

## Lecture: 5-1

- Prerequisites for this lecture are: 4-1, 4-2 and 4-3.

## John Romero Programming Proverbs

- 5. “We are our own best testing team and should never allow anyone else to experience bugs or see the game crash. Don’t waste others’ time. Test thoroughly before checking in your code.”
- John Romero, “The Early Days of Id Software - John Romero @ WeAreDevelopers Conference 2017”

# PyGame

- [PyGame documentation](http://www.pygame.org/docs)  $\langle$ `http://www.pygame.org/docs` $\rangle$

- can set the window size by:

- ```
import pygame

pygame.init ()
screen = pygame.display.set_mode([width, height])
...
```

- notice the parameter is a list (or tuple) of two components (x, y)

# PyGame

- you can put this into full screen mode via:

- ```
from pygame.locals import *  
  
screen = pygame.display.set_mode([width, height], FULLSCREEN)  
...
```

- you can toggle this in game via:

- ```
pygame.display.toggle_fullscreen()
```

## Defining colours

- colours can be defined using rgb triples

- ```
black = (0, 0, 0)
white = (255, 255, 255)
brightred = (255, 0, 0)
brightgreen = (0, 255, 0)
brightblue = (0, 0, 255)
```

- it is worth spending a little time adjusting the colours to match your aesthetic aspirations


## Defining colours



```
wood_light = (166, 124, 54)
wood_dark = (76, 47, 0)
blue = (0, 100, 255)

dark_red = (166, 25, 50)
dark_green = (25, 100, 50)
dark_blue = (25, 50, 150)
```

## Drawing objects: circle



```
#!/usr/bin/env python3

import pygame, sys
from pygame.locals import *

dark_blue = (25, 50, 150)
black = (0, 0, 0)

height = 300
width = 400
```

## Drawing objects: circle

```
pygame.init()
screen = pygame.display.set_mode([width, height])
pygame.draw.circle(screen, dark_blue, (50, 90), 30, 0)
pygame.display.flip()

while True:
    for event in pygame.event.get():
        if event.type == pygame.QUIT:
            sys.exit(0)
        if event.type == KEYDOWN:
            if event.key == K_ESCAPE:
                sys.exit(0)
```



## Notes for the circle example

- the parameters for `circle` are as follows:
  - `screen` the surface on which to draw the circle
  - `dark_blue` colour of the circle
  - `(50, 90)` x, y coordinate, although remember 0, 0 is top left
  - `30` the radius of the circle
  - `0` thickness of the circle, 0 means fill it completely
  
- please refer to the [PyGame documentation](http://www.pygame.org/docs/ref/draw.html) `<http://www.pygame.org/docs/ref/draw.html>` for more examples and details

# Keyboard input

- in the last example the code at the end introduced minimal keyboard handling

```
while True:
    for event in pygame.event.get():
        if event.type == pygame.QUIT:
            sys.exit(0)
        if event.type == KEYDOWN:
            if event.key == K_ESCAPE:
                sys.exit(0)
```

## Keyboard input

- can test key goes down or up and which key etc
- the function `pygame.event.get()` will return a list of all pending events seen by pygame
- modify the code to print out the event
- what happens if you click the mouse button?