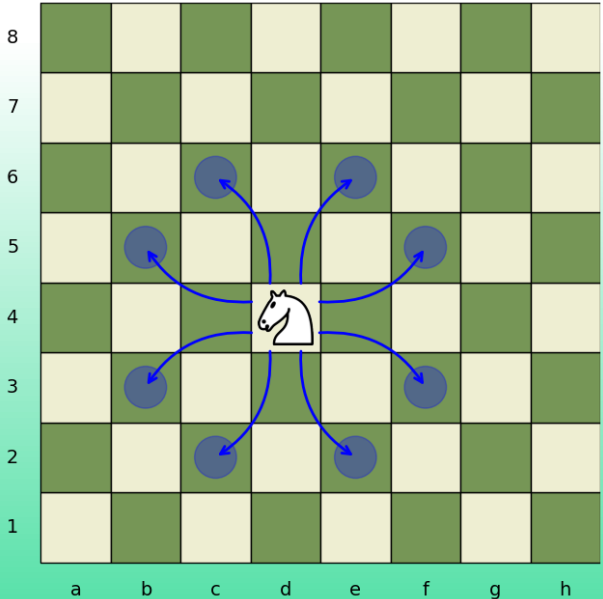
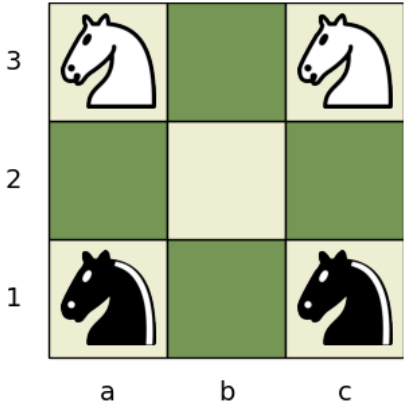
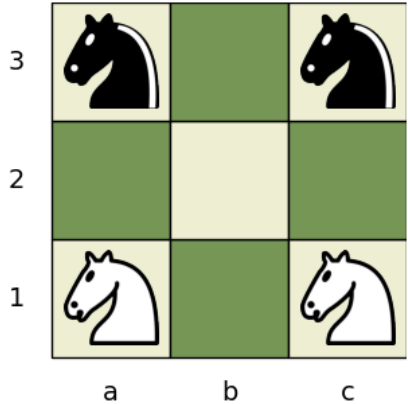


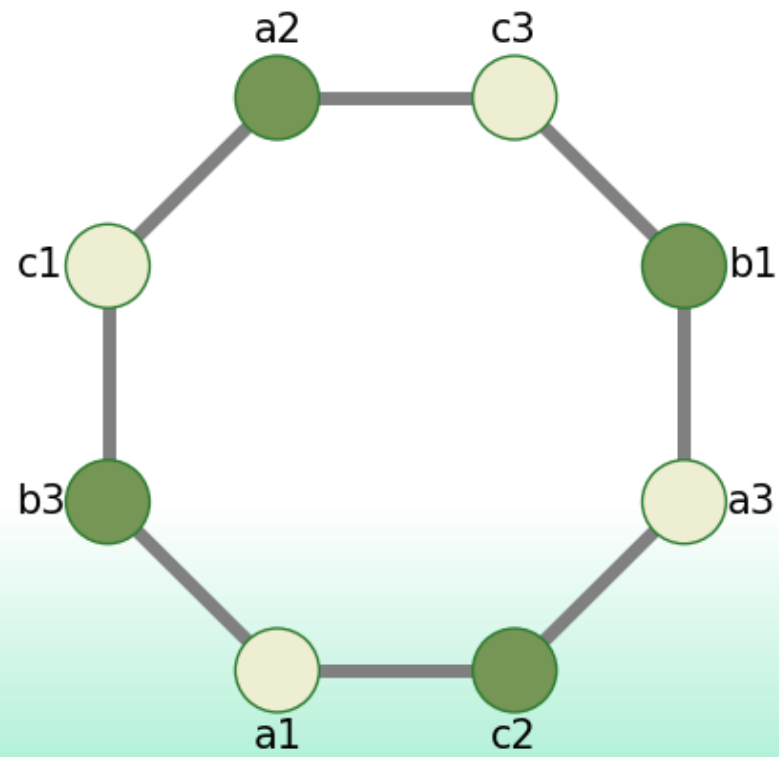
PROGRAMMAZIONE DEI CALCOLATORI CON LABORATORIO

