

CS302 OS Lab01 - Report

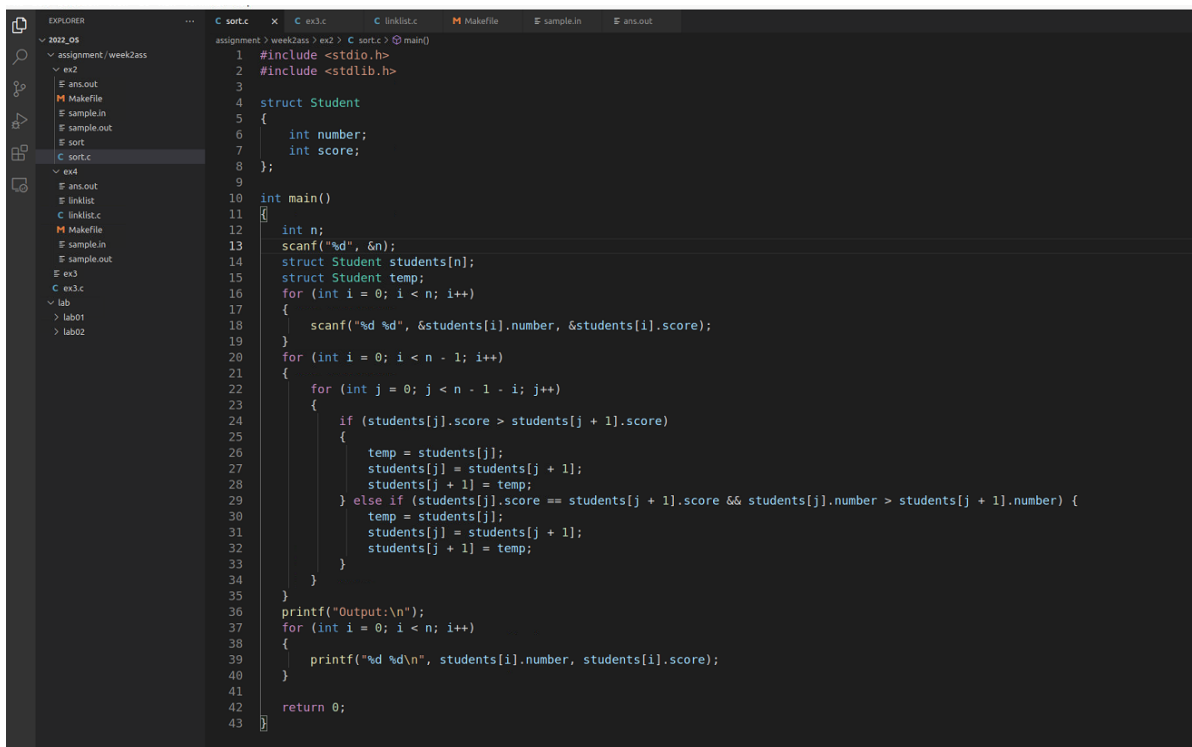
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SID:11911808

1) [15pts]若有以下定义 `char s[20] = "SUSTECH", *ps = s` , 请写出另外两种可以代表字母E的表达式。

(1) `ps[4]` (2) `s + 4, *s`

2) [35pts]完成代码, 在报告中需有sort.c完整的代码截图, 并上传sort.c



```
1 #include <stdio.h>
2 #include <stdlib.h>
3
4 struct Student
5 {
6     int number;
7     int score;
8 };
9
10 int main()
11 {
12     int n;
13     scanf("%d", &n);
14     struct Student students[n];
15     struct Student temp;
16     for (int i = 0; i < n; i++)
17     {
18         scanf("%d %d", &students[i].number, &students[i].score);
19     }
20     for (int i = 0; i < n - 1; i++)
21     {
22         for (int j = 0; j < n - 1 - i; j++)
23         {
24             if (students[j].score > students[j + 1].score)
25             {
26                 temp = students[j];
27                 students[j] = students[j + 1];
28                 students[j + 1] = temp;
29             } else if (students[j].score == students[j + 1].score && students[j].number > students[j + 1].number) {
30                 temp = students[j];
31                 students[j] = students[j + 1];
32                 students[j + 1] = temp;
33             }
34         }
35     }
36     printf("Output:\n");
37     for (int i = 0; i < n; i++)
38     {
39         printf("%d %d\n", students[i].number, students[i].score);
40     }
41
42     return 0;
43 }
```

