
```

#include <stdio.h>
#include <math.h>
#define MAX_SIZE 101
#define SWAP(x,y,t) ((t) = (x), (x) = (y), (y) = (t))
void sort(int [],int); /*selection sort */
void main(void)
{
    int i,n;
    int list[MAX_SIZE];
    printf("Enter the number of numbers to generate: ");
    scanf("%d",&n);
    if( n < 1 || n > MAX_SIZE) {
        fprintf(stderr, "Improper value of n\n");
        exit(EXIT_FAILURE);
    }
    for (i = 0; i < n; i++) { /*randomly generate numbers*/
        list[i] = rand() % 1000;
        printf("%d ",list[i]);
    }
    sort(list,n);
    printf("\n Sorted array:\n ");
    for (i = 0; i < n; i++) /* print out sorted numbers */
        printf("%d ",list[i]);
    printf("\n");
}
void sort(int list[],int n)
{
    int i, j, min, temp;
    for (i = 0; i < n-1; i++) {
        min = i;
        for (j = i+1; j < n; j++)
            if (list[j] < list[min])
                min = j;
        SWAP(list[i],list[min],temp);
    }
}

```

```
int binsearch(int list[], int searchnum, int left,
              int right)
{/* search list[0] <= list[1] <= . . . <= list[n-1] for
   searchnum. Return its position if found. Otherwise
   return -1 */
    int middle;
    while (left <= right) {
        middle = (left + right)/2;
        switch (COMPARE(list[middle], searchnum)) {
            case -1: left = middle + 1;
                    break;
            case 0 : return middle;
            case 1 : right = middle - 1;
        }
    }
    return -1;
}
```

프로그램 1.7: 순서 리스트 탐색

```
#include <stdio.h>
#include <time.h>
#include "selectionSort.h"
#define MAX_SIZE 1001
void main(void)
{
    int i, n, step = 10;
    int a[MAX_SIZE];
    double duration;
    clock_t start;

    /* times for n = 0, 10, ..., 100, 200, ..., 1000 */
    printf("    n        time\n");
    for (n = 0; n <= 1000; n += step)
    { /* get time for size n */

        /* initialize with worst-case data */
        for (i = 0; i < n; i++)
            a[i] = n - i;

        start = clock();
        sort(a, n);
        duration = ((double) (clock() - start))
                    / CLOCKS_PER_SEC;
        printf("%6d    %f\n", n, duration);
        if (n == 100) step = 100;
    }
}
```

1,000,000까지 활용

프로그램 1.24: 선택 정렬 함수의 첫 번째 시간 측정 프로그램