CS 162Quiz 1 Solution

1)The size declarator must meet the following requirements:When you are declaring an array, the size declarator must be an integer with value greater than zero. That is, you can not define an array with negative or zero size.

2)Subscript numbering in C++ always starts at\_\_\_\_\_\_\_\_\_\_.Numbering always starts with zero. This is due to the compiler computing the address of a location in the array as being its subscript added to the starting address of the array.

3)C++ hasno array \_\_\_\_\_\_\_\_\_ checking, which means you can inadvertently store data past the end of the array. C++ does not have bounds checking. You must do your own checking to make sure that subscripts or indices are within the bounds of the array (between 0 and size-1).

4)If a numeric array is partially initialized, the uninitialized elements will be set to \_\_\_\_\_\_.When you use an initializer list to initialize the elements of an array, any that are not explicitly set by the list are set to zero.int array[5] = {1,3,5}; array[0] == 1, array[1] == 3, array[2] == 5, array[3] == 0, array[4] ==

05)You cannotuse the \_\_\_\_\_\_\_\_ operator to copy data from one array to another in a single statement.You need to use a loop to copy elements from one array to another. You cannot do it in a single statement with an assignment (=)operator.

6)To pass an array to a function, you pass the array’s \_\_\_\_\_\_\_\_\_You pass the array’s name in the function call. For example:void display (int theArray[], int size);int main(){int values[6] = {1, 3, 5, 7, 9, 11};display(values, 6);}

7)It’s best to think of a two-dimensional array as having \_\_\_\_\_ and \_\_\_\_\_\_.When thinking of a two-dimensional array, you can think of it as having rows and columns. When you use a pair of nested loops to access the elements, the outer loop is for the rows and the inner loop is for the columns.

8)When initializing a two-dimensional array, it helps to enclose each row’s initialization list in:Each row is often separately included in curly braces {} so the compiler can differentiate between them.int values[3][4] = { {1, 3, 5, 7}, {2, 4, 6, 8}, {3, 6, 9, 12} };

9)To print out all the elements of a two-dimensional array, you would normally use:Nested loops as in this example:for(int i = 0; i < rows; i++}for(intj = 0; j < cols, j++}cout << theArray[i][j];

10)Given the following array definition:int values[5] = {4, 7, 6, 8, 2};What does the following statement display?cout << values[4] << “ “ << values[2] +values[3] << “ “ << ++values[1] << endl;The correct answer is:2 14 8.

CS161Quiz2Solution

1.The \_\_\_\_\_\_\_\_ search algorithm repeatedly divides the portion of an array being sorted in half.The binary search algorithm gets its name from the fact that it checks the middle value. Then, if that is not the correct value, it splits the array in half and repeats with either the larger or the smaller half.

2.The maximum number of comparisons performed by linear search to find an item in an array of N elements is:

The correct answer isN. On average, if the item is in the array, it will take N/2 comparisons.

3.A binary search will find the value it is looking for with just one comparison if that value is stored in the \_\_\_\_\_\_\_\_ array element.Since the binary search first checks the middle or centeritem, if that is the item beingsearched for, it will only take one comparson.

4.How many passes through the data does a selection sort of N data items make?As indicated above, each pass will place one item in order. The sort only needs to make N-1 iterations, since the final item willbe in the correct location after the last iteration.

5.If an array is sorted in \_\_\_\_\_\_\_\_\_ order, the values are stored from highest to lowest.Highest to lowest is descendingorder. Ascending order is when you have them from lowest to highest.

6.The maximum number of comparisons that a binary search function will make when searching for a value in a 2,000 element array is:Since you divide the array in ½ each time, it is the log of the next higher power of two. That is, it takes 1 step to do an array of size 1, 2 steps for an array of size three, 3 steps for an array of size seven, and so forth.The next power of 2 for 2,000 is 2048, which is 2^11. Thus the answer is 11.

7.How many numbers are placed in order on each pass through the data (each iteration of the inner loop) for the selection sort?

Each pass through the inner loop will place one itemin order.

8.The \_\_\_\_\_\_\_\_ search algorithm requires that the array’s contents be sorted.Since the binarysearch goes to either the half containing larger values or the half containing smaller values, the array must be sorted before using it.

9.The insertion sort would require fewer passes to sort a set of data that is already sorted?The insertion sort needs to go through each value and insert it into the proper location. Thus, it makes one complete pass through the data even if it is already sorted. It does not require moving anything in each pass though.