Project Phase 3

Kernel Panic

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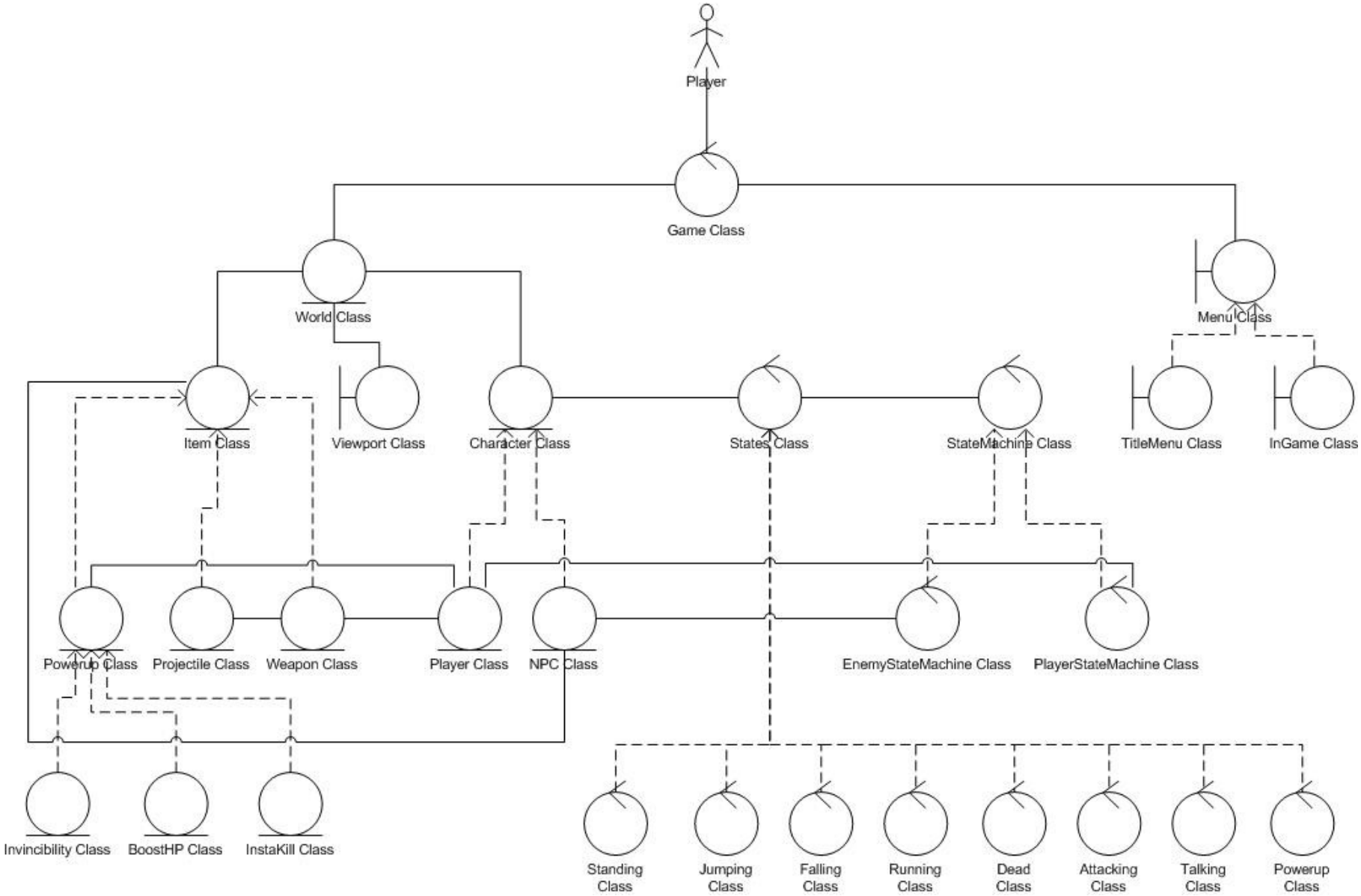
