



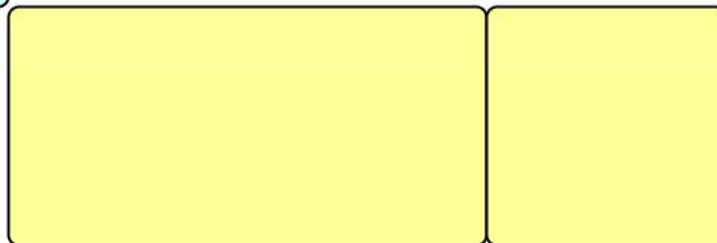
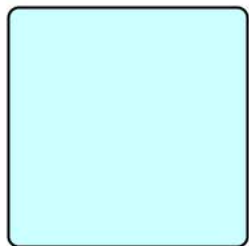
Dinamičko programiranje 1

Domagoj Kusalić

prisutstvo?

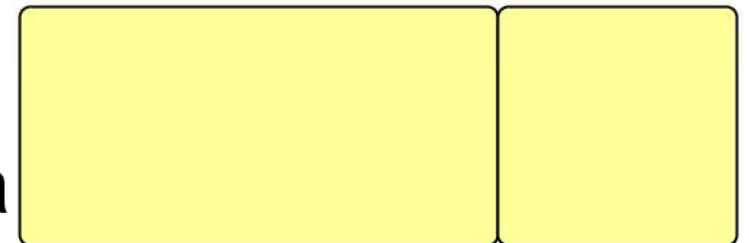


Prezentacija



Zadaci Kodiranje

Pauza



Zadaci Kodiranje





DP =

- tehnika oblikovanja rješenja.
- rastavljanje kompliciranog problema na manje podprobleme/korake.
- (stanja, relacije, inicijalizacija, poredak)



