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Problem 4 PDF

```
public class Problem4{

    void swap(int arr[], int a, int b)
    {
        int temp = arr[a];
        arr[a] = arr[b];
        arr[b] = temp;
    }


    void Problem4A(int[] a, int arraySize)
    {
        for (int i = 1; i < arraySize; i+=2)
        {
            if (i>0 && a[i-1] < a[i] )
                swap(a, i-1, i);

            if (i<arraySize-1 && a[i] > a[i+1] )
                swap(a, i, i + 1);
        }
    }
```

The highlighted code shows why the time complexity is O(n), which is linear time. To satisfy the conditions of the algorithm, all we have to do is make sure that the odd elements of the array are less than the adjacent even elements. If we do that we don't have to worry about the even elements. This can be done in one transversal of the array, which will take O(n) time.