Cycle Detection

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A linked list is said to contain a *cycle* if any node is visited more than once while traversing the list.

Complete the function provided for you in your editor. It has one parameter: a pointer to a *Node* object named $head$ that points to the head of a linked list. Your function must return a boolean denoting whether or not there is a cycle in the list. If there *is* a cycle, return *true*; otherwise, return *false*.

Note: If the list is empty, $head$ will be *null*.

Input Format

Our hidden code checker passes the appropriate argument to your function. You are not responsible for reading any input from stdin.

Constraints

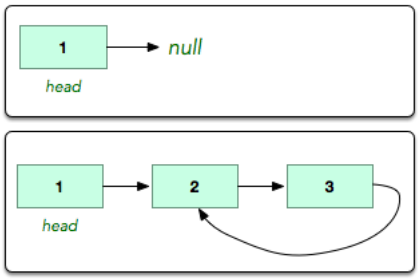
- $0 \leq list\ size \leq 100$

Output Format

If the list contains a cycle, your function must return *true*. If the list *does not* contain a cycle, it must return *false*. The binary integer corresponding to the boolean value returned by your function is printed to stdout by our hidden code checker.

Sample Input

The following linked lists are passed as arguments to your function:



Sample Output

```
0
1
```

Explanation

1. The first list has no cycle, so we return *false* and the hidden code checker prints 0 to stdout.
2. The second list has a cycle, so we return *true* and the hidden code checker prints 1 to stdout.

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Current Buffer (saved locally, editable) Python 3

```
"""
Detect a cycle in a linked list. Note that the head pointer may be 'None' if the list is empty.

A Node is defined as:

    class Node(object):
        def __init__(self, data = None, next_node = None):
            self.data = data
            self.next = next_node
"""


def has_cycle(head):
    a=head
    b=head
    while(a and b and b.next):
        a=a.next
        b=b.next.next
        if (a==b):
            return True
    else:
        return False

```

Line: 1 Col: 1

Upload Code as File Test against custom input Run Code Submit Code

Testcase 0 ✔

Congratulations, you passed the sample test case.

Click the **Submit Code** button to run your code against all the test cases.

Input (stdin)

1

Your Output (stdout)

```
0
1
1
0
1
```

Expected Output

```
0
1
1
0
1
```