

Practice 03

Destructor, copy constructor and operator=

1. Create a class Vector that has the following functionality:
 - a. Contains fields for a dynamically allocated int array, size and capacity.
 - b. Default capacity of 4 items and an allocated array of this size.
 - c. Implements the following methods:
 - i. **push_back**(element)
Adds the specified element at the back of the array.
 - ii. **at**(index)
Returns the element at the specified index.
 - iii. **erase**(index)
Removes the element at the specified index keeping the order of the elements.
 - iv. **reserve**(size)
Adds extra capacity to the array.
 - d. Automatically reserves more memory for the array when needed.
2. Using your Vector class, create an object of your class and read, from the console, commands of the following type:
`<cmd> [param1]`
where `<cmd>` can be any of the following commands:
 - `add <num>` - adds the given number to the back of the Vector.
 - `del <num>` - removes every occurrence of the given number in the Vector.
 - `get <ind>` - print the element on the given index in the Vector.
 - `fnd <num>` - print the index of the first occurrence of the given number in the Vector.
 - `see` - prints each element of the Vector in order.
 - `end` - terminates the program.

Sample input/output (where << is output and >> is input):

```
>> add 5
>> add 8
>> add 5
>> add 3
>> add 9
```

```
>> see
<< 5 8 5 3 9
```

```
>> fnd 5
<< Element 5 found at index 0.
```

```
>> del 5  
>> fnd 5  
<< Element 5 was not found.
```

```
>> see  
<< 8 3 9
```

```
>> get 2  
<< Element at index 2 is 9.
```

```
>> end  
<< Bye!
```