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Design a logger system that receives a stream of messages along with their timestamps. Each unique message should only be printed at most every 10 seconds (i.e. a message printed at timestamp t will prevent other identical messages from being printed until timestamp $t + 10$). All messages will come in chronological order. Several messages may arrive at the same timestamp. Implement the Logger class:

- `Logger()` Initializes the logger object.
- `bool shouldPrintMessage(int timestamp, string message)` Returns true if the message should be printed in the given timestamp, otherwise returns false.

Example 1:

Input `["Logger", "shouldPrintMessage", "shouldPrintMessage", "shouldPrintMessage", "shouldPrintMessage", "shouldPrintMessage", "shouldPrintMessage"]`

`[[], [1, "foo"], [2, "bar"], [3, "foo"], [8, "bar"], [10, "foo"], [11, "foo"]]`

Output `[null, true, true, false, false, false, true]`

Explanation `Logger logger = new Logger();`

`logger.shouldPrintMessage(1, "foo");` // return true, next allowed timestamp for "foo" is $1 + 10 = 11$

`logger.shouldPrintMessage(2, "bar");` // return true, next allowed timestamp for "bar" is $2 + 10 = 12$

`logger.shouldPrintMessage(3, "foo");` // $3 < 11$, return false

`logger.shouldPrintMessage(8, "bar");` // $8 < 12$, return false

`logger.shouldPrintMessage(10, "foo");` // $10 < 11$, return false

`logger.shouldPrintMessage(11, "foo");` // $11 \geq 11$, return true, next allowed timestamp for "foo" is $11 + 10 = 21$

Constraints:

- $0 \leq \text{timestamp} \leq 10^9$
- Every timestamp will be passed in non-decreasing order (chronological order).
- $1 \leq \text{message.length} \leq 30$ • At most 10^4 calls will be made to `shouldPrintMessage`.

CODE & OUTPUT

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CW mid_assignment logger.py

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- External Libraries
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```
1 class Logger:
2     def __init__(self):
3         self.timer = {}
4
5     def should_print_message(self, timestamp=None, message=None):
6         if timestamp is None or message is None:
7             return
8         if self.timer.__contains__(message):
9             if timestamp < self.timer[message]:
10                 return False
11             else:
12                 self.timer[message] = timestamp + 10
13                 return True
14         else:
15             self.timer[message] = timestamp + 10
16             return True
17
18
19 logger = Logger()
20 logger_list = []
21
22 print('=====\n')
23 count = int(input("Enter no of logs : "))
24 while count:
25     time_stamp, message = input("Enter timestamp & message separated by space").split(" ")
26     logger_list.append(logger.should_print_message(int(time_stamp), message))
27     count -= 1
28
29 print(f'Printing Logs : {logger_list}\n')
30 print('=====\n')
31
```

Run: logger

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```
14 else:
15     self.timer[message] = timestamp + 10
16     return True
17
18
19 logger = Logger()
20 logger_list = []
21
22 print('=====\n')
23 count = int(input("Enter no of logs : "))
24 while count:
25     time_stamp, message = input("Enter timestamp & message separated by space").split(" ")
26     logger_list.append(logger.should_print_message(int(time_stamp), message))
27     count -= 1
28
29 print(f'Printing Logs : {logger_list}\n')

```

Run: logger

/Users/amanverma/PycharmProjects/CW/venv/bin/python /Users/amanverma/PycharmProjects/CW/mid_assignment/logger.py

```
=====
Enter no of logs : 6
Enter timestamp & message separated by space: 100
Enter timestamp & message separated by space: 100
Enter timestamp & message separated by space: 100
Enter timestamp & message separated by space: 100
Enter timestamp & message separated by space: 100
Enter timestamp & message separated by space: 100
Printing Logs : [True, True, False, False, True, True]

=====

Process finished with exit code 0

```

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