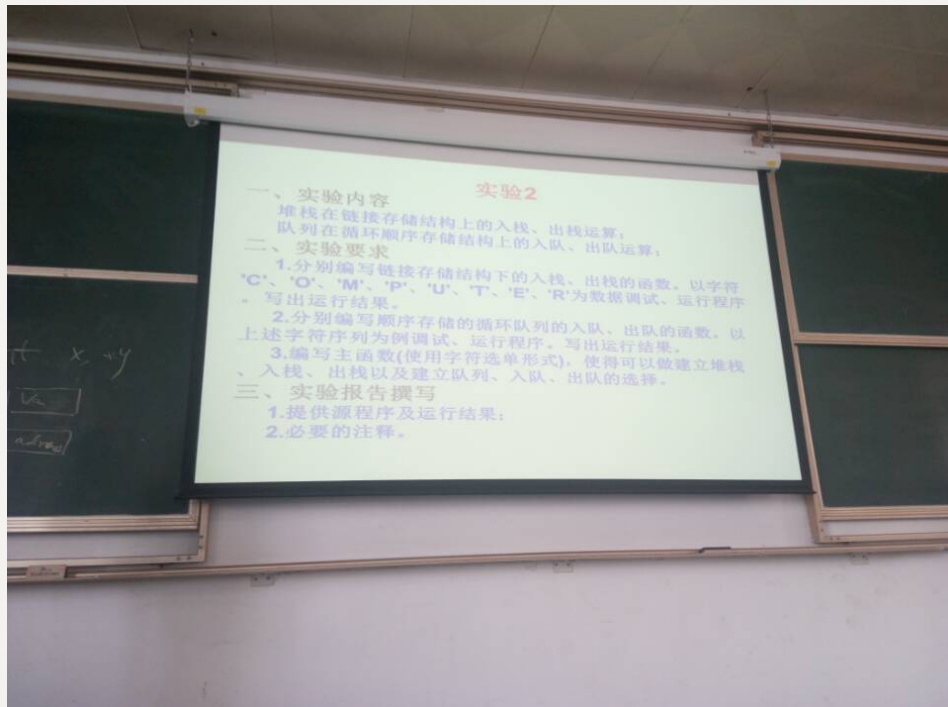# 数据结构实验课第二次作业

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一 实验要求：

二 功能设计：

Stack类（用链表形式实现）：

1. push 向栈顶压入
2. pop 弹出栈顶元素
3. top 返回栈顶元素
4. size 返回栈内元素数量
5. empty 检测栈是否为空
6. clear 清空栈

Queue类（用顺序数组形式实现）：

1. push 向队列尾压入新元素
2. pop 弹出队列首元素
3. size 返回队列长度
4. font 返回队首元素

QueueLink类（用链表形式实现）

1. push 向队列尾压入新元素
2. pop 弹出队列首元素
3. size 返回队列长度
4. font 返回队首元素
5. empty 检测队列是否为空
6. clear 清空队列

三 输出样例：

```
Input 1 to chose stack ,input 2 to chose queue and input 0 to quit:1
order operation:
1      push some value.
2      pop the top.
3      return the top.
4      return the size.
5      clear the stack.
0      exit.
1 5
push 5 successfully
---------------------------

order operation:
1      push some value.
2      pop the top.
3      return the top.
4      return the size.
5      clear the stack.
0      exit.
1 10
push 10 successfully
---------------------------

order operation:
1      push some value.
2      pop the top.
3      return the top.
4      return the size.
5      clear the stack.
0      exit.
3
top value:10
---------------------------

order operation:
1      push some value.
2      pop the top.
3      return the top.
4      return the size.
5      clear the stack.
0      exit.
2
pop successfully
---------------------------
```

```
Input 1 to chose stack ,input 2 to chose queue and input 0 to quit:2
order operation:
1       push some value.
nversioned  the font.
3       return the font.
4       return the size.
0       exit.
1 2
push 2 successfully
------------------------------

order operation:
1       push some value.
2       pop the font.
3       return the font.
4       return the size.
0       exit.
1 6
push 6 successfully
------------------------------

order operation:
1       push some value.
2       pop the font.
3       return the font.
4       return the size.
0       exit.
3
font value:2
------------------------------

order operation:
1       push some value.
2       pop the font.
3       return the font.
4       return the size.
0       exit.
2
pop successfully
------------------------------

order operation:
1       push some value.
2       pop the font.
3       return the font.
4       return the size.
0       exit.
3
font value:6
------------------------------

order operation:
1       push some value.
2       pop the font.
```

```
Input 1 to chose stack ,input 2 to chose queue and input 0 to quit:2
order operation:
1       push some value.
nversioned  p the font.
3       return the font.
4       return the size.
0       exit.
1 2
push 2 successfully
-----------------------------

order operation:
1       push some value.
2       pop the font.
3       return the font.
4       return the size.
0       exit.
1 6
push 6 successfully
-----------------------------

order operation:
1       push some value.
2       pop the font.
3       return the font.
4       return the size.
0       exit.
3
font value:2
-----------------------------

order operation:
1       push some value.
2       pop the font.
3       return the font.
4       return the size.
0       exit.
2
pop successfully
-----------------------------

order operation:
1       push some value.
2       pop the font.
3       return the font.
4       return the size.
0       exit.
3
font value:6
-----------------------------

order operation:
1       push some value.
2       pop the font.
```

四 程序健壮性：

在程序的每一次用户输入时都加入了异常处理，使得用户在输入异常时可以重新输入。