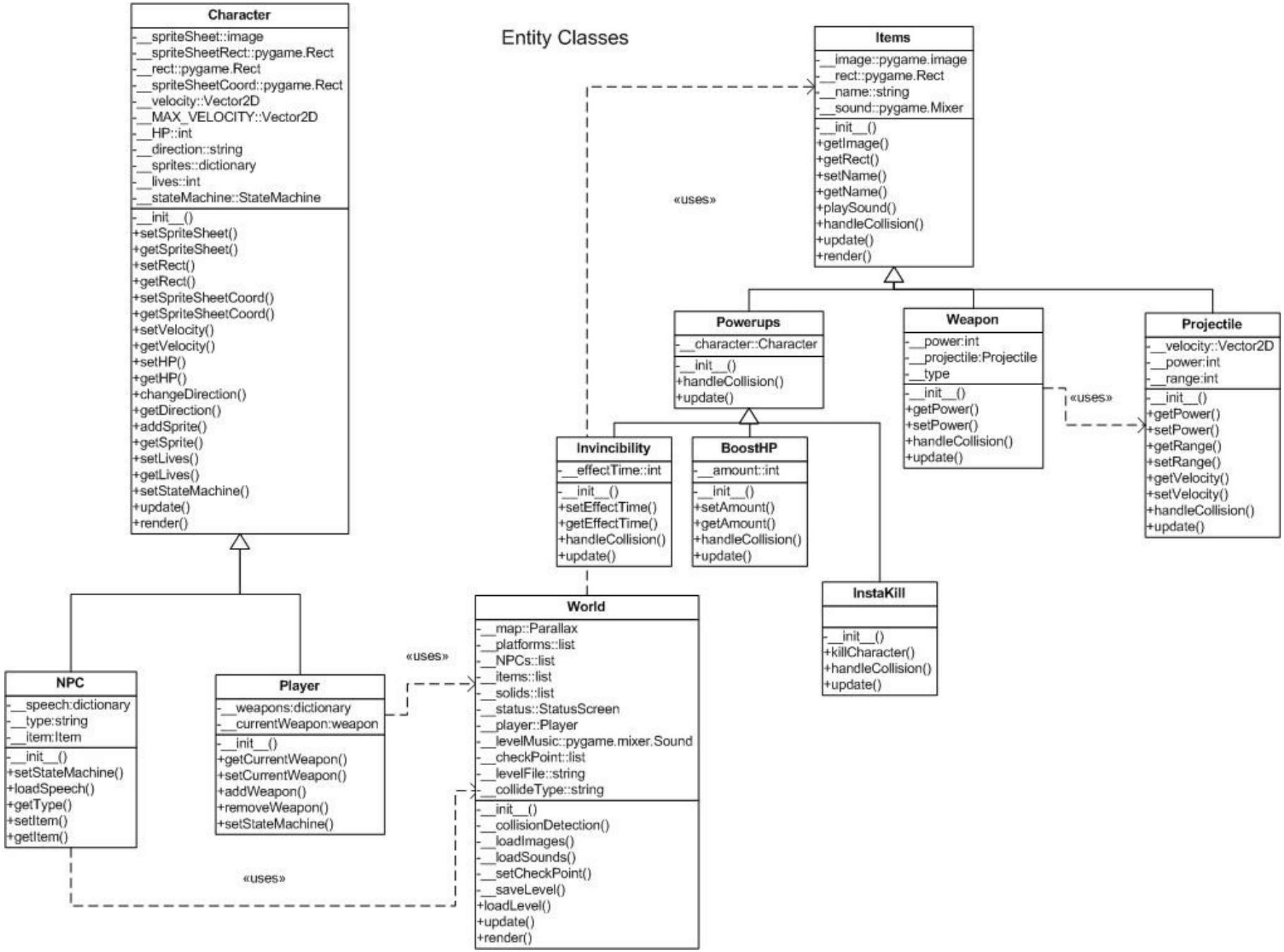
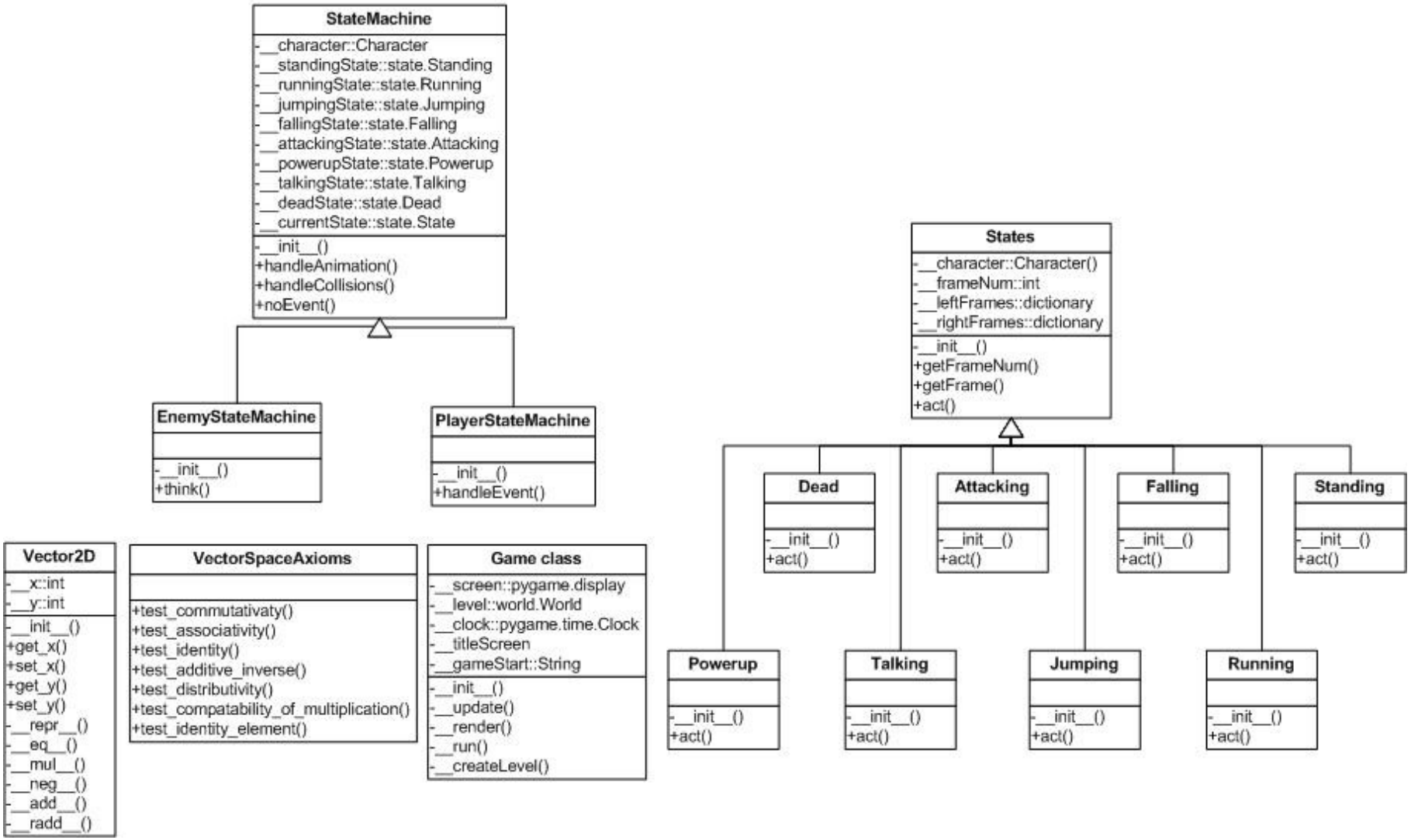
1 Class Diagrams

