

## Winter is coming

Assignment 2 releasing Friday

### End of this week or early next week

- Linked lists
- Dynamic memory
- Structs

### Week 8 Revision Sessions

- Sign up here: <https://www.eventbrite.com/e/23t2-week-8-revision-sessions-tickets-675799653957?aff=oddttdcreator>
- Wednesday 2pm-4pm (online)
- Thursday 12pm-2pm (Ainsworth 201 - BYOD)

#### `malloc()`

- `malloc` -> Memory Allocation (allocate memory on the heap)
- Returns a pointer to the location on the heap
- We can decide how large the allocation

#### Calling `malloc`

- `ptr = (cast-type*) malloc(byte-size)`

#### Example:

```
#include <stdio.h>

int main(void) {
    malloc(1000);
    malloc(sizeof(int));
    malloc(sizeof(char) * 50);

    return 0;
}
```

#### Heap memory cheat sheet

- Allocate memory: `malloc()`
- Deallocate: `free()`

- Grow/shrink memory `realloc`
- All require `stdlib.h`

## Dynamic arrays on the heap

A common way of using malloc is to create dynamic arrays:

```
int main(void) {  
    int num_elements;  
    scanf("%d", &num_elements);  
  
    int *data = malloc(num_elements * sizeof(int));  
  
    return 0;  
}
```

## Demo

### Feedback

<https://forms.office.com/r/Ze4admEWnR>

