

## John Romero Programming Proverbs

- 6. “As soon as you see a bug, you fix it. Do not continue on. If you don’t fix your bugs your new code will be built on a buggy codebase and ensure an unstable foundation.”
- John Romero, “The Early Days of Id Software - John Romero @ WeAreDevelopers Conference 2017”

## File export and integrating with chisel part 1

- would be good to modify touchmap so that it
  - exports (saves the map file)
  - runs chisel and/or runs doom3

## Exporting the file

- would be good to keep a list of assets
  - only write out the assets the map is using

```
asset_list = [] # list of assets
asset_desc = {} # dictionary of asset descriptions
asset_count = {} # how many of each asset are we using?
```

## Asset set functions



```
def include_asset (a, desc):  
    global asset_list, asset_desc, asset_count  
    if not (a in asset_list):  
        asset_list += [a]  
    asset_desc[a] = desc  
    if asset_count.has_key (a):  
        asset_count[a] += 1  
    else:  
        asset_count[a] = 1
```

## Asset set functions



```
def exclude_asset (a):  
    global asset_list, asset_count  
    if asset_count.has_key (a):  
        asset_count[a] -= 1  
        if asset_count[a] == 0:  
            del asset_count[a]  
            asset_list.remove (a)
```

## Export callback function



```
def myexport (name, tap):
    pygame.display.update ()
    save_map (current_map_name)

def save_map (name):
    f = open (name, "w")
    f = write_assets (f)
    f.write ("\n") # add blank line for eye candy
    f = write_map (f)
    f.close ()
```

## Writing assets to the file

```
def write_asset (f, a):  
    s = "define %s %s\n" % (a, asset_desc[a])  
    f.write (s)  
    return f  
  
def write_assets (f):  
    for a in asset_list:  
        f = write_asset (f, a)  
    return f
```

- notice that the file object `f` is returned, this ensures that future writes occur in order!
  - unambiguous code (will work if an object were passed by value rather than by reference)

## Writing assets to the file

```
def write_map (f):  
    m = ""  
    mdict = {"v":"#", "h":"#", "-":":", "|":":", " ":" ", "S":"S", "H":"H"}  
    x, y = cell_array.high ()  
    for j in range (y):  
        for i in range (x):  
            m += mdict[cell_array.get (i, j)]  
        m += "\n"  
    f.write (m)  
    return f
```



## hellknight callback

```
def hellknight (name, tap):  
    global next_tile  
    pygame.display.update ()  
    if tap == 1:  
        next_tile = hell_t  
  
def assets ():  
    return [touchgui.image_tile (private_list ("hellknight"),  
                                touchgui.posX (0.95), touchgui.posY (0.9),  
                                100, 100, hellknight),  
            touchgui.image_tile (private_list ("tick"),  
                                touchgui.posX (0.95), touchgui.posY (0.8),  
                                100, 100, myquit)]
```

## Changing callback

```
def callback (param, tap):  
    global clicked, cell_array, button_array, double_tapped_cell  
    clicked = True  
    mouse = pygame.mouse.get_pos ()  
    x, y = get_cell (mouse)  
    old = cell_array.get (x + xoffset, y + yoffset)  
    button = button_array.get (x + xoffset, y + yoffset)
```

## Changing callback

```
if old == " ":
    # blank -> next_tile
    function_create[next_tile] (button)
elif old == "v":
    # wall -> door
    button.to_door ()
    cell_array.set_contents (x + xoffset, y + yoffset, "|")
elif old == "|":
    # door -> blank
    button.to_blank ()
    cell_array.set_contents (x + xoffset, y + yoffset, " ")
elif old in ["H", "S"]:
    # remove asset
    button.to_blank ()
    cell_array.set_contents (x + xoffset, y + yoffset, " ")
    exclude_asset (old)
```



## Reverting a cell to a blank



```
def delspawn (param, tap):  
    global clicked, cell_array, button_array, double_tapped_cell  
    clicked = True  
    mouse = pygame.mouse.get_pos ()  
    x, y = get_cell (mouse)  
    button = button_array.get (x + xoffset, y + yoffset)  
    button.spawn_to_blank ()
```

## test.txt created by touchmap



```
define S worldspawn
define H monster monster_demon_hellknight

#####
# S #
#   #
#   #
# H #
#####
```

## Introducing new images into touchmap

- place the new images in `$HOME/Sandpit/touchmap-0.2/images`
- alter `$HOME/Sandpit/Makefile.am` to copy this image into the build directory

`$HOME/Sandpit/Makefile.am`

```
all: doorh.png doorv.png doorh-bw.png doorv-bw.png hingeh.png \  
    wallh.png wallv.png wallh-bw.png wallv-bw.png hellknight.png tick.png  
  
hellknight.png: $(srcdir)/images/hellknight.png  
    convert -resize 100x100 $< $@  
  
tick.png: $(srcdir)/images/tick.png  
    convert -resize 100x100 $< $@
```

## Tutorial

- integrate these changes into your touchmap code
- add a room button, so that the room information is generated, ie:

```
define S worldspawn
define H monster monster_demon_hellknight
define 1 room 1

#####
# S #
#   #
# 1 #
# H #
#####
```



## Tutorial

- your room button should keep a record of the rooms allocated
  - remember which rooms are deleted and reuse the number
  
- add other assets into touchmap
  - lights, tick, ammo, rockets, rocket launcher
  - [Doom3 asset list](https://doom.fandom.com/wiki/Doom_3) `<https://doom.fandom.com/wiki/Doom_3>`
  
- add a doom3 button which will shutdown touchmap and then run doom3
  - make this button also run chisel to generate the tiny.map before running doom3