2-D GAME

A Course Based Project Report Submitted in partial fulfillment of the requirements for the award of the degree of

BACHELOR OF TECHNOLOGY IN CSE (CYBER SECURITY)

Submitted by

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CERTIFICATE

This is to certify that the project report entitled " **2D GAME** " is a bonafide work done under our supervision and is being submitted by **G.SAIKISHORE(21071A6219),H.THANMAI(21071A6220)** in partial fulfillment for the award of the degree of Bachelor of Technology in CSE (CYBER SECURITY) of the VNRVJIET, Hyderabad during the academic year 2022-2023.

Certified further that to the best of our knowledge the work presented in this thesis has not been submitted to any other University or Institute for the award of any Degree or Diploma.

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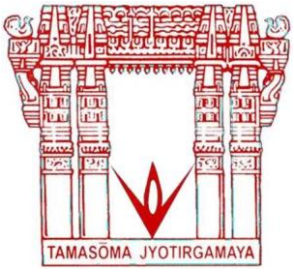

DECLARATION

We declare that the major project work entitled "2D Game" submitted in the department of CSE(CYS), Vallurupalli Nageswara Rao Vignana Jyothi Institute of Engineering and Technology, Hyderabad, in partial fulfillment of the requirement for the award of the degree of **Bachelor of Technology** in **CSE(CYS)** is a bonafide record of our own work carried out under the supervision of **P.LALITHA, Assistant Professor**. Also, we declare that the matter embodied in this thesis has not been submitted by us in full or in any part thereof for the award of any degree/diploma of any other institution or university previously.

Place: Hyderabad

ABSTRACT

Using python, the simplest language which is known for a greater number of its in built functions, 2D game has been developed .The user will be able to shoot by using the SPACE key. There will be random villain sprites which need to be taken down by the player inorder to survive. If the villain reaches the player and touches the player the player losses or if a certain number of villians passes the player with being taken down then also it will be a game over for the player. So the player need to be quick in taking down the villain sprites .This game can be implemented using basic programming concepts in Python, making it a great project for beginners to learn the basics of coding. The game is developed using the modules pygame and the starting interface is developed using the tkinter module.

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1.INTRODUCTION

The game is developed using the python language.The user will be able to shoot by using the SPACE key. There will be random villain sprites which need to be taken down by the player inorder to survive. If the villain reaches the player and touches the player the player losses or if a certain number of villians passes the player with being taken down then also it will be a game over for the player. So the player need to be quick in taking down the villain sprites .This game can be implemented using basic programming concepts in Python, making it a great project for beginners to learn the basics of coding. The game is developed using the modules pygame and the starting interface is developed using the tkinter module.For every villain taken down by the player ,the player is awarded by 10 points .The player can stop the game by clicking the x of the tab,if he chooses to resume he should to click the START or if he chooses to leave he need to click EXIT.at the end of the game the total score of the player is displayed.

2. LITERATURE SURVEY

PyGame Concepts:

As pygame and the SDL library are portable across different platforms and devices, they both need to define and work with abstractions for various hardware realities. Understanding those concepts and abstractions will help you design and develop your own games.

Initialization and Modules:

The pygame library is composed of a number of Python constructs, which include several different modules. These modules provide abstract access to specific hardware on your system, as well as uniform methods to work with that hardware. For example, display allows uniform access to your video display, while joystick allows abstract control of your joystick.

After importing the pygame library in the example above, the first thing you did was initialize PyGame using pygame.init(). This function calls the separate init() functions of all the included pygame modules. Since these modules are abstractions for specific hardware, this initialization step is required so that you can work with the same code on Linux, Windows, and Mac.

Displays and Surfaces:

In addition to the modules, pygame also includes several Python classes, which encapsulate non-hardware dependent concepts. One of these is the Surface which, at its most basic, defines a rectangular area on which you can draw. Surface objects are used in many contexts in pygame. Later you'll see how to load an image into a Surface and display it on the screen.

In pygame, everything is viewed on a single user-created display, which can be a window or a full screen. The display is created using .set_mode(), which returns a Surface representing the visible part of the window. It is this Surface that you pass into drawing functions like pygame.draw.circle(), and the contents of that Surface are pushed to the display when you call pygame.display.flip().

Images and Rects:

Your basic pygame program drew a shape directly onto the display's Surface, but you can also work with images on the disk. The image module allows you to load and save images in a variety of popular formats. Images are loaded into Surface objects, which can then be manipulated and displayed in numerous ways.