DP =

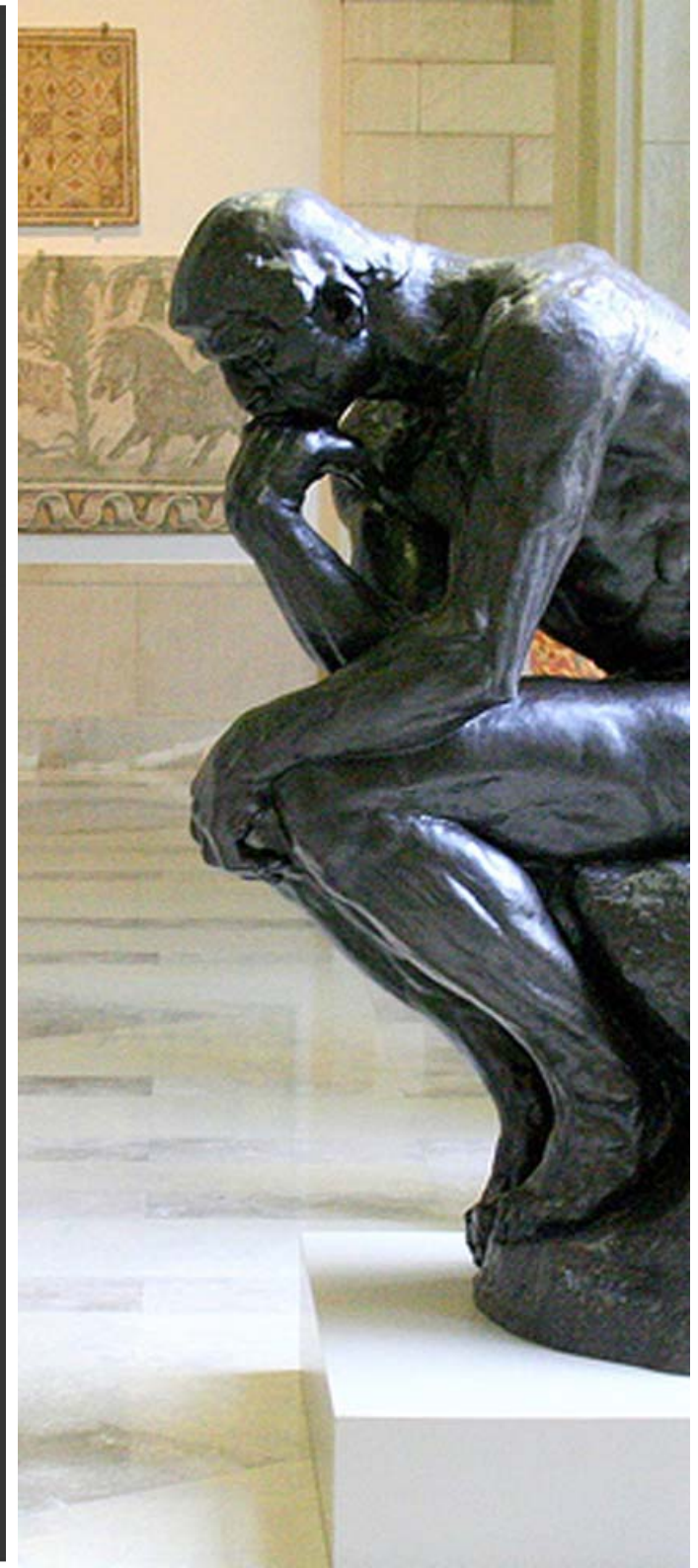
- tehnika oblikovanja rješenja.
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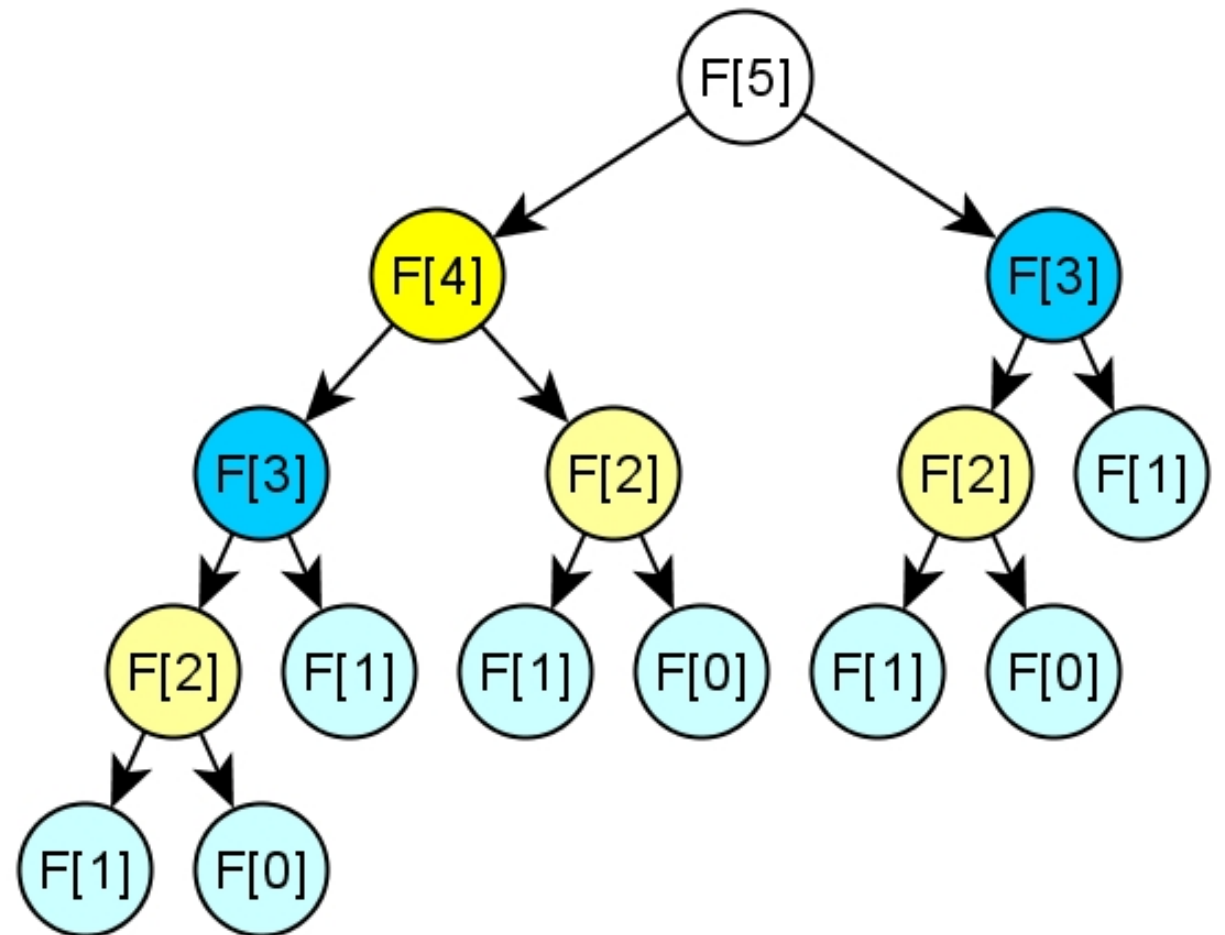