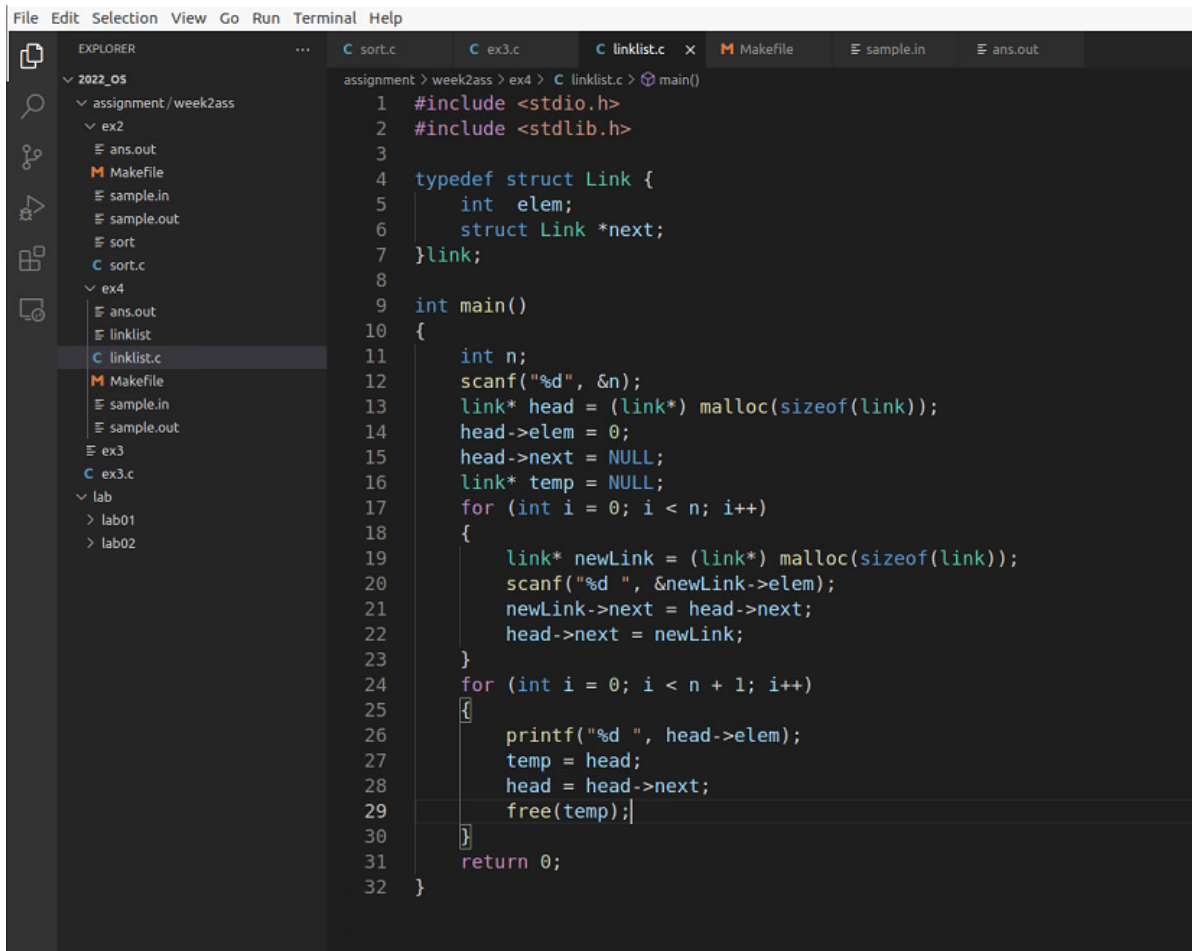
```
lrj11911808@lrj-Precision-3630-Tower: ~/2022_os/assignment...  
lrj11911808@lrj-Precision-3630-Tower:~/2022_os/assignment/week2ass/ex2$ make clean  
rm -rf sort  
lrj11911808@lrj-Precision-3630-Tower:~/2022_os/assignment/week2ass/ex2$ make sort  
gcc -o sort sort.c && ./sort < sample.in > sample.out  
Output:  
1 1  
3 25  
2 70  
lrj11911808@lrj-Precision-3630-Tower:~/2022_os/assignment/week2ass/ex2$
```