Class Diagram

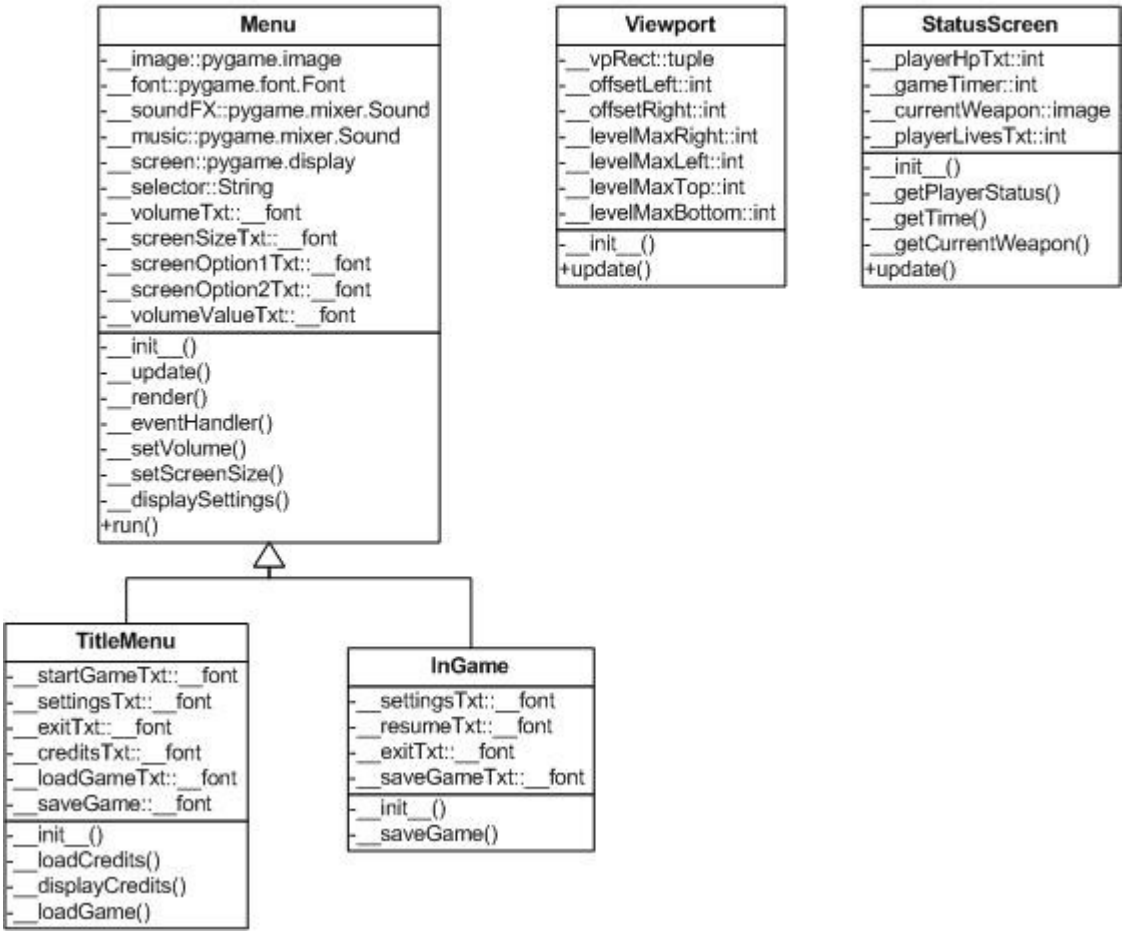



Entity Classes
Character
-__spriteSheet::image
-__spriteSheetRect::pygame.Rect
-__rect::pygame.Rect
-__spriteSheetCoord::pygame.Rect
-__velocity::Vector2D
-__MAX_VELOCITY::Vector2D
-__HP::int
-__direction::string
-__sprites::dictionary
-__lives::int
-__stateMachine::StateMachine
-__init__()
+setSpriteSheet()
+getSpriteSheet()
+setRect()
+getRect()
+setSpriteSheetCoord()
+getSpriteSheetCoord()
+setVelocity()
+getVelocity()
+setHP()
+getHP()
+changeDirection()
+getDirection()
+addSprite()
+getSprite()
+setLives()
+getLives()
+setStateMachine()
+update()
+render()
Items
-__image::pygame.image
-__rect::pygame.Rect
-__name::string
-__sound::pygame.Mixer
-__init__()
+getImage()
+getRect()
+setName()
+getName()
+playSound()
+handleCollision()
+update()
+render()
«uses»
Powerups
-__character::Character
-__init__()
+handleCollision()
+update()
Weapon
-__power:int
-__projectile:Projectile
-__type
-__init__()
+getPower()
+setPower()
+handleCollision()
+update()
«uses»
Projectile
-__velocity::Vector2D
-__power:int
-__range:int
-__init__()
+getPower()
+setPower()
+getRange()
+setRange()
+getVelocity()
+setVelocity()
+handleCollision()
+update()
Invincibility
-__effectTime::int
-__init__()
+setEffectTime()
+getEffectTime()
+handleCollision()
+update()
BoostHP
-__amount::int
-__init__()
+setAmount()
+getAmount()
+handleCollision()
+update()
InstaKill
-__init__()
+killCharacter()
+handleCollision()
+update()
World
-__map::Parallax
-__platforms::list
-__NPCs::list
-__items::list
-__solids::list
-__status::StatusScreen
-__player::Player
-__levelMusic::pygame.mixer.Sound
-__checkPoint::list
-__levelFile::string
-__collideType::string
-__init__()
-__collisionDetection()
-__loadImages()
-__loadSounds()
-__setCheckPoint()
-__saveLevel()
+loadLevel()
+update()
+render()
«uses»
NPC
-__speech:dictionary
-__type:string
-__item:Item
-__init__()
+setStateMachine()
+loadSpeech()
+getType()
+setItem()
+getItem()
Player
-__weapons:dictionary
-__currentWeapon:weapon
-__init__()
+getCurrentWeapon()
+setCurrentWeapon()
+addWeapon()
+removeWeapon()
+setStateMachine()
«uses»
«uses»

Control Classes



Boundary Classes



2 Tabular Representation of the Class Diagram

2.1 Entity Classes

- Item Class
- Weapon Class
- Projectile Class
- PowerUp Class
- Invincibility Class
- BoostHP Class
- InstaKill Class
- Character Class
- Player Class
- NPC Class
- World Class

Item Class

Module name	__init___
Module type	Function
Return type	none
Input arguments	image::pygame.image rect::pygame.Rect name::string sound::pygame.mixer
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Assign class variables values based on the input arguments.

