Final Project Proposal: ZAP!

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Description:

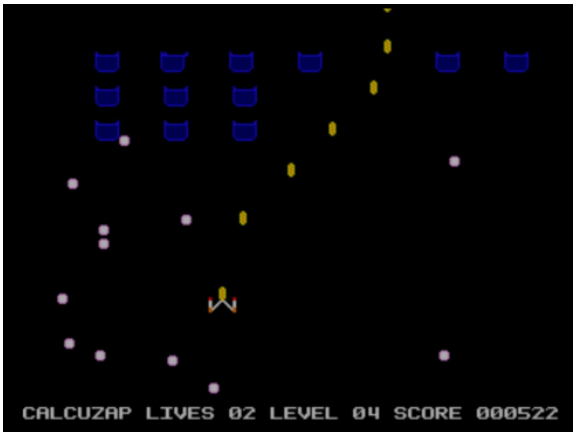
Zap! is based on the popular arcade game *Asteroids* with a few, slight modifications.

It is a space-themed one player game which features the single player controlling a spaceship that shoots laser beams. The objective of the game is to defend the spaceship from attacks from the attacking spaceships that would periodically shoot laser beams at the spaceship. Each hit inflicts damage to the spaceship, resulting in a deduction from the number of lives. The game begins with 3 lives and the objective is to eliminate all attack spaceships from the game without losing any or all the player's lives..

If all the lives are exhausted before the attacking spaceships are eliminated, the player loses the game.

The player uses the arrow keys to move in the respective directions and uses the spacebar to shoot laser beams at the attacking spaceships. The saucers in turn move in a block shape and continuously shoot laser beams downwards, until they are eliminated.

Below are screenshots showing gameplay:



Implementation:

The implementation of the Zap! game should have the following Python classes:

1. Game class **(Daby and Chinonyerem (split by number of methods))**
    a. Method to destroy the attacking ship
    b. Method to restore lives if character loses a life.

    c. Method to end game
    d. Method to display
2. Spaceship Superclass **(Chinonyerem)**
    a. Subclass for the player spaceship
        i. Methods to move spaceship
        ii. Methods to display
    b. Subclass for the attacking spaceships
        i. Method to move spaceships
        ii. Method to display
3. Laser beam Superclass **(Daby)**
    a. Laser beam subclass for player ship
        i. Method to allow the keyboard input (spacebar) to shoot a laser beam upwards.
    b. Laser beam subclass for attacking ship
        i. Method to allow bullets fall downwards
        ii. Method to shoot bullets at random

Game Setup: For the initial setup of the game, an instruction page will be visible, and the player would be asked to click to start the game. We will import images for the background and the objects. On the game page, the attack spaceships should be moving as a block in a square-like clockwise movement. The attack laser beams should be able to shoot at random from any of the attack spaceships. They should shoot downwards. The player must use the spacebar to shoot and move with the left and right keyboard keys. The attack spaceships should not be affected from the attacking laser bullets. When a laser beam hits any of the spaceships, that object instance must be removed from the game.

Score and Lives: At the start of the game, the player has three lives and the score is initiated at zero. When the player shoots one attack spaceship, the score is incremented by one. If the player is hit and removed by the attack, their lives are reduced by one.

Note: Levels could be implemented to the game by restarting the game and increasing its speed after the player successfully defeats all the attack spaceships.

Game Over: The game ends when either the player shoots all the attack spaceships, or the player loses all their lives. The final score and number of lives left should be displayed on the screen. The player has the option to click anywhere on the screen to restart the game.