

Note to grader: I have uploaded the example program I used for the output screenshots to the GitHub repository if you want to test it. I also have it on repl.it (<https://replit.com/@Vulpolox/Assignment1#main.cpp>)

File Reading

Upon running the program, the user is asked to enter a file name. The program will then check that the file name is valid. The file must be a .txt file and contain a comma delimited list of 100 integers with 10 integers per line (there is a SampleInput.txt file for an outline in the GitHub repository).

```
1,2,3,4,5,6,7,8,9,10,  
11,12,13,14,15,16,17,18,19,20,  
21,22,23,24,25,26,27,28,29,30,  
31,32,33,34,35,36,37,38,39,40,  
41,42,43,44,45,46,47,48,49,50,  
51,52,53,54,55,56,57,58,59,60,  
61,62,63,64,65,66,67,68,69,70,  
71,72,73,74,75,76,77,78,79,80,  
81,82,83,84,85,86,87,88,89,90,  
91,92,93,94,95,96,97,98,99,100,
```

If the file is read in correctly, it will then display an array containing the 100 integers and a menu:

```
Please enter a valid file name  
>>>SampleInput  
File not found, try again  
---  
  
Please enter a valid file name  
>>>SampleInput.txt  
Current Array:  
-----  
1  2  3  4  5  6  7  8  9 10  
11 12 13 14 15 16 17 18 19 20  
21 22 23 24 25 26 27 28 29 30  
31 32 33 34 35 36 37 38 39 40  
41 42 43 44 45 46 47 48 49 50  
51 52 53 54 55 56 57 58 59 60  
61 62 63 64 65 66 67 68 69 70  
71 72 73 74 75 76 77 78 79 80  
81 82 83 84 85 86 87 88 89 90  
91 92 93 94 95 96 97 98 99 100  
  
-----  
Please choose one of the following:  
---  
1 - find index  
2 - replace  
3 - append  
4 - remove  
5 - quit
```

Find Index

```
=====
Please choose one of the following:
---
1 - find index
2 - replace
3 - append
4 - remove
5 - quit

>>>1
Enter an integer to find in the array
>>>f
Error in input; be sure to enter an integer: stoi. Try again
---

Enter an integer to find in the array
>>>20
Found at index: 19
---
Please choose one of the following:
---
1 - find index
2 - replace
3 - append
4 - remove
5 - quit

>>>
```

This function will find the index of any integer in the array.

If it doesn't exist, it will return -1

```
Enter an integer to find in the array
>>>-40
Found at index: -1
---
```

Replace

```
Please choose one of the following:
---
1 - find index
2 - replace
3 - append
4 - remove
5 - quit

>>>2
Enter a valid index in the array
>>>0
Enter an integer to be replaced at that index
>>>77
Old and new values respectively: 1 77
Current Array:
=====
77 2  3  4  5  6  7  8  9 10
11 12 13 14 15 16 17 18 19 20
21 22 23 24 25 26 27 28 29 30
31 32 33 34 35 36 37 38 39 40
41 42 43 44 45 46 47 48 49 50
51 52 53 54 55 56 57 58 59 60
61 62 63 64 65 66 67 68 69 70
71 72 73 74 75 76 77 78 79 80
81 82 83 84 85 86 87 88 89 90
91 92 93 94 95 96 97 98 99 100
=====
```

This function takes an index and an integer and
assigns said integer to the specified index of the array

As per the requirements, it also returns the previous and the new values:

```
Old and new values respectively: 1 77
```

Append

```
Please choose one of the following:
---
1 - find index
2 - replace
3 - append
4 - remove
5 - quit

>>>3
Enter an integer to append to the array
>>>27
Current Array:
-----
77 2  3  4  5  6  7  8  9 10
11 12 13 14 15 16 17 18 19 20
21 22 23 24 25 26 27 28 29 30
31 32 33 34 35 36 37 38 39 40
41 42 43 44 45 46 47 48 49 50
51 52 53 54 55 56 57 58 59 60
61 62 63 64 65 66 67 68 69 70
71 72 73 74 75 76 77 78 79 80
81 82 83 84 85 86 87 88 89 90
91 92 93 94 95 96 97 98 99 100
27
-----
```

This function takes an integer and appends it to the end of the array

Remove

```
Please choose one of the following:
---
1 - find index
2 - replace
3 - append
4 - remove
5 - quit

>>>4
Enter an index to remove from the array
>>>16
Current Array:
=====
77 2 3 4 5 6 7 8 9 10
11 12 13 14 15 16 18 19 20 21
22 23 24 25 26 27 28 29 30 31
32 33 34 35 36 37 38 39 40 41
42 43 44 45 46 47 48 49 50 51
52 53 54 55 56 57 58 59 60 61
62 63 64 65 66 67 68 69 70 71
72 73 74 75 76 77 78 79 80 81
82 83 84 85 86 87 88 89 90 91
92 93 94 95 96 97 98 99 100
=====
```

This function takes an index and removes the corresponding element from the array

Error Handling

```
Please choose one of the following:
---
1 - find index
2 - replace
3 - append
4 - remove
5 - quit

>>>w
Error in input; be sure to enter an integer: stoi. Try again
---

Please choose one of the following:
---
1 - find index
2 - replace
3 - append
4 - remove
5 - quit

>>>6
Error in input: input is outside of the valid range. Try again
---

Please choose one of the following:
---
1 - find index
2 - replace
3 - append
4 - remove
5 - quit

>>>□
```

All user input and error handling is done using a single function (except for file reading).

```
Please choose one of the following:
---
1 - find index
2 - replace
3 - append
4 - remove
5 - quit

>>>1
Enter an integer to find in the array
>>>fjdkjfk
Error in input; be sure to enter an integer: stoi. Try again
```