

* Toeplitz Matrix

$O(m \times n)$
 $O(1)$

for each row position we can check in previous rows previous column.

follow up 1

If we can load 1 row to memory, store first & row to memory

$O(m \times n)$
 $O(n)$

then remove the last element & insert to first index.

then

continue

follow up 2

If we ~~can~~ can only load partial row to memory.

$O(m \times n)$
 $O(n)$

overlappings

1 2 3 4 5 6 7 8 9 10 11 12

1 2 3 4 + 4 5 6 7 + 7 8 9 10 + 10 11 12

load as chunks.