

# COMPUTER SCIENCE PROJECT

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# Project file on “EGG DROP GAME”



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# ACKNOWLEDGEMENT

*The following game project is the outcome of hard work and effort put in by me and my teammates. I would like to appreciate them for their high-spirited participation. They shared innovative ideas for the project. This project would not have been possible without them.*

*I would also like to thank Holy Child School for providing us the opportunity and enhance our skills.*

*A special thanks to Miss Bhawna under whose guidance i was able to use my knowledge in the right direction and make this project a success.*

*I would like to express my gratitude towards my family members who supported me during project making and made sure that i face no difficulty.*

# INTRODUCTION

## GAME : EGG DROP

*“Programming is a skill best acquired by practice  
and examples rather than books”*

Playing games is fun but making games is fun too, so our group made a game which will relief you from boredom.

**“EGG DROP”** is a hit-or-miss game. It is about capturing eggs in a basket. The eggs will be dropped randomly and the basket will be constantly moving. This project file will include all the details regarding the game .

# OBJECTIVES OF THIS PROJECT

- ✓ This project is to enhance my knowledge in programming. It will give me an idea about what real programming is.
- ✓ It will improve my problem-solving skills.
- ✓ This game is meant for pleasure, fun and joy.



# Certificate

This Game named 'Egg Drop' has been satisfactorily made

By Bhavya Parashar, Pranjal Chopra and Srishti Mishra,

Studying in Holy Child School

Class XI Div. D during the academic year 2021-22.

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Teacher's signature

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Subs. Teacher's  
Signature

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Principal's signature

Date 02-01-2022

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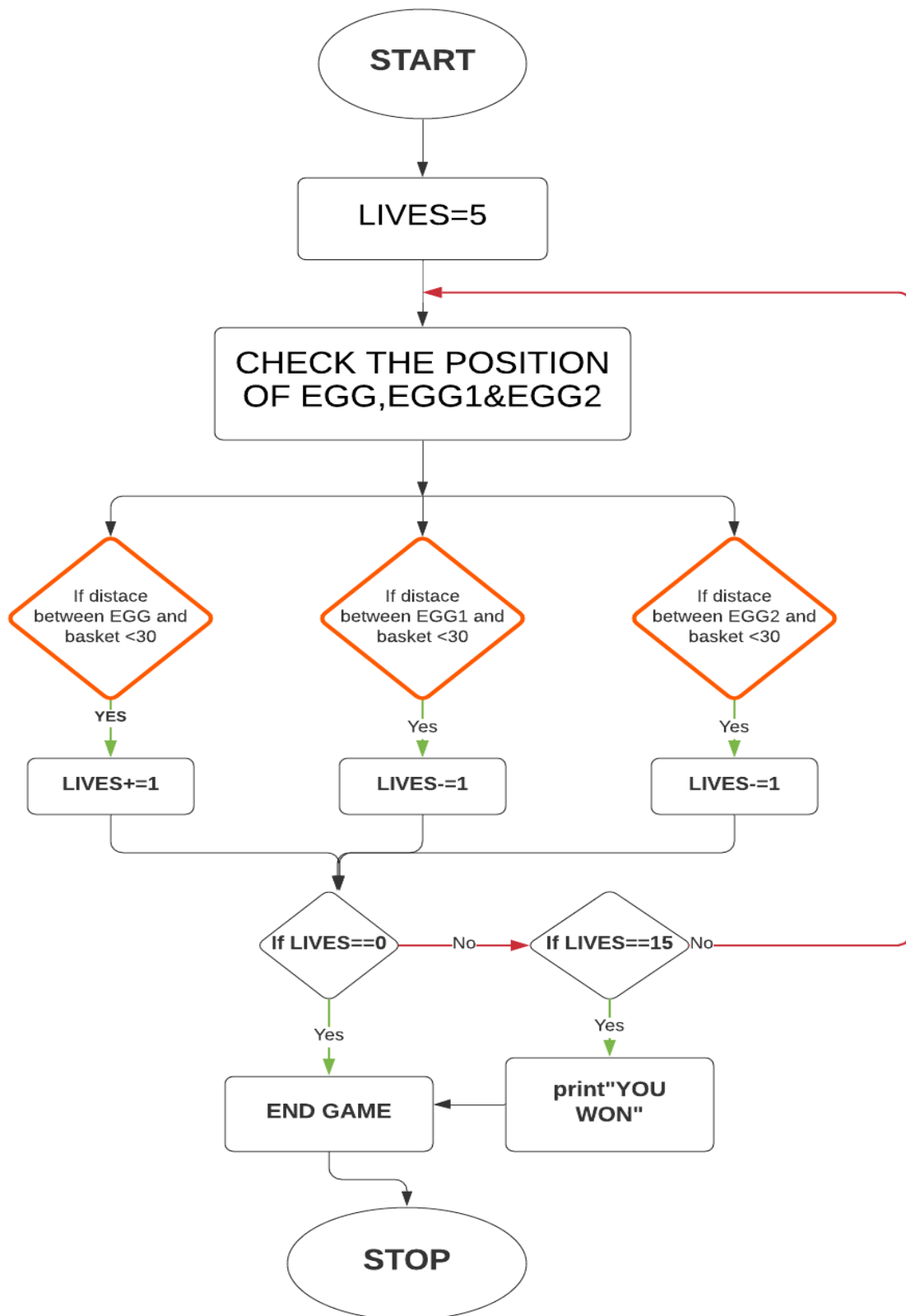
# SOFTWARE REQUIREMENTS

