Spring-2017

Software Methods and Tools

Assignment-5

(Arch Studio)

Submitted by:

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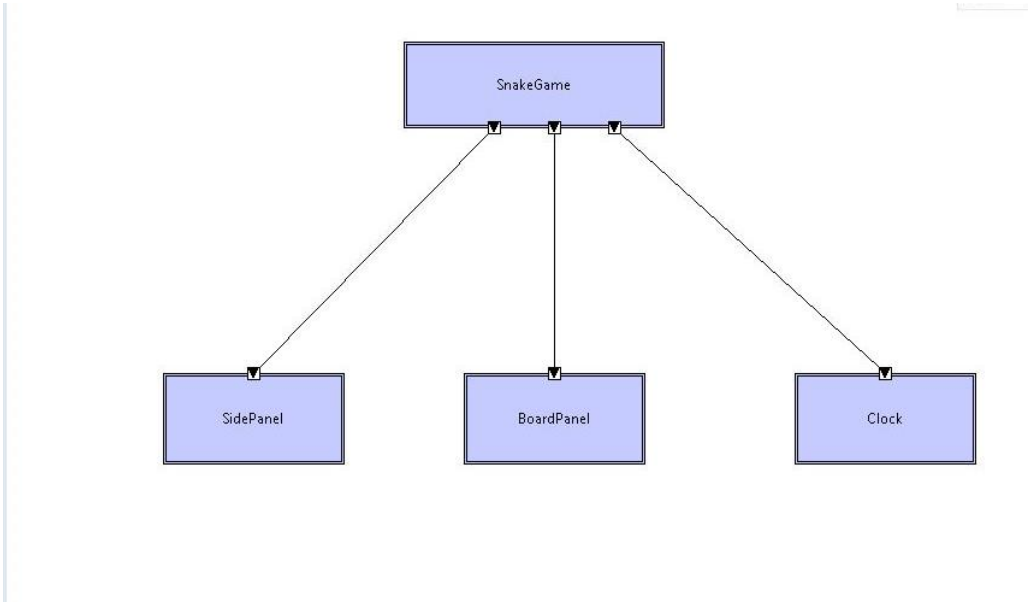
The main aim of this assignment is to implement Snake Game using ArchStudio. The game has met below requirements.

1. Architecture Model for Snake Game:

Below is the architecture diagram of Snake Game with four component SnakeGame, Clock, SidePanel, BoardPanel. Using interface. links the components communicate with each other



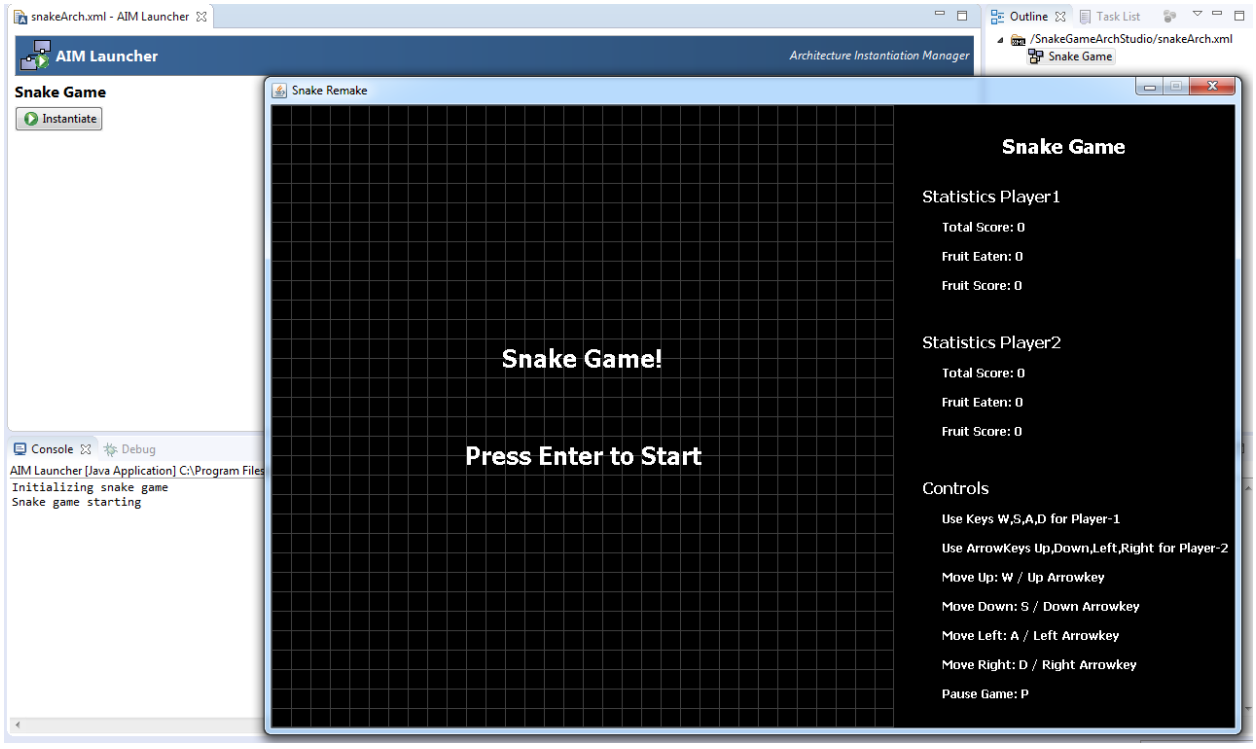
2. Components communication using Interfaces:

