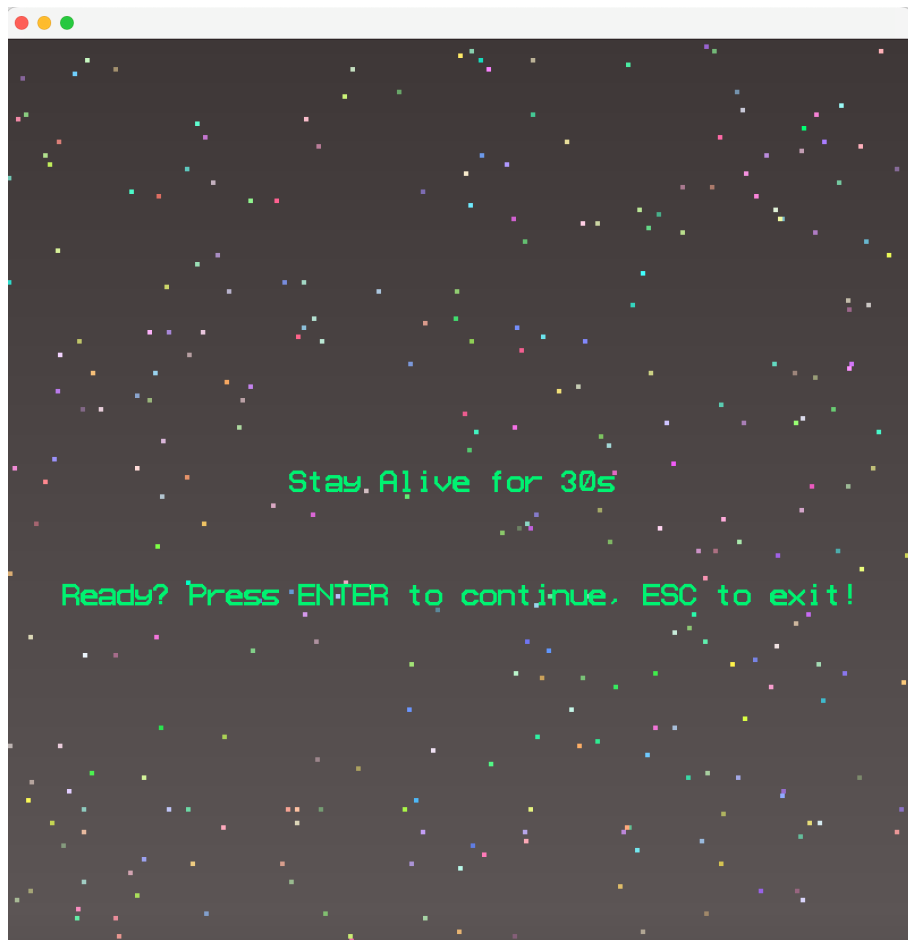24780 Engineering Computation: Problem Set 5

Balasubramanyam Evani
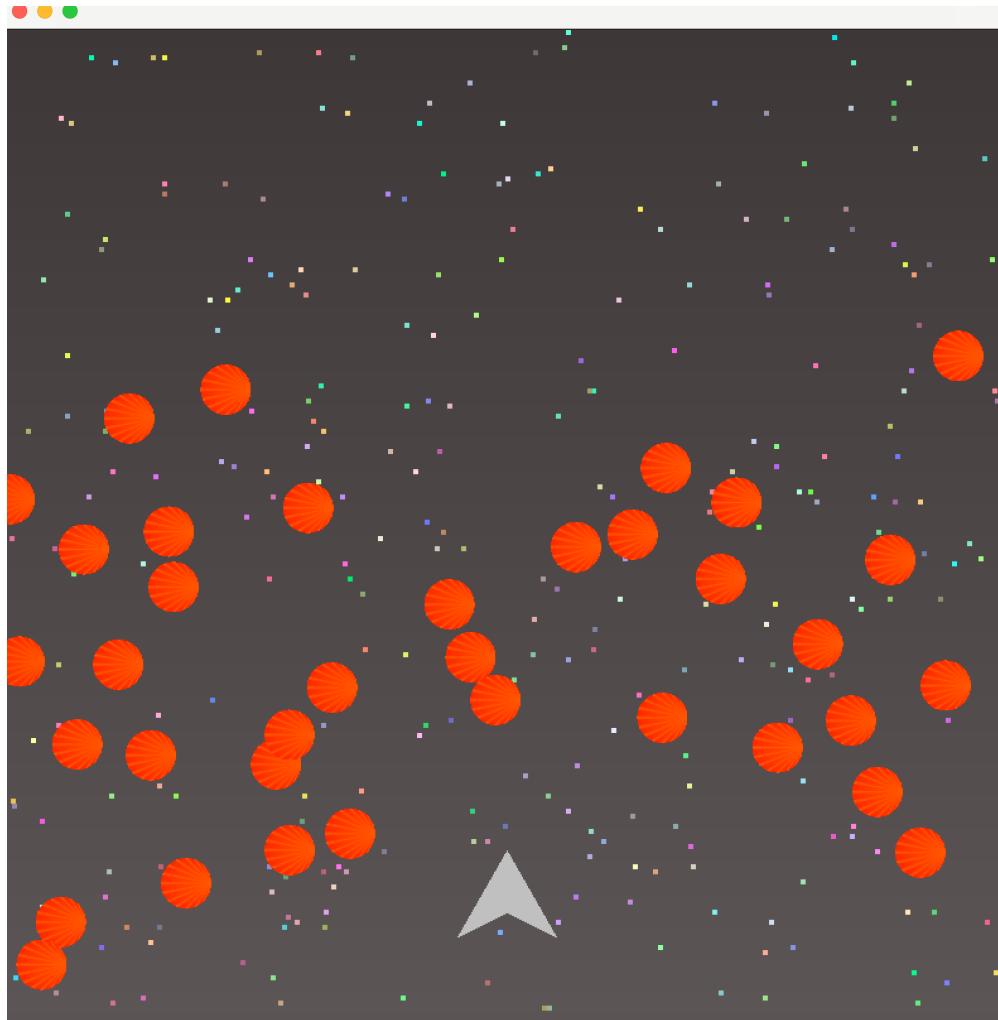AndrewId: bevani

1. How to use your program?

- Compile and run the binary.
- The user will be shown the below screen.

- The goal of the game is to stay alive (in a spaceship) for 30 seconds.

- If the user presses exit, the app closes with exit status 0.

- If the user chooses to play by pressing ENTER, then the game screen is now displayed to the user which will look something like below.

- The spaceship is equipped with 3 hyper beams which can go through any number of meteors hurling towards the spaceship.

- The goal of the player is to maneuver (using only KEY_LEFT and KEY_RIGHT) and use KEY_SPACE to shoot beams to keep the spaceship alive for 30s.

- Any hit to the spaceship by a meteor is fatal, and the game will end.

- The meteors can bounce off each other.

Please note that the game could be made more exciting by increasing the required survival time to more than 30 seconds. However, for the sake of the assignment's scope, I didn't do so, as the focus was to display the techniques learned in class.

2. Which features you used for satisfying the above requirements.

- OpenGL Animation using Double Buffering
- Animation runs in a for loop until user wants to terminate by pressing ESC Key or the game terminates.

- Game is interactive, user can shoot beams and maneuver the spaceship.

- Used Color gradation for the background and meteor color.

- Used Primitives: GL_POINTS, GL_POLYGON, GL_TRIANGLE_FAN, GL_QUADS.

- Used math library function for

    o Collision detection
    o Drawing circles