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**Design**

**UML Diagram**

**Diagram

Description automatically generated**

Game

Attributes:

-Level\* level

-Player\* player

-Patrol\*[] pEnemys

-Chase\* [] cEnemys

-SDL\_Window\* window

SDL\_Renderer\* renderer

Bool isRunning

Methods:

+void update()

Level

Attributes:

-SDL\_Surface\* surface

-SDL\_Texture\* texture

-SDL\_Renderer\* renderer

-Vector Layout

-Player\* player

-int wallWidth

-int wallHeight

-int xPos

-int yPos

Methods:

+render()

+void drawWall(int, int)

+void isWall(int, int)

+bool isStop(int, int)

Player

Attributes:

-int lifes

-int score

Patrol

Methods:

+void patrol()

Chase

Methods:

+void chase(Player\*)

Creature

Attributes:

- int xPos

-int yPos

Bitmap\* bitmap

Level\* level

Method:

+bool CollidesWithCreature()

+void Up()

+void down()

+void left()

+right()

Door

Attributes:

-bool open

-Key\* key

Methods:

+void openDoor()

+bool PassThrough()

Input

Attributes:

+bool[] keysPressed

+Bool[] KeyIsPressed

Methods:

+void GetInput()

+bool keyPressed()

Coin

Methods:

+

Bitmap

Attributes:

-SDL\_Surface\* surface

-SDL\_Texture\* texture

-SDL\_Renderer\* renderer

-int xPos

-int yPos

-Int width

-int height

Method:

+Draw()

Enemy

Methods:

+void Attack(Player\*)

Collectables

Attributes:

-bool pickedUp

-int pointsValue

Methods:

+void CollidesWith()

+void addPoints

Key

Methods:

+

**Pseduocode**

**Main.cpp**

Main()

{

Game\* game;

Input\* input;

Do

{

Input->getInput();

If(input->keyIsPressed[a])

{

Game->hero->left();

}

If(input->keyIsPressed[d])

{

Game->hero->right();

}

If(input->keyIsPressed[space])

{

Game->hero->jump();

}

Game->update();

}while(!input->keyIsPressed[escape]);

Delete input;

Input = nullptr;

Delete game;

Game = nullptr

}

**Patrol.cpp**

PatrolVertical()

{

If(up)

{

Enemy->up();

}

Else

{

Enemy->down();

}

CheckPosition();

}

CheckPoisiton()

{

If(level->isStop(xPos, yPos)))

{

up = !up;

}

}

**Chase.cpp**

Chase(Player\* player)

{

If(player->getX() > xPos - aggroDistance AND player->getX() < xPos + aggroDistance)

{

If(player->getX() < xPos)

{

Left();

}

If(player->getX() < xPos)

{

Right();

}

}

}

**Creature.cpp**

Jump()

{

yPos

}

Left()

{

}

Right()

{

}

isWall(int x, int y)

{

}

isStop(int x, int y)

{

}

**Testing**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Test No.** | **Description** | **Valid** | **Test Data** | **Expected Result** | **Actual Result** | **Pass/Fail** | **Fix** |
| 1 | Player doesn’t fall through the level floor | Valid | Player moves around and is touching the floor | Player should touch the floor and not go through it | Player touched the floor and didn’t go through | Pass |  |
| 2 | Player is able to move around using key inputs | Valid | Pressing D | Player moves to the right | Player moves right | Pass |  |
| 3 | Valid | Pressing A | Player moves to the left | Player moves to the Left | Pass |  |
| 4 | Valid | Pressing Space | Player jumps | Player jumps | Pass |  |
| 5 | Enemies move on their own based (before screen change) | Valid | Watch enemy move (before screen change) | Enemy moves horizontality | Enemy moves horizontality | Pass |  |
| 6 | Valid | Enemy moves vertically | Enemy moves vertically | Pass |  |
| 7 | Valid | Enemy chases player |  | Fail |  |
| 8 | Screen Changes | Valid | Walk to end of screen | Screen changes to next section and player is at correct spot | Screen changes but player is in wrong spot | Fail |  |
| 9 | Screen Change Collisions | Valid | Walk to end of screen and then move around and touch monster | After screen change enemy does damage | Uses previous screens collision areas | Fail | Changed code so that the collision uses the viewport and adds to the result of the division. |
| 10 | Valid | Walk to the end of the screen and then touch coin | After screen changes the coins disappear on collision |  |  |
| 11 | Screen Change Drawn | Valid | Walk to edge of the screen | Walk to the end of screen and check if coins and enemies are drawn |  |  |  |
| 12 |  |  |  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Test ID** | **Description** | **Pass/Fail** | **Screen Shot** | **Screen Shot Fix (If applicable)** |
| 1 | Player doesn’t fall through the level floor | Pass |  |  |
| 2 | Player is able to move around using key inputs | Pass |  |  |
| 3 | Pass |  |  |
| 4 | Pass |  |  |
| 5 | Screen Changes | Fail |  |  |
| 6 | Correct collisions after a screen change | Fail |  |  |
| 7 |  |  |  |  |