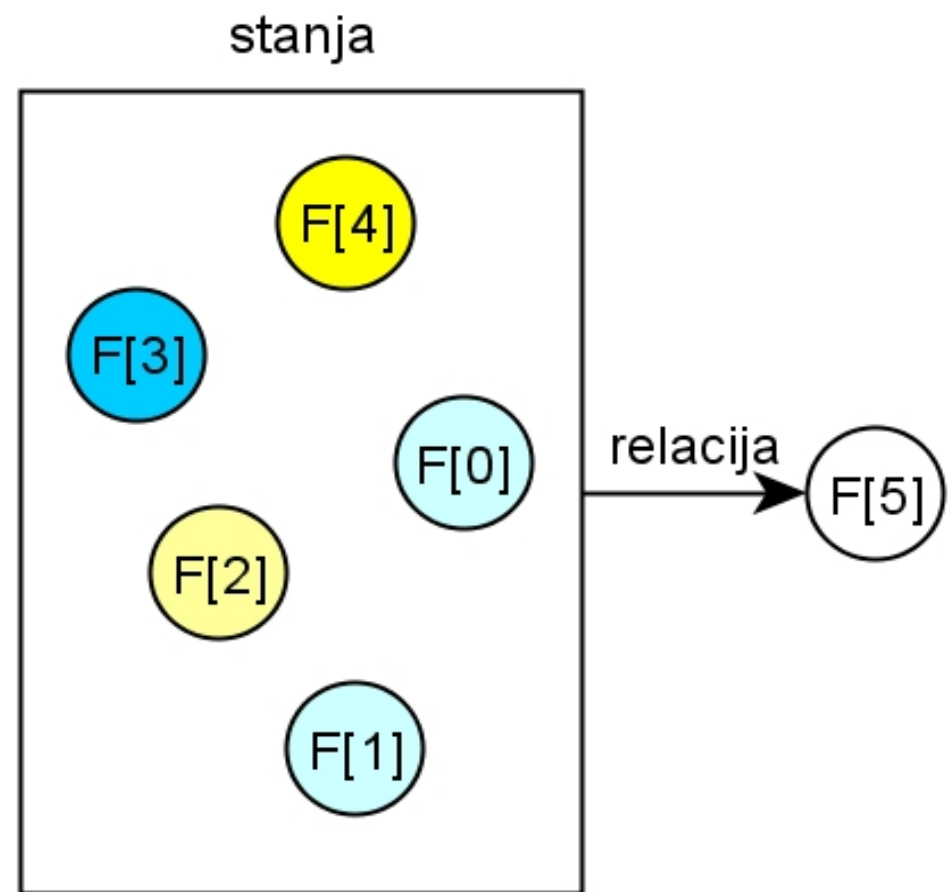
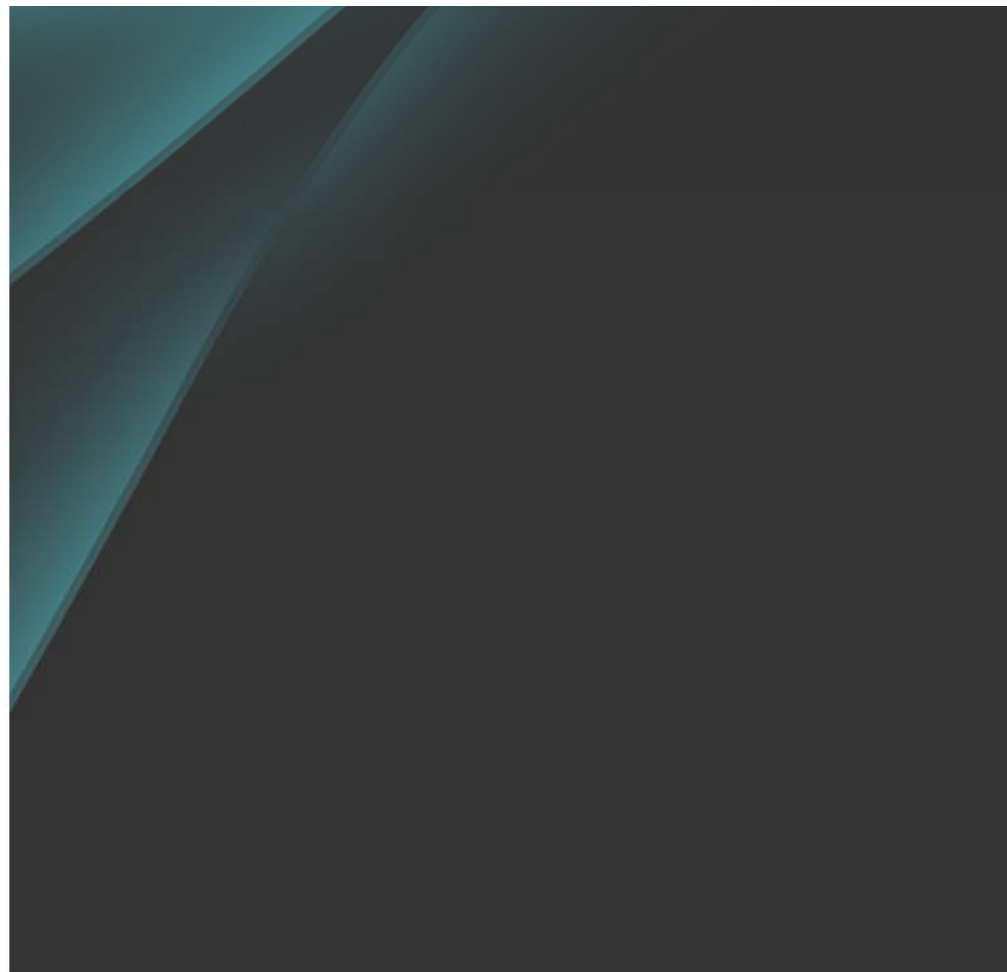