All components should communicate with each other using its in out Interface, defined for each component.

```
public class SnakeGameArch extends AbstractMyxSimpleBrick {
    public static final IMyxName msg_GameInterface = MyxUtils.createName("edu.game.interfaces.GameInterface");
    public static final IMyxName msg_ClockInterface = MyxUtils.createName("edu.game.interfaces.ClockInterface");
    public static final IMyxName msg_SidePanelInterface = MyxUtils.createName("edu.game.interfaces.SidePanelInterface");
    public static final IMyxName msg_BoardPanelInterface = MyxUtils
            .createName("edu.game.interfaces.BoardPanelInterface");

    public ClockInterface OUT_ClockInterface;
    public SidePanelInterface OUT_SidePanelInterface;
    public BoardPanelInterface OUT_BoardPanelInterface;
```

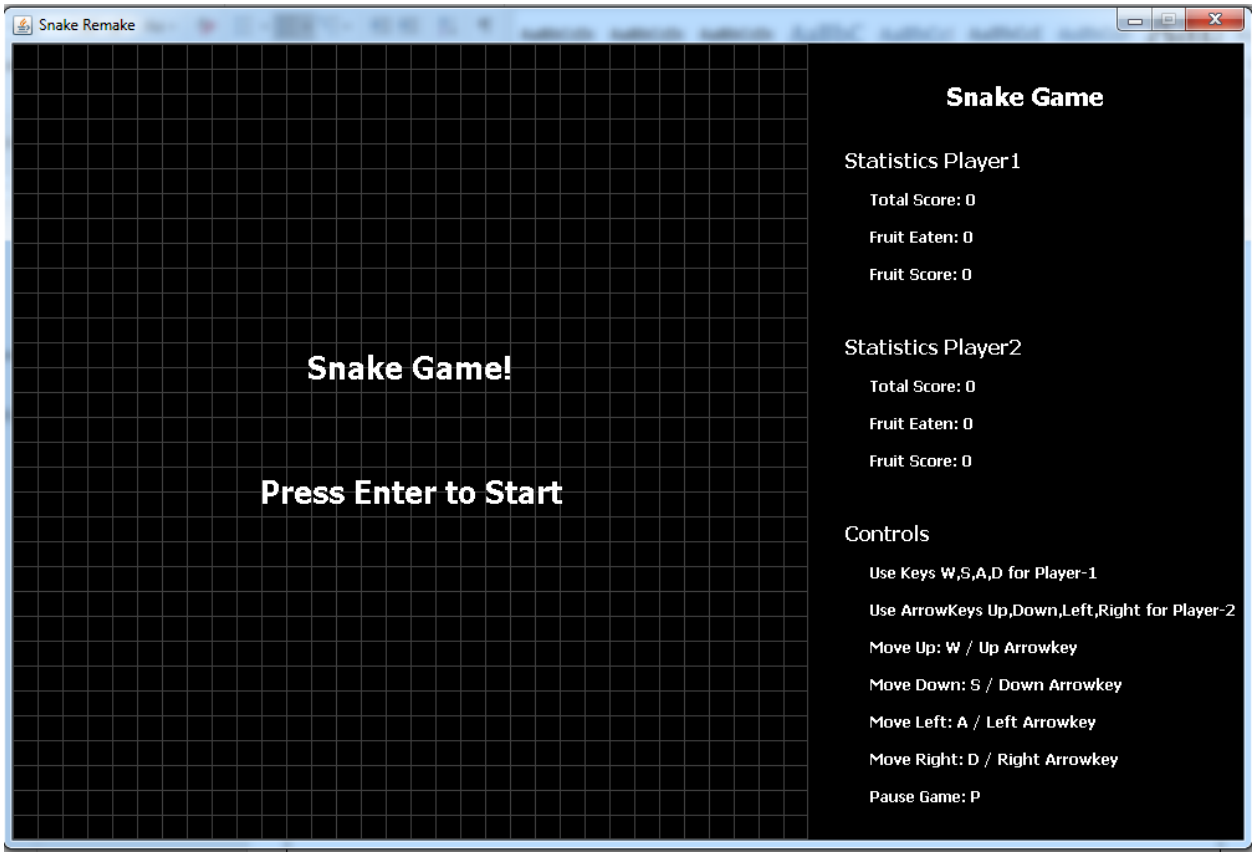
```
public void startGame() {
    /*
     * Initialize everything we're going to be using.
     */
    this.random = new Random();
    this.snake = new LinkedList<>();
    this.snakePlayer2 = new LinkedList<>();// 1.1vc
    this.directions = new LinkedList<>();
    this.directionsPlayer2 = new LinkedList<>();// 1.1vc
    //this.logicTimer = new ClockImp(9.0f);
    this.isNewGame = true;

    // Set the timer to paused initially.
    _arch.OUT_ClockInterface.setPaused(true);

    /*
     * This is the game loop. It will update and render the game and will
     * continue to run until the game window is closed.
     */
    while (true) {
        // Get the current frame's start time.
        long start = System.nanoTime();

        // Update the logic timer.
        _arch.OUT_ClockInterface.update();

        /*
```

