

Computer Programming Laboratory - Array

More Exercises on Arrays

- Write (and test) a function that inserts an element at a given position in an array
- Write (and test) a function which concatenates two arrays
- Write a function which keeps asking for strings to the user and concatenates them into a single string
- Write a function which compares two arrays of integers

Exercises on Arrays

- We can use an array to store an integer number of a maximum of 256 digits.
- Each position in the array represents a digit

123

Array

Index	0	1	2		
	3	2	1	0	0
	10^0	10^1	10^2		

Exercises on Arrays

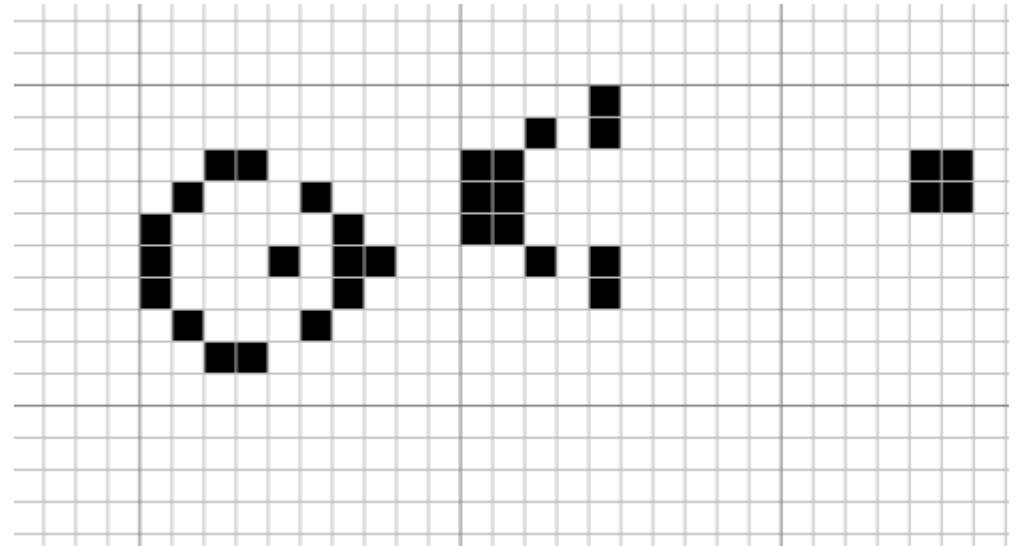
- Write a function that takes as input a string and converts into an infinite precision number
- Write a function which multiplies an infinite precision number by 10
- Write a function which multiplies an infinite precision number by 10^n
- Write a function which sums to infinite precision numbers

Exercises on Arrays: Game of Life

- Conway's Game of Life is a cellular automaton that is played on a 2D square grid. Each square (or "cell") on the grid can be either alive or dead, and they evolve according to the following rules:
 - Any live cell with fewer than two live neighbours dies (referred to as underpopulation).
 - Any live cell with more than three live neighbours dies (referred to as overpopulation).
 - Any live cell with two or three live neighbours lives, unchanged, to the next generation.
 - Any dead cell with exactly three live neighbours comes to life.
- The initial configuration of cells can be created by a human, but all generations thereafter are completely determined by the above rules.
- <https://conwaylife.com/>

Game of Life

- Implement the game of life using a 2-D Array
- Start from the following:
 - How is the program structured?
 - What functions do you need?
 - How many arrays do you need to move from one generation to the next?



MasterMind



Photo taken by [User:ZeroOne](#) - Own work

- The codemaker chooses four colors out of six
- The codebreaker tries to guess the pattern, in both order and color, within eight to twelve turns.
- Each guess is made by placing a row of code pegs on the decoding board.
- Once placed, the codemaker provides feedback by placing from zero to four key pegs in the small holes of the row with the guess.
- A colored or black key peg is placed for each code peg from the guess which is correct in both color and position.
- A white key peg indicates the existence of a correct color code peg placed in the wrong position.

MasterMind through the ages ...



```
int main() {  
}
```