3) [20pts]完成代码，在报告中需有ex3.c完整的代码截图，并上传ex3.c

```
File Edit Selection View Go Run Terminal Help  
1 #include <stdio.h>  
2 #include <string.h>  
3 struct AGE  
4 {  
5     int year;  
6     int month;  
7     int day;  
8 };  
9 struct STUDENT  
10 {  
11     char name[20];  
12     int num;  
13     struct AGE birthday;  
14     float score;  
15 };  
16 int main(void)  
17 {  
18     struct STUDENT student1;  
19     struct STUDENT *p = NULL;  
20     p = &student1;  
21     // --- start ---  
22     // 1. 填空，完成名字赋值 (将下划线替换成你的代码)  
23     strcpy(student1.name, "OS_Bob");  
24     // 2. 设置出生年份为2001-2-23  
25     student1.birthday.year = 2001;  
26     student1.birthday.month = 2;  
27     student1.birthday.day = 23;  
28     // 3. 填空，将平均分设置为12100001和100 (将下划线替换成你的代码)  
29     p->num = 12100001;  
30     p->score = 100;  
31     // 4. 请将相关信息打印到屏幕上，并截图  
32     printf("Student name: %s\nStudent ID: %d\nStudent score: %f\nStudent birthday: %d-%d-%d\n", p->name, p->num, p->score, p->birthday.year, p->birthday.month, p->birthday.day);  
33     // --- end ---  
34     return 0;  
35 }
```

