**Changed the width, height, and tiles variables from instance variables to static variables in the GameState class.**

**package** sonar;

**import** java.awt.Graphics;

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

**import** java.io.IOException;

**import** javax.imageio.ImageIO;

**import** sonar.gamestates.states.Inventory;

**import** sonar.gamestates.states.levels.stages.entities.SpriteManager;

**import** sonar.gamestates.states.levels.stages.entities.animations.tiles.Tile;

**import** sonar.gamestates.states.levels.stages.entities.animations.tiles.TileManager;

**public** **abstract** **class** GameState

{

//The base class Template for all the gamestates in the game.

**private** **static** StateBuilder *buildState*;

**private** **static** GSM *gsm*;

**private** **static** Keyboard *key*; //Can be made static

**private** **static** SpriteManager *smanage*; //Can be made static

**private** **static** TileManager *tmanage*; //Can be made static

**private** **static** **int**[] *tiles*;

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

**private** String identity;

**final** **static** **void** setGSM(GSM cGSM){*gsm* = cGSM;}

**final** **static** GSM getGSM(){**return** *gsm*;}

**protected** **final** **static** **void** createGameState(**final** StateBuilder cBuild)

{

*buildState* = cBuild;

**if**(*buildState*.stateType().equals("Single"))

{

*key* = **new** Keyboard(*getGSM*());

*smanage* = **new** SpriteManager(*buildState*.getIdentity());

*tmanage* = **new** TileManager(*smanage*);

}

**if**(!*buildState*.getIdentity().equals("Starter"))

{

**if**(*buildState*.stateType().equals("Dual"))

{

DualStateBuilder dual = (DualStateBuilder) *buildState*;

*loadPath*(dual.getPath());

}

**if**(*buildState*.stateType().equals("Single"))

{

SingleStateBuilder single = (SingleStateBuilder) *buildState*;

*loadPath*(single.getPath()); //Added loadPath

}

}

}

**private** **final** **static** **void** loadPath(String path)

{

**try**

{

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

*width* = image.getWidth();

*height* = image.getHeight();

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

image.getRGB(0, 0, *width*, *height*, *tiles*, 0, *width*);

}

**catch** (IOException e)

{

e.printStackTrace();

}

}

/\*final static GameState createGameState(final StateBuilder cBuild)

{

buildState = cBuild;

if(buildState.stateType().equals("Single"))

{

//Identity needed

//We need to fix up the Keyboard

//We need to fix up the SpriteManager

//We need to fix up the Tilemanager

}

GameState state = new GameState(); //This is undefined unless it gets called

return state;

}\*/

**protected** GameState(StateBuilder buildState, String path, String identity, GSM gsm)

{

**this**.*buildState* = buildState;

**this**.*gsm* = gsm;

**this**.identity = identity;

**if**(buildState.stateType().equals("Single"))

{

*key* = **new** Keyboard(gsm);

*smanage* = **new** SpriteManager(identity);

*tmanage* = **new** TileManager(*smanage*);

}

**if**(!identity.equals("Starter")) createGameState(path);

}

**private** **void** createGameState(String path)

{

**try**

{

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

*width* = image.getWidth();

*height* = image.getHeight();

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

image.getRGB(0, 0, *width*, *height*, *tiles*, 0, *width*);

}

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

}

**protected** **void** update()

{

}

**protected** **void** render(**int** xScroll, **int** yScroll, Screen screen, Graphics g)

{

screen.*setOffset*(xScroll, yScroll);

drawTiles(xScroll, yScroll, screen);

drawWeapons(screen);

drawEnergies(screen);

}

**private** **void** drawEnergies(Screen screen)

{

**if**(identity.equals("Inventory"))

{

Inventory inv = (Inventory) *gsm*.*getCurrentState*();

inv.renderEnergies(screen);

}

}

**private** **void** drawWeapons(Screen screen)

{

**if**(identity.equals("Inventory"))

{

Inventory inv = (Inventory) *gsm*.*getCurrentState*();

inv.renderWeapons(screen);

