





















第九次作业

第一题

```
1 //选择排序
2 #include <stdio.h>
3 #include <stdlib.h>
4 #define N 300
5 int main() {
6     int a[N],pos ;
7     for (int i = 0;i < N;i++) {
8         a[i]= 50 + rand() % 101;
9     }
10    for (int i = 0;i < N;i++) {
11        int max = a[i];
12        for (int j = i;j < N;j++) {
13            if (a[j] >= max) {
14                max = a[j];
15                pos = j;
16            }
17        }
18        int temp = a[i];
19        a[i] = a[pos];
20        a[pos] = temp;
21    }
22    for (int i = 0;i < 100;i++) {
23        printf("%d\n", a[i]);
24    }
25
26    return 0;
27 }
28 //快排
29 #include <stdio.h>
30 #include <stdlib.h>
31 #define N 300
32 void sort(int a[],int l,int r);
33 void sort(int a[],int l,int r)
```

```
34 {
35     if (l < r) {
36         int i, j, x;
37
38         i = l;
39         j = r;
40         x = a[i];
41         while (i < j)
42         {
43             while (i < j && a[j] > x)
44                 j--;
45             if (i < j)
46                 a[i++] = a[j];
47             while (i < j && a[i] < x)
48                 i++;
49             if (i < j)
50                 a[j--] = a[i];
51         }
52         a[i] = x;
53         sort(a, l, i - 1);
54         sort(a, i + 1, r);
55     }
56 }
57 int main() {
58     int a[N];
59     for (int i = 0; i < N; i++) {
60         a[i] = 50 + rand() % 101;
61     }
62     sort(a, 0, N - 1);
63     for (int i = N-1; i >= 200; i--) {
64         printf("%d\n", a[i]);
65     }
66     return 0;
67 }
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 [2]	150	int
 [3]	150	int
 [4]	149	int
 [5]	149	int
 [6]	149	int
 [7]	149	int
 [8]	148	int
 [9]	148	int
 [10]	148	int
 [11]	148	int
 [12]	147	int
 [13]	147	int
 [14]	147	int
 [15]	147	int
 [16]	146	int
 [17]	146	int
 [18]	146	int
 [19]	145	int
 [20]	145	int
 [21]	145	int

第二题

```
1  #include <stdio.h>
2  #include <math.h>
3  void swap_row(int row1, int row2);
4  double a[4][4] = { {1.1161,0.1254,0.1397,0.1490},
5                     {0.1582,1.1675,0.1768,0.1871},{0.2368,0.2471,0.2568,1.2671},
6                     {0.1968,0.2071,1.2168,0.2271} };
7  double b[4] = { 1.5471,1.6471,1.8471,1.7471 };
8  double x[4];
9  void swap_row(int row1, int row2)
10 { //交换行列
11     double temp;
12     for (int j=0;j <=3;j++) {
13         temp = a[row1][j];
14         a[row1][j] = a[row2][j];
15         a[row2][j] = temp;
16     }
17     temp = b[row1];
18     b[row1] = b[row2];
19     b[row2] = temp;
20 }
21 int main() {
22     printf("MAT A = \n");
23     for (int i = 0;i <= 3;i++) {
24         printf("    ");
25         for (int j = 0;j <= 3;j++)printf("%.4f    ", a[i][j]);
26         printf("\n");
27     }
28     printf("MAT B = \n");
29     for (int i = 0;i <= 3;i++) {
30         printf("    %.4f", b[i]);
31     }
32     printf("\n\n");
33     for (int k = 0;k < 3;k++) {
34         double max = fabs(a[k][k]);
35         int pos = k;
36         for (int i = k;i <= 3;i++) {
37             if (fabs(a[i][k]) >= max) {
38                 max = fabs(a[i][k]);
39                 pos = i;
40             }
41         }
42     }
43 }
```

```

39     }
40     swap_row(k,pos);
41     for (int j = k+1;j <= 3;j++) {
42         a[k][j] /= a[k][k];
43     }
44     b[k] /= a[k][k];
45     for (int i = k + 1;i <= 3;i++) {
46         for (int j = k + 1;j <= 3;j++) {
47             a[i][j] = a[i][j] - a[i][k] * a[k][j];
48         }
49     }
50     for (int i = k + 1;i <= 3;i++) {
51         b[i] = b[i] - a[i][k] * b[k];
52     }
53 }
54 x[3] = b[3] / a[3][3];
55 for (int i = 2;i >=0;i--) {
56     double sum=0;
57     for (int j = i + 1;j <= 3;j++)sum += a[i][j] * x[j];
58     x[i] = b[i] - sum;
59 }
60 for (int i = 0;i <= 3;i++) {
61     printf("    x(%d) = %.4f\n", i+1 ,x[i]);
62 }
63 return 0;
64 }

```

MAT A =

1.1161	0.1254	0.1397	0.1490
0.1582	1.1675	0.1768	0.1871
0.2368	0.2471	0.2568	1.2671
0.1968	0.2071	1.2168	0.2271

MAT B =

1.5471	1.6471	1.8471	1.7471
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x(1) = 1.0406

x(2) = 0.9870

x(3) = 0.9351

x(4) = 0.8813

第三题

```
1  #include <stdio.h>
2  int main() {
3      int x, y;
4      /*
5       * x+y=15
6       * 2x+4y=40
7       * */
8      for (x = 0; x <= 15; x++) {
9          y = 15 - x;
10         if (2 * x + 4 * y == 40) break;
11     }
12     printf("鸡有%d只 兔有%d只  \n", x, y);
13     return 0;
14 }
```

鸡有10只 兔有5只