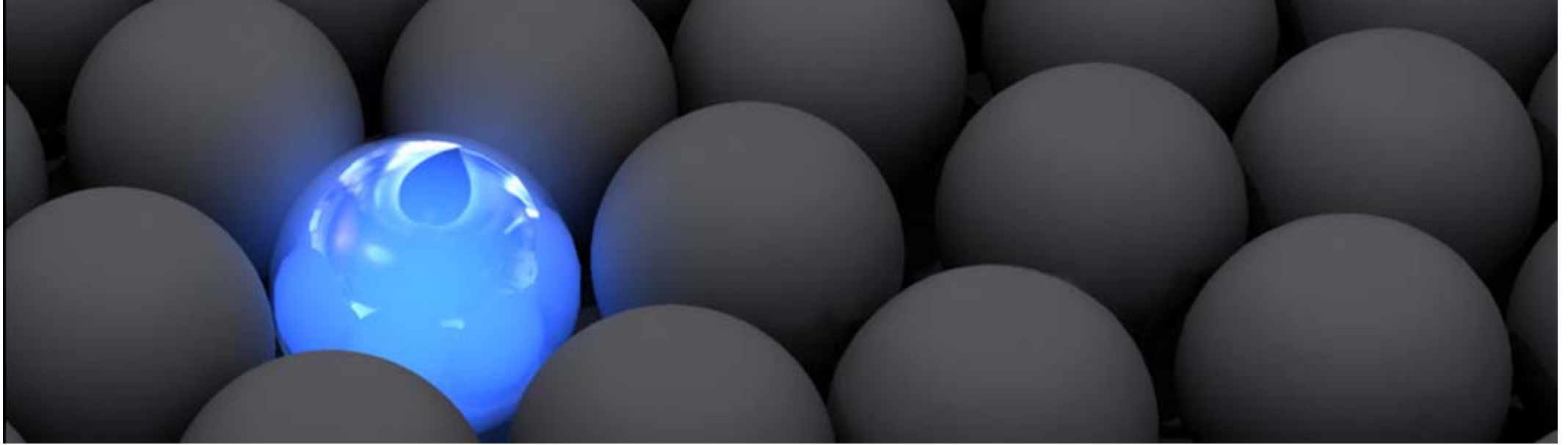
Zad1. Fibonacci

