Question:

Solve $T(n) = \sqrt{n}\,T(\sqrt{n}) + n$

$$\frac{T(n)}{n} = \frac{T(\sqrt{n})}{\sqrt{n}} + 1$$

put $n=2^m$

m=logn

$$\frac{T(2^m)}{2^m} = \frac{T(2^{m/2})}{2^{m/2}} + 1$$

s(m)= $\frac{T(2^m)}{2^m}$

s(m)=s(m/2)+1

a=1, b=2, d=0

$\log_2 1 = 0 = d$ (master theorem)

$S(m)=O(m^d \log(m))=\log(m)$

$$\frac{T(2^m)}{2^m} = \log(m)$$

$$T(2^m) = 2^m \log(m)$$

T(n)= $2^{\log n} \log(\log(n)) = O(n.\log(\log n))$

Solve T(n)= $2T(\sqrt{n}) + 1$

Solve T(n)= $2T(\sqrt{n}) + logn$

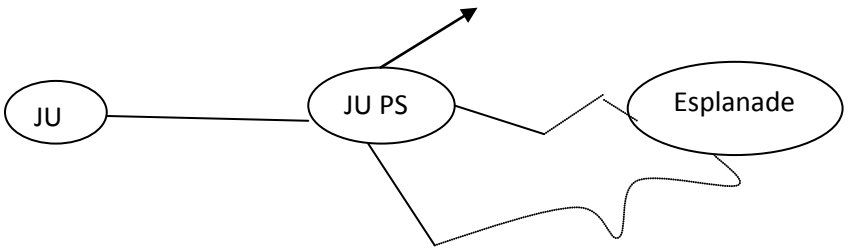
Greedy Algorithm Design Paradigm

Optimization problems

When it applies to Optimization problems
it typically goes through a sequence of steps, with a set of choices at each step

it always makes the choice that looks best at the moment.

(locally optimal choice) in the hope that this choice will lead to globally optimally solution.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