Prokaryote Growths (1) W13157_en

A petri dish is represented as a grid of size $N \times M$, where:

- `B` represents a bacterium
- `.` represents an empty space

At each growth cycle, each bacterium spreads to its neighboring cells in horitzontal and vertical directions (i.e., up, down, left, right).
Write a function `growth_cycle(grid)` that, given an $N \times M$ matrix representing the initial state of the colony, returns the state of the petri dish after one growth cycle.

EXAMPLES

Example 1

Inital state	After 1 cycle (new cells in boldface)
. . . . . B .	. . . **B** **B** B **B**
. . . B . . .	**B** . **B** B **B** **B** .
B	B **B** . **B** . **B** .
. . . . . B .	**B** . . . **B** B **B**
. . . .	. . . . . **B** .

Example 2

Inital state	After 1 cycle (new cells in boldface)
. . . .	. . . **B** . . . .
. . . B	. . **B** B **B** . . .
. . . B	**B** . **B** B **B** . . .
B	B **B** . **B** . . . .

Example 3

Inital state	After 1 cycle (new cells in boldface)
. . . . .	. **B** . **B** . .
. B . B . .	**B** B **B** B **B** .
B	B **B** . **B** . **B**
. . . . . B	**B** . . . **B** B
. . . . . B	. . . . **B** B
. . . . .	. . . . . **B**

Observation

- In order to avoid spreading newly born cells, use a new matrix to store the new status of the dish.
- It may be useful to write a function `inside(grid,p,q)` that returns `True` if position (`p`,`q`) is inside the limits of `grid`, and `False` otherwise.

Important: Submit only the function. If you have a main program, comment it out or embed it inside a conditional clause `if __name__ == "__main__":`

Problem information

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