

answers06

1.

```
#include <stdio.h>
#define MAX 100

int main()
{
    int data[MAX];
    int n = 0, k;
    while(1) {
        scanf("%d", &k);
        if (k== -1) break;
        int duplicate = false;
        for (int i=0; i<n; i++) {
            if (data[i] == k) {
                duplicate = true;
                break;
            }
        }
        if (duplicate) {
            printf("duplicate entry\n");
            continue;
        }
        int i=n-1;
        while(i>=0 && data[i] > k) {
            data[i+1] = data[i];
            i--;
        }
        data[i+1] = k;
        n++;

        for (i=0; i<n; i++)
            printf("%d ", data[i]);
        printf("\n");
    }
}
```

2.

```
#include <stdio.h>
int main() {
    int data1[1000], data2[1000], data3[2000];
    int n1 = 0, n2 = 0, n3 = 0;
    FILE *fp1 = fopen("input1.txt", "r");
    FILE *fp2 = fopen("input2.txt", "r");
    while (!feof(fp1)) fscanf(fp1, "%d", &data1[n1++]);
    while (!feof(fp2)) fscanf(fp2, "%d", &data2[n2++]);
    fclose(fp1); fclose(fp2);

    int i=0, j=0;
    while( i<n1 && j <n2) {
        if (data1[i] <= data2[j])
            data3[n3++] = data1[i++];
        else
            data3[n3++] = data2[j++];
    }
    while(i<n1) data3[n3++] = data1[i++];
    while(j<n2) data3[n3++] = data2[j++];

    for (int i=0; i<n3; i++)
```

```

        printf("%d\n", data3[i]);
    }

3.
#include <stdio.h>
int main()
{
    int data[100], n = 0;
    FILE *fp = fopen("input3.txt", "r");
    while (!feof(fp))
        fscanf(fp, "%d", data[n++]);
    fclose(fp);
    for (int i=n-1; i>0; i--) {
        int maxIndex = 0;
        for (int j=1; j<=i; j++)
            if (data[j] > data[maxIndex])
                maxIndex = j;
        int tmp = data[i];
        data[i] = data[maxIndex];
        data[maxIndex] = tmp;
    }
    for (int i=0; i<n; i++)
        printf("%d\n", data[i]);
}

```

```

4.
#include <stdio.h>
int main()
{
    int data[100], n;
    scanf("%d", &n);
    for (int i=0; i<n; i++)
        scanf("%d", &data[i]);

    /* insertion sort */
    for (int i=1; i<n; i++) {
        int tmp = data[i];
        int j = i-1;
        while( j>=0 && data[j] > tmp ) {
            data[j+1] = data[j];
            j--;
        }
        data[j+1] = tmp;
    }

    /* remove duplicate entries */
    int k=0;
    for (int i=1; i<n; i++) {
        if (data[i] != data[k])
            data[++k] = data[i];
    }
    for (int i=0; i<=k; i++)
        printf("%d\n", data[i]);
}

```

```

5.
#include <stdio.h>
#define MAX 100
int main()
{

```

```

int n = 0, start[MAX], end[MAX];
scanf("%d", &n);
for (int i=0; i<n; i++) {
    scanf("%d", &start[i]);
    scanf("%d", &end[i]);
}

for (int i=n-1; i>0; i--) {
    for (int j=0; j<i; j++) {
        if (start[j]>start[j+1] || start[j]==start[j+1] && end[j]>end[j+1]){
            int tmp = start[j];
            start[j] = start[j+1];
            start[j+1] = tmp;
            tmp = end[j];
            end[j] = end[j+1];
            end[j+1] = tmp;
        }
    }
}

for (int i=0; i<n; i++)
    printf("%d %d\n", start[i], end[i]);
}

7.
#include <stdio.h>
int main()
{
    int a, b;
    int digits1[20], digits2[20];
    scanf("%d %d", &a, &b);

    int p = a, k = 0;    // k is the number of digits of a
    while(p > 0) {
        digits1[k++] = p%10;
        p /= 10;
    }

    int q = b, h = 0;    // h is the number of digits of b
    while(q > 0) {
        digits2[h++] = q%10;
        q /= 10;
    }

    for (int i = k-1, j = h-1; i >= 0 && j >= 0; i--, j--) {
        if (digits1[i] < digits2[j]) {
            printf("%d %d\n", a, b);
            return 0;
        }
        else if (digits1[i] > digits2[j]) {
            printf("%d %d\n", b, a);
            return 0;
        }
    }
    if ( k <= h ) printf("%d %d\n", a, b);
    else printf("%d %d\n", b, a);
}

```

```

8.
#include <stdio.h>
#define MAX 100
int main()
{
    int data[MAX], n=0;
    int digits1[8], digits2[8];
    FILE *fp = fopen("input6.txt", "r");
    while (!feof(fp)) fscanf(fp, "%d", &data[n++]);
    fclose(fp);

    /* insertion sort */
    for (int i=1; i<n; i++) {

        int p = data[i], k = 0;
        while(p > 0) {
            digits1[k++] = p%10;
            p /= 10;
        }

        int j = i-1, tmp = data[i];
        while( j >= 0 ) {

            int q = data[j], h = 0;
            while(q > 0) {
                digits2[h++] = q%10;
                q /= 10;
            }

            int winner = 0;
            for (int x = k-1, y = h-1; x >= 0 && y >= 0; x--, y--) {
                if (digits1[x] < digits2[y]) {
                    winner = 1;
                    break;
                }
                else if (digits1[x] > digits2[y]) {
                    winner = 2;
                    break;
                }
            }
            if (winner == 1 || winner == 0 && k < h ) {
                data[j+1] = data[j];
                j--;
            }
            else {
                break;
            }
        }
        data[j+1] = tmp;
    }

    for (int i=0; i<n; i++)
        printf("%d ", data[i]);
}

```