- ✓ Windows 10 or above
  - ✓ Python (3.7)






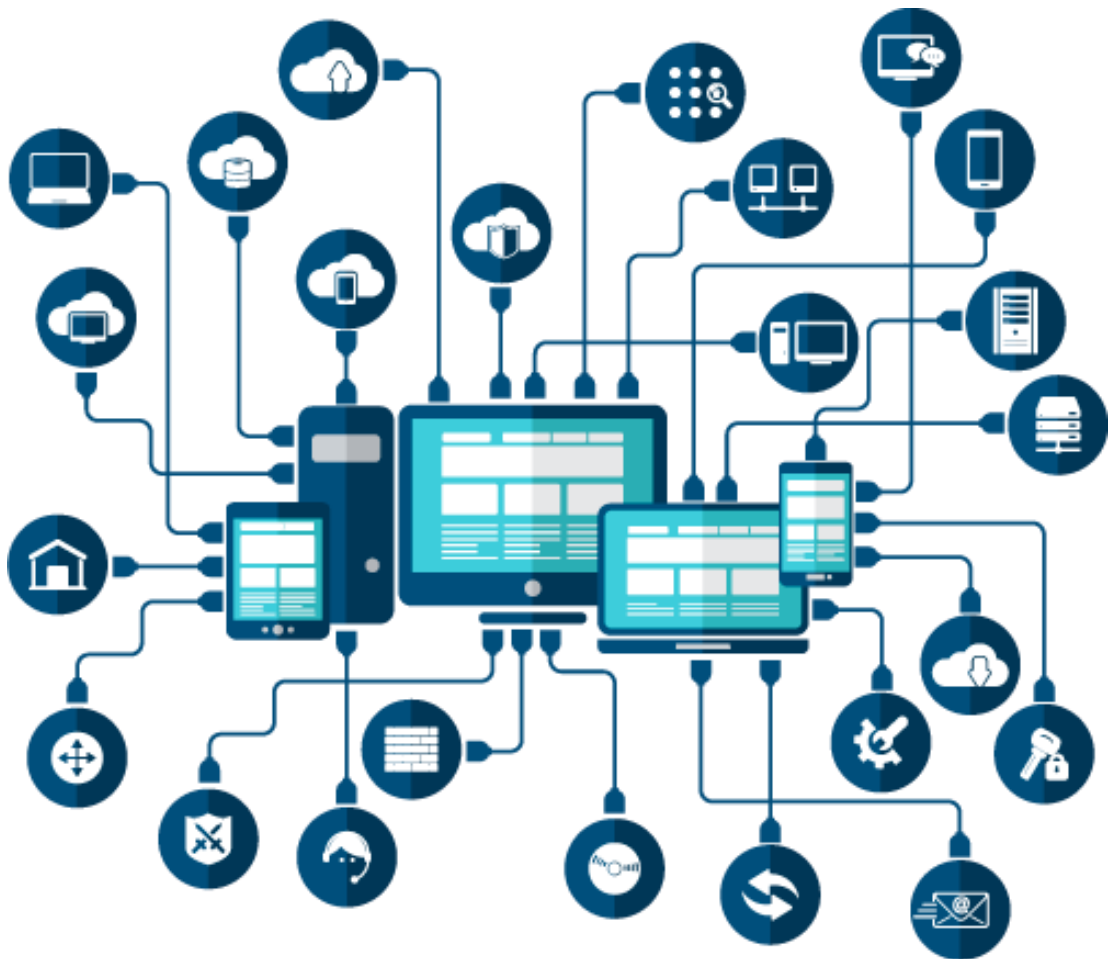


# FLOWCHART



# GLOSSARY (FLOWCHART)

-  Lives – chances
-  Eggs – eggs which are supposed to be captured
-  Eggs1 & eggs2 – eggs not to be captured



