CSCI 2170 Homework6

1. 1. The function **insert** does not work quite the way it is supposed to.

(a) **Step through the code shown below and write down the <u>output of the current version of the program</u>.**

```
#include <iostream>
using namespace std;

int Insert(int [], int, int, int);
const int SIZE = 10;
int main()
{
        int array[SIZE], x=0, position=1, aSize=4;

        // array[0]=1, array[1]=3, array[2]=5, array[3]=7
        for (int i=0; i<aSize; i++)
            array[i] = 2*i+1;

        // insert value 0 in position 1  (x is 0, position is 1)
        aSize = Insert(array, x, position, aSize);

        // display values after the insertion
        for (int i=0; i<aSize; i++)
            cout << array[i] << " ";
        cout << endl;

        return 0;
}

// this function inserts "element" in the given "position"  in array "arr".
//It returns the new array size
int Insert(int arr[], int element, int position, int size)
{
        for (int i=position; i<size; i++)
            arr[i+1] = arr[i];
        arr[position]= element;
        ++size;

        return size;
}
```

Show program output here:

(b) **How would you modify the <u>for loop</u> in function <u>Insert</u> to correctly insert an element into the array at position "position"?** For example, before insertion, array looks like this: 5 7 9 2. After the insertion of element 6 at position 2, array looks like this: 5 7 6 9 2

2. (a) In this program, function **Delete** does not work quite the way it is supposed to. Step through the code shown below and write down the output of the **current version** of the program.

```
#include <iostream>
using namespace std;
int Delete(int [], int, int);

int main()
{
     int values[10]={4, 16, 3, 8, 20};
     int  size=5;
     int  k;
     int position = 1;

     // Delete the item at position in the array values
     size = Delete(values, position, size);

     for (k=0; k<size; k++)
        cout << values[k] << " ";
     cout << endl;

     return 0;
}

// This function deletes the element at location "position" in array A.
// If the position is < 0 or greater than the size of the array, nothing will be done.
// Otherwise, the value is deleted, and all the values below will be shifted up one position.
// It returns the new array size.
int Delete(int array[],  int position, int size)
{
     for (int k=size; k>=position; k--)
        array[k] = array[k-1];

     size--;

     return (size);
}
```

Put your answer to question (a) here:

(b) Modify function **Delete** to correctly delete an element at position "***position***" from the array.
For example, before deletion, the content of the **array** looks like this: **5 7 9 2**
After the deletion of element at position 1, the content of the **array** looks like this: **5 9 2**