

```
1 //
2 //  main.cpp
3 //  A2_COSC_1437_014
4 //
5 //  Created by Nicholas Brown on 1/21/25.
6 //
7
8
9 #include <iostream>
10 using namespace std;
11
12 double median(int *arr, int size);
13 int mode(int *arr, int size);
14 int *makeArray(int arr); // Did not use but will ask the teacher for guidance.
15 void getMovieData(int *arr, int size);
16 void selectionSort(int arr[], int size);
17 double average(int *arr, int size);
18
19 // Added personal functions below.
20 void swap (int &a, int &b);
21 bool isEven (int num);
22
23 int main() {
24
25     int size;
26     cout << "Number of students surveyed: ";
27     cin >> size;
28
29     //declare the pointer into the dynamic array.
30     int *arr = new int[size];
31     // new - allocates memory of whatever it is pointing to and returns the memory which is originally stored by the variable array.
32
33     getMovieData(arr, size);
34
35
36
37     selectionSort(arr, size);
38
```

```
Number of students surveyed: 9
Number of movies seen by each student: 1 2 5 4 4 4 3 3 9
This is your array sorted: 1 2 3 3 4 4 4 5 9
Average: 3.88889
Median: 4
Mode: 4
Program ended with exit code: 0
```

Line: 182 Col: 19 

```
Number of students surveyed: 10
Number of movies seen by each student: 1 3 4 5 5 5 3 2 8 9
This is your array sorted: 1 2 3 3 4 5 5 5 8 9
Average: 4.5
Median: 4.5
Mode: 5
Program ended with exit code: 0
```

```
72 }
73
74
75 // Function to get user's average.
76 double average(int *arr, int size){
77
78
79     int sum = 0;
80     double avg = 0.0;
81
82     for (int i = 0; i < size; i++) {
83         sum += *(arr + i);
84     }
85
86
87     //static cast is needed for me to return a double value because if i don't my function will return a integer value instead.
88     avg = static_cast<double>(sum) / size;
89
90
91     return avg;
92 }
93
94 // Function I personally added in to make the swapping functionality easier to read.
95 void swap(int& a, int& b){
96
97     int temp = a;
98     a = b;
99     b = temp;
100 }
101
102
103 // Function that is for the selection sort algorithm.
104 void selectionSort(int arr[], int size){
105
106     for (int i = 0; i < size; i++) {
107         int min_index = i;
108         for (int j = i + 1; j < size; ++j) {
109             if (arr[j] < arr[min_index]){
```

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104 void selectionSort(int arr[], int size){
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107         int min_index = i;
108         for (int j = i + 1; j < size; ++j) {
109             if (arr[j] < arr[min_index]){
```

```
Number of students surveyed: 3
Number of movies seen by each student: 3 2 1
This is your array sorted: 1 2 3
Average: 2
Median: 2
Mode: -1
Program ended with exit code: 0
```