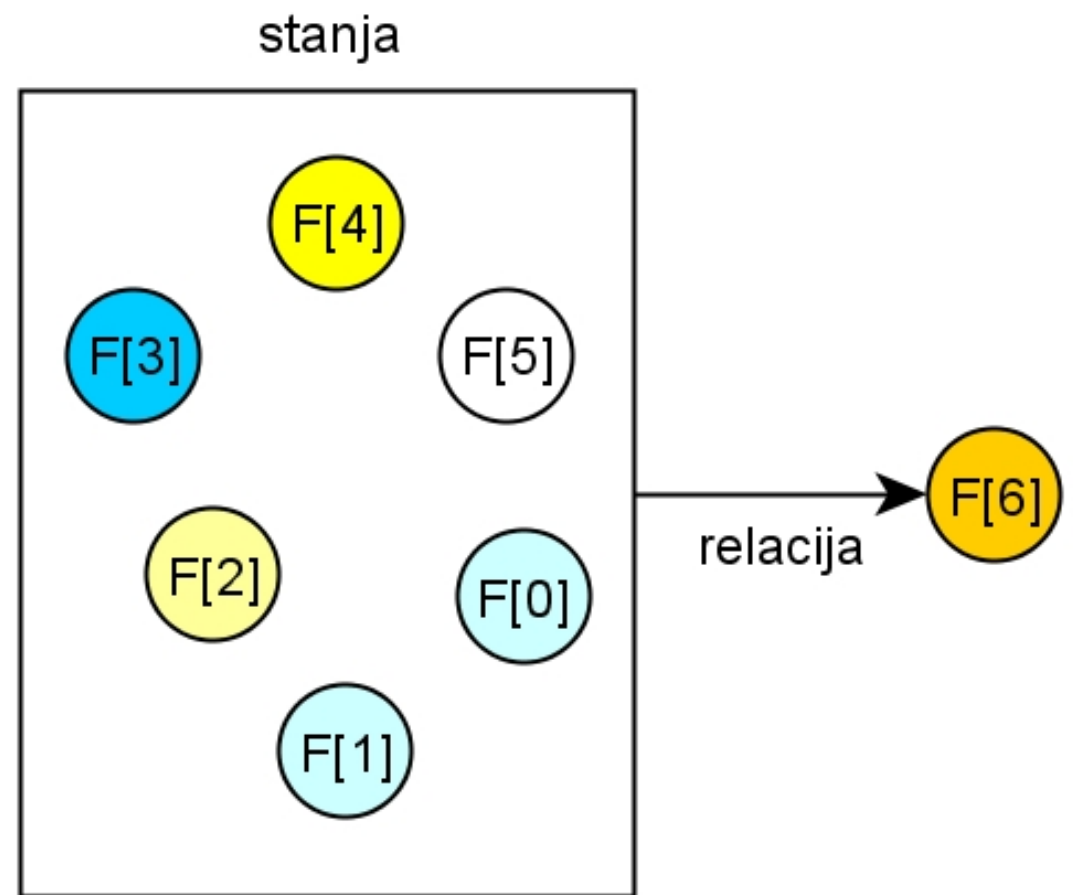
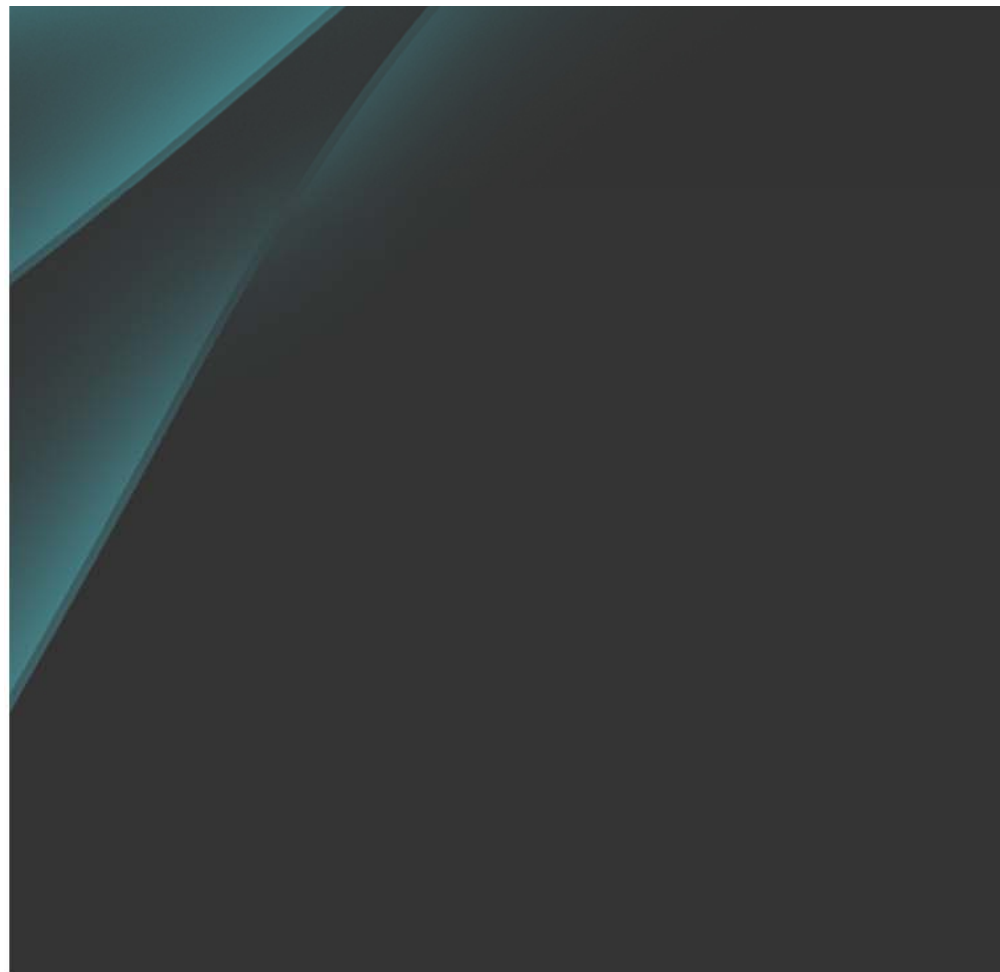