}

}

**public** **void** drawTiles(**int** xScroll, **int** yScroll, Screen screen)

{

**if**(*tmanage* != **null**)

{

**int** x0 = xScroll / *tmanage*.voidTile.getWidth(); //divided by 16

**int** x1 = (xScroll + screen.*getWidth*() + *tmanage*.voidTile.getWidth()) / *tmanage*.voidTile.getWidth();

**int** y0 = yScroll / *tmanage*.voidTile.getHeight();

**int** y1 = (yScroll + screen.*getHeight*() + *tmanage*.voidTile.getHeight()) / *tmanage*.voidTile.getHeight();

drawGameState(x0, x1, y0, y1, screen);

}

}

**private** **void** drawGameState(**int** x0, **int** x1, **int** y0, **int** y1, Screen screen)

{

**for**(**int** y = y0; y < y1; y++)

{

**for**(**int** x = x0; x < x1; x++)

{

getTile(x, y).render(x, y, screen);

}

}

}

Tile getTile(**int** x, **int** y)

{

Tile tile = *tmanage*.voidTile;

**if**(x < 0 || y < 0 || x >= *width* || y >= *height*) **return** tile;

**if**(identity.equals("Menu"));

**if**(identity.equals("Password")) tile = invpassCommons(identity, x, y, tile);

**if**(identity.equals("Inventory")) tile = invpassCommons(identity, x, y, tile);

**if**(identity.equals("Starter"))

{

**if**(tileColour(x, y) == TileManager.***grassColour***) tile = *tmanage*.grass;

}

**return** tile;

}

**private** Tile invpassCommons(String identity, **int** x, **int** y, Tile tile)

{

**if**(tileColour(x, y) == TileManager.***cornerUpLeftColour***) tile = *tmanage*.cornerUpLeft;

**if**(tileColour(x, y) == TileManager.***cornerUpRightColour***) tile = *tmanage*.cornerUpRight;

**if**(tileColour(x, y) == TileManager.***cornerDownLeftColour***) tile = *tmanage*.cornerDownLeft;

**if**(tileColour(x, y) == TileManager.***cornerDownRightColour***) tile = *tmanage*.cornerDownRight;

**if**(tileColour(x, y) == TileManager.***lineUpColour***) tile = *tmanage*.lineUp;

**if**(tileColour(x, y) == TileManager.***lineDownColour***) tile = *tmanage*.lineDown;

**if**(tileColour(x, y) == TileManager.***lineLeftColour***) tile = *tmanage*.lineLeft;

**if**(tileColour(x, y) == TileManager.***lineRightColour***) tile = *tmanage*.lineRight;

**if**(tileColour(x, y) == TileManager.***squareColour***) tile = *tmanage*.square;

**return** tile;

}

**private** **int** tileColour(**int** x, **int** y){**return** *tiles*[x + y \* *width*];}

StateBuilder getBuildState(){**return** *buildState*;}

**protected** GSM getGsm(){**return** *gsm*;}

**public** Keyboard getKey(){**return** *key*;}

**protected** **void** resetKeyboard(){*key* = **null**;}

**protected** **void** initKey(){*key* = **new** Keyboard(*gsm*);}

**public** SpriteManager getSmanage(){**return** *smanage*;}

**public** TileManager getTmanage(){**return** *tmanage*;}

**protected** **void** resetSmanage(){*smanage* = **null**;}

**protected** **void** setSmanage(SpriteManager manage){*smanage* = manage;}

**protected** **void** resetTmanage(){*tmanage* = **null**;}

**protected** **void** setTmanage(TileManager manage){*tmanage* = manage;}

**protected** String getIdentity(){**return** identity;}

**public** **void** setTiles(**int**[] tiles){**this**.*tiles* = tiles;}

**public** **void** setWidth(**int** value){*width* = value;}

**public** **void** setHeight(**int** value){*height* = value;}

**void** setBuildState(StateBuilder state){*buildState* = state;}

}