Module name	getImage
Module type	Function
Return type	pygame.image
Input arguments	none
Output arguments	_image::pygame.image
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Returns __image.

Module name	getRect
Module type	Function
Return type	pygame.Rect
Input arguments	none
Output arguments	_rect::pygame.Rect
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Return _rect.

Module name	setName
Module type	Function
Return type	none
Input arguments	name::string
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Set _name to value passed as parameter.

Module name	getName
Module type	Function
Return type	string
Input arguments	none
Output arguments	_name::string
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Return _name.

Module name	playSound
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	_sound
Files changed	none
Modules called	none
Narrative	Play the item's _sound attribute.

Module name	update
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	An abstract function to be overridden by its derived classes.

Module name	render
Module type	Function
Return type	none
Input arguments	screen::pygame.display
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Render will blit the item to the screen passed in as an argument.

Weapons Class

Module name	__init___
Module type	Function
Return type	none

Input arguments	image::pygame.image rect::pygame.Rect name::string sound::pygame.mixer power::int projectile::Projectile
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Call the base classes' constructor and assign class variables values based on the input arguments.

Module name	getPower
Module type	Function
Return type	int
Input arguments	none
Output arguments	_power::int
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Return _power.

Module name	setPower
Module type	Function
Return type	none
Input arguments	power::int
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Set _power to the input argument power.

Module name	getProjectile
Module type	Function
Return type	Projectile
Input arguments	none
Output arguments	_projectile::Projectile
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	returns _projectile

Module name	setProjectile

Module type	Function
Return type	none
Input arguments	projectile::Projectile
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Set _projectile to the input argument projectile.

Projectile Class

Module name	__init___
Module type	Function
Return type	none
Input arguments	velocity::Vector2D power::int range::int
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Call the base classes' constructor and assign class variables values based on the input arguments.

Module name	getPower
Module type	Function
Return type	none
Input arguments	none
Output arguments	_power::int
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Return _power.

Module name	setPower
Module type	Function
Return type	none
Input arguments	power::int
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Set _power to the input argument power.

Module name	getRange
Module type	Function

Return type	int
Input arguments	none
Output arguments	_range::int
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Return _range.

Module name	setRange
Module type	Function
Return type	none
Input arguments	range::int
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Set _range to the input argument range.

Module name	getVelocity
Module type	Function
Return type	Vector2D
Input arguments	none
Output arguments	_velocity::Vector2D
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Return _velocity.

Module name	setVelocity
Module type	Function
Return type	none
Input arguments	velocity::Vector2D
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Set _velocity to the input argument velocity.

Module name	update
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none

Files changed	none
Modules called	none
Narrative	Moves rect by _velocity.

PowerUp Class

Module name	__init___
Module type	Function
Return type	none
Input arguments	character::Character
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Call the base classes' constructor and assign class variables values based on the input arguments.

Invisibility Class

Module name	__init___
Module type	Function
Return type	none
Input arguments	effectTime::int
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Call the base classes' constructer and assign class variables values based on the input arguments.

Module name	getEffectTime
Module type	Function
Return type	int
Input arguments	none
Output arguments	_effectTime
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Return _effectTime.

Module name	setEffectTime
Module type	Function
Return type	none
Input arguments	effectTime::int
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none

Narrative	Set _effectTime to the input argument effectTime.

BoostHP Class

Module name	__init___
Module type	Function
Return type	none
Input arguments	amount::int
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Call the base classes' constructor and assign class variables values based on the input arguments.

Module name	setAmount
Module type	Function
Return type	none
Input arguments	amount::int
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Set _amount to the input parameter amount.

Module name	getAmount
Module type	Function
Return type	int
Input arguments	none
Output arguments	_amount::int
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Return _amount.

InstaKill Class

Module name	__init___
Module type	Function
Return type	none
Input arguments	amount::int
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Call the base classes' constructor.

Module name	killCharacter
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Reduce _character's HP to 0.

Character Class

Module name	__init___
Module type	Function
Return type	none
Input arguments	spriteSheet::Image, sprites::dictionary, MAX_VELOCITY::Vector2D, stateMachine::stateMachine
Output arguments	none
Error messages	none
Files accessed	spriteSheet::Image
Files changed	none
Modules called	none
Narrative	Set all the attributes of the character class according to the input arguments, and the remaining attributes to default values.

Module name	setSpriteSheet
Module type	Function
Return type	none
Input arguments	spriteSheet::image
Files accessed	none
Files changed	none
Modules called	none
Narrative	Set class variables _spriteSheet to argument's spriteSheet.

Module name	getSpriteSheet
Module type	Function
Return type	Image
Input arguments	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Returns class variable _spriteSheet.

Module name	setRect
Module type	Function
Return type	none
Input arguments	levelPostion::pygame.Rect
Files accessed	none
Files changed	none

Modules called	none
Narrative	Sets the class variable to the levelPostion.

Module name	getRect
Module type	Function
Return type	pygame.Rect
Input arguments	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Returns the class variable _rect.

Module name	setSpriteSheetCoord
Module type	Function
Return type	none
Input arguments	rect::pygame.Rect
Files accessed	none
Files changed	none
Modules called	none
Narrative	Set the _spriteSheetCoord to the input argument rect.

Module name	getSpriteSheetCoord
Module type	Function
Return type	pygame.Rect
Input arguments	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Returns the class variable _spriteSheetCoord.

Module name	setVelocity
Module type	Function
Return type	none
Input arguments	velocity::Vector2D
Files accessed	none
Files changed	none
Modules called	none
Narrative	Set class variable to argument velocity.

Module name	getVelocity
Module type	Function
Return type	Vector2D
Input arguments	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Returns the class variable _velocity.

Module name	setHP
Module type	Function
Return type	none
Input arguments	life::int
Files accessed	none
Files changed	none
Modules called	none
Narrative	Set the class variable to input argument life.

Module name	getHP
Module type	Function
Return type	Int
Input arguments	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Returns the class variable __HP.