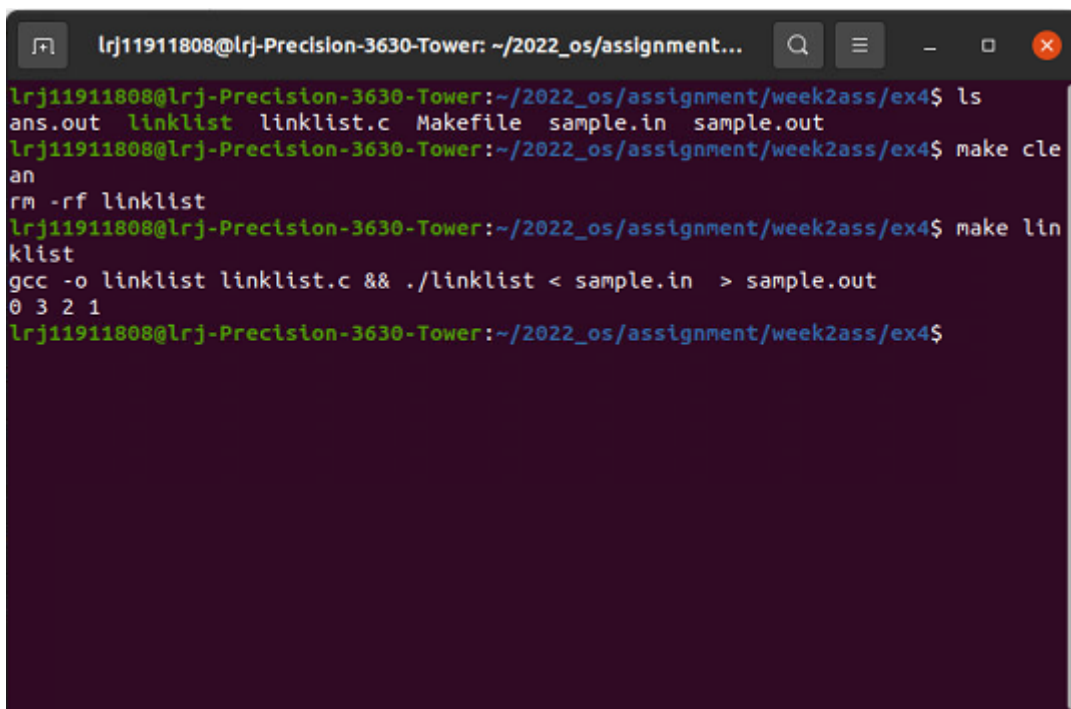
```
lrj11911808@lrj-Precision-3630-Tower: ~/2022_os/assignment...  
lrj11911808@lrj-Precision-3630-Tower:~/2022_os/assignment/week2ass$ gcc -o ex3 ./ex3.c  
lrj11911808@lrj-Precision-3630-Tower:~/2022_os/assignment/week2ass$ ./ex3  
student1:  
Student name: OS_Bob  
Student ID: 12100001  
Student score: 100.000000  
Student birthday: 2001-2-23  
p:  
Student name: OS_Bob  
Student ID: 12100001  
Student score: 100.000000  
Student birthday: 2001-2-23  
lrj11911808@lrj-Precision-3630-Tower:~/2022_os/assignment/week2ass$
```

4) [35pts]完成代码，在报告中需有linklist.c完整的代码截图，并上传linklist.c



```
File Edit Selection View Go Run Terminal Help
EXPLORER
2022_OS
  assignment/week2ass
    ex2
      ans.out
      Makefile
      sample.in
      sample.out
      sort
      sort.c
    ex4
      ans.out
      linklist
      linklist.c
      Makefile
      sample.in
      sample.out
    ex3
    ex3.c
  lab
    lab01
    lab02
C sort.c
C ex3.c
C linklist.c x
Makefile
sample.in
ans.out

assignment > week2ass > ex4 > C linklist.c > main()
1  #include <stdio.h>
2  #include <stdlib.h>
3
4  typedef struct Link {
5      int elem;
6      struct Link *next;
7  }link;
8
9  int main()
10 {
11     int n;
12     scanf("%d", &n);
13     link* head = (link*) malloc(sizeof(link));
14     head->elem = 0;
15     head->next = NULL;
16     link* temp = NULL;
17     for (int i = 0; i < n; i++)
18     {
19         link* newLink = (link*) malloc(sizeof(link));
20         scanf("%d ", &newLink->elem);
21         newLink->next = head->next;
22         head->next = newLink;
23     }
24     for (int i = 0; i < n + 1; i++)
25     {
26         printf("%d ", head->elem);
27         temp = head;
28         head = head->next;
29         free(temp);
30     }
31     return 0;
32 }
```



```
lrj11911808@lrj-Precision-3630-Tower: ~/2022_os/assignment...
lrj11911808@lrj-Precision-3630-Tower:~/2022_os/assignment/week2ass/ex4$ ls
ans.out linklist linklist.c Makefile sample.in sample.out
lrj11911808@lrj-Precision-3630-Tower:~/2022_os/assignment/week2ass/ex4$ make clean
rm -rf linklist
lrj11911808@lrj-Precision-3630-Tower:~/2022_os/assignment/week2ass/ex4$ make linklist
gcc -o linklist linklist.c && ./linklist < sample.in > sample.out
0 3 2 1
lrj11911808@lrj-Precision-3630-Tower:~/2022_os/assignment/week2ass/ex4$
```