As mentioned above, Surface objects are represented by rectangles, as are many other objects in pygame, such as images and windows. Rectangles are so heavily used that there is a special Rect class just to handle them. You'll be using Rect objects and images in your game to draw players and enemies, and to manage collisions betweenthem.

3. DESIGN

3.1 REQUIREMENT SPECIFICATION

2D GAME is a simple game which is suitable for different operating systems likeWindows, Mac, and Linux. It is a user-friendly application.

Software Requirements:

IDLE (Python 3. 11 64-bit)

Hardware Requirements:

Operating System: Windows 7
Processor: Intel Core i3
Disc Space: 256MB

3.2UML Diagram:

ACTIVITY DIAGRAM:

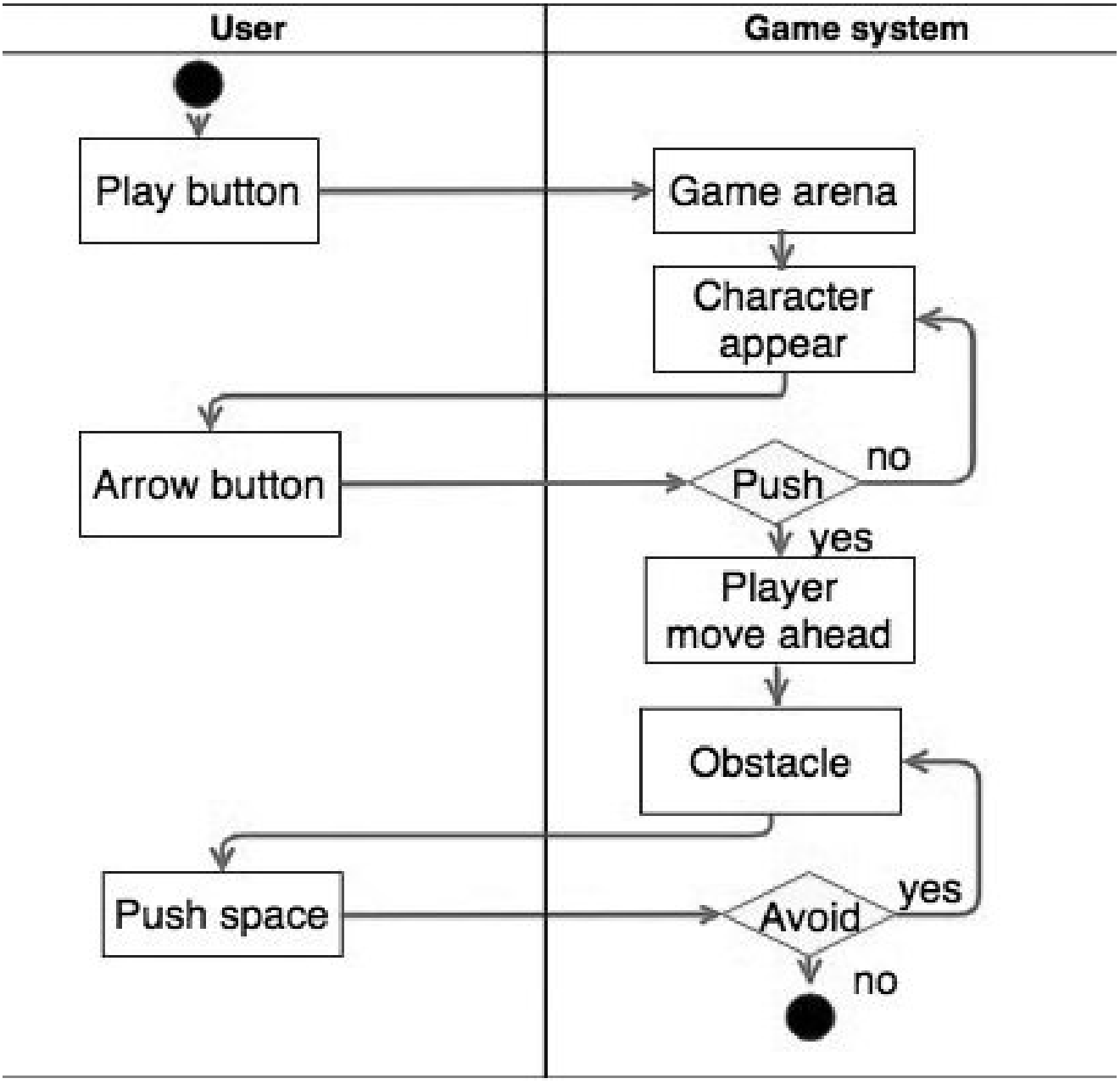


Figure shows the Activity Diagram that provides a view of the behavior of a systemby describing the sequence of actions in a process.