Module name	changeDirection
Module type	Function
Return type	none
Input arguments	direction::String
Files accessed	none
Files changed	none
Modules called	none
Narrative	Set class variable to input argument direction.

Module name	getDirection
Module type	Function
Return type	String
Input arguments	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Return class variable _direction.

Module name	addSprite
Module type	Function
Return type	none
Input arguments	key::String rect::pygame.Rect
Files accessed	none
Files changed	none
Modules called	none
Narrative	Add new key and rect to _sprites.

Module name	getSprite
Module type	Function
Return type	pygame.Rect
Input arguments	key::String
Files accessed	none
Files changed	none
Modules called	none
Narrative	Return rect based on key argument that corresponds to an element in _sprites.

Module name	setLives
Module type	Function
Return type	none
Input arguments	numLives::int
Files accessed	none
Files changed	none
Modules called	none
Narrative	Set class variable to argument numLives.

Module name	getLives
Module type	Function
Return type	int
Input arguments	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Return class variable _lives.

Module name	setStateMachine
Module type	Function
Return type	none
Input arguments	stateMachine::StateMachine
Files accessed	none
Files changed	none
Modules called	none
Narrative	This method will be overridden by its derived base classes.

Module name	update
Module type	Abstract Method
Return type	none
Input arguments	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	This method will be overridden by its derived base classes.

Player Class

Module name	__init___
Module type	Function

Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	Character.__init__()
Narrative	Call base character class __init__(). Set weapons to empty dictionary. Set current weapon to null.

Module name	getCurrentWeapon
Module type	Function
Return type	Weapon
Input arguments	none
Output arguments	returns _currentWeapon.
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Returns class variable _currentWeapon

Module name	setCurrentWeapon
Module type	Function
Return type	none
Input arguments	keyString::String
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Set class variable _currentWeapon to the value corresponding to keyString in _weapons.

Module name	addWeapon
Module type	Function
Return type	none
Input arguments	weapon::Weapon, keyString::String
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Adds weapon and its corresponding keyString to the weapons dictionary.

Module name	removeWeapon
Module type	Function
Return type	none
Input arguments	keyString::String
Output arguments	none

Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Delete weapon from the weapons dictionary that corresponds to the argument keyString.

Module name	setStateMachine
Module type	Function
Return type	none
Input arguments	stateMachine::StateMachine
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Set class variable _stateMachine to stateMachine.

NPC Class

Module name	__init__
Module type	Function
Return type	none
Input arguments	type::String speechFile::String Item::Item
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	Character.__init__(), loadSpeech()
Narrative	Call base class constructor. Set class variables _type and _item to type and item arguments respectively. .Call loadSpeech(speechFile).

Module name	setStateMachine
Module type	Function
Return type	none
Input arguments	stateMachine::StateMachine
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Set class variable to argument stateMachine.

Module name	loadSpeech
Module type	Function
Return type	none
Input arguments	speechFile::String

Output arguments	none
Error messages	If file fails to load, throw an exception.
Files accessed	#spechFile#.txt
Files changed	none
Modules called	open()
Narrative	Load textual information from given argument file name.

Module name	getType
Module type	Function
Return type	String
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Return class variable _type.

Module name	setItem
Module type	Function
Return type	none
Input arguments	item::Item
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Set class variable to argument item.

Module name	getItem
Module type	Function
Return type	Item
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Return class variable _item.

World Class

Module name	__init__
Module type	Function
Return type	none
Input arguments	levelFile
Output arguments	none
Error messages	none
Files accessed	checkpoint.ckp, level.lvl, level.ogg,
Files changed	checkPoint.ckp, level.lvl

Modules called	pygame.mixer.sound(), pygame.image.load(), image.get_rect(), loadLevel()
Narrative	This module initializes the world class. Sets all class variables to null. Call loadLevel based upon the argument from __init__().

Module name	_loadLevel
Module type	Function
Return type	none
Input argument	levelFile::String
Output arguments	none
Error messages	Cannot access file.
Files accessed	levelFile
Files changed	none
Modules called	none
Narrative	Loads the file from the levelFile. Sets all the World class variables to the values denoted by contents of levelFile.

Module name	update
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	collisionDetection()
Narrative	Call collisionDetection() to update all objects in the World.

Module name	render
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	pygame.flip(), pygame.blit(), render()
Narrative	Calls render() for all objects in the World. Calls pygame.flip() and pygame.blit().

Module name	_saveLevel
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	checkpoint.ckp
Files changed	checkpoint.ckp
Modules called	open(), close()
Narrative	Take current object variable values and write appropriately to checkpoint.

Module name	_collisionDetection
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	StateMachine.handleCollision()
Narrative	Check intersections of rectangles between characters, World objects, and projectiles.

Module name	_loadImage
Module type	Function
Return type	none
Input arguments	fileName::String
Output arguments	none
Error messages	none
Files accessed	Appropriate image file (png, jpg, or).
Files changed	none
Modules called	pygame.image.load()
Narrative	Load an image called filename.

Module name	_loadSound
Module type	Function
Return type	none
Input arguments	fileName::String
Output arguments	none
Error messages	none
Files accessed	Appropriate sound file (ogg).
Files changed	none
Modules called	pygame.mixer.Sound()
Narrative	Load a sound called fileName.

Module name	_reachedCheckPoint
Module type	Function
Return type	none
Input arguments	characterRect::rect
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	_saveLevel()
Narrative	Checkes characterRect against internal class variable checkPoint .**Item Class**
Module name	__init___
Module type	Function
Return type	none

Input arguments	image::pygame.image rect::pygame.Rect name::string sound::pygame.mixer
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Assign class variables values based on the input arguments.

Module name	getImage
Module type	Function
Return type	pygame.image
Input arguments	none
Output arguments	_image::pygame.image
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Returns __image.

Module name	getRect
Module type	Function
Return type	pygame.Rect
Input arguments	none
Output arguments	_rect::pygame.Rect
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Return _rect.

Module name	setName
Module type	Function
Return type	none
Input arguments	name::string
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Set _name to value passed as parameter.

