Lecture: 8-1

Prerequisites for this lecture are: 7-1, 7-2 and 7-3.

John Romero Programming Proverbs

- 7. "Use a development system that is superior to your target."
- John Romero, "The Early Days of Id Software John Romero @ WeAreDevelopers Conference 2017"

Sprites and collisions

- you will need to save these images in the same directory as the code:
 - gun.png ⟨ball.png⟩
 - arrow.png ⟨ball.png⟩
 - ball.png \(ball.png \)

Sprites and collisions

- sprites are created and normally placed into a list
 - and referred to as a group
- you can then test for a collision between another sprite via:
- inter = spritecollide(foo, bar, dokill)
- inter is a list of all sprites from list bar which have collided with the single sprite foo
- the dokill parameter is either True or False and if it was True the the kill method is called for every sprite in the list inter

Sprites and collisions

- for bomb in sprite.spritecollide(player, bombs, True):
 boom_sound.play()
- notice that this example tests whether a single sprite player has collided with any sprite in the bombs list

Managing collisions between two groups of sprites

- we can detect whether a collision occurs between two groups of sprites by using the following function:
- groupcollide(list1, list2, dokill1, dokill2)
- this function returns a dictionary
 - each key in the dictionary is a sprite in list1 and its value is a list of sprites from list2 with which it has collided
 - the dokill1, dokill2 arguments determine whether the kill method should be called in list1 or list2

Managing collisions between two groups of sprites

```
for alien in sprite.groupcollide(aliens, bullets, True, True).keys()
  boom_sound.play()
  kills += 1
```

- the code checks for the collisions between bullets and all the aliens
- in this case we only loop over the dictionary keys
 - but we could loop over the values() or items()
 - if we wanted to do something to the specific shots that collided with aliens

Managing collisions between two groups of sprites

- if we did loop over the values () we would be looping through lists that contain sprites
- note that the same sprite may even appear more than once in these different loops, since the same bullet could have collided against multiple aliens