**Set hiddenColour and spriteType to be abstract methods in SpriteBuilder class since they vary based on the classes that extends them.**

**package** sonar.gamestates.states.levels.stages.entities;

**import** java.awt.image.BufferedImage;

**import** java.io.IOException;

**import** javax.imageio.ImageIO;

**public** **abstract** **class** SpriteBuilder

{

**int** getWidth();

**int** getHeight();

**int**[] getPixels();

**abstract** **int** hiddenColour();

**abstract** String spriteType();

}

**class** HUDSpriteBuilder **extends** SpriteBuilder

{

**private** SpriteSize size;

HUDSpriteBuilder(SpriteSize size, **int** colour)

{

**this**.size = size;

loadHUD(size, colour);

}

**private** **void** loadHUD(SpriteSize size, **int** colour)

{

**for**(**int** y = 0; y < size.getHeight(); y++)

{

**for**(**int** x = 0; x < size.getWidth(); x++)

{

size.getPixels()[x + y \* size.getWidth()] = colour;

}

}

}

**public** **int** getWidth(){**return** size.getWidth();}

**public** **int** getHeight(){**return** size.getHeight();}

**public** **int**[] getPixels(){**return** size.getPixels();}

**public** **int** hiddenColour(){**return** 0xffff00ff;}

**public** String spriteType(){**return** "HUD";}

}

**class** ColourSpriteBuilder **extends** SpriteBuilder

{

**private** SpriteSize size;

ColourSpriteBuilder(SpriteSize size, SpriteLocation location)

{

**this**.size = size;

loadColour(size, location);

}

**private** **void** loadColour(SpriteSize size, SpriteLocation location)

{

**int** xw = location.getX() \* size.getWidth();

**int** yh = location.getY() \* size.getHeight();

**for**(**int** y = 0; y < size.getHeight(); y++)

{

**for**(**int** x = 0; x < size.getWidth(); x++)

{

size.getPixels()[x + y \* size.getWidth()] = location.getSheet().getPixels()[(x + xw) + (y + yh) \* location.getSheet().getSize()];

}

}

}

**public** **int** getWidth(){**return** size.getWidth();}

**public** **int** getHeight(){**return** size.getHeight();}

**public** **int**[] getPixels(){**return** size.getPixels();}

**public** **int** hiddenColour(){**return** 0xffff00ff;}

**public** String spriteType(){**return** "Colour";}

}

**class** GreySpriteBuilder **extends** SpriteBuilder

{

**private** **int**[] colours;

**private** SpriteSize size;

GreySpriteBuilder(SpriteSize size, SpriteLocation location, **int**... colours)

{

**this**.size = size;

**this**.colours = colours;

loadGrey(size, location);

}

**private** **void** loadGrey(SpriteSize size, SpriteLocation location)

{

**int** xw = location.getX() \* size.getWidth();

**int** yh = location.getY() \* size.getHeight();

**for**(**int** y = 0; y < size.getHeight(); y++)

{

**for**(**int** x = 0; x < size.getWidth(); x++)

{

size.getPixels()[x + y \* size.getWidth()] = location.getSheet().getPixels()[(x + xw) + (y + yh) \* location.getSheet().getSize()];

}

}

}

**int**[] getColours(){**return** colours;}

**int** colourSize(){**return** colours.length;}

**public** **int** getWidth(){**return** size.getWidth();}

**public** **int** getHeight(){**return** size.getHeight();}

**public** **int**[] getPixels(){**return** size.getPixels();}

**public** **int** hiddenColour(){**return** 0xff000000;}

**public** String spriteType(){**return** "Grey";}

}

**class** SpriteLocation

{

**private** **int** x, y;

**private** SpriteSheet sheet;

SpriteLocation(**int** x, **int** y, SpriteSheet sheet)

{

**this**.x = x;

**this**.y = y;

**this**.sheet = sheet;

}

**int** getX(){**return** x;}

**int** getY(){**return** y;}

SpriteSheet getSheet(){**return** sheet;}

}

**class** SpriteSheet

{

**private** **int**[] pixels;

**private** **int** size;

SpriteSheet(String path)

{

loadSheet(path);

}

**private** **void** loadSheet(String path)

{

BufferedImage image;

**try**

{

image = ImageIO.*read*(SpriteSheet.**class**.getResource(path));

**int** width = image.getWidth();

**int** height = image.getHeight();

size = width;

pixels = **new** **int**[width \* height];

image.getRGB(0, 0, width, height, pixels, 0, width);

}

**catch** (IOException e){e.printStackTrace();}

}

**int**[] getPixels(){**return** pixels;}

**int** getSize(){**return** size;}

}

**class** SpriteSize

{

**private** **int** width, height;

**private** **int**[] pixels;

SpriteSize(**int** width, **int** height)

{

**this**.width = width;

**this**.height = height;

pixels = **new** **int**[width \* height];

}

**int** getWidth(){**return** width;}

**int** getHeight(){**return** height;}

**int**[] getPixels(){**return** pixels;}

}