Module name	getName
Module type	Function
Return type	string
Input arguments	none

Output arguments	_name::string
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Return _name.

Module name	playSound
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	_sound
Files changed	none
Modules called	none
Narrative	Play the item's _sound attribute.

Module name	update
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	An abstract function to be overridden by its derived classes.

Module name	render
Module type	Function
Return type	none
Input arguments	screen::pygame.display
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Render will blit the item to the screen passed in as an argument.

Weapons Class

Module name	__init___
Module type	Function
Return type	none
Input arguments	image::pygame.image rect::pygame.Rect name::string sound::pygame.mixer

	power::int projectile::Projectile
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Call the base classes' constructor and assign class variables values based on the input arguments.

Module name	getPower
Module type	Function
Return type	int
Input arguments	none
Output arguments	_power::int
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Return _power.

Module name	setPower
Module type	Function
Return type	none
Input arguments	power::int
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Set _power to the input argument power.

Module name	getProjectile
Module type	Function
Return type	Projectile
Input arguments	none
Output arguments	_projectile::Projectile
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	returns _projectile

Module name	setProjectile
Module type	Function
Return type	none
Input arguments	projectile::Projectile
Output arguments	none

Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Set _projectile to the input argument projectile.

Projectile Class

Module name	__init___
Module type	Function
Return type	none
Input arguments	velocity::Vector2D power::int range::int
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Call the base classes' constructor and assign class variables values based on the input arguments.

Module name	getPower
Module type	Function
Return type	none
Input arguments	none
Output arguments	_power::int
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Return _power.

Module name	setPower
Module type	Function
Return type	none
Input arguments	power::int
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Set _power to the input argument power.

Module name	getRange
Module type	Function
Return type	int
Input arguments	none
Output arguments	_range::int
Error messages	none

Files accessed	none
Files changed	none
Modules called	none
Narrative	Return _range.

Module name	setRange
Module type	Function
Return type	none
Input arguments	range::int
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Set _range to the input argument range.

Module name	getVelocity
Module type	Function
Return type	Vector2D
Input arguments	none
Output arguments	_velocity::Vector2D
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Return _velocity.

Module name	setVelocity
Module type	Function
Return type	none
Input arguments	velocity::Vector2D
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Set _velocity to the input argument velocity.

Module name	update
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Moves rect by _velocity.

PowerUp Class

Module name	__init___
Module type	Function
Return type	none
Input arguments	character::Character
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Call the base classes' constructor and assign class variables values based on the input arguments.

Invisibility Class

Module name	__init___
Module type	Function
Return type	none
Input arguments	effectTime::int
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Call the base classes' constructer and assign class variables values based on the input arguments.

Module name	getEffectTime
Module type	Function
Return type	int
Input arguments	none
Output arguments	_effectTime
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Return _effectTime.

Module name	setEffectTime
Module type	Function
Return type	none
Input arguments	effectTime::int
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Set _effectTime to the input argument effectTime.

BoostHP Class

Module name	__init___

Module type	Function
Return type	none
Input arguments	amount::int
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Call the base classes' constructor and assign class variables values based on the input arguments.

Module name	setAmount
Module type	Function
Return type	none
Input arguments	amount::int
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Set _amount to the input parameter amount.

Module name	getAmount
Module type	Function
Return type	int
Input arguments	none
Output arguments	_amount::int
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Return _amount.

InstaKill Class

Module name	__init___
Module type	Function
Return type	none
Input arguments	amount::int
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Call the base classes' constructor.

Module name	killCharacter
Module type	Function
Return type	none
Input arguments	none

Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Reduce _character's HP to 0.

Character Class

Module name	__init___
Module type	Function
Return type	none
Input arguments	spriteSheet::Image, sprites::dictionary, MAX_VELOCITY::Vector2D, stateMachine::stateMachine
Output arguments	none
Error messages	none
Files accessed	spriteSheet::Image
Files changed	none
Modules called	none
Narrative	Set all the attributes of the character class according to the input arguments, and the remaining attributes to default values.

Module name	setSpriteSheet
Module type	Function
Return type	none
Input arguments	spriteSheet::image
Files accessed	none
Files changed	none
Modules called	none
Narrative	Set class variables _spriteSheet to argument's spriteSheet.

Module name	getSpriteSheet
Module type	Function
Return type	Image
Input arguments	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Returns class variable _spriteSheet.

Module name	setRect
Module type	Function
Return type	none
Input arguments	levelPostion::pygame.Rect
Files accessed	none
Files changed	none
Modules called	none
Narrative	Sets the class variable to the levelPostion.

Module name	getRect

Module type	Function
Return type	pygame.Rect
Input arguments	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Returns the class variable _rect.

Module name	setSpriteSheetCoord
Module type	Function
Return type	none
Input arguments	rect::pygame.Rect
Files accessed	none
Files changed	none
Modules called	none
Narrative	Set the _spriteSheetCoord to the input argument rect.

Module name	getSpriteSheetCoord
Module type	Function
Return type	pygame.Rect
Input arguments	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Returns the class variable _spriteSheetCoord.

Module name	setVelocity
Module type	Function
Return type	none
Input arguments	velocity::Vector2D
Files accessed	none
Files changed	none
Modules called	none
Narrative	Set class variable to argument velocity.

Module name	getVelocity
Module type	Function
Return type	Vector2D
Input arguments	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Returns the class variable _velocity.

Module name	setHP
Module type	Function
Return type	none

Input arguments	life::int
Files accessed	none
Files changed	none
Modules called	none
Narrative	Set the class variable to input argument life.

Module name	getHP
Module type	Function
Return type	Int
Input arguments	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Returns the class variable __HP.

Module name	changeDirection
Module type	Function
Return type	none
Input arguments	direction::String
Files accessed	none
Files changed	none
Modules called	none
Narrative	Set class variable to input argument direction.

Module name	getDirection
Module type	Function
Return type	String
Input arguments	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Return class variable _direction.

Module name	addSprite
Module type	Function
Return type	none
Input arguments	key::String rect::pygame.Rect
Files accessed	none
Files changed	none
Modules called	none
Narrative	Add new key and rect to _sprites.