# PYTHON

Python is a high-level programming language. It is portable and platform independent. Programs of this language are easy to understand as they have a clearly defined syntax and relatively simple structure. It has a rich library of pre-defined functions.

## MODULES:

A Python module is a file containing Python definitions and statements. A module can define functions, classes and variables. Python has a variety of modules to chose from. For example:

- Tkinter
- Pygame
- Turtle

All these modules had their own pros and cons. TKINTER module can be used efficiently to add various transitions and graphics and so does PYGAME. On exploring we found that Turtle module can be used to make easy games. It can be used add texts with various fonts and also make objects functional on the screen. Hence, our team decided to go with Turtle module.



## TURTLE:

Turtle is a Python library which is used to create graphics, pictures, and games. The turtle is built in library so we don't need to install separately. We just need to import the library into our Python environment. The Python turtle library consists of all important methods and functions that we will need to create our designs and images. Import the turtle library using the following command.

### **Turtle functions:**

- ✓ goto()
- ✓ setx() , sety()
- ✓ speed()
- ✓ xcor(), ycor()
- ✓ pendown(), penup()
- ✓ clear()
- ✓ write()
- ✓ hideturtle ()
- ✓ onclick ()
- ✓ bgpic()
- ✓ addshape()
- ✓ listen()
- ✓ onkeypress()
- ✓ mainloop()