3. **The application can be run in ArchStudio AIM Launcher from its architecture.**



4. Final product should be a two-player Snake game.

a. Each player controls a snake using different keys in the keyboard.

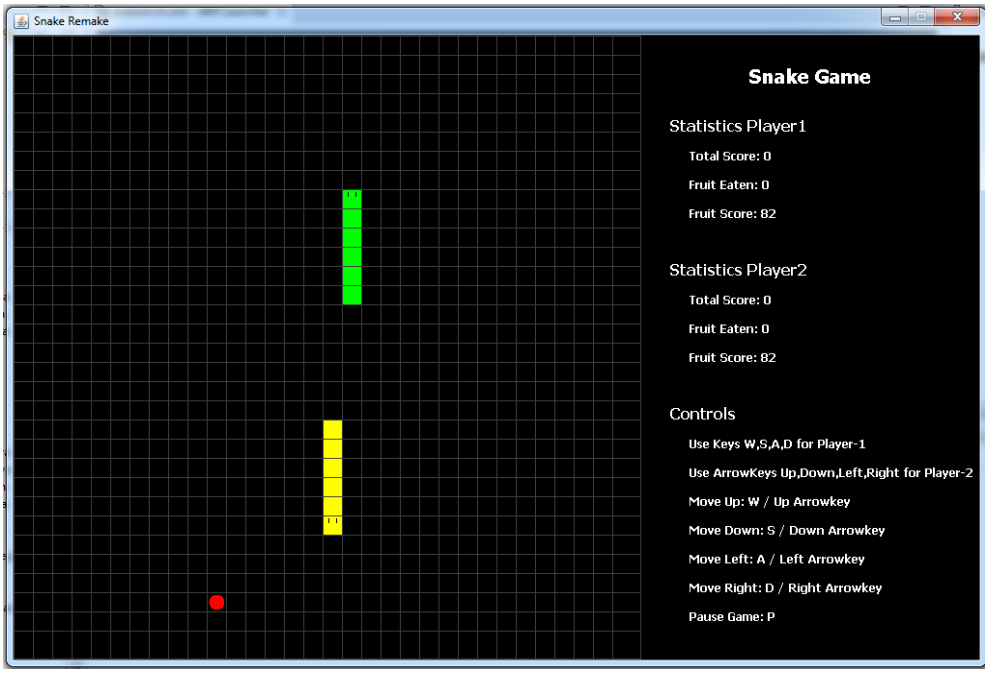


- Player-1 uses below keys to control direction
  W : Move Up
  A: Move Down
  S: Move Down
  D: Move Right

- Player-2 uses Up,Down,Left,Right arrowkeys to control direction

Once we press enter two snakes appear (Green: Player-1, Yellow: Player-2) and using above controls two players can play game

