My cool report or essay for algorithms course

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Cuprins

1 Sample CLRS cool algorithms

BUBBLESORT(A)

```
1  for i = 1 to A.length − 1
2      for j = A.length downto i + 1
3          if A[j] < A[j − 1]
4              exchange A[j] with A[j − 1]
```

CMMDC(x, y)

```
1  b = y; a = x; r = y;
2  while (b ≠ 0)
3      r = a  mod b
4      a = b
5      b = r
6  return x
```

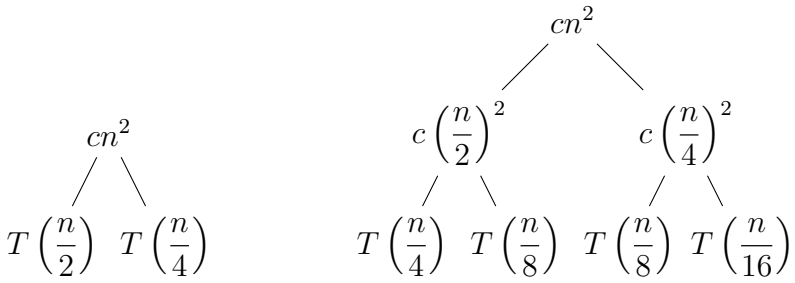
VERTEX-COVER($k, G = (V, E)$)

```
1  i = 0
2  S = ∅
3  while (i ≤ k)
4      i = i + 1
5      v = CHOICE(V)
6      S = S ∪ {v}
7  if (ISVERTEXCOVER(S, E) == TRUE)
8      return succes
9  else return fail
```

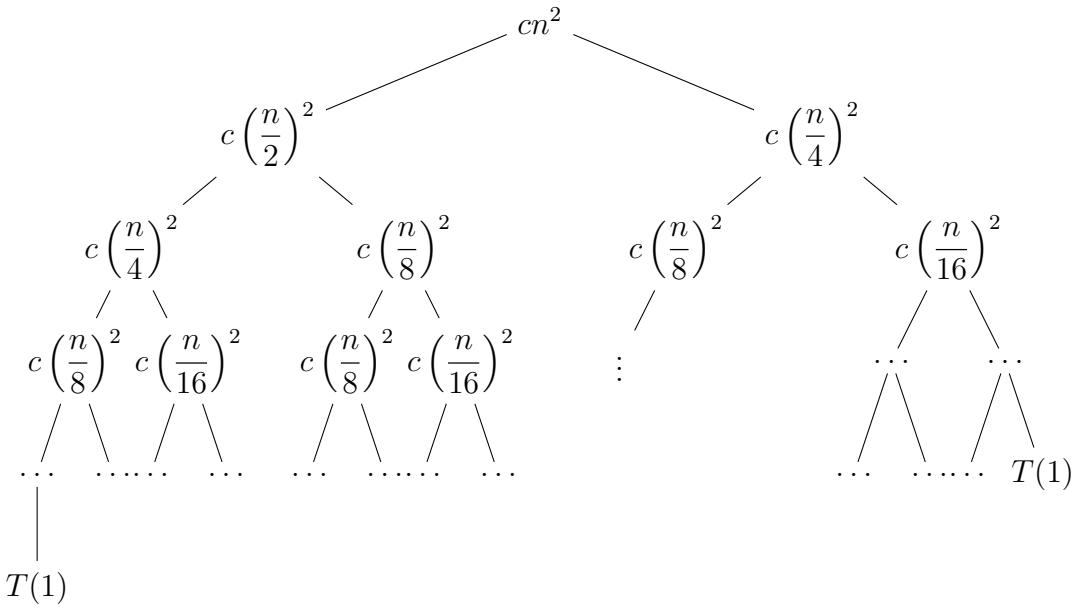
2 Sample Recurrence tree

I want recurrence tree for equation $T(n) = T\left(\frac{n}{2}\right) + T\left(\frac{n}{4}\right) + \Theta(n^2)$.

Say $f(n) \in \Theta(n^2), f(n) = cn^2, c \in \mathbb{R}_+$. Recurrence equation is: $T(n) = T\left(\frac{n}{2}\right) + T\left(\frac{n}{4}\right) + cn^2$



Recursion tree (I know it's not perfect!):



3 Sample flowchart of a stack implemented as an array