4.IMPLEMENTATION

CODE:

```
import tkinter as t
import pygame
import random
import time
import math
pygame.init()
rh,rbc,rde,rfg=0,0,0,0
asr=random.randint
e=asr(450,980)
h=asr(50,450)
ab=asr(450,980)
bc=asr(50,450)
cd=asr(450,980)
de=asr(50,450)
ef=asr(450,980)
fg=asr(50,450)
red=1
x=5
y=0
i=x+20
j=y+20
c=5
n=1
mscore=0
idc=pygame.image.load("C:\\Users\\Sai Sathvik Reddy\\Documents\\Codes\\back.jpg")
icd=pygame.image.load("C:\\Users\\Sai Sathvik Reddy\\Pictures\\gamepic.jpg")
idk=pygame.image.load("C:\\Users\\Sai Sathvik Reddy\\Pictures\\gamepic.jpg")
end=0
def run():
    drs=pygame.display.set_mode((1024,512))
    pygame.display.set_caption("WARRIOR HUNT")
    global mscore
    global ee
    global end
    global process
    global i
    global j
    global x
    global y
    global red
```

```
global e
global h
global ab
global bc
global cd
global de
global ef
global fg
global rh
global rbc
global rde
global rfg
process=True
ee=0
while process:
    pygame.time.delay(17)
    for event in pygame.event.get():
        if event.type==pygame.QUIT:
            process=False
    def runn():
        global ee
        global end
        global i
        global j
        global x
        global y
        global red
        global e
        global h
        global ab
        global bc
        global cd
        global de
        global ef
        global fg
        global rh
        global rbc
        global rde
        global rfg
        if e<=-20:
            e=980
            h=asr(0,450)
            end+=1
        if ab<=-20:
```

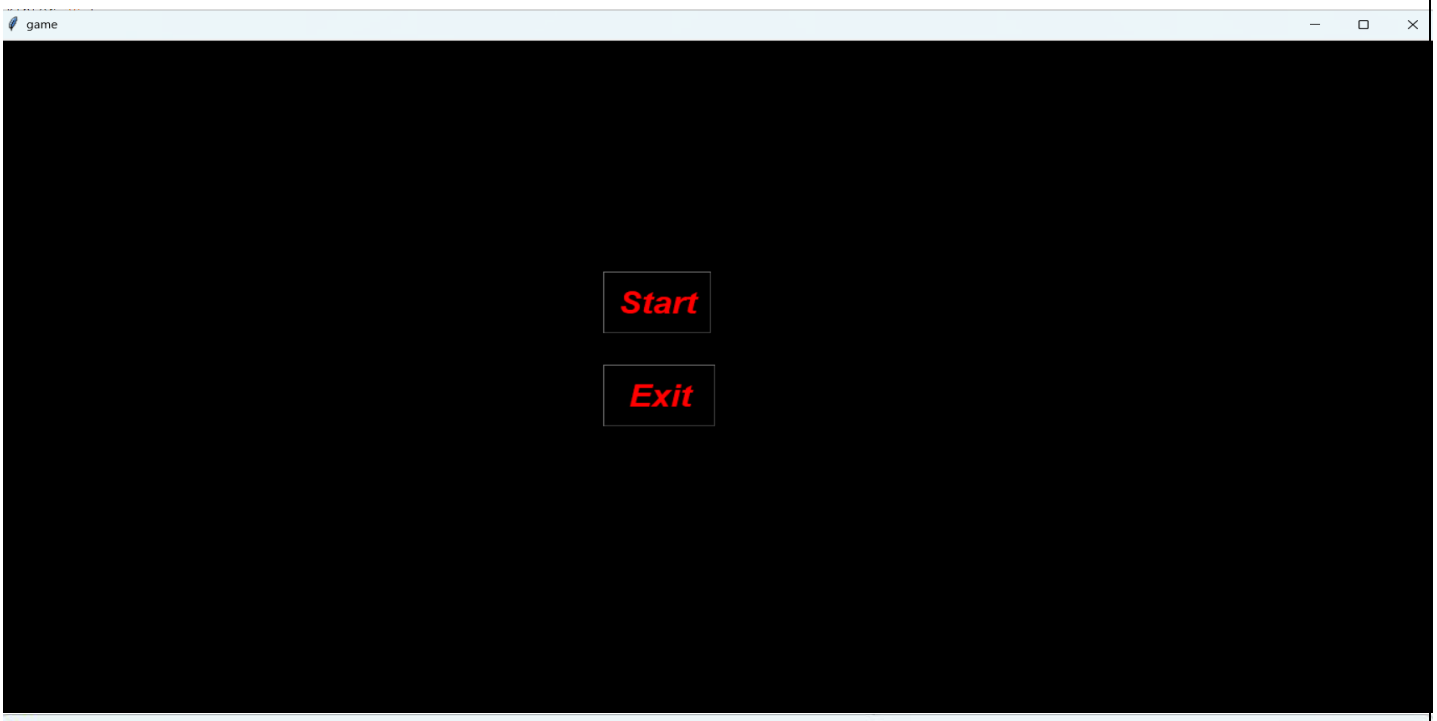
```
    ab=980
    bc=asr(0,450)
    end+=1
if cd<=-20:
    cd=980
    de=asr(0,450)
    end+=1
if ef<=-20:
    ef=980
    fg=asr(0,450)
    end+=1
if rh==0:
    h-=3
    if h<=-5:
        rh=1
if rh==1:
    h+=3
    if h>=455:
        rh=0
if rbc==0:
    bc-=3
    if bc<=-5:
        rbc=1
if rbc==1:
    bc+=3
    if bc>=455:
        rbc=0
if rde==1:
    de-=3
    if de<=-5:
        rde=0
if rde==0:
    de+=3
    if de>=455:
        rde=1
if rfg==1:
    fg-=3
    if fg<=-5:
        rfg=0
if rfg==0:
    fg+=3
    if fg>=455:
        rfg=1
if red==0:
```