Module name	getSprite
Module type	Function
Return type	pygame.Rect

Input arguments	key::String
Files accessed	none
Files changed	none
Modules called	none
Narrative	Return rect based on key argument that corresponds to an element in _sprites.

Module name	setLives
Module type	Function
Return type	none
Input arguments	numLives::int
Files accessed	none
Files changed	none
Modules called	none
Narrative	Set class variable to argument numLives.

Module name	getLives
Module type	Function
Return type	int
Input arguments	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Return class variable _lives.

Module name	setStateMachine
Module type	Function
Return type	none
Input arguments	stateMachine::StateMachine
Files accessed	none
Files changed	none
Modules called	none
Narrative	This method will be overridden by its derived base classes.

Module name	update
Module type	Abstract Method
Return type	none
Input arguments	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	This method will be overridden by its derived base classes.

Player Class

Module name	__init___
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none

Files accessed	none
Files changed	none
Modules called	Character.__init__()
Narrative	Call base character class __init__(). Set weapons to empty dictionary. Set current weapon to null.

Module name	getCurrentWeapon
Module type	Function
Return type	Weapon
Input arguments	none
Output arguments	returns _currentWeapon.
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Returns class variable _currentWeapon

Module name	setCurrentWeapon
Module type	Function
Return type	none
Input arguments	keyString::String
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Set class variable _currentWeapon to the value corresponding to keyString in _weapons.

Module name	addWeapon
Module type	Function
Return type	none
Input arguments	weapon::Weapon, keyString::String
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Adds weapon and its corresponding keyString to the weapons dictionary.

Module name	removeWeapon
Module type	Function
Return type	none
Input arguments	keyString::String
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none

Narrative	Delete weapon from the weapons dictionary that corresponds to the argument keyString.

Module name	setStateMachine
Module type	Function
Return type	none
Input arguments	stateMachine::StateMachine
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Set class variable _stateMachine to stateMachine.

NPC Class

Module name	__init__
Module type	Function
Return type	none
Input arguments	type::String speechFile::String Item::Item
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	Character.__init__(), loadSpeech()
Narrative	Call base class constructor. Set class variables _type and _item to type and item arguments respectively. .Call loadSpeech(speechFile).

Module name	setStateMachine
Module type	Function
Return type	none
Input arguments	stateMachine::StateMachine
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Set class variable to argument stateMachine.

Module name	loadSpeech
Module type	Function
Return type	none
Input arguments	speechFile::String
Output arguments	none
Error messages	If file fails to load, throw an exception.
Files accessed	#spechFile#.txt
Files changed	none

Modules called	open()
Narrative	Load textual information from given argument file name.

Module name	getType
Module type	Function
Return type	String
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Return class variable _type.

Module name	setItem
Module type	Function
Return type	none
Input arguments	item::Item
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Set class variable to argument item.

Module name	getItem
Module type	Function
Return type	Item
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Return class variable _item.

World Class

Module name	__init__
Module type	Function
Return type	none
Input arguments	levelFile
Output arguments	none
Error messages	none
Files accessed	checkpoint.ckp, level.lvl, level.ogg,
Files changed	checkPoint.ckp, level.lvl
Modules called	pygame.mixer.sound(), pygame.image.load(), image.get_rect(), loadLevel()
Narrative	This module initializes the world class. Sets all class variables to null. Call loadLevel based upon the argument from __init__().

Module name	_loadLevel
Module type	Function
Return type	none
Input argument	levelFile::String
Output arguments	none
Error messages	Cannot access file.
Files accessed	levelFile
Files changed	none
Modules called	none
Narrative	Loads the file from the levelFile. Sets all the World class variables to the values denoted by contents of levelFile.

Module name	update
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	collisionDetection()
Narrative	Call collisionDetection() to update all objects in the World.

Module name	render
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	pygame.flip(), pygame.blit(), render()
Narrative	Calls render() for all objects in the World. Calls pygame.flip() and pygame.blit().

Module name	_saveLevel
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	checkpoint.ckp
Files changed	checkpoint.ckp
Modules called	open(), close()
Narrative	Take current object variable values and write appropriately to checkpoint.

Module name	_collisionDetection
Module type	Function
Return type	none

Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	StateMachine.handleCollision()
Narrative	Check intersections of rectangles between characters, World objects, and projectiles.

Module name	_loadImage
Module type	Function
Return type	none
Input arguments	fileName::String
Output arguments	none
Error messages	none
Files accessed	Appropriate image file (png, jpg, or).
Files changed	none
Modules called	pygame.image.load()
Narrative	Load an image called filename.

Module name	_loadSound
Module type	Function
Return type	none
Input arguments	fileName::String
Output arguments	none
Error messages	none
Files accessed	Appropriate sound file (ogg).
Files changed	none
Modules called	pygame.mixer.Sound()
Narrative	Load a sound called fileName.

Module name	_reachedCheckPoint
Module type	Function
Return type	none
Input arguments	characterRect::rect
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	_saveLevel()
Narrative	Checkes characterRect against internal class variable checkPoint .

2.2 Control Classes

- Game Class
- StateMachine Class
- EnemyStateMachine Class
- PlayerStateMachine Class
- State Class
- Standing Class
- Standing Class
- Jumping Class
- Falling Class
- Running Class
- Dead Class
- Attacking Class
- Talking Class
- PowerUp Class

Game Class

Module name	__init__
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Sets class variables to default values.

Module name	update()
Module type	Function
Return type	none
Input arguments	noneb
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	_titleScreen.update() _level.update()
Narrative	Updates level and title screen. Changes to the next menu screen or to a new level depending on the context of the update() call.

Module name	render()
Module type	Function
Return type	none
Input arguments	noneb
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	_titleScreen.render() _level.render()
Narrative	Renders the level or the title screen based on the context of the call.

Module name	run()
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	update() render()
Narrative	The main game loop. Calls update and render to run the game.

StateMachine Class

Module name	__init()___
Module type	Function
Return type	none
Input arguments	character::character
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Sets a local variable character to the passed argument character. Create instances of all the states and assign the states to local variables. Set current state of character to standing.

