, there are rangers, who make it harder for Yogi to collect the baskets. Rangers can move only horizontally or vertically in the park. If a ranger gets too close (one unit distance) to Yogi, then Yogi loses one life. (It is up to you to define the unit, but it should be at least that wide, as the sprite of Yogi.) If Yogi still has at least one life from the original three, then he spawns at the entrance of the park.

During the adventures of Yogi, the game counts the number of picnic baskets, that Yogi collected. If all the baskets are collected, then load a new game level, or generate one. If Yogi loses all his lives, then show a popup messagebox, where the player can type his name and save it to the database. Create a menu item, which displays a highscore table of the players for the 10 best scores. Also, create a menu item which restarts the game.

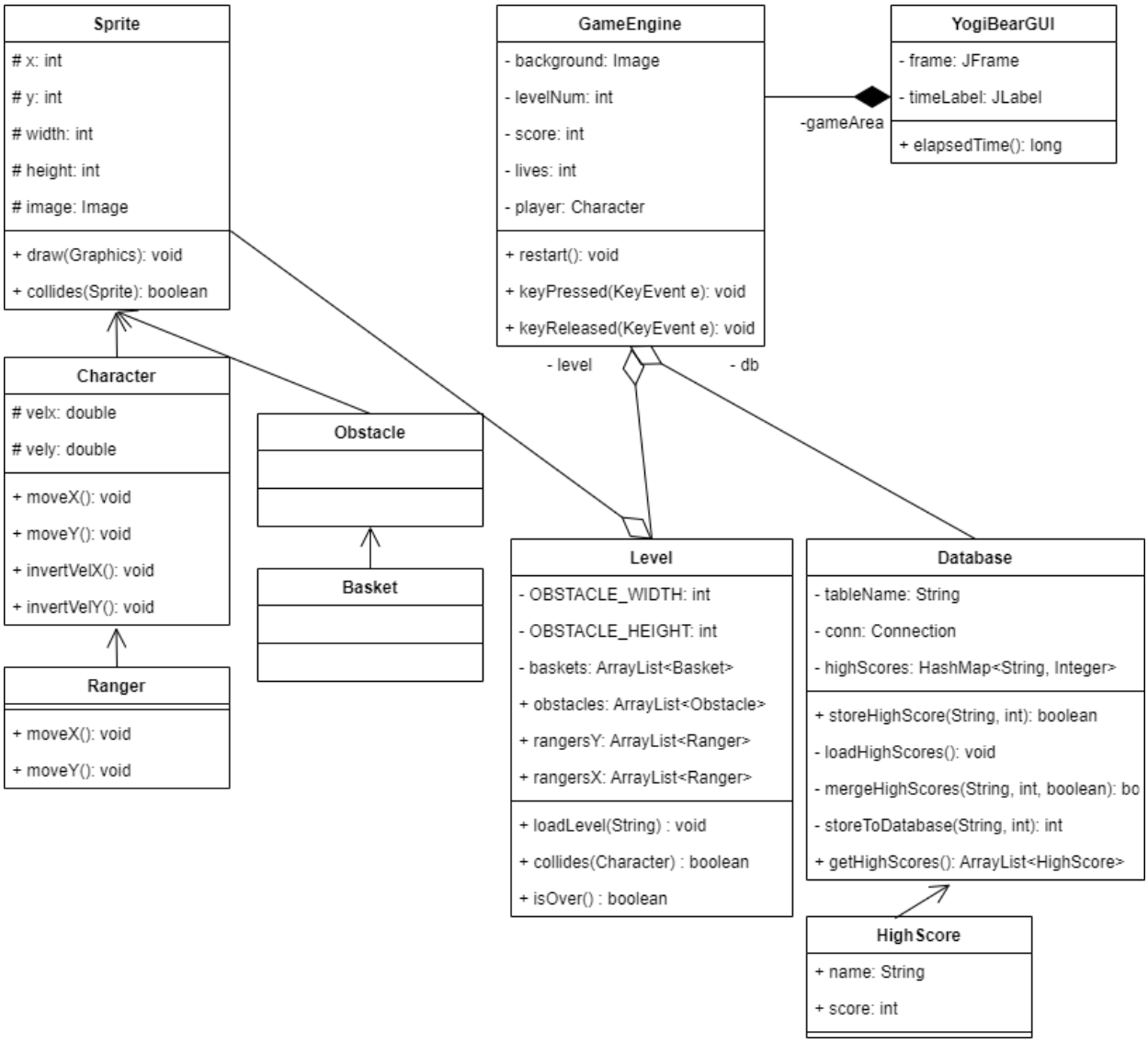
Plan

There are 5 classes to describe objects in the gameArea: base class Sprite, and two children classes Character and Obstacle, and these two have children classes Ranger and Basket respectfully.

Sprite class describes the location, width and height, and the appearance of the object on the game area and collides method checks if the sprite is in touch with other sprites. Character class also describes the velocity of the object and introduces moveX() and moveY() methods to make the object move.

To describe the Level of the game we introduce Level class. It loads the game level from text file via loadLevel() method. Also, isOver() method checks if the all baskets are collected and collides() method collects baskets.
GameEngine class describes the initial location of the player and load of the levels via restart() method. It describes the response of the player object to the key presses and releases as well. It also stores the data to database and loads it back. GameEngine class has another subclass NewFrameListener which checks the state of the game: current score, lives, if the player caught by a ranger and if the game is over.
YogiBearGUI class describes the appearance of the frame of the game as well as counting time.

UML



Testing

1) Collision of two sprites
2) Movement along x and y axis
3) Check if basket is collecteds
4) Game over check
5) Return of the top 10 from score table