gianluca.rossi@uniroma2.eu

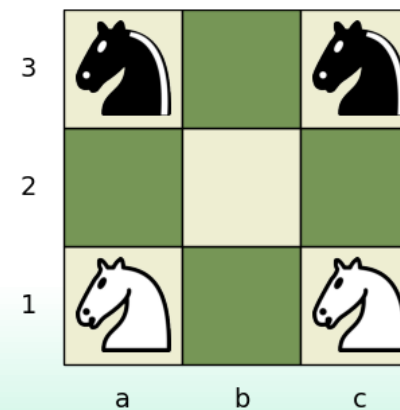
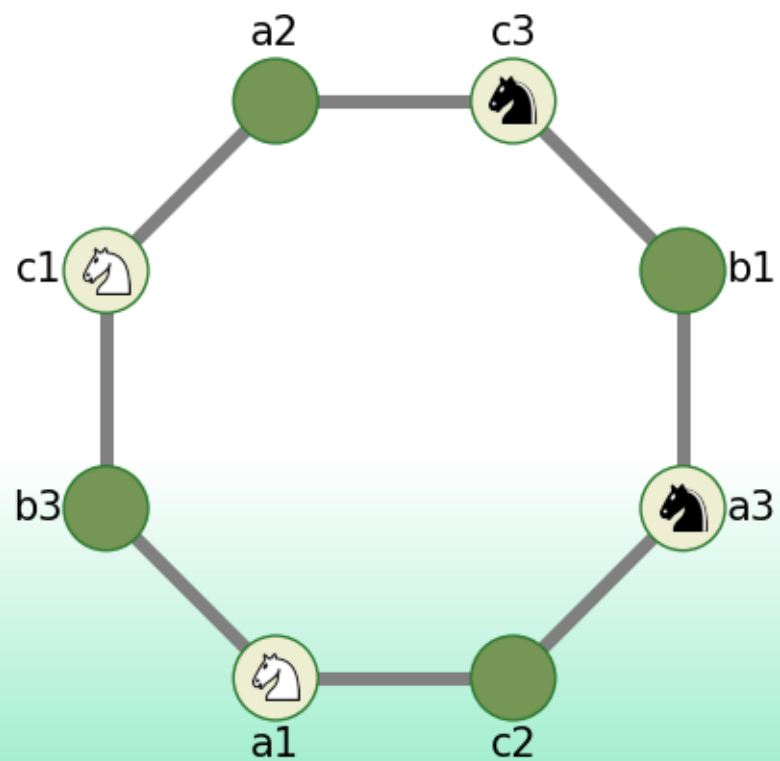
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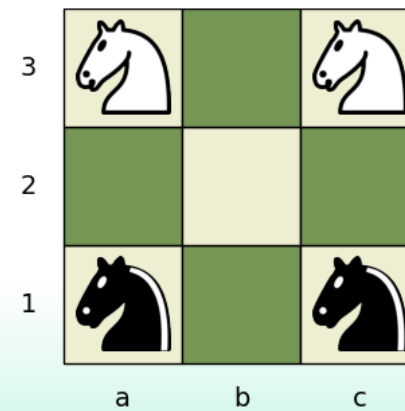
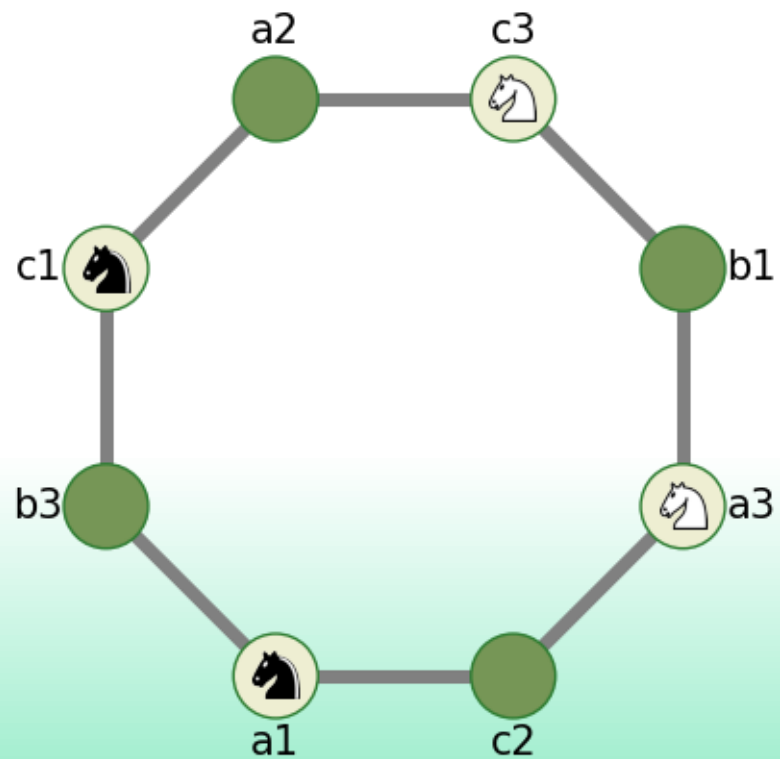
