Quiz 10 (Nov 22)

By taking this quiz, you agree to adhere to the honor code of the class.

Name: netid:

Name: netid:

Write a method to merge 3 **sorted** integer arrays, each with **length n**, `int[] threeMerge(int[] array1, int[] array2, int[] array3, int n)`. The key difficulty here is to find the minimum element in three arrays while keeping a pointer for each array. Ensure that when you reach the end of the array, you don't want to compare that array with the others.
Hint (you don't need to follow): one way to do this is to keep a variable called `min_val` (initialized to be `Integer.MAX_VALUE`) that tracks the smallest value.
Bonus (no points): can your algorithm generalize to kMerge?

```
int[] threeMerge(int[] array1, int[] array2, int[] array3, int n) {
    int[] answer = new int[3 * n];
    int position = 0;
    int i1 = 0, i2 = 0, i3 = 0;

    while (position < 3 * n) {
        int min_val = Integer.MAX_VALUE;

        if (i1 < n && array1[i1] < min_val) min_val = array1[i1];
        if (i2 < n && array2[i2] < min_val) min_val = array2[i2];
        if (i3 < n && array3[i3] < min_val) min_val = array3[i3];

        if (i1 < n && array1[i1] == min_val) {
            answer[position++] = array1[i1++];
        } else if (i2 < n && array2[i2] == min_val) {
            answer[position++] = array2[i2++];
        } else if (i3 < n && array3[i3] == min_val) {
            answer[position++] = array3[i3++];
        }
    }

    return answer;
}
```