

FREE ROAMER WORLD

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A. Project Specification

1. About the project

The project that i made is a free roamer world and is a simple 2d platformer game. The game was made by python with the pygame library implied. There can be up to two players that can play the game within one device. In this game, you can freely do parkour, roam around the world and move your character anywhere you like. I didn't really do much, but i felt like it was enough since it had classes, functions and a library.

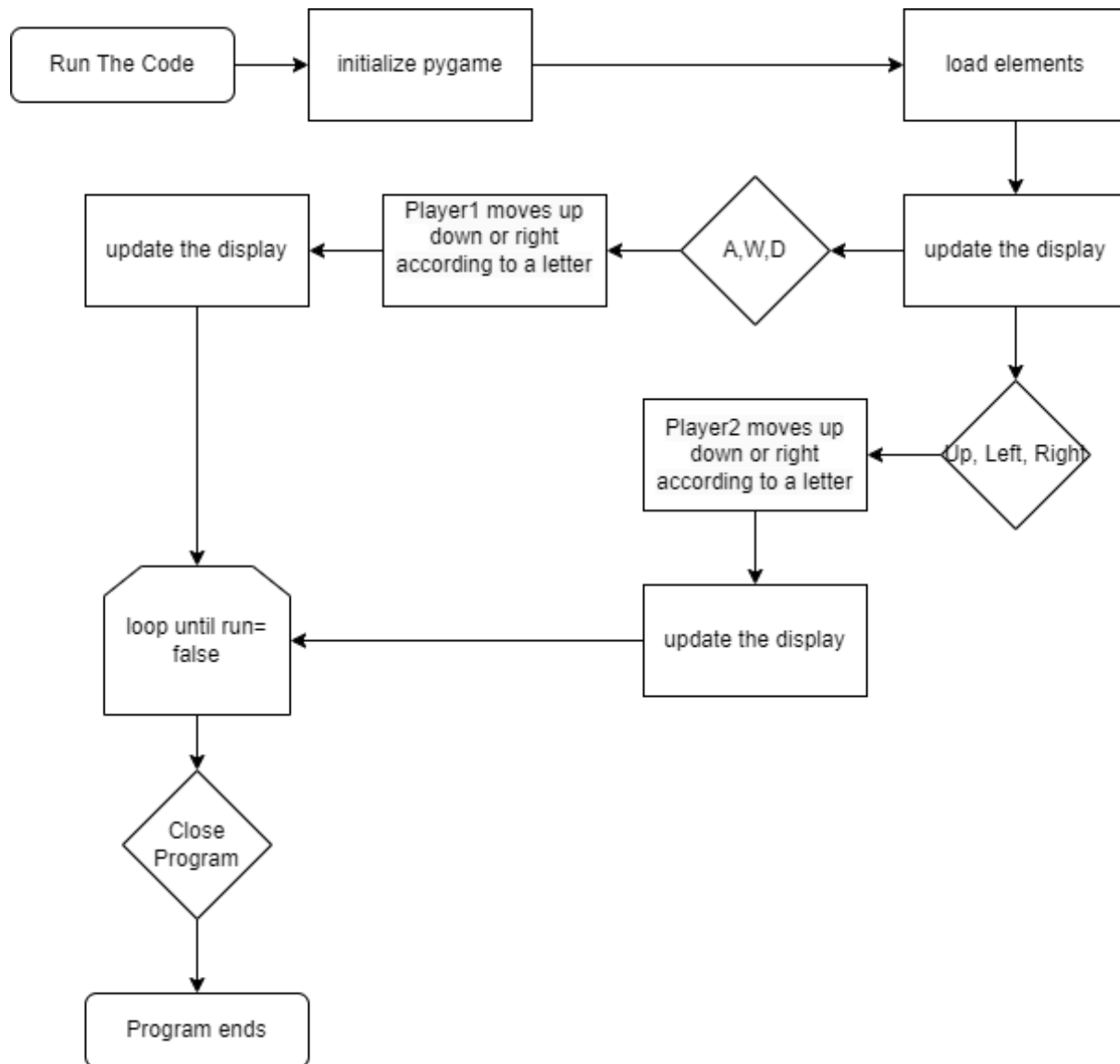
2. Designing the Project:

