Algorithm Clone a linked list with *next* and *random* pointers

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1: **function** Clone_Linked_List(*old_head*)
   ▷ *node_just_below* is a hash map where the keys are the address of the original list
   ▷ The values is the address of the corresponding node in the new list

2:    **if** List is empty **then**
3:        **return**

4:    *backup* ← *old_head*

5:    *new_head* ← *Deep_Copy*(*old_head*)
6:    *node_just_below*[*old_head*] ← *new_head*
7:    **while** *old_head.next* **exist**, **do**   ▷ Make a normal copy
8:        *new_head.next* ← *Deep_Copy*(*old_head.next*)
9:        *old_head* ← *old_head.next*
10:       *new_head* ← *new_head.next*
11:       *node_just_below*[*old_head*] = *new_head*   ▷ Vertically link the nodes

12:    *node_just_below*[*null*] ← *null*
13:    **for** all *key* in HashMap **do**   ▷ Correct all the random pointers
14:        **if** *key* is not *null* **then**
15:            *node_just_below*[*key*].*random* = *node_just_below*[*key.random*]
16:    **return** *node_just_below*[*backup*]

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