

**Winter is coming**  
Assignment 2 releasing  
soon

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**End of this week or early  
next week**

- Linked lists
- Dynamic memory
- Structs

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**Week 8 Revision Sessions**

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

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## `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

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## 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;
}
```

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## Heap memory cheat sheet

- Allocate memory: `malloc()`
- Deallocate: `free()`
- Grow/shrink memory `realloc`
- All require `stdlib.h`

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## 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;
}
```

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## Demo

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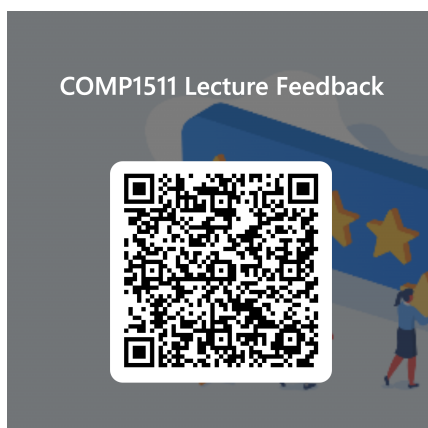
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## Feedback

<https://forms.office.com/r/K3PjvWebtD>



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