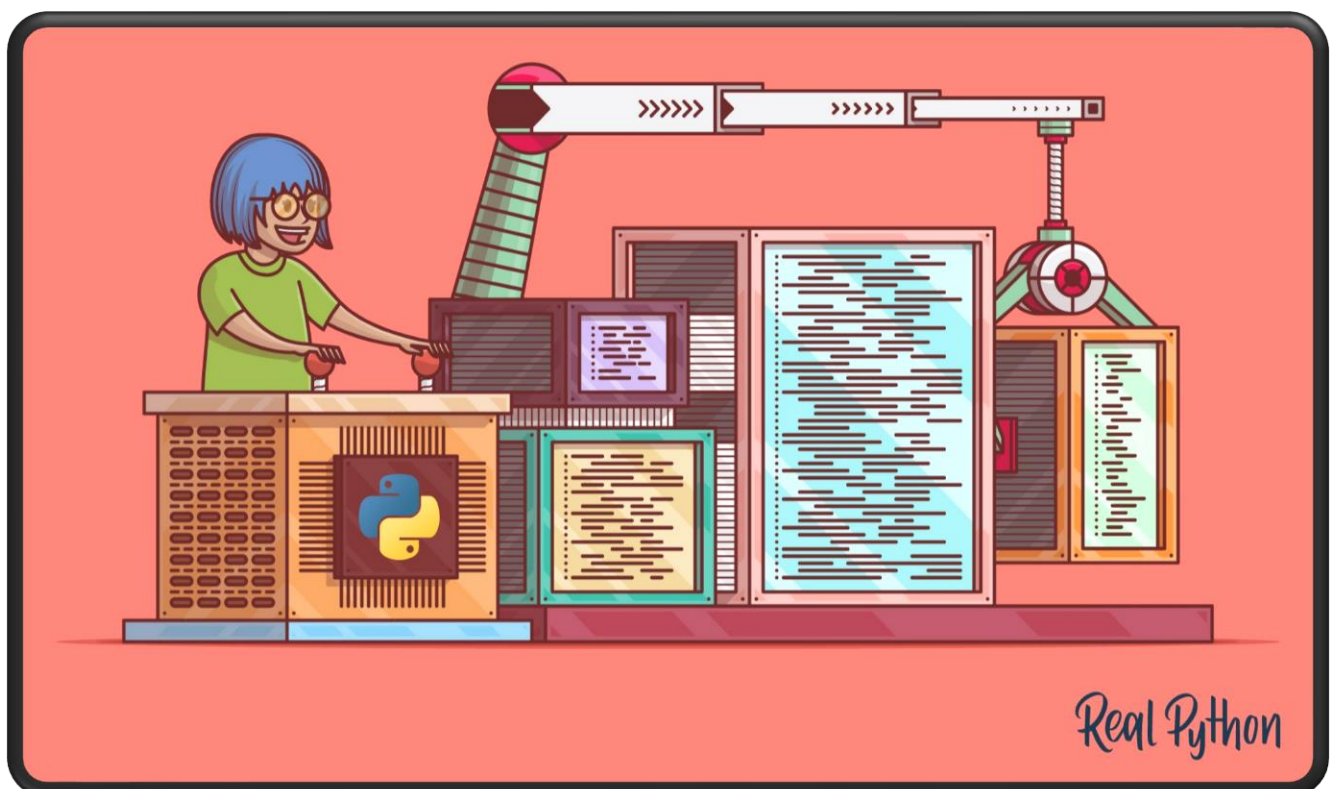


## RANDOM:

The random module is a built-in module to generate the random variables. It can be used to perform some action randomly such as to get a random number, selecting a random element from a list, shuffle elements randomly, etc.

### Random functions:

✓ randint()



Kool JAYAN

# BACKGROUND AND OBJECTS

- The first step while making the game in turtle is defining a turtle window. A suitable background is to be chosen to make the game more presentable and fun. We can create a turtle window by using the statement “game = turtle.Screen()”.
- The addshape() function is used to add a turtle shape to the screen. The function bgpic() is used to add background picture to the turtle screen. Turtle accepts images in “.gif” format only.
- A small square was inserted as a basket. On ensuring it's proper functioning, a picture of basket in “.gif” format was added in place of the square box. These changes enhanced the visuals of the game.

## THE EGGS

There are three eggs in the game named as eggs , eggs1 & eggs2. These three eggs are separated by 2 colors 'BURLYWOOD' & 'SIENNA'.

## THE BASKET

The following functions were defined for movement of the basket:

### 1. *go\_left*

When **left arrow key** is pressed, this function will relocate the basket 20 units towards the left.

### 2. *go\_right*

When **right arrow key** is pressed, this function will relocate the basket 20 units towards the right.

# HIT OR MISS

*There are two possibilities:*

## *1)The eggs will collide with the basket*

*When the distance between an egg and the basket is less than 30 units, provided that the  $x$ -coordinate is same ,it will be assumed as a collision. After collision the lives will either increase or decrease depending upon the type of egg captured.*

## *2)The eggs will miss the basket*

*On reaching the bottom of the screen , the eggs will be sent back to the initial position. The coordinates of new initial position are chosen randomly using randint() function*



# WINNING CRITERIA

Winning criteria for the game is as follows:

- ✓ Five **LIVES** will be assigned initially.
- ✓ On capturing a *good egg* the **LIVES** will be increased by 1.
- ✓ As soon as **LIVES** reach the number 15, the player wins and the game terminates.
- ✓ On capturing a *brown egg* the **LIVES** will decrease by 1.
- ✓ As soon as **LIVES** hit ZERO, the player loses.

# DISPLAYING LIVES AND INSTRUCTIONS

- In any game a set of instruction is required in order to understand and play the game properly.
- Lives is the winning criteria in our game. The addition and subtraction of the lives depends upon the type of eggs you collect in the basket.
- Write() and clear() functions are useful in displaying text on turtle screen. Different font size and styles can be used to make the text look more appealing. Example- `'ALGERIAN', 64, 'BOLD' & 'Courier', 20, 'bold'`

# VARIABLES

- Lives - chances
- Text1 - printing winning target
- Eggs - eggs which are supposed to be captured
- Eggs1 & eggs2 - eggs which are not supposed to be captured.
- l - printing lives
- basket - basket to capture eggs
- go\_left - function to move left
- go\_right - function to move right
- x - x coordinate
- y - y coordinate
- stop - printing 'YOU WON' or printing 'OUT OF LIVES'