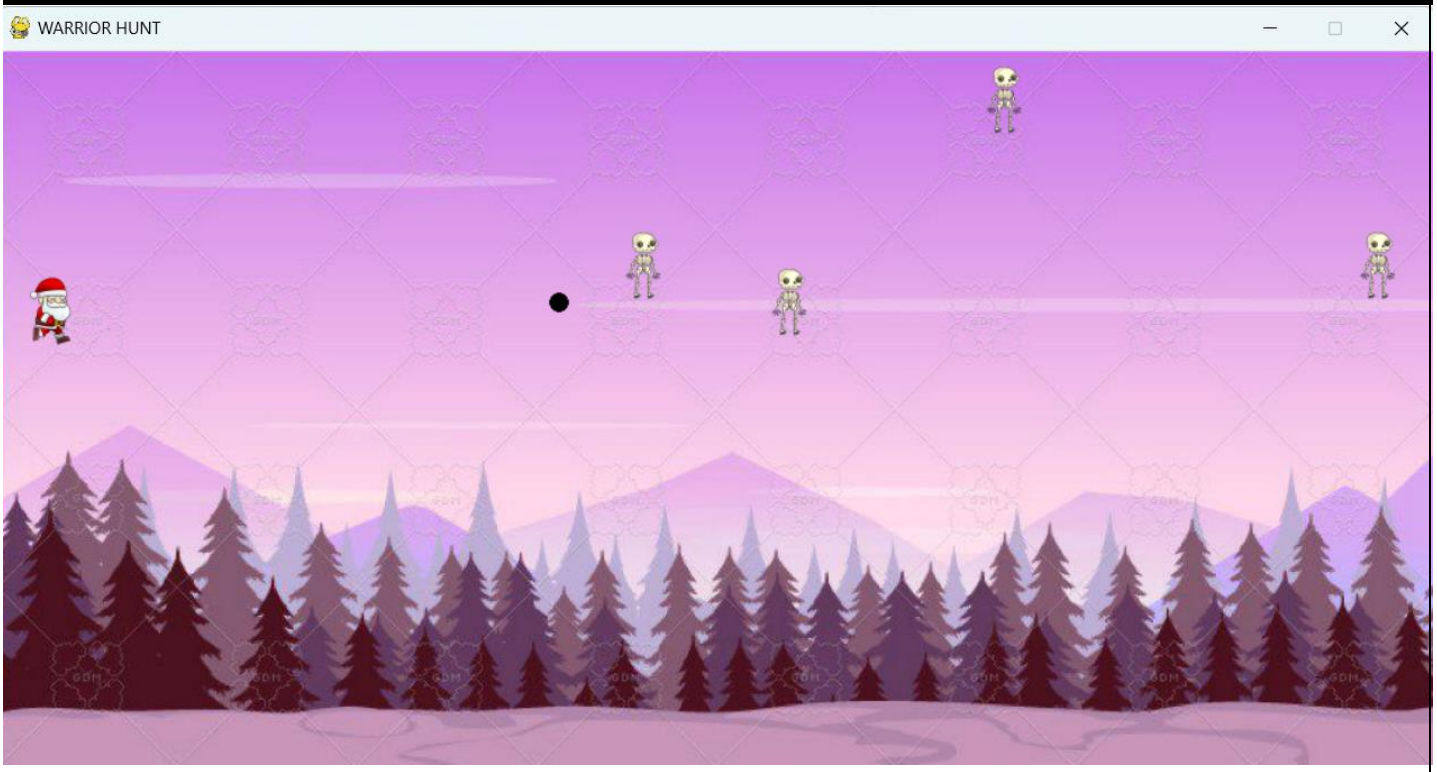
```
        i+=15
    if i>=1000:
        j=y+20
        i=x+20
        red=1
    e-=1
    ab-=1
    cd-=1
    ef-=1
    if move[pygame.K_UP] and y>2:
        y-=c
        if red==1:
            j-=5
    if move[pygame.K_DOWN] and y<460:
        y+=c
        if red==1:
            j+=5
    if move[pygame.K_SPACE]:
        red=0
move=pygame.key.get_pressed()
if move[pygame.K_p]:
    ee=1
if move[pygame.K_r]:
    ee=0
if ee==0:
    runn()
if end>=5:
    break
drs.blit(idc,(0,0))
if red==0 and ee==0:
    irs=pygame.draw.circle(drs,(0,0,0),(i,j),7)
drs.blit(icd,(x,y))
drs.blit(idk,(e,h))
drs.blit(idk,(ab,bc))
drs.blit(idk,(cd,de))
drs.blit(idk,(ef,fg))
def die(a,b,c,d):
    global dead
    dead=math.sqrt(math.pow(a-c,2)+math.pow(b-d,2))
die(i,j,e,h)
if dead<=30 and i>=e and red==0:
    e=980
    i,j=x+20,y+20
    red=1
```

```
            h=asr(0,450)
            mscore+=100
        die(i,j,ab,bc)
        if dead<=30 and i>=ab and red==0:
            ab=980
            i,j=x+20,y+20
            red=1
            bc=asr(0,450)
            mscore+=100
        die(i,j,cd,de)
        if dead<=30 and i>=cd and red==0:
            cd=980
            i,j=x+20,y+20
            red=1
            de=asr(0,450)
            mscore+=100
        die(i,j,ef,fg)
        if dead<=30 and i>=ef and red==0:
            ef=980
            i,j=x+20,y+20
            red=1
            fg=asr(0,450)
            mscore+=100
        die(x,y,e,h)
        if dead<=28:
            break
        die(x,y,ab,bc)
        if dead<=28:
            break
        die(x,y,cd,de)
        if dead<=28:
            break
        die(x,y,ef,fg)
        if dead<=28:
