

# 25-01-2018 – COMP15

## Notes

### Outline

Reading: Weiss 3.2, Shaffer 4.1, 4.2

1. Static v. Dynamic Arrays
2. Expanding Arrays
3. HW1 + Hookbook

#### Static v. Dynamic Arrays

- Arraylist is ADT
- Underlying array
- Can be static or dynamic
  - categories of data structure functions:
    - **mutator**: modifies data structure
    - **accessor**: does not modify data structure (would be a **const** member function)
- Lab 1: ArrayList w/ static array

```
Pirate pirates[MAX];  
#Avoid seg fault:  
#Don't insert if full
```

- **Static Array**:
  - allocated at compile time
  - allocated on execution stack
- **Dynamic Array**:
  - allocated at run-time
  - allocated on heap
  - can be resized (sort of)

```
Pirate *pirates;  
pirates = new Pirate[int];
```

#### Expanding Arrays

```
#declare 1st array  
Pirates *p;  
p = new Pirate[MAX];  
if (new_val > MAX)
```

```
{
    Pirates *s;
    s = new Pirate[MAX * 2];
    for (int i = 0; i < MAX; i++)
    {
        s[i] = p[i];
    }
    delete [] p;
    p = s;
}
```

- in implementation, insert function calls `expand()` if the array is about seg fault