

1. Where the following 4 items are stored in memory?(2 pts)(全對才給分)
(Hint: A C program memory has stack, heap, data segment and text segment.)

global variable -> data segment

local variable -> stack

memory allocated via malloc() -> heap

return address -> stack

2. According to the picture below, assume logical address (P+D) is 32 bits long, size of each page is 16KB, and entry size of page table is fixed to 4 bytes.

2-1 What is the length of D?(1 pt)

Answer: Page size = 16KB = 2^{14} B, thus D is 14 bits long.

2-2 What is the maximum possible size of the whole page table?(2pt)

Answer : $P = 32 - 14 = 18$ bits => number of entries = 2^{18}

=> max. page table size = $2^{18} * 4B = 1MB$

