

## Introduction to Computer Science and C Programming-Quiz 3

### Programming Part Grading Criteria

1.

Points	Function	Description
5	Linked list definition	Check if implement in linked list
7	PUSH x 5	Check function of PUSH
8	POP -> PUSH x 2 -> POP x 3	Check if POP works well with PUSH
3	Leak-check of POP	Should free the node you allocated
2	Leak-check of EXIT	Should free everything you allocated

Details:

- (1) **Linked list definition:** You can get 5 points if there exists a linked list definition in you program (even if your program crashes or can't compile). The remaining 20 points required a linked list implementation.
- (2) **PUSH x 5:** We push 5 values into stack to check if your PUSH function is correct.
- (3) **POP -> PUSH x 2 -> POP x 3:** Your program supposed not to crash during the first POP. Then we check if your PUSH works correct after a POP.
- (4) **Leak-check of POP:** You should free the first node after a POP rather than only change the pointer of the linked list. That is, after performing "POP -> PUSH x 2 -> POP x 3", every node should be freed. (If you use other node pointers to record, it's okay if you don't free them during the POP function)
- (5) **Leak-check of EXIT:** Every dynamic storage you allocated during the program execution should be freed, including other relevant node pointer you allocated.

Other deduction:

- (1) 1 points penalty for \*.cpp filename extension.
- (2) Format error (-1): If the output format is different from ours

2. Please refer to q2TestData for the test data and output.

points	4	4	4	4	4	5
Input	Test1	Test2	Test3	Test4	Test5	Test6

Other deduction:

- (1) 1 points penalty for \*.cpp filename extension.
- (2) Format error (-2): If the output format is different from ours:  

```
fprintf(result, "%s %c\t%d\n", ID, Gender, Score);
```
- (3) Duplicate line (-1 **for each test data**)  
 If your output has duplicate line at the end.
- (4) Wrong score (-2 **for each test data**)  
 If your output score is wrong.

3.

points	7	8	10
To test	Basic i/o (input1)	1-digit number (input2)	“-“ (input2)

Detail:

(1) Get 0 points if program crash, no output file, all write into one file, etc.

Other deduction:

(1) 1 points penalty for \*.cpp filename extension.

(2) 5 points penalty for output file with a little bit mistake.

4.

points	5	5	15
To test	Find array a with testdata 1	Find array a with testdata 2	Find the next 5 permutation of array a with testdata 1 and 2

Detail:

(1) Test data 1 is the inversion vector b: 0 1 1 2 2 3 3 4 4

(2) Test data 2 is the inversion vector b: 0 0 1 1 2 2 3 3 4

(3) If array a is not correct then you will get 0 with the part of permutation.

Other deduction:

(1) 1 points penalty for \*.cpp filename extension.