Designing the project was rather simple. I had to place various tiles on the map which would make the player able to walk on top of. With various blocks I was able to design the world. Adding the characters and placing them onto the world was also part of this designing project, all i needed to do was make them move and not fall out the world

hat class you can see a list that i used to place certain blocks in certain areas

B. Solution Design

We can get the solution designs over here in this flowchart. This flowchart demonstrates how the program works



C. Implementations

Components of the Project:

In this game, like I previously said before, like a lot of 2D platformer games I used pygame as the main library for my project. I also used a lot of pygame modules in this project. Here i'll briefly explain and list the libraries, modules, and classes that i used in order to make this project possible

1. Library: Pygame

I used the pygame library for this project. Pygame helps by providing essential modules to the code such as “pygame.display” to modify the display and “pygame.draw” to draw rectangles and lines, and pygame.image to . Overall these libraries.

2. Modules

I used an assortment of modules such as display, image, draw, transform, key, and event. Here are some simple explanations on what these do:

Draw: draws something on the GUI, i used this to create lines and rectangles

Display: to modify the display of the GUI

Transform: to change the size of objects, i used this to resize blocks

Key: to asses keys for various purposes, which i used to move the characters

Event: to update the events of the run loop

3. Classes

I used three separate classes for this project, two player classes and the world class. Both player classes contain a function that shows player properties such as their size via transform and its initial velocity being zero. The player class also has the key module enabling them to move with the presses of certain keys according to the collision applied

The other class would be the world class. It's where I store various tiles and their IDs. Each block has its own ID.

D. Screenshots and sources:

My primary source of information was youtube. It proved useful through and through. Here are also some screenshots:

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pygame_final.py x sky.jpg
pygame_final.py > World > _init_
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143 player_1 = Player1(60, 300)
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File Edit Selection View Go Run Terminal Help
pygame_final.py x sky.jpg
pygame_final.py > World > _init_
#classes
class Player1():
    def __init__(self, x, y):
        Nate = pygame.image.load('Nate1.webp')
        self.image = pygame.transform.scale(Nate, (50, 100))
        self.rect = self.image.get_rect()
        self.rect.x = x
        self.rect.y = y
        self.vel_x = 0
        self.vel_y = 0
        self.jumped = False
    def update(self):
        dx = 0
        dy = 0
        key = pygame.key.get_pressed()
        if key[pygame.K_a]:
            self.rect.x -= 5
        elif key[pygame.K_d]:
            self.rect.x += 5
        elif key[pygame.K_w] and self.jumped == False:
            self.vel_y = -15
            self.jumped = True
        elif key[pygame.K_SPACE]:
            self.jumped = True
            self.vel_y += 1
        if self.vel_y > 10:
            self.vel_y = 10
        dy += self.vel_y
        self.rect.x += dx
        self.rect.y += dy
        for tile in world.tile_list:
            if self.rect.colliderect(tile[1]):
                if dy > 0:
                    self.rect.y = tile[1].top - self.rect.height
                    self.vel_y = 0
                    self.jumped = False
                elif dy < 0:
                    self.rect.y = tile[1].bottom
                    self.vel_y = 0
```

```
File Edit Selection View Go Run Terminal Help
pygame_final.py x sky.jpg
pygame_final.py > World > _init_
#Import
import pygame, sys
from pygame.locals import *
pygame.init()
#Measurements
wdt = 1800
hgt = 1000
utrh = 700
tilex = 60
screen = pygame.display.set_mode((wdt, hgt))
pygame.display.set_caption('Free Roamer World')
bg = pygame.image.load('sky.jpg')
restarting = pygame.image.load('blocks/rstrt.png')
def draw_grid():
    for line in range(0, 40):
        pygame.draw.line(screen, (255, 255, 255), (0, line * tilex), (wdt, line * tilex))
        pygame.draw.line(screen, (255, 255, 255), (line * tilex, 0), (line * tilex, hgt))
#classes
class Player1():
    def __init__(self, x, y):
        Nate = pygame.image.load('Nate1.webp')
        self.image = pygame.transform.scale(Nate, (50, 100))
        self.rect = self.image.get_rect()
        self.rect.x = x
        self.rect.y = y
        self.vel_x = 0
        self.vel_y = 0
        self.jumped = False
    def update(self):
        dx = 0
        dy = 0
        key = pygame.key.get_pressed()
        if key[pygame.K_a]:
            self.rect.x -= 5
        elif key[pygame.K_d]:
```