            break
        pygame.display.update()
    if event.type==pygame.QUIT:
        pygame.quit()
r=t.Tk()
zs=t.Canvas(r,height=768,width=1378,bg="black").pack()
r.geometry("1378x768")
r.title("game")
s=t.Button(r,text="Start",command=run,fg="red",bg="black")
exi=t.Button(r,text=" Exit ",command=r.destroy,fg="red",bg="black")
```

```
s.configure(font=("elephant","25","bold","italic"))
exi.configure(font=("elephant","25","bold","italic"))
s.place(x=580,y=250)
exi.place(x=580,y=350)
r.mainloop()
print("your score is",mscore)
```

OUTPUT:





5.RESULTS

The player can stop the game by clicking the x of the tab,if he chooses to resume he should to click the START or if he chooses to leave he need to click EXIT.at the end of the game the total score of the player is displayed**.**

6.FUTURE SCOPE

Artificial Intelligence: The future of this programming language can also be predicted by how it has helped and still helps AI technology.
Several Python frameworks, libraries, and tools are mainly developed to direct AI to overcome human efforts with enhanced efficiency for various development purposes.
Big Data: Apart from AI technology, the programming language has been successfully contributing in the domain of Big Data to analyze a large number of data sets with the help of its high-performance toolkits and libraries.
Networking: In networking, Python can be utilized for several purposes, such as reading, writing, and configuring routers and switches and performing several other networking automation tasks that are too cost-effective and secure, indicating that it holds a brighter scope and a brighter scope.

REFERENCES

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