



# M4102 – Prog. réseau

~~Année~~ 2015/2016

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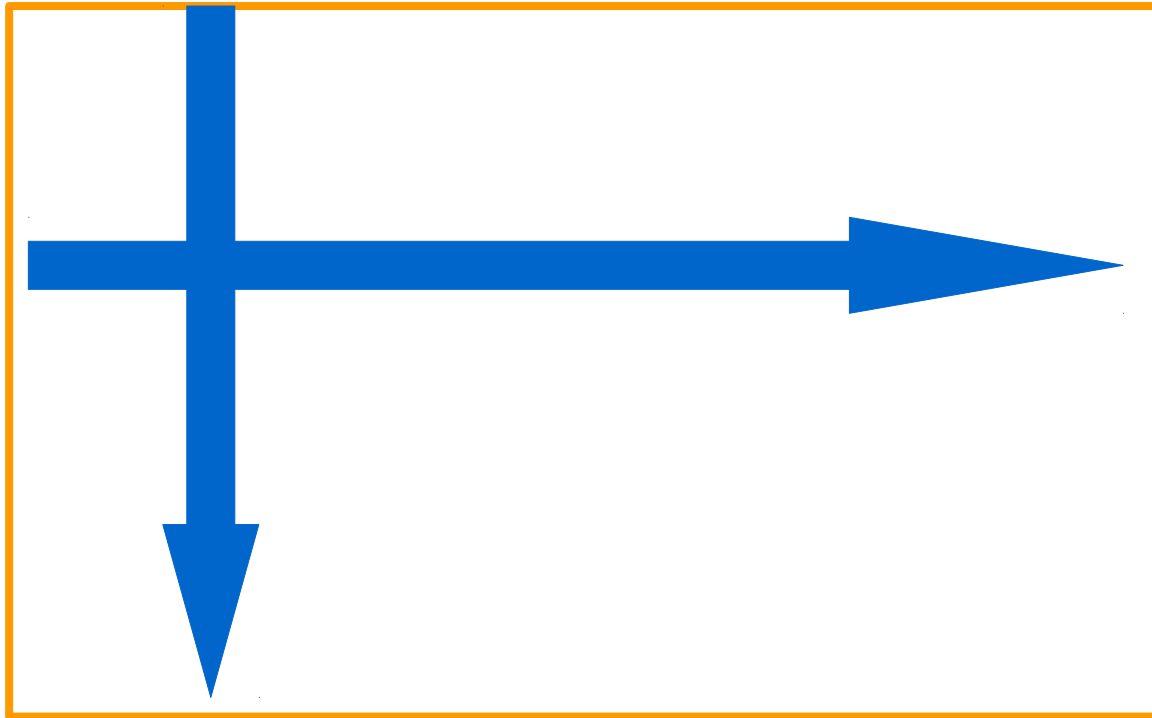
# Introduction à Pygame

# Pygame

- Module for game creation
- Super easy to use
- [www.pygame.org/news.html](http://www.pygame.org/news.html)
- old tutorial

# Screen

$[0,0]$



$[width, height]$

# Image

x,y  
top, left, bottom, right  
topleft, bottomleft, topright,  
bottomright  
midtop, midleft, midbottom,  
midright  
center, centerx, centery  
size, width, height  
w,h

**rect**



**image**

# Structure

Classes/  
Functions

```
# Functions & Classes
class Ship(pygame.sprite.Sprite):
    ...
```

runs once

```
# Initializations
pygame.init()
...

# Objects creation
ship = Ship()
...
```

infinite loop

movements

```
# MAIN LOOP
while True:

    # events handling
    for event in pygame.event.get():
        ...

    # update
    ship.update()
    ...

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

user actions

# Classes :

## pygame.sprite.Sprite

```
class Vaisseau(pygame.sprite.Sprite):
```

```
    def __init__(self):  
        pygame.sprite.Sprite.__init__(self)  
        self.image, self.rect = load_png('vaisseau.png')
```

```
    def update(self):  
        self.rect = self.rect.move([1,1])
```

must be defined

deplacement

image

# Initializations

screen creation

```
# Initializations
pygame.init()
screen = pygame.display.set_mode((SCREEN_WIDTH, SCREEN_HEIGHT))
clock = pygame.time.Clock()
pygame.key.set_repeat(1,1)
```

game speed

better gameplay



# Objects creation

**basic image (background)**

```
# Objects creation  
background_image, background_rect = load_png('Pics/background.jpg')
```

```
ship = Ship()
```

```
ship_sprite = pygame.sprite.RenderClear()  
ship_sprite.add(ship)
```

**simple sprite**

**sprite group**

# Update

**# update**

`ship.update()`

**simple sprite**



`ship_sprite.update()`

**sprite group**



# Drawing

**background first**

```
# display
```

```
screen.blit(background_image, background_rect)
```

```
ship.blit(ship_image, ship_rect)
```

```
ship_sprite.draw(screen)
```

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

**simple sprite**

**sprite group**

**mandatory**

# Event handling

events (inc. keys)