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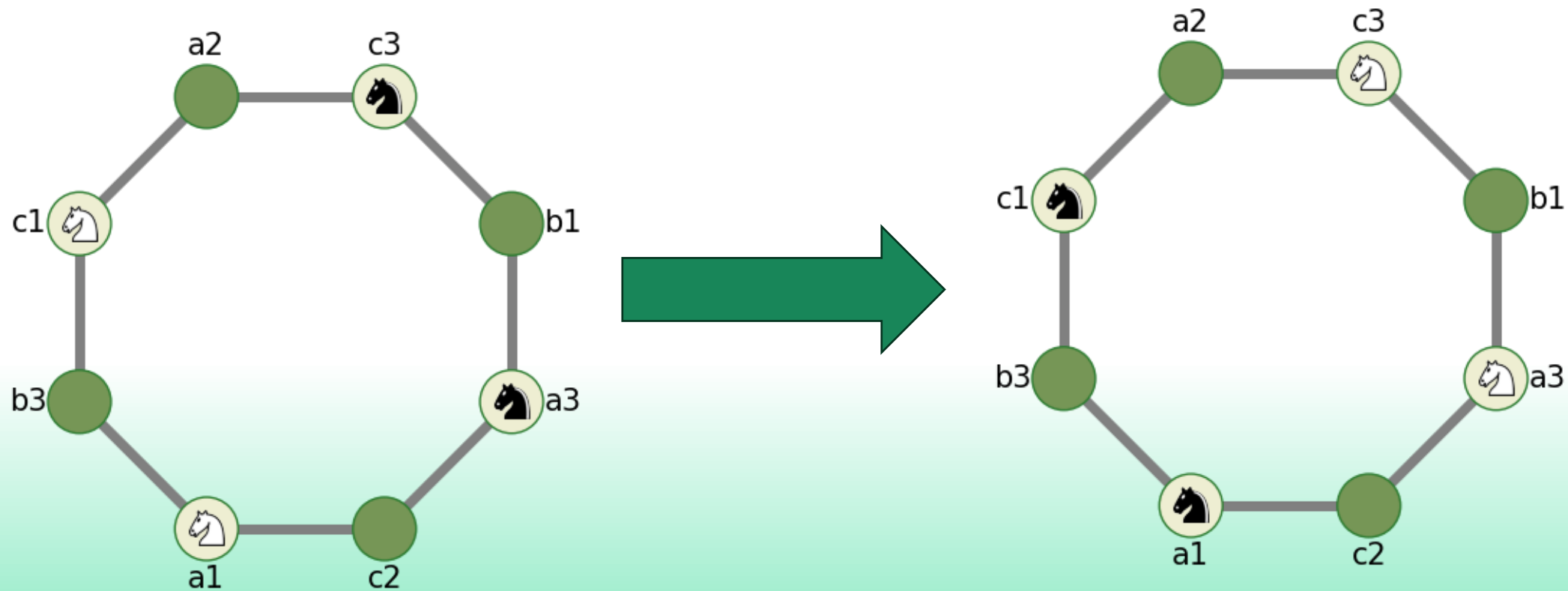
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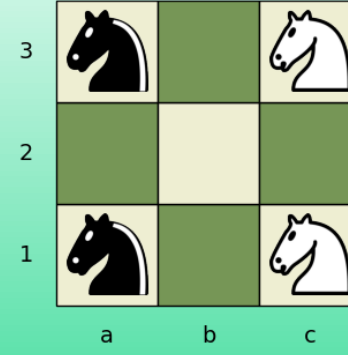
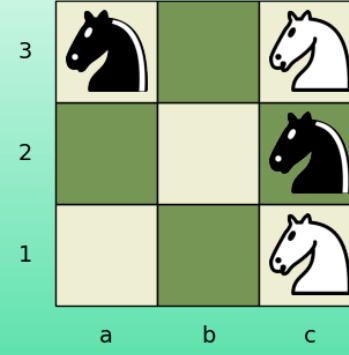
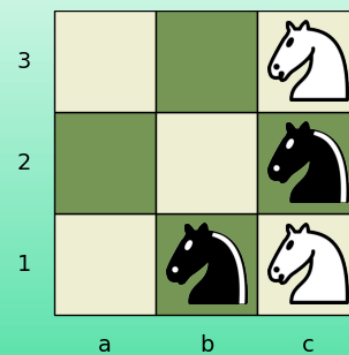
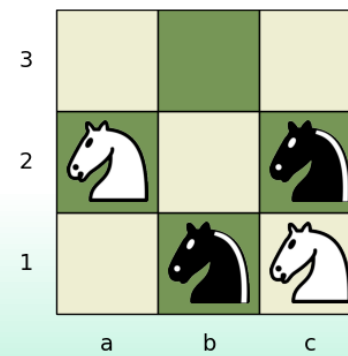
