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#include <stdio.h>
#include <stdlib.h>

void insertion_sort();
int main()
{
    /* read input */
    int i, j, n;
    int *A;
    scanf("%d",&n);
    A = (int *) malloc((n+1)*sizeof(int));
    printf("sort %d numbers:\n",n);
    for (i = 1; i <= n; i++) {
        scanf("%d",&j);
        A[i] = j;
        printf("%8d",A[i]);
    }
    printf("\n");

    /* sort input */
    insertion_sort(A,n);

    /* output sorted numbers */
    printf("sorted sequence:\n");
    for (i = 1; i <= n; i++) printf("%8d",A[i]);
    printf("\n");
    return 0;
}

void insertion_sort(int* A, int n)
{
    int i,j,key;
    for (j = 2; j <= n; j++) {
        key = A[j];
        /* insert A[j] into the sorted sequence A[1...j-1] */
        i = j - 1;
        while ((i > 0) && (A[i] > key) ) {
            A[i+1] = A[i];
            i--;
        }
        A[i+1] = key;
    }
}

```