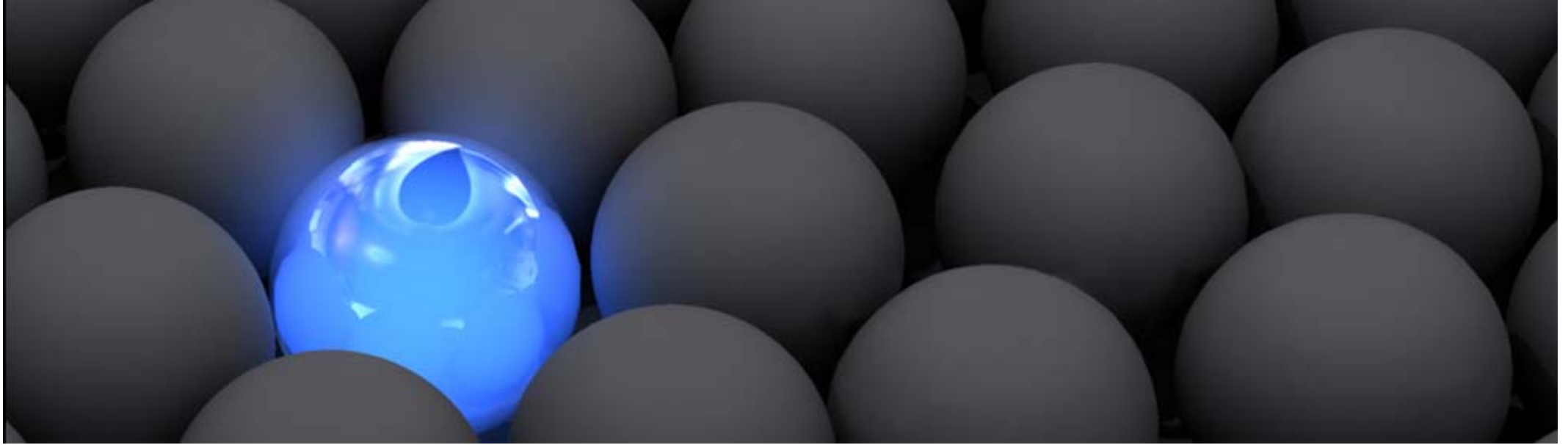
- $F[x] = F[x-1] + F[x-2]$
- $F[x] = ?$

