4.1 The Maximum-subarray Problem

Write a program `max_subarray.cpp` OR `max_subarray.py` that implements and demonstrates the FIND-MAX-CROSSING-SUBARRAY and FIND-MAXIMUM-SUBARRAY pseudocode on pages 71 and 72.

   Specifications: Code and utilize the following functions:

Listing 1: print vector for .cpp only

```
/* print_vector(v) for max_subarray.cpp ONLY
*  takes integer vector v as a const reference parameter
*  Prints the contents of vector v.  v is not modified
*/
```

Listing 2: print subarray

```
/* print_sub_array(v, low, high)
*  takes integer vector v as a const reference parameter
*  Prints the contents of vector v from index low to high. v is not modified
*/
```

Listing 3: find maximum crossing subarray

```
/*      find_max_crossing_subarray(                                          )
*  Fill in the details of the interface of your implementation
*
*
*
*/
```

Listing 4: find maximum subarray

```
/*      find_max_subarray(                                          )
*  Fill in the details of the interface of your implementation
*
*
*
*/
```

Listing 5: main

```
/*
* main()
*    Demonstrate find_max_subarray(A, 0, n-1)
*/
```

Listing 6: find max subarray example run

```
The vector to be considered: A = {13,-3,-25,20,-3,-16,-23,18,20,-7,12,-5,-22,15,-4,7}
The subarray A[7..10] = {18,20,-7,12}
with the sum 43 has the greatest sum of any contiguous subarray of A.

Another vector to be considered: B = {1,-4,3,-4}
The subarray B[2..2] = {3}
with the sum 3 has the greatest sum of any contiguous subarray of B.
```