

TCP1201 Object-Oriented Programming and Data Structures

Lab11 Implementing ArrayLists

Exercise 1: Implementing MyArrayList Class

Without copy and paste the code provided by the lecture, define a **MyArrayList** class that supports the operations listed in the sample run below. Write a test program to test your **MyArrayList** class. Your test program shall produce the following output. The range of the random integers is 0-99.

Sample run:

```
MyArrayList: []
Size: 0
1 - Add random integer at end
2 - Add random integer at specified index
3 - Get integer at specified index
4 - Get index of specified integer
5 - Remove the integer at specified index
6 - Remove specified integer
7 - Set new random integer at specified index
8 - Clear list
0 - Exit
Command > 1
```

```
MyArrayList: [5]
Size: 1
1 - Add random integer at end
2 - Add random integer at specified index
3 - Get integer at specified index
4 - Get index of specified integer
5 - Remove the integer at specified index
6 - Remove specified integer
7 - Set new random integer at specified index
8 - Clear list
0 - Exit
Command > 1
```

```
MyArrayList: [5, 34]
Size: 2
1 - Add random integer at end
2 - Add random integer at specified index
3 - Get integer at specified index
4 - Get index of specified integer
5 - Remove the integer at specified index
6 - Remove specified integer
7 - Set new random integer at specified index
8 - Clear list
0 - Exit
Command > 2 0
```

```
MyArrayList: [78, 5, 34]
Size: 3
1 - Add random integer at end
```

```
2 - Add random integer at specified index
3 - Get integer at specified index
4 - Get index of specified integer
5 - Remove the integer at specified index
6 - Remove specified integer
7 - Set new random integer at specified index
8 - Clear list
0 - Exit
Command > 3 1
5
```

```
MyArrayList: [78, 5, 34]
Size: 3
```

```
1 - Add random integer at end
2 - Add random integer at specified index
3 - Get integer at specified index
4 - Get index of specified integer
5 - Remove the integer at specified index
6 - Remove specified integer
7 - Set new random integer at specified index
8 - Clear list
0 - Exit
Command > 4 34
2
```

```
MyArrayList: [78, 5, 34]
Size: 3
```

```
1 - Add random integer at end
2 - Add random integer at specified index
3 - Get integer at specified index
4 - Get index of specified integer
5 - Remove the integer at specified index
6 - Remove specified integer
7 - Set new random integer at specified index
8 - Clear list
0 - Exit
Command > 4 99
-1
```

```
MyArrayList: [78, 5, 34]
Size: 3
```

```
1 - Add random integer at end
2 - Add random integer at specified index
3 - Get integer at specified index
4 - Get index of specified integer
5 - Remove the integer at specified index
6 - Remove specified integer
7 - Set new random integer at specified index
8 - Clear list
0 - Exit
Command > 5 2
34
```

```
MyArrayList: [78, 34]
```

```
Size: 2
1 - Add random integer at end
2 - Add random integer at specified index
3 - Get integer at specified index
4 - Get index of specified integer
5 - Remove the integer at specified index
6 - Remove specified integer
7 - Set new random integer at specified index
8 - Clear list
0 - Exit
Command > 6 34
true
```

```
MyArrayList: [78]
Size: 1
1 - Add random integer at end
2 - Add random integer at specified index
3 - Get integer at specified index
4 - Get index of specified integer
5 - Remove the integer at specified index
6 - Remove specified integer
7 - Set new random integer at specified index
8 - Clear list
0 - Exit
Command > 6 99
false
```

```
MyArrayList: [78]
Size: 1
1 - Add random integer at end
2 - Add random integer at specified index
3 - Get integer at specified index
4 - Get index of specified integer
5 - Remove the integer at specified index
6 - Remove specified integer
7 - Set new random integer at specified index
8 - Clear list
0 - Exit
Command > 7 0
78
```

```
MyArrayList: [44]
Size: 1
1 - Add random integer at end
2 - Add random integer at specified index
3 - Get integer at specified index
4 - Get index of specified integer
5 - Remove the integer at specified index
6 - Remove specified integer
7 - Set new random integer at specified index
8 - Clear list
0 - Exit
Command > 8
```

```
MyArrayList: []  
Size: 0  
1 - Add random integer at end  
2 - Add random integer at specified index  
3 - Get integer at specified index  
4 - Get index of specified integer  
5 - Remove the integer at specified index  
6 - Remove specified integer  
7 - Set new random integer at specified index  
8 - Clear list  
0 - Exit  
Command > 0
```