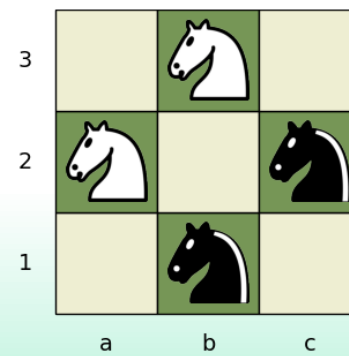
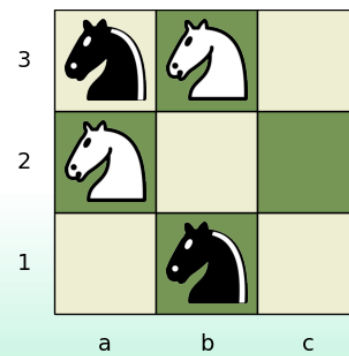
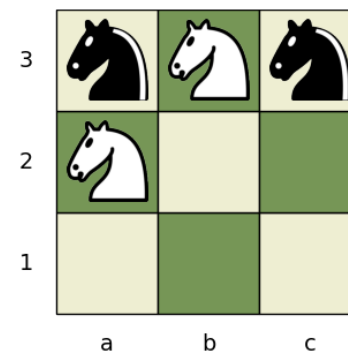
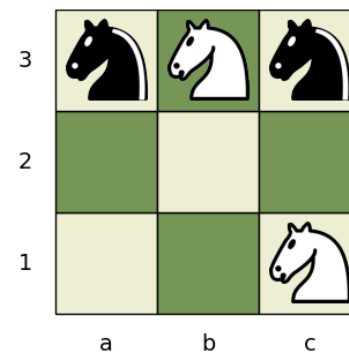
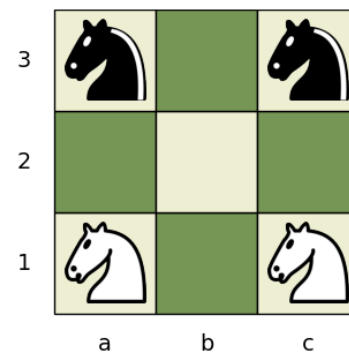
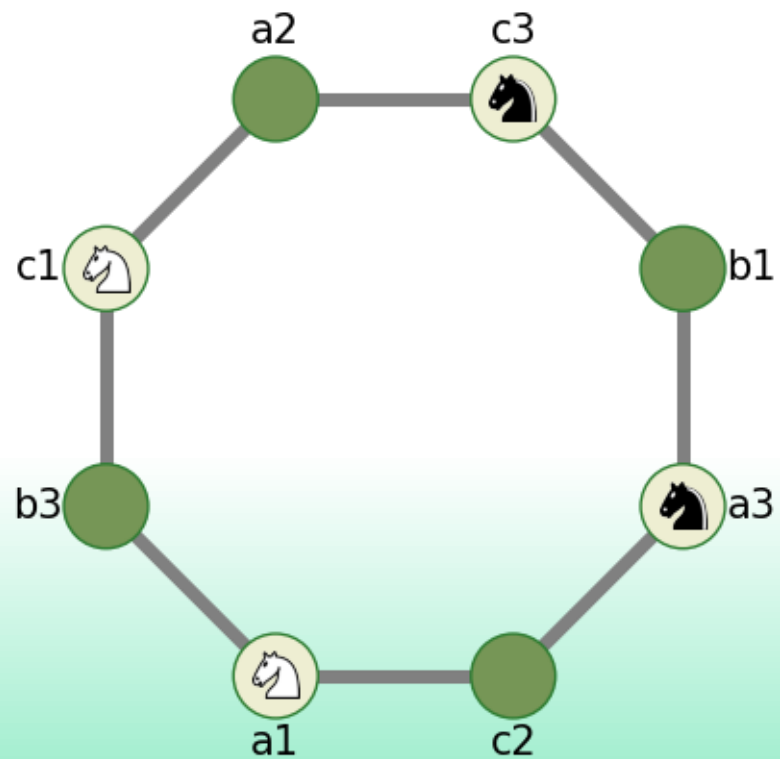
PUZZLE DI GUARINI



