

210CT Week 2 Code Golf Challenge

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WHAT IS CODE GOLF + RULES

1. Code golf is a programming competition in which the participants need to write the shortest code that solves a certain task.
2. The task is presented below, under the Challenge section.
3. This competition will take place weekly and is open to all students undertaking 210CT – around 315 students 😊
4. One prize will be awarded for Python and one prize will be awarded for C/C++. If you are working in another language just pick one of these other two if you want to take part in the challenge (therefore implement it in either C/C++ or Python).
5. Shortest code in this context means the lowest number of characters.
6. Send me an email (ab8351@coventry.ac.uk) with the solution. After I collate all results, I will announce the winner and offer the prize in Thursday's lecture.
7. Good luck 😊

CHALLENGE

A plain of flowers could be attacked by a parasite, which infects the flowers and causes them to fade (lose their flowers). The Faded flowers are removed from the plain and new flowers are planted in their place. After a while, these flowers could potentially become infected by the parasite.

The environment can be shaped using the following rules:

1. An infected area becomes Faded the following year.
2. A Faded area becomes Healthy the following year.
3. An infected area passes on the infection onto its neighbours to the North, South, East and West the following year, if the latter are currently Healthy.

Write a computer program uses the rules above to simulate the changes in the plain of flowers over a number of generations.

Input specification:

The state of the plain of flowers is represented by a grid of 25 letters. For example:

```
HHHHH
HHIHH
HHFFH
HHHHH
HHHHH
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where H symbolises the healthy areas, I symbolises the infected areas and F symbolises the fading areas. The initial state of the plain of flowers should be read from the keyboard or from a text file, together with the number of generations for which the simulation will run.

Output specification:

A grid of 25 letters (as above) that reflects the state of the plain of flowers after the amount of generations you have specified as input.