# CODE

```
import turtle
import random

lives=5

game= turtle.Screen()
game.title('Egg Drop')
game.addshape('C:\Game project B\BG.gif') #line6
game.bgpic('C:\Game project B\BG.gif') #line7
game.setup(width=900, height=100)

#adding basket
#basket
basket= turtle.Turtle()
basket.speed(0)
game.addshape('C:\Game project B\BSS.gif') #line12
basket.shape('C:\Game project B\BSS.gif') #line13
basket.penup()
basket.goto(0,-200)
basket.direction='stop'

#instructions
egg= turtle.Turtle()
egg.speed(0)
egg.shape('circle')
egg.color('burlywood')
```

```

egg.shapesize(outline=14)
egg.penup()
egg.goto(-310,300)

text1=turtle.Turtle()
text1.penup()
text1.goto(-650,280)
style= ('Courier', 20, 'bold')
text1.color('red')
text1.write('Winning target : 15    eggs .',font=style, align='left', move='True')
turtle.hideturtle()
l=turtle.Turtle()
l.write('Lives:{}'.format(lives), font=style)
l.penup()

#falling eggs
eggs= turtle.Turtle()
eggs.speed(0)
eggs.shape('circle')
eggs.color('burlywood')
eggs.shapesize(outline=7)
eggs.penup()
eggs.goto(0,300)
eggs1= turtle.Turtle()
eggs1.speed(0)
eggs1.shape('circle')
eggs1.shapesize(outline=7)

```

```
eggs1.color('sienna')
eggs1.penup()
eggs1.goto(-140,255)
eggs2= turtle.Turtle()
eggs2.speed(0)
eggs2.shape('circle')
eggs2.color('sienna')
eggs2.shapesize(outline=7)
eggs2.penup()
eggs2.goto(180,245)
stop=turtle.Turtle()

def go_left():
    basket.direction='left'
def go_right():
    basket.direction='right'
#keyboard binding
game.listen()
game.onkeypress(go_left,'Left')#keyboard keys
game.onkeypress(go_right,'Right')

#main game loop
while lives>0:
    #move basket
    x=basket.xcor()
    if basket.direction=='left':
        x-=20
        basket.setx(x)
```

```
elif x>650:
    basket.direction=('stop')
if basket.direction=='right':
    x+=20
    basket.setx(x)
elif x<-650:
    basket.direction=('stop')
```

```
#falling eggs
y= eggs.ycor()
y-=7
eggs.sety(y)
#check if off the screen
if y<-300:
    x= random.randint(-650,650)
    y= random.randint(300,400)
    eggs.goto(x,y)
# check for the collision with basket
if eggs.distance(basket) < 30:
    x= random.randint(-650,650)
    y= random.randint(300,400)
    eggs.goto(x,y)
    lives+=1
if (eggs1.distance(basket) < 30):
    x= random.randint(-650,650)
    y= random.randint(300,400)
    eggs1.goto(x,y)
```

```
lives-=1
```

```
if (eggs2.distance(basket) < 30):
```

```
    x= random.randint(-650,650)
```

```
    y= random.randint(300,400)
```

```
    eggs2.goto(x,y)
```

```
    lives-=1
```

```
#falling eggs1
```

```
y= eggs1.ycor()
```

```
y-=7
```

```
eggs1.sety(y)
```

```
#check if off the screen
```

```
if y<-300:
```

```
    x= random.randint(-650,650)
```

```
    y= random.randint(300,400)
```

```
    eggs1.goto(x,y)
```

```
#falling eggs2
```

```
y= eggs2.ycor()
```

```
y-=7
```

```
eggs2.sety(y)
```

```
#check if off the screen
```

```
if y<-300:
```

```
    x= random.randint(-650,650)
```

```
    y= random.randint(300,400)
```

```
    eggs2.goto(x,y)
```



