

Object Oriented Programming with Python

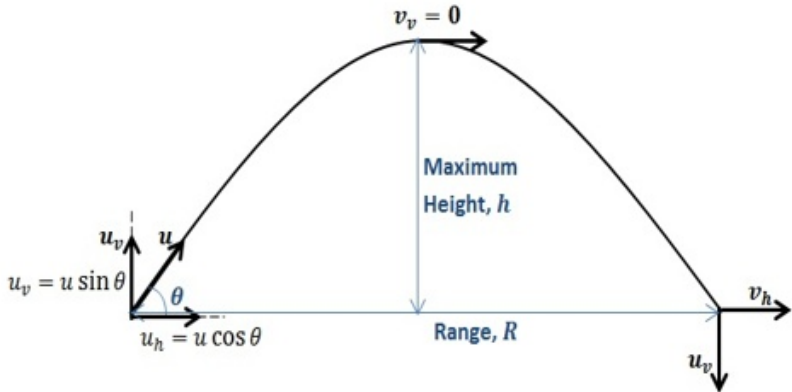
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Session 08

Content

- Lets refactor our static functions
- Lets introduce constants
- Use our Physics lib
- Physics in games
- Introducing pygame

Physics



Physics formulas

$$V_{ox} = V_o * \cos <angle>$$

$$V_{oy} = V_o * \sin <angle>$$

$$DistX = V_{ox} * time$$

$$T = 2V_o \sin<angle>$$

$$DistY = (V_{oy} * T) + ((-gavity * (T)**2)/2)$$

Where: V_o = initial velocity V_{ox} = initial velocity in X V_{oy} = initial velocity in Y T = run time $DistX$ = Distance in axis X $DistY$ = Distance in axis Y or height

Refactor Physics Lib

In session-07 we tried to use the library with static function but until use them we need to make some changes into them

Constants

```
# Constants in python use capital letters  
# Different ways to define into a project  
# Could be defined out of the class in the top  
# or into a different file (constants.py)  
GRAVITY = 9.8
```

Static Methods/Functions

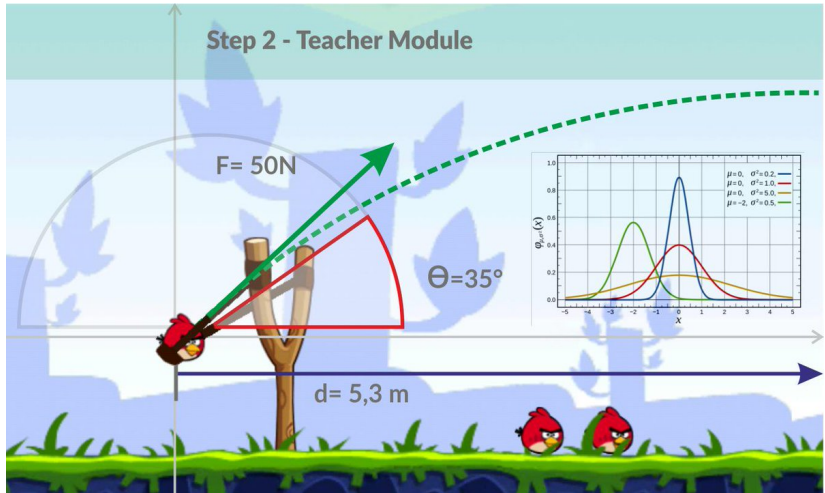
```
# to use static methods you can use the  
# following decorator  
# Static functions not have the self parameter  
@staticmethod  
def my_method():  
    pass
```

Use the new Physics lib

A goalkeeper shoot the ball out of his goal with velocity 26 m/s and 40 grade. Calculate:

- The max height
- The distance
- The time that the ball would be in the air

Physics in games



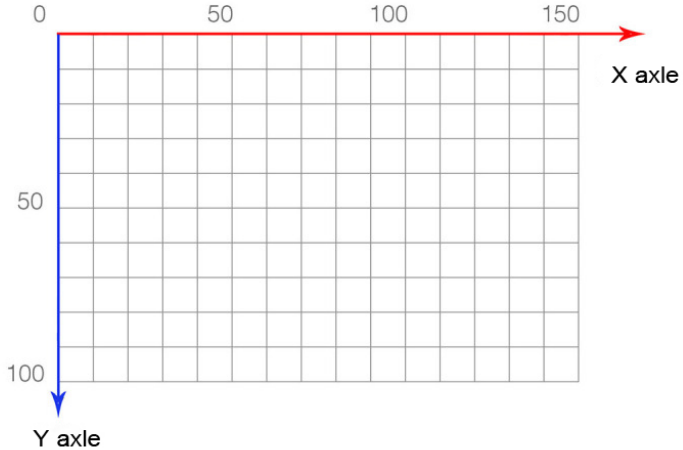
Pygame

“Is a set of python modules designed for writing video games. Pygame adds functionality on top of the excellent SDL (Simple DirectMedia Layer) library”

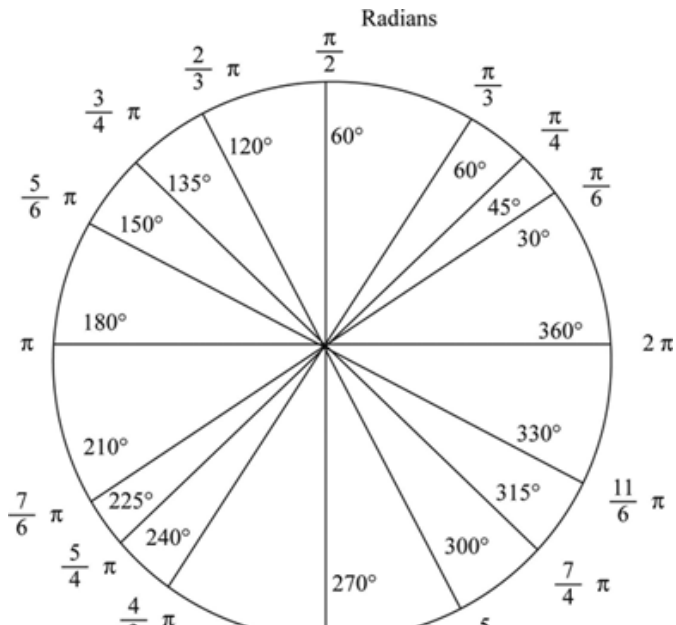
www.pygame.org/wiki/about

Lets start with basics

Computer axis



Radians for parabolic movement



Radians used in computer games