PUZZLE DI GUARINI



PUZZLE DI GUARINI





IL METODO INFORMATICO

Dal problema al modello

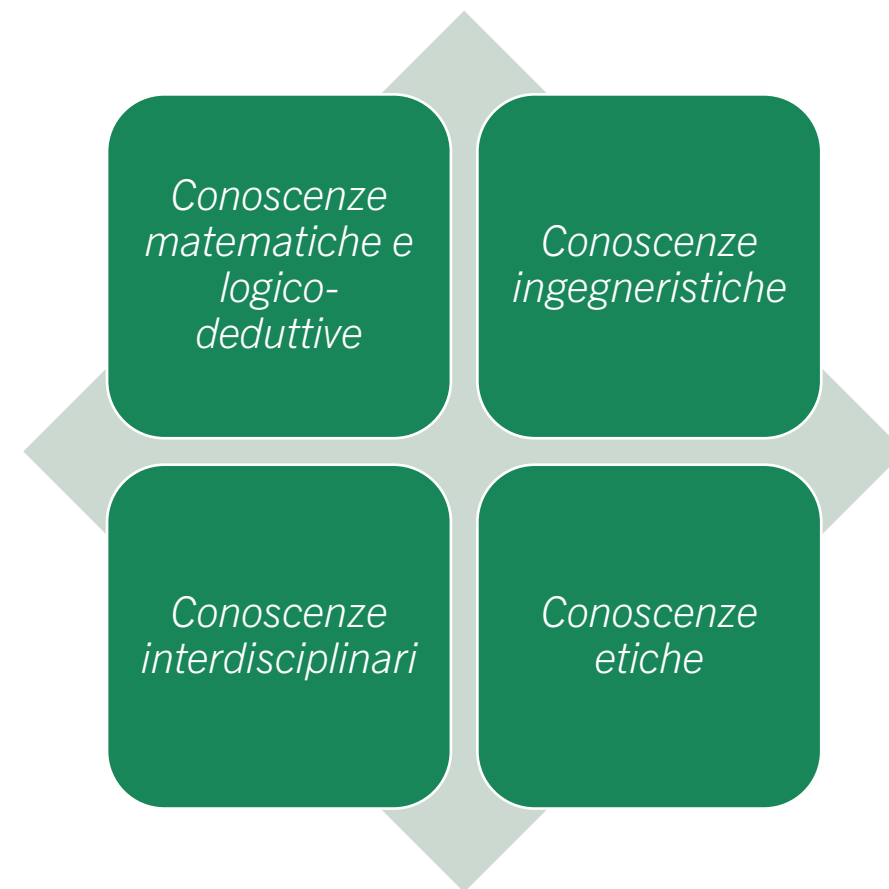
*Analisi del modello e
progettazione dell'algoritmo*

