

Vector Menu

Write a program that displays the following menu:

- 0. Fill Vector**
- 1. Find high, low, sum average**
- 2. Add a number to the end**
- 3. Find the index of a number**
- 4. Insert number at index**
- 5. Remove number at index**
- 6. Remove number**
- 7. Quit**

Functionality We suggest that you develop your program incrementally. Meaning one menu item at a time. If it works correctly, add another one and so on.

There should be **no global** variables.

For each menu item 0-6, write a function that takes the Vector name, in addition to other arguments if/when needed.

0. Fill Vector: Asks user how many numbers to fill. Fill the Vector with random numbers 0-99 inclusive. The number of elements should be equal to the value specified by the user.

1. Calculates and prints the highest value, lowest, sum, and average of the Vector.

2. Add another random number to the end.

3. Find index of a number: Displays the index of a number if it exists otherwise a message saying that the number is not found.

4. Insert number at index: Ask the user to enter a number and the index to insert it in. Display error message if the specified index is outside the current Vector.

5 Remove number at index: Ask the user to enter the index. Remove the number at the specified index or display error message if the specified index is outside the current partially filled Vector size.

6. Remove number: Ask the user to enter a number, remove it if it exists otherwise display a message to indicate that it does not exist.

Required functions:

```
void fillVector(vector<int> vect)
```

```
void findHighLowSum(vector<int> vect)
```

```
void addToEnd(vector<int> vect)
```

```
int findIndex(vector<int> vect, int number)
```

```
void insertAtIndex(vector<int> vect, int idx, int number)
```

```
void removeAtIndex(vector<int> vect,int idx)
```

```
void removeNumber(vector<int> vect,int number)
```

For functions that required an index like insertIndex and removeIndex, check that the specified index is valid, if not display a message like "invalid index" or similar.

Example:

0. Fill Vector
1. Find high, low, sum average
2. Add a number to the end
3. Find the index of a number
4. Insert number at index
5. Remove number at index
6. Remove number
7. Quit

1

Vector not yet created

0. Fill Vector
1. Find high, low, sum average
2. Add a number to the end
3. Find the index of a number
4. Insert number at index
5. Remove number at index
6. Remove number
7. Quit

0

Enter the length of the Vector: 5

12 24 45 67 78

0. Fill Vector
1. Find high, low, sum average
2. Add a number to the end
3. Find the index of a number
4. Insert number at index
5. Remove number at index
6. Remove number
7. Quit

2

12 24 45 67 78 3

0. Fill Vector
1. Find high, low, sum average
2. Add a number to the end
3. Find the index of a number
4. Insert number at index
5. Remove number at index
6. Remove number
7. Quit

3

Enter the number to find: 14

14 does not exist

12 24 45 67 78 3

0. Fill Vector

1. Find high, low, sum average

2. Add a number to the end

3. Find the index of a number

4. Insert number at index

5. Remove number at index

6. Remove number

7. Quit

3

Enter the number to find: 67

67 is at index 3

12 24 45 67 78 3

0. Fill Vector

1. Find high, low, sum average

2. Add a number to the end

3. Find the index of a number

4. Insert number at index

5. Remove number

6. Remove number at index

7. Quit

4

Enter the number to insert: 10

Enter the index to insert: 1

12 10 24 45 67 78 3

0. Fill Vector

1. Find high, low, sum average

2. Add a number to the end

3. Find the index of a number

4. Insert number at index

5. Remove number

6. Remove number at index

7. Quit

4

Enter the number to insert: 10

Enter the index to insert: 10

The specified index is outside the Vector

12 10 24 45 67 78 3

0. Fill Vector

1. Find high, low, sum average

2. Add a number to the end

3. Find the index of a number

4. Insert number at index

5. Remove number at index
6. Remove number
7. Quit

6

Enter the number to remove: 16
16 does not exist

12 10 24 45 67 78 3

0. Fill Vector
1. Find high, low, sum average
2. Add a number to the end
3. Find the index of a number
4. Insert number at index
5. Remove number at index
6. Remove number
7. Quit

6

Enter the number to remove: 78

12 10 24 45 67 3

0. Fill Vector
1. Find high, low, sum average
2. Add a number to the end
3. Find the index of a number
4. Insert number at index
5. Remove number at index
6. Remove number
7. Quit

5

Enter the index to remove:12
12 is outside the Vector

12 10 24 45 67 3

0. Fill Vector
1. Find high, low, sum average
2. Add a number to the end
3. Find the index of a number
4. Insert number at index
5. Remove number at index
6. Remove number
7. Quit

5

Enter the index to remove:2

12 10 45 67 3

0. Fill Vector
1. Find high, low, sum average
2. Add a number to the end
3. Find the index of a number
4. Insert number at index

- 5. Remove number at index
- 6. Remove number
- 7. Quit

0

Enter the length of the Vector: 3

21 33 97

- 0. Fill Vector
- 1. Find high, low, sum average
- 2. Add a number to the end
- 3. Find the index of a number
- 4. Insert number at index
- 5. Remove number
- 6. Remove number at index
- 7. Quit

7

Goodby.