```
for event in pygame.event.get():  
    if event.type == pygame.QUIT:  
        return
```

```
touches = pygame.key.get_pressed()  
if(touches[K_LEFT]):  
    ship.left()  
if(touches[K_RIGHT]):  
    ship.right()  
if(touches[K_q]):  
    return
```

better way (for keys)

# Object interactions

**sprite (groups)**

```
|  
pygame.sprite.groupcollide(foes_sprites, shots_sprites,  
True, True, pygame.sprite.collide_circle_ratio(0.7))
```

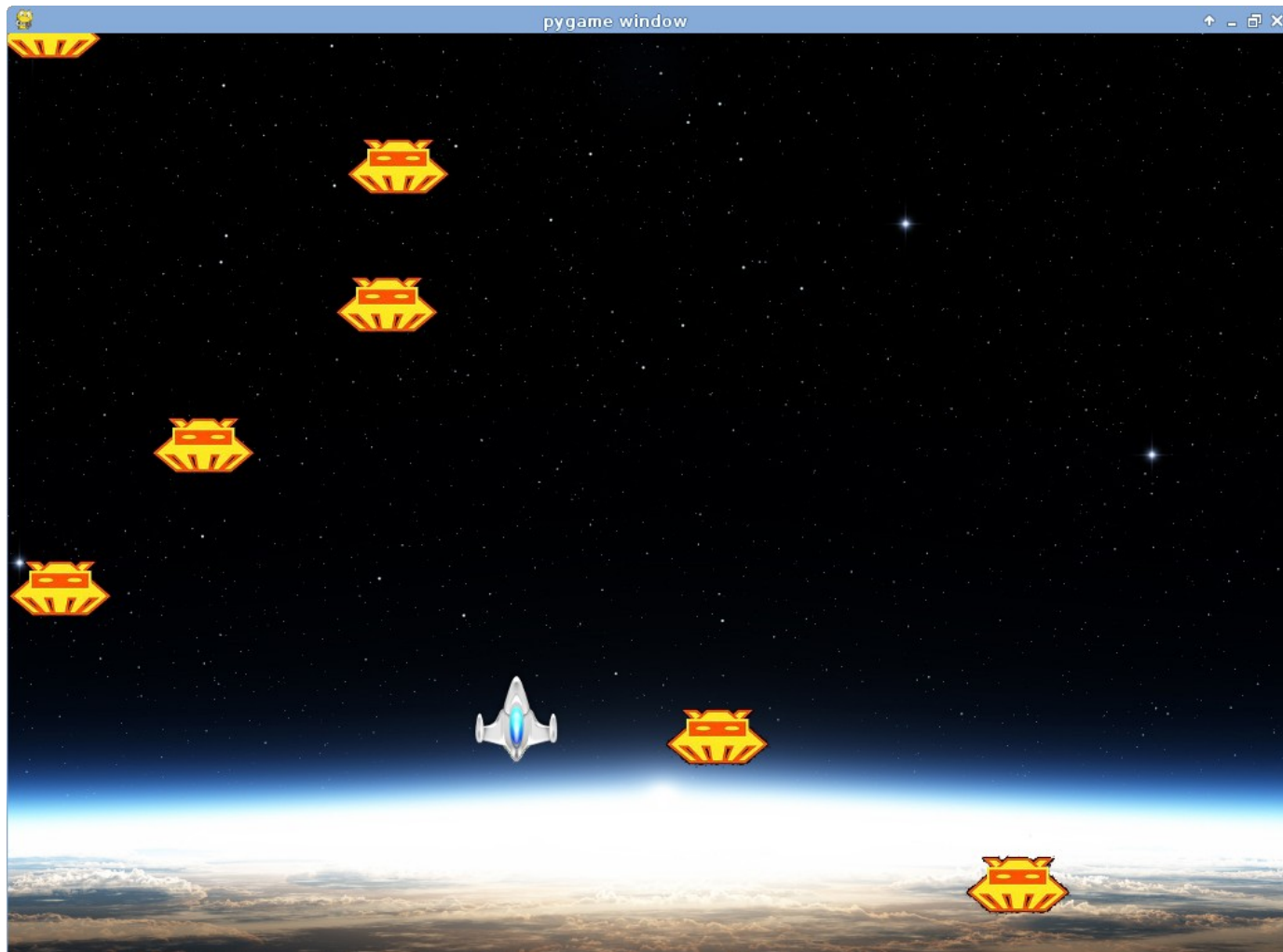
**kill ?**

**collision function**



**returns colliding objects**

# Exercise



# Exercise - details

- Get [http://164.81.120.110/base\\_game.tar.bz2](http://164.81.120.110/base_game.tar.bz2)
- Make the ship fly
- Add a class for shots and fire away
- Add the aliens
- Save the world