

Lab4 report

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实验目标

实现等大分区管理和动态分区内存管理

源代码说明

使用空闲链表将不同的EMB块链接起来，用头插法和遍历等手段维护。合并EMB需要检测前后块的关系。

问题回答

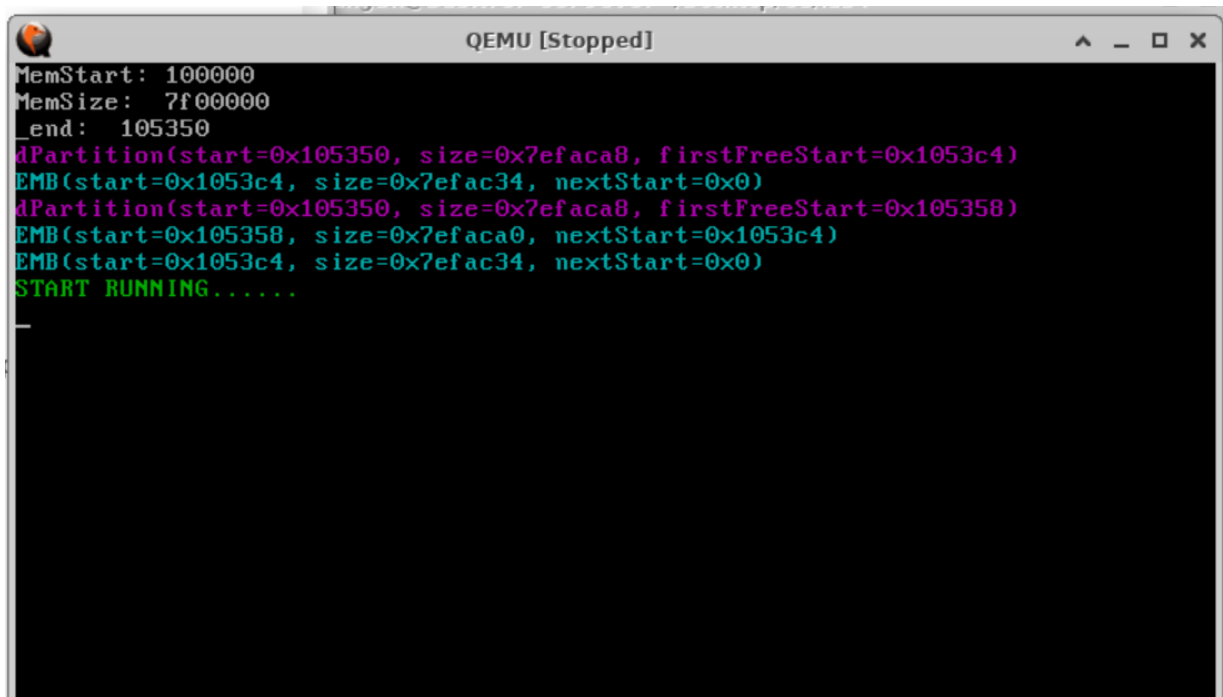
1. 请写出动态分配算法的malloc接口是如何实现的（即malloc函数调用了哪个函数，这个函数又调用了哪个函数...）

malloc调用了dPartitionAlloc函数，这个函数又调用了dPartitionAllocFirstFit函数，我们在dPartitionAllocFirstFit中实现分配算法

2. 运行 memTestCaseInit 那些新增的shell命令，会出现什么结果，即打印出什么信息（截图放到报告中）？是否符合你的预期，为什么会出现这样的结果。（详细地讲一两个运行结果，大同小异的可以从简）

最终没有把free函数debug完全，所以有一部分test是错误的，malloc则是正确的

init:



```
QEMU [Stopped]
MemStart: 100000
MemSize: 7f00000
_end: 105350
dPartition(start=0x105350, size=0x7efaca8, firstFreeStart=0x1053c4)
EMB(start=0x1053c4, size=0x7efac34, nextStart=0x0)
dPartition(start=0x105350, size=0x7efaca8, firstFreeStart=0x105358)
EMB(start=0x105358, size=0x7efaca0, nextStart=0x1053c4)
EMB(start=0x1053c4, size=0x7efac34, nextStart=0x0)
START RUNNING.....
```

testMalloc:

```
yangbh@DESKTOP-80P9CVU: ~/Desktop/OS/lab4
File Edit View Search Terminal Help

Student >:sda
sda
UNKNOWN command: sda
Student >:testMalloc1
testMalloc1
UNKNOWN command: testMalloc1
Student >:testMacc
testMacc
UNKNOWN command: testMacc
Student >:testMalloc1
testMalloc1
We allocated 2 buffers.
BUF1(size=19, addr=0x105978) filled with 17(*): *****
BUF2(size=24, addr=0x105998) filled with 22(#): #####

Student >:testMalloc2
testMalloc2
We allocated 2 buffers.
BUF1(size=9, addr=0x105978) filled with 9(+): ++++++++
BUF2(size=19, addr=0x105990) filled with 19(,): ,,,,,,,,,,,,,,

Student >:█
```

testdP1:

```
We had successfully malloc() a small memBlock (size=0x100, addr=0x105978);
It is initialized as a very small dPartition;
dPartition(start=0x105978, size=0xf8, firstFreeStart=0x105980)
EMB(start=0x105980, size=0xf8, nextStart=0x1059f8)
Student >:[A ==> -:B:C:- ==> -:C- ==> - .
Student >:Alloc A with size 0x10: success(addr=0x105988)!
dPartition(start=0x105978, size=0xf8, firstFreeStart=0x105998)
EMB(start=0x105998, size=0xd8, nextStart=0x105a00)
Alloc memBlock B with size 0x20: success(addr=0x1059a0)!
dPartition(start=0x105978, size=0xf8, firstFreeStart=0x1059c0)
EMB(start=0x1059c0, size=0xb0, nextStart=0x1059f8)
Alloc memBlock C with size 0x30: success(addr=0x1059c8)!
dPartition(start=0x105978, size=0xf8, firstFreeStart=0x1059f8)
EMB(start=0x1059f8, size=0x78, nextStart=0x106000)
Now, release A.
dPartition(start=0x105978, size=0xf8, firstFreeStart=0x105980)
EMB(start=0x105980, size=0xf0, nextStart=0x1059f8)
Now, release B.
dPartition(start=0x105978, size=0xf8, firstFreeStart=0x105980)
EMB(start=0x105980, size=0xf0, nextStart=0x105998)
EMB(start=0x105998, size=0xffefa660, nextStart=0x1059f8)
At last, release C.
dPartition(start=0x105978, size=0xf8, firstFreeStart=0x105980)
EMB(start=0x105980, size=0xf0, nextStart=0x105998)
EMB(start=0x105998, size=0xffefa660, nextStart=0x1059c0)
EMB(start=0x1059c0, size=0xffefa638, nextStart=0x1059f8)
Student >: UNKNOWN command: [A
```

截图(Alt + A)