Implementazione

Verifica del programma

Verifica del modello

COMPETENZE



TROVARE π

ovvero
il rapporto tra circonferenza
e diametro

$$\pi = \frac{C}{d} = \frac{C}{2r}$$

L'area del cerchio è uguale a quella di un triangolo rettangolo con base uguale alla circonferenza del cerchio e altezza uguale al raggio.

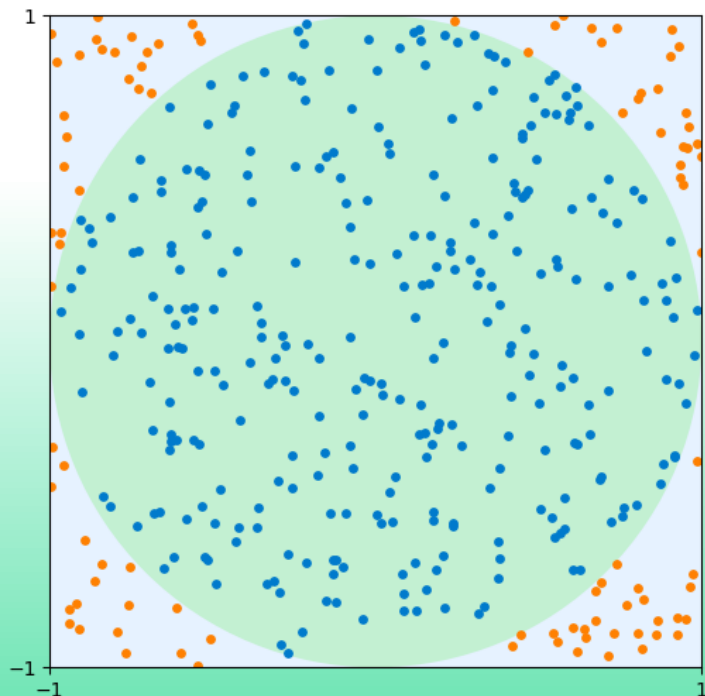
$$\text{area cerchio} = \frac{Cr}{2}$$



$$\pi = \text{area del cerchio di raggio 1}$$

ARCHIMEDE

CAMPIONAMENTO CASUALE



$$\frac{n}{n_c} \approx \frac{\text{area}(Q)}{\text{area}(C)}$$

$$\pi = \text{area}(C) \approx 4 \frac{n_c}{n}$$

Implementazione in Python

```
1  import random
2
3  n = 400
4  n_c = 0
5
6  for _ in range(n):
7      x = random.uniform(-1, 1)
8      y = random.uniform(-1, 1)
9
10     if x**2 + y**2 <= 1:
11         n_c += 1
12
13  print( 4 * n_c / n )
```

PRESTAZIONI

