

Memory Model Question

Consider the memory diagram below. The diagram shows the state of the program exactly before the function `spaces` returns. Uninitialized blocks of memory have ??? for their values. Complete the code to match the diagram. Your code should free all memory at the appropriate time. The function should work as expected even if we changed the arguments to the function. In other words, you will not get full marks if you hard-code the solution.

Your code will be written in q2.c. You do not need to submit this file.

(Note that the "|" around the Values in the Read-only section are not part of the value. The "|" shows where the value begin and ends.)

| Section | Address | Value | Label |
|------------------------|---------|-------|----------|
| Read-only | 0x108 | Cat | |
| | 0x10c | vs D | |
| | 0x110 | og\0 | |
| | 0x114 | | |
| | 0x118 | | |
| | 0x11c | | |
| | : | : | |
| Heap | 0x238 | 0x10b | |
| | 0x23c | | |
| | 0x240 | 0x10e | |
| | 0x244 | | |
| | 0x248 | | |
| | 0x24c | | |
| | : | : | |
| | 0x454 | | |
| | 0x458 | | |
| Stack <i>spaces</i> | 0x45c | | |
| | 0x460 | 0x108 | s |
| | 0x464 | | |
| | 0x468 | 0x238 | ptrs |
| | 0x46c | 2 | j |
| | 0x470 | 10 | i |
| | 0x474 | | |
| | 0x478 | | |
| | 0x47c | | |
| | 0x480 | | |
| | 0x484 | | |
| <i>main</i> | 0x488 | 2 | n |
| | 0x48c | 0x238 | arr |
| | 0x490 | | |
| | 0x494 | 0x108 | sentence |
| | 0x498 | | |
| | 0x49c | | |