Python Games

Session 6

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Rules

"Above all, be cool."

General Information

Wi-Fi Name: CoderDojo

Password: coderdojowireless

Website: http://cdathenry.wordpress.com/

Useful Links

Recommended reading:
http://inventwithpython.com

Reference Guide

http://www.tutorialspoint.com/python/

Social Media

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Installation

As we will be moving on to graphical games we will need to install both Python and Pygame*

* If you have Python 3.x.x and Pygame installed you can ignore the next slide

Installation

We are using version 3.2 of Python go to
https://www.python.org/download/releases/3.2.5/

Select Windows x86 MSI Installer (3.2.5)

To install Pygame go to

http://pygame.org/download.shtml
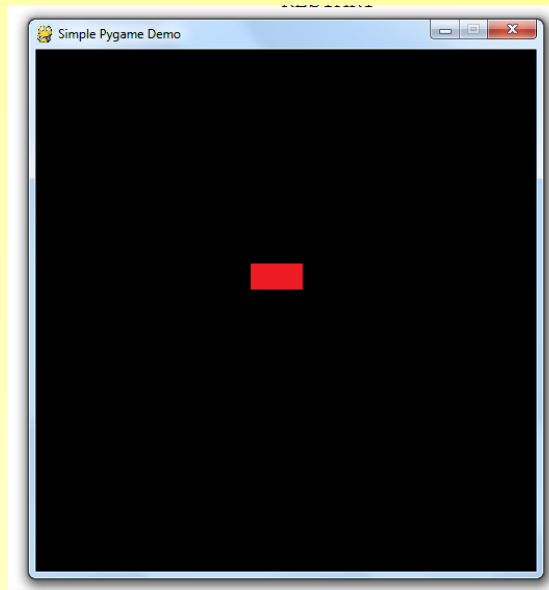
Select pygame-1.9.2a0.win32-py3.2.msi

Pygame

Pygame is a set of Python modules designed for writing video games.
It includes computer graphics and sound libraries designed to be used with Python.

A Simple Pygame Demo

We are going to look at a program that has a few basic Pygame concepts.

[Download Demo Code](#)

A Simple Pygame Demo

```
import pygame
from pygame.locals import *
```

The first line imports the Pygame module
The second line imports constants that are already set up in python which we will use to access the keyboard.

```
pygame.init()
screen = pygame.display.set_mode((480,500))
```

These lines start Pygame and set up the display window

A Simple Pygame Demo

```
player = pygame.image.load("resources/images/block.png")
```

This line loads our image into memory

```
block_x = 200
block_y = 200
keys=[False,False,False,False]
```

Here we set up some variables
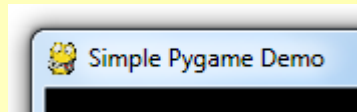block_x and block_y are the x and y positions
of our block sprite
keys is a list of Boolean values which we will
use for our arrow keys

A Simple Pygame Demo

```
main_loop = 1
while main_loop:
```

Here we set up our main program loop. In Pygame the illusion of sprites moving around is created by constantly updating the screen.

```
pygame.display.set_caption('Simple Pygame Demo')
```

Simple Pygame Demo

This sets up our window caption

```
screen.fill(0)
```

This fills the screen with black

A Simple Pygame Demo

```
screen.blit(player,(block_x,block_y))
```

This draws our sprite on the screen (display surface)

```
pygame.display.flip()
```

This updates the screen

```
for event in pygame.event.get():
```

In Pygame all interactions with the program are called events. This line checks for such events.

A Simple Pygame Demo

```
if event.type==pygame.QUIT:
```

If the close button is pressed

```
if event.type == pygame.KEYDOWN:
```

Is there a key being pressed

```
if event.type == pygame.KEYUP:
```

Is there a key being released

```
if event.key==K_LEFT:
```

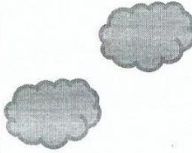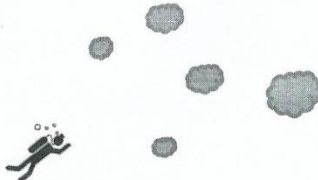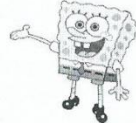Is there something happening to the left arrow key

This is not a game

Last Saturday we visited MODS (Massive Open Dojo Session) at NUI Galway. Thanks to Karl from CoderDojo Galway City and Michael from our own CoderDojo for organising it.

We were set a challenge there to create a game about cleaning up the oceans. We were given the following sheet.

This is not a game

Scratch Story Board Template – Scuba Diver cleans up the Oceans Game

Instructions

To clean up the oil spill in the ocean a scuba diver will shoot dispersants which will break up the oil and speed its natural biodegradation.

Explain how to use game and show what keys will make things work

Show the underwater scene

Scuba diver must shoot the oil spill with dispersants. **Animate background for visual effect – underwater fish – grasses**

Hitting the Oil Spill with dispersant will split the spill in two.

What happens if you lose.

If the scuba diver is touched by the oil he loses his life.

The Game is Over!

How to Succeed.

Hitting a part of the oil spill and breaking it up into a very small part will make it disappear completely.

To move to the next level clear all the oil.

The game will progress to the next level ......

Ideas for higher levels ......
Pollution / plastics / Beer Can Holders / Toxic Waste /
Save the whale

Make a new storyboard for each level

This is not a game

Next session

We're going to work on our ocean game, we'll also look at lists and for loops and at collision detection.