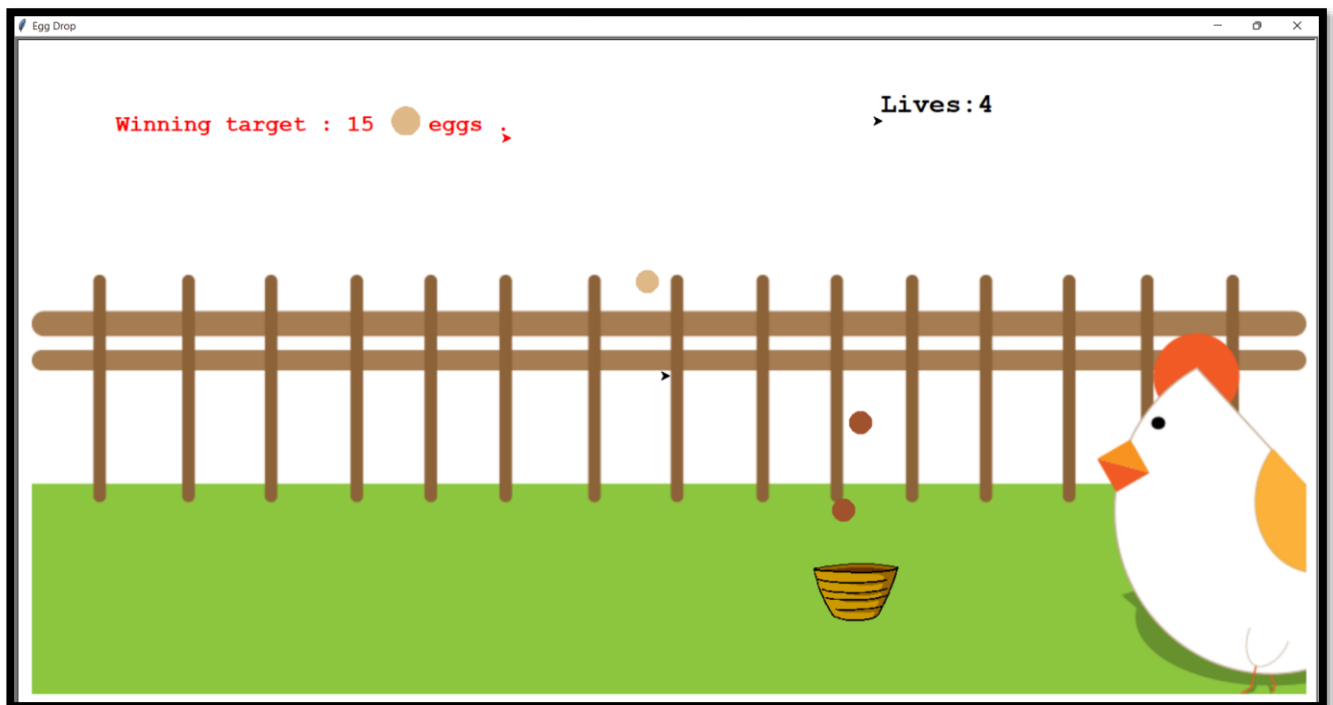
```

#printing lives
style= ('Courier', 24, 'bold')
l.goto(250,300)
l.clear()
l.write('Lives:{}'.format(lives), font=style)
l.penup()

if lives==15:
    style=('Algerian', 64, 'bold')
    turtle.hideturtle()
    stop.color('red')
    stop.penup()
    stop.goto(-250,-300)
    stop.write('!!!YOU WON!!!', font=style)
    break
else:
    style= ('Casteller', 54, 'bold')
    turtle.hideturtle()
    stop.color('blue')
    stop.penup()
    stop.goto(-400,-300)
    stop.write('YOU ARE OUT OF LIVES \n      GAME OVER', font=style)
game.mainloop()

```

# OUTPUT





# BIBLIOGRAPHY

- [https://www.youtube.com/redirect?event=video\\_description&redir\\_token=QUFFLUhqBGNlOG5BTWp3SzBxSDdfLXdXVTgyd2NwYzBBUXxBQ3JtcotsaUktQTdLLWxGSUplZTVsZEZTUm5aSEdtNFlhMHBDRXZMdnJUOUVPWWpMdlFQM2lNaFk3SlJQSWEwbE1pUnotTEpWaopWTjhTeHZsYoJ5aoFNd3RTTm5MSl9STGkwNFRSYVJlcVB3bUdxNHVDWGUoRQ&q=https%3A%2F%2Fdocs.python.org%2F3.3%2Flibrary%2Fturtle.html&v=pxKu2pQ7ILo](https://www.youtube.com/redirect?event=video_description&redir_token=QUFFLUhqBGNlOG5BTWp3SzBxSDdfLXdXVTgyd2NwYzBBUXxBQ3JtcotsaUktQTdLLWxGSUplZTVsZEZTUm5aSEdtNFlhMHBDRXZMdnJUOUVPWWpMdlFQM2lNaFk3SlJQSWEwbE1pUnotTEpWaopWTjhTeHZsYoJ5aoFNd3RTTm5MSl9STGkwNFRSYVJlcVB3bUdxNHVDWGUoRQ&q=https%3A%2F%2Fdocs.python.org%2F3.3%2Flibrary%2Fturtle.html&v=pxKu2pQ7ILo)
- <https://www.geeksforgeeks.org/python-turtle-tutorial/>
- <https://youtu.be/MDvJGhbMxnc>