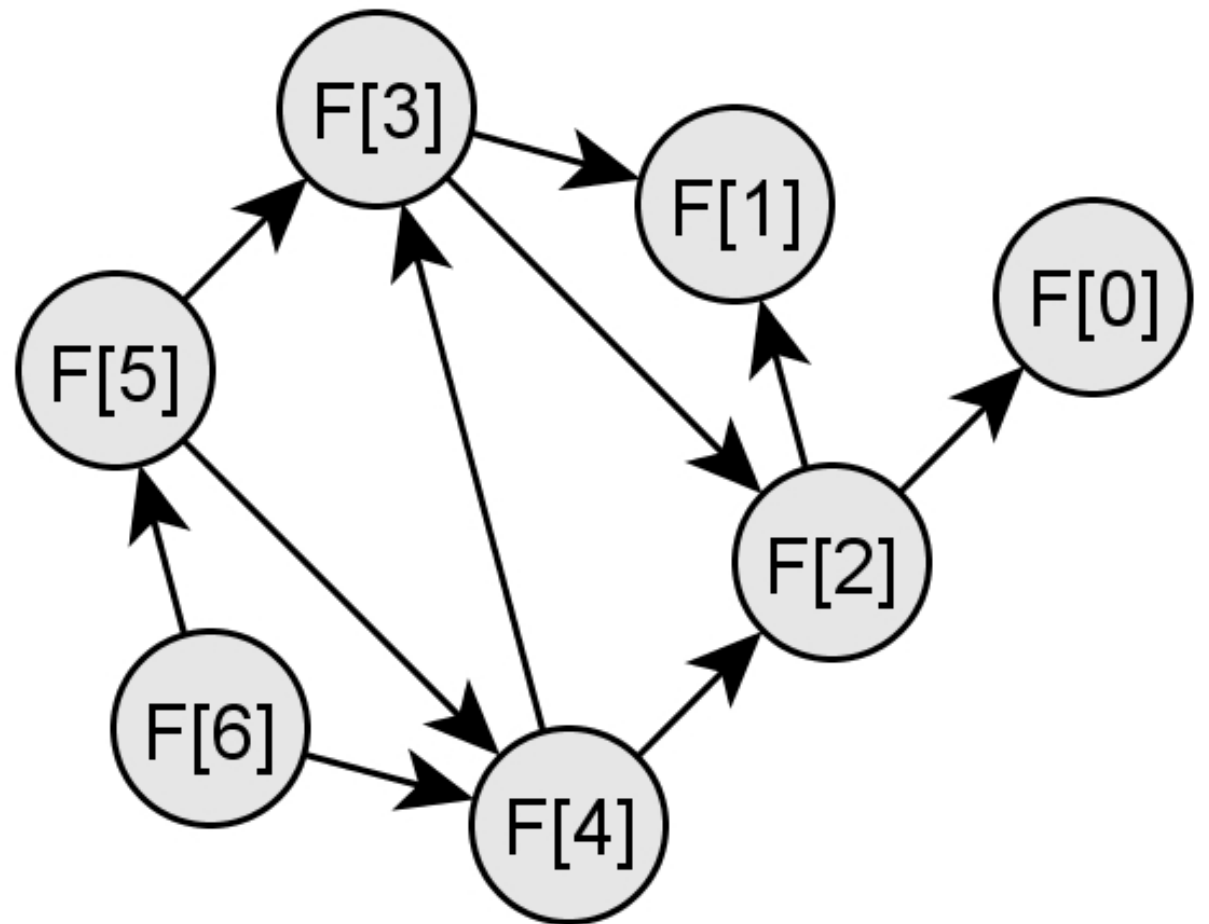
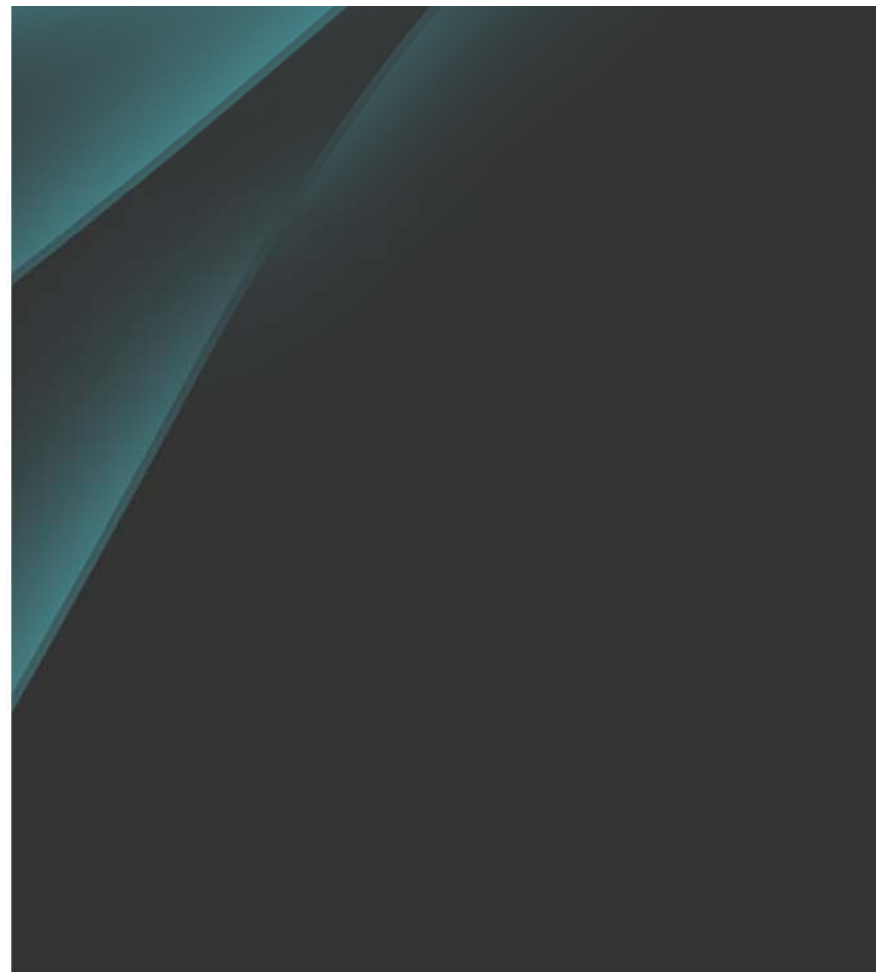
- Način razmišljanja...
- Don't do anything twice.
- Don't do anything stupid.

