

Implement a vector (mutable array with automatic resizing) following instructions from [Google University](#):

- ☐ Practice coding using arrays and pointers, and pointer math to jump to an index instead of using indexing.
- ☐ new raw data array with allocated memory
 - can allocate int array under the hood, just not use its features
 - start with 16, or if starting number is greater, use power of 2 - 16, 32, 64, 128
- ☐ size() - number of items
- ☐ capacity() - number of items it can hold
- ☐ is_empty()
- ☐ at(index) - returns item at given index, blows up if index out of bounds
- ☐ push(item)
- ☐ insert(index, item) - inserts item at index, shifts that index's value and trailing elements to the right
- ☐ prepend(item) - can use insert above at index 0
- ☐ pop() - remove from end, return value
- ☐ delete(index) - delete item at index, shifting all trailing elements left
- ☐ remove(item) - looks for value and removes index holding it (even if in multiple places)
- ☐ find(item) - looks for value and returns first index with that value, -1 if not found