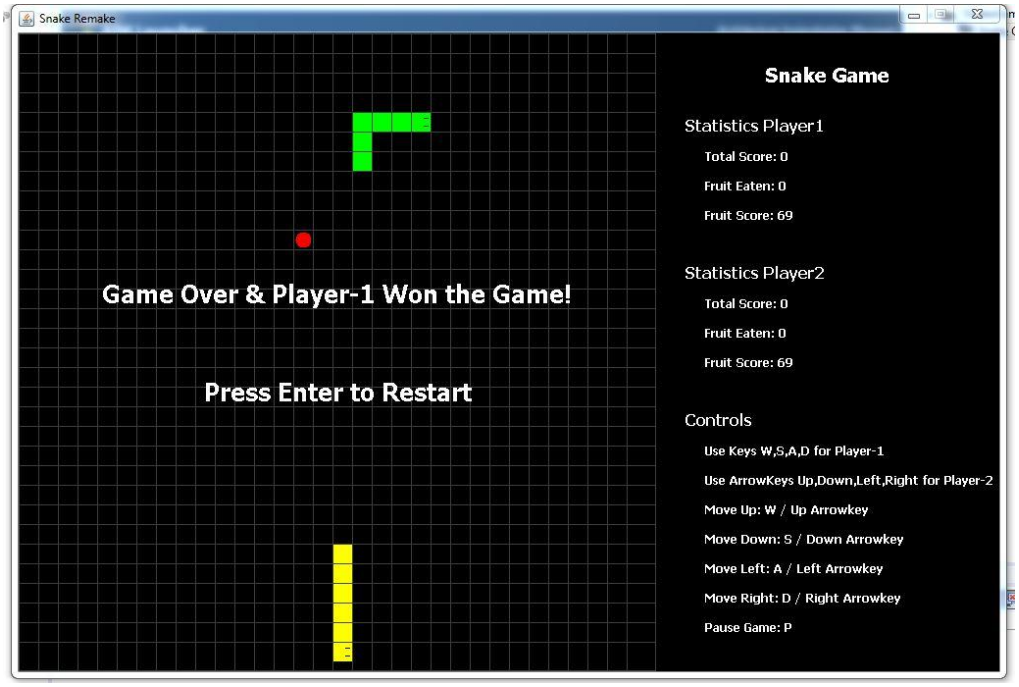
b. Two players play against each other. One player's snake can use its body to block the other snake.



c. The game ends

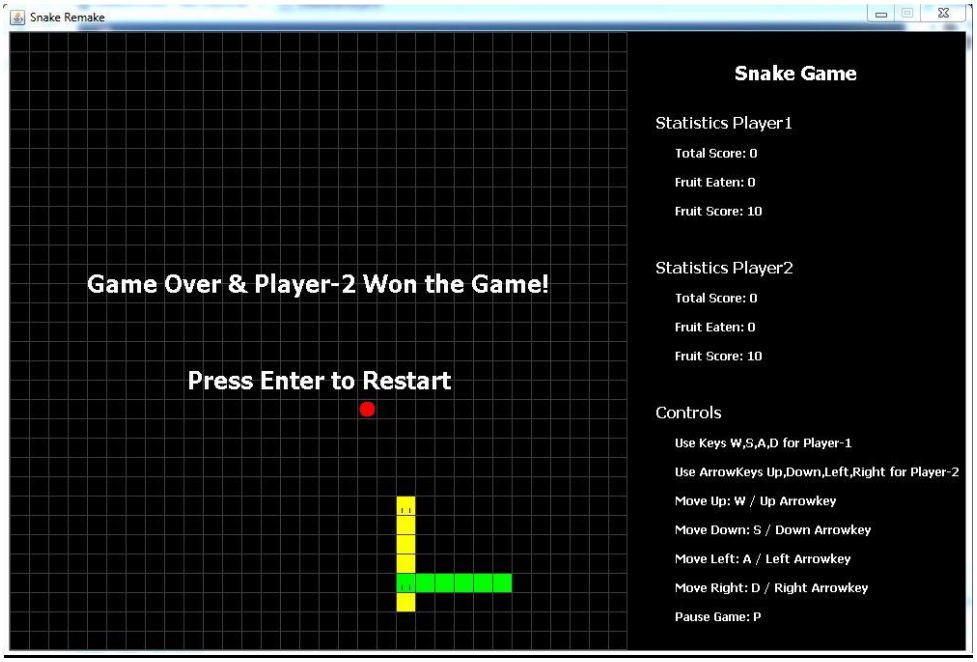
<u>If Player-1 hits wall then Player-2 wins game</u>

If Player-2 hits wall then Player-1 wins game



If Player-2 hits Player-1 then Player-1 wins game

If Player-1 hits Player-2 then Player-2 wins game



(2) if one player's snake eats 5 fruits first.

In below diagram Player-2 ate 5 fruits so it won the game.