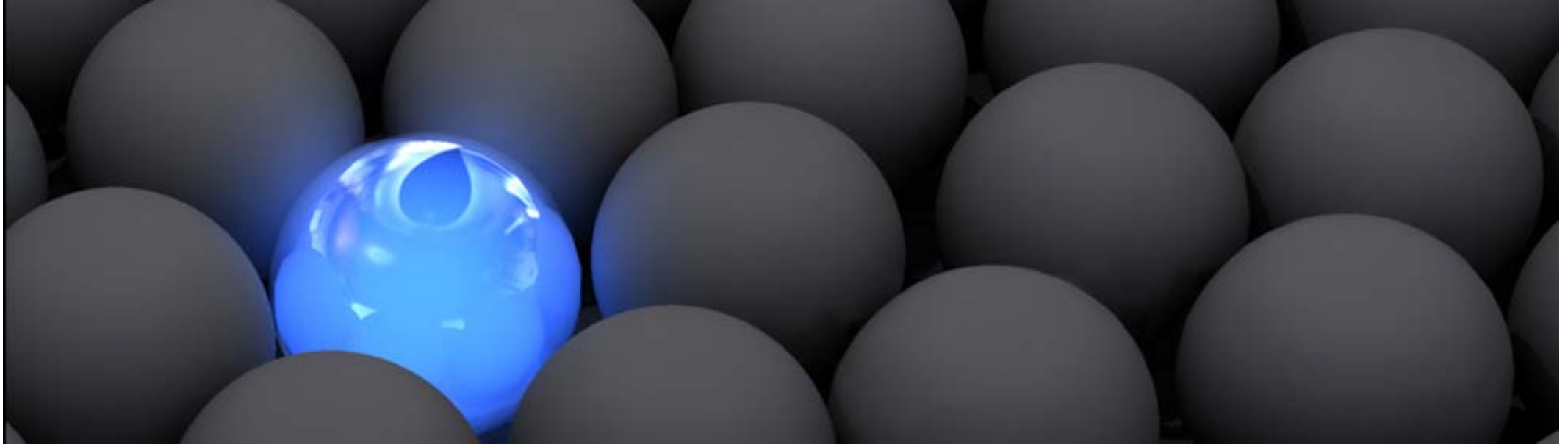




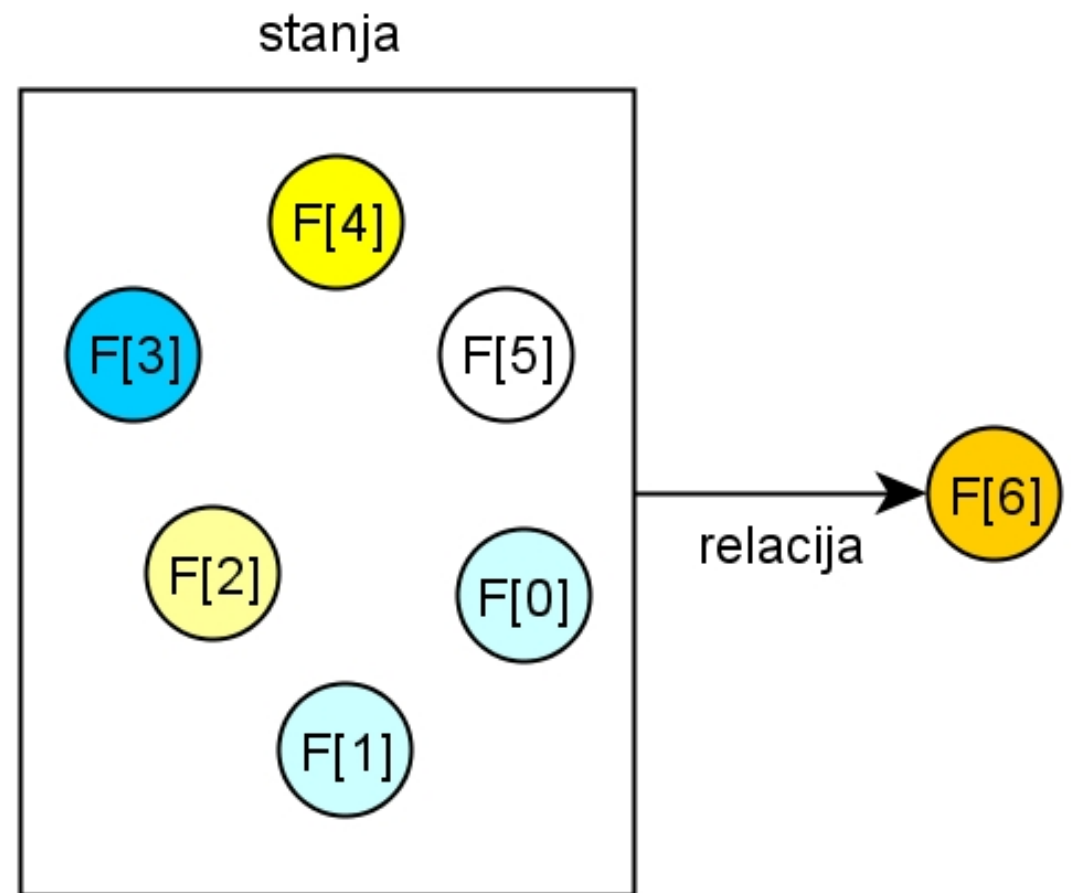








Dijkstra?





Zad2. Mjenjačnica

- Imate 1000 kuna.
- Za n dana unaprijed znate omjer pri pretvorbi eura u kune i obratno.
- Koliko kuna možete imati za n dana?



1. dan

1000 kn	0 eura	5kn=1euro
---------	--------	-----------

2. dan

1000 kn	200 eura	8kn=1euro
---------	----------	-----------

3. dan

1600 kn	200 eura	6kn=1euro
---------	----------	-----------

4. dan

1600 kn	266.7 eura	5kn=1euro
---------	------------	-----------

N. dan

? kn	? eura	xkn=1euro
------	--------	-----------



Stanje?

- Količina novca koju možemo posjedovati u kunam ili u eurima x-ti dan.



Relacija?

- $K[x] = \max(K[x-1], E[x-1] * \text{koeficijent}[x])$
- $E[x] = \max(E[x-1], K[x-1] * (1/\text{koeficijent}[x]))$



Inicijalizacija?

- $K[0]=1000$
- $E[0]=0$



Poredak izračunavanja stanja?

- Iterativno od prvog dana na dalje.



Dinamike

Imaju primjetnu prostornu složenost.

+ Često je vremenska složenost $O(\text{brojStanja})$.

+ Prostor se često može “rezati”.

= Dinamika “mijenja” prostor za vrijeme.



Dinamike

- Vrlo kratki kodovi.
- Teški za smisliti.
- Vrijeme smišljanja >> Vrijeme kodiranja

