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class SortedArray
{
    int storage[];
    int top, size;

    public SortedArray()
    {
        size = 10;
        top = -1;
        storage = new int [size];
    }

    public int smallest()
    {
        return storage[0];
    }

    public int largest()
    {
        return storage[top];
    }

    public void clear()
    {
        top = -1;
        storage = new int [size];
    }

    public boolean full()
    {
        if (top == size - 1)
            return true;
        else
            return false;
    }

    public boolean empty()
    {
        if (top == -1)
            return true;
        else
            return false;
    }

    public int find (int x)
    {
        int low = 0, high = top, mid = (low + high) / 2;

        while (low <= high)
        {
            if (x == storage[mid])
                return mid;

            if (x < storage[mid])
                high = mid - 1;
            else
                low = mid + 1;
        }

        return -1;
    }

    public void increaseSize()
    {
        int temp[] = new int [size];

        size += 5;

        for (int i = 0; i <= top; i++)
            temp[i] = storage[i];

        storage = new int [size];

        for (int i = 0; i <= top; i++)
            storage[i] = temp[i];
    }

    public void print()
    {

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    for (int i = 0; i <= top; i++)
        System.out.print(storage[i]);

    System.out.println();
}

public void insert (int x)
{
    int position = appropriatePosition(x);

    top++;

    for (int i = top; i >= position; i--)
        storage[top] = storage[top - 1];

    storage[counter] = x;
}

public void delete (int x)
{
    int index, counter = 0;

    while (index != -1)
    {
        index = find(x);

        for (int i = index; i <= top; i++)
        {
            storage[i] = storage[i+1];
            counter++;
            top--;
        }
    }

    if (counter == 0)
        System.out.println("The integer " + x + " was not found and therefore not deleted");
}

public int appropriatePosition (int x)
{
    int counter = 0;

    while (x <= storage[counter])
        counter++;

    return counter;
}
} // end of class SortedArray

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