

# Memory

Our memory is an array of characters.

## Metadata

For each allocated memory we will store some metadata. Metadata will consist of the pointer for that piece of memory and the start and end indices.

We use an array to store Metadata. Since our memory is limited in size, we can just use an array that is the same size as our memory.

## Allocating memory

We use an index to keep track of where to insert new memory inside our array of characters. Since we know our memory capacity, how much memory is filled, and how much we want to allocate, we can calculate whether or not there is enough space.

After inserting in our memory, we also need to insert the new metadata. To accomplish that we use an index to keep track of where to insert metadata.

## Freeing memory

First we search our metadata to see if the data we are trying to free is valid. This will not be much since it is the number of pointers. After that we find the start and end indices we remove the memory in the char array by shifting elements from the right.