

Assumptions Made:

General:

- Array size can be arbitrary, as long as it is larger than 100. I chose 150.
- No int file is provided, so one called "ints.txt" is generated in main for use in readFileData().

Functions:

- displayArray()
 - The ints are not longer than 4 characters. Change the set width to accommodate if necessary.
 - Trailing zeros that are not explicitly added after array initialization are not meant to be shown in the array.
- indexLocationOfNum()
 - None
- readFileData()
 - The input file is called "ints.txt". Change if that is not the case. Number of ints in the file is less than 150.
- modifyValue()
 - Basic validation and throwing an error if the input index is not a valid location in the array is acceptable.
 - Values in the array but after the last modified value can still be modified.
- addNewInt()
 - Basic check if the array is full is acceptable for use in the try-catch block.

Sample output:

indexLocationOfNum()

```
Enter a number to where it appears in the array.  
51  
The index of the number 51 is: 50. (-1 means the number is not in the array)
```

modifyValue Failure

```
Enter an index to modify the int at that location in the array.  
200  
Out_of_range exception thrown for index 200  
  
Enter an index to modify the int at that location in the array.  
50  
The current value at index 50 is: 51  
Enter a numerical value to add to that value.  
49  
The current value at index 50 after adding 49 to is: 100  
  
The current array is:
```

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
100	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

modifyValue Success

```
Enter an index to modify the int at that location in the array.  
50  
The current value at index 50 is: 51  
Enter a numerical value to add to that value.  
49  
The current value at index 50 after adding 49 to is: 100  
  
The current array is:  
  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  
100 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
```

addNewInt Fail

```
Enter a number to add to the end of the array.  
101  
The array is full. Cannot add int.
```

addNewInt Success

```
Enter a number to add to the end of the array.  
101  
  
The current array is:  
  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  
100 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  
101
```

removeValue

```
Enter an index to remove the int at that location from the array.  
50
```

```
The current array is:
```

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
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	101