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| **package** snakegame;    **import** objects.Apple;  **import** objects.Snake;    **import** javax.swing.\*;  **import** java.awt.\*;  **import** java.awt.event.ActionEvent;  **import** java.awt.event.ActionListener;  **import** java.awt.event.KeyAdapter;  **import** java.awt.event.KeyEvent;    **public** **class** SnakeGame **extends** JPanel **implements** ActionListener {    **public** **static** **final** **int** SCALE = 32;  **public** **static** **final** **int** WIDTH = 20;  **public** **static** **final** **int** HEIGHT = 20;  **public** **static** **final** **int** SPEED = 4;        Apple a = **new** Apple((**int**) (Math.random() \* WIDTH), (**int**) (Math.random() \* HEIGHT));      Snake s = **new** Snake(10, 10, 9, 10);      Timer t = **new** Timer(1000 / SPEED, **this**);    **public** SnakeGame() {          t.start();          addKeyListener(**new** Keyboard());          setFocusable(**true**);      }    **public** **void** paint(Graphics g) {          g.setColor(color(5, 50, 10));          g.fillRect(0, 0, WIDTH \* SCALE, HEIGHT \* SCALE);          g.setColor(color(255, 216, 0));    **for** (**int** xx = 0; xx <= WIDTH \* SCALE; xx += SCALE) {              g.drawLine(xx, 0, xx, HEIGHT \* SCALE);          }    **for** (**int** yy = 0; yy <= HEIGHT \* SCALE; yy += SCALE) {              g.drawLine(0, yy, WIDTH \* SCALE, yy);          }    **for** (**int** d = 0; d < s.length; d++) {              g.setColor(color(0, 0, 255));              g.fillRect(s.snakeX[d] \* SCALE + 1, s.snakeY[d] \* SCALE + 1, SCALE - 1, SCALE - 1);          }            g.setColor(color(255, 0, 0));          g.fillRect(a.posX \* SCALE + 1, a.posY \* SCALE + 1, SCALE - 1, SCALE - 1);      }    **public** Color color(**int** red, **int** green, **int** blue) {  **return** **new** Color(red, green, blue);      }    **public** **static** **void** main(String[] args) {          JFrame f = **new** JFrame();          f.setDefaultCloseOperation(JFrame.EXIT\_ON\_CLOSE);          f.setResizable(**false**);          f.setSize(WIDTH \* SCALE + 7, HEIGHT \* SCALE + 29);          f.setLocationRelativeTo(**null**);          f.add(**new** SnakeGame());          f.setVisible(**true**);      }    **public** **void** actionPerformed(ActionEvent e) {          s.move();    **if** ((s.snakeX[0] == a.posX) & (s.snakeY[0] == a.posY)) {              a.setRandomPosition();              s.length++;          }    **for** (**int** k = 1; k < s.length; k++) {  **if** ((s.snakeX[k] == a.posX) & (s.snakeY[k] == a.posY)) {                  a.setRandomPosition();              }          }            repaint();      }    **private** **class** Keyboard **extends** KeyAdapter {  **public** **void** keyPressed(KeyEvent kEve) {  **int** key = kEve.getKeyCode();    **if** ((key == KeyEvent.VK\_RIGHT) & s.direction != 2) s.direction = 0;  **if** ((key == KeyEvent.VK\_DOWN) & s.direction != 3) s.direction = 1;  **if** ((key == KeyEvent.VK\_LEFT) & s.direction != 0) s.direction = 2;  **if** ((key == KeyEvent.VK\_UP) & s.direction != 1) s.direction = 3;          }      }  } |

Class **Snake**:

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| 1  2  3  4  5  6  7  8  9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  25  26  27  28  29  30  31  32  33  34  35  36  37  38  39  40  41  42  43  44  45  46 | **package** objects;    **import** snakegame.SnakeGame;    **public** **class** Snake {        SnakeGame main;    **public** **int** direction = 0;  **public** **int** length = 2;    **public** **int** snakeX[] = **new** **int**[main.WIDTH \* main.HEIGHT];  **public** **int** snakeY[] = **new** **int**[main.WIDTH \* main.HEIGHT];    **public** Snake(**int** x0, **int** y0, **int** x1, **int** y1) {          snakeX[0] = x0;          snakeY[0] = y0;          snakeX[1] = x1;          snakeY[1] = y1;      }        @SuppressWarnings("static-access")  **public** **void** move() {    **for** (**int** d = length; d > 0; d--) {              snakeX[d] = snakeX[d - 1];              snakeY[d] = snakeY[d - 1];          }    **if** (direction == 0) snakeX[0]++;  **if** (direction == 1) snakeY[0]++;  **if** (direction == 2) snakeX[0]--;  **if** (direction == 3) snakeY[0]--;    **for** (**int** d = length - 1; d > 0; d--) {  **if** ((snakeX[0] == snakeX[d]) & (snakeX[0] == snakeY[d])) length = d - 2;          }    **if** (snakeX[0] > main.WIDTH) snakeX[0] = 0;  **if** (snakeX[0] < 0) snakeX[0] = main.WIDTH - 1;  **if** (snakeY[0] > main.HEIGHT - 1) snakeY[0] = 0;  **if** (snakeY[0] < 0) snakeY[0] = main.HEIGHT - 1;    **if** (length < 2) length = 2;      }  } |

Class **Apple**:

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| --- | --- |
| 1  2  3  4  5  6  7  8  9  10  11  12  13  14  15  16  17  18  19  20  21  22  23 | **package** objects;    **import** snakegame.SnakeGame;    **public** **class** Apple {        SnakeGame main;    **public** **int** posX;  **public** **int** posY;    **public** Apple(**int** startX, **int** startY) {          posX = startX;          posY = startY;        }        @SuppressWarnings("static-access")  **public** **void** setRandomPosition() {          posX = (**int**) (Math.random() \* main.WIDTH);          posY = (**int**) (Math.random() \* main.HEIGHT);      }  } |