Module name	handleAnimation()
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Checks character's dictionary of sprites and cycles each sprite.

Module name	handleCollision()
Module type	Function
Return type	none
Input argument	collisionBoundary :: String
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	correntState.act()
Narrative	Sets current state based on collisionBoundary which would be either "character", "item", or "solids" and changes the state accordingly and then calls act().

Module name	noEvent()
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	currentState.act()
Narrative	Call currents state's act method.

EnemyStateMachine Class

Module name	__init__()
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Call the parent class's constructors.

Module name	think ()
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	currentState.act()
Narrative	Based on the character's type, currentState, and level topography change currentState to a different state.

PlayerStateMachine Class

Module name	__init__()
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Call the parent class's constructors.

Module name	handleEvent ()
Module type	Function
Return type	none
Input arguments	event::Pygame.event
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	currentState.act()
Narrative	Based on event set currentState and call act().

State Class

Module name	__init__()
Module type	Function
Return type	none
Input arguments	character::character, rightFrames::dictionary, leftFrames::dictionary
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Set all class variables to their corresponding init arguments. With the exception of frame number which gets set to zero.

Module name	getFrame()
Module type	Function
Return type	Integer
Input arguments	none
Output arguments	String that represents Sprite.
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Returns the string that corresponds to a string in the sprite dictionary that is enumerated in the Character class.

Module name	getFrameNum()
Module type	Function
Return type	Integer
Input arguments	none
Output arguments	__frameNum::int
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Returns the current frame.

Module name	act()
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none

Files changed	none
Modules called	none
Narrative	This method is a pure virtual method to be overridden by derived classes.

Standing Class

Module name	__init__()
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Call the parent class's constructors.

Module name	act()
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Will set the x and y velocity values to zero.

Jumping Class

Module name	__init__()
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Call the parent class's constructors.

Module name	act()
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none

Files changed	none
Modules called	none
Narrative	Set the y velocity to MAX_VELOCITY and decrement until zero.

Falling Class

Module name	__init__()
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Call the parent class's constructors.

Module name	act()
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Increment the y velocity until it reaches MAX_VELOCITY.

Running Class

Module name	__init__()
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Call the parent class's constructors.

Module name	act()
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none

Narrative	Increment the x velocity until it reaches MAX_VELOCITY.

Dead Class

Module name	__init__()
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Call the parent class's constructors.

Module name	act()
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Take away a character life. Set x and y velocity to zero.

Attacking Class

Module name	__init__()
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Call the parent class's constructors.

Module name	act()
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	character.getCurrentWeapon() Projectile()

Arguments: rect::Rect, velocity::Vector2D

Narrative	Inject projectile into the world, based upon the current weapon type.

Talking Class

Module name	__init__()
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Call the parent class's constructors.

Module name	act()
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	dialogFile.txt
Files changed	none
Modules called	none
Narrative	Will set the x and y velocity values to zero. Initiate dialog with string from dialogFile.txt.

PowerUp Class

Module name	__init__()
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Call the parent class's constructors.

Module name	act()
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none

Modules called	none
Narrative	Apply the effects of the powerUp to the character(s).

2.3 Boundary Classes

- Menu Class
- TitleMenu Class
- InGameMenu Class
- Viewport Class

Menu Class

Module name	__init__
Module type	Function
Return type	none
Input arguments	image::pygame.image soundFX::pygame.mixer.Sound music::pygame.mixer.Sound screen::pygame.display
Output arguments	none
Error messages	none
Files accessed	soundFX image music
Files changed	none
Modules called	none
Narrative	Initialize all class variables to default values and to corresponding input arguments.

Module name	update
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	_eventHandler()
Narrative	Call _eventHandler() to handle inputs from user and adjust class variables accordingly.

Module name	render
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	pygame.Surface.blit()
Narrative	Blit text and images to _screen.

Module name	_eventHandler
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none

Modules called	pygame.event.get()
Narrative	Handles events from the event queue and processes input from user.

Module name	setVolume
Module type	Function
Return type	none
Input arguments	volume::int
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	pygame.mixer.Sound.set_volume()
Narrative	Adjust the music volume for the entire game based on the input argument.

Module name	setScreenSize
Module type	Function
Return type	none
Input arguments	size::tuple
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	pygame.Display.set_mode()
Narrative	Makes _screen have a new size as determined by the input argument.

Module name	displaySettings()
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	pygame.Surface.blit()
Narrative	Blits setting text to the screen.

Module name	run
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	update() render()
Narrative	The loop for the menu screen calling update() and render().

TitleMenu Class

Module name	__init__
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	super().__init__()
Narrative	Call the base class's __int__() and initialize all class variables to default values and to corresponding input arguments

Module name	_loadCredits
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	credits.txt
Files changed	none
Modules called	open(), close()
Narrative	Loads game credits.

Module name	_displayCredits
Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	pygame.Surface.blit()
Narrative	Display game credits.

Module name	_loadGame
Module type	Function
Return type	none
Input arguments	levelName
Output arguments	none
Error messages	none
Files accessed	level.lvl
Files changed	none
Modules called	none
Narrative	Loads a level that has been unlocked by fulfilling game requirements.

InGameMenu Class

Module name	__init__

Module type	Function
Return type	none
Input arguments	none
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	super().__init__()
Narrative	Call the base class's __int__() and initialize all class variables to default values and to corresponding input arguments.

Module name	_saveGame
Module type	Function
Return type	none
Input arguments	level::World
Output arguments	none
Error messages	none
Files accessed	checkpoint.ckp
Files changed	checkpoint.ckp
Modules called	none
Narrative	Saves the level from the last checkpoint.

Viewport Class

Module name	__init__
Module type	Function
Return type	none
Input arguments	vpRect::Rect maxRight::int maxLeft::int maxTop::int maxBottom::int
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Sets appropriate class variables.

Module name	update
Module type	Function
Return type	none
Input arguments	playerRect::Rect
Output arguments	none
Error messages	none
Files accessed	none
Files changed	none
Modules called	none
Narrative	Reset appropriate class variables depending on the players position.