

My cool report or essay for algorithms course

Name Surname

29 decembrie 2012

## **Cuprins**

|          |  |          |
|----------|--|----------|
| <b>1</b> | <b>Sample CLRS cool algorithms</b>                         | <b>3</b> |
| <b>2</b> | <b>Sample Recurrence tree</b>                              | <b>3</b> |
| <b>3</b> | <b>Sample flowchart of a stack implemented as an array</b> | <b>4</b> |

## 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 ( $b \neq 0$ )
3       $r = a \bmod b$ 
4       $a = b$ 
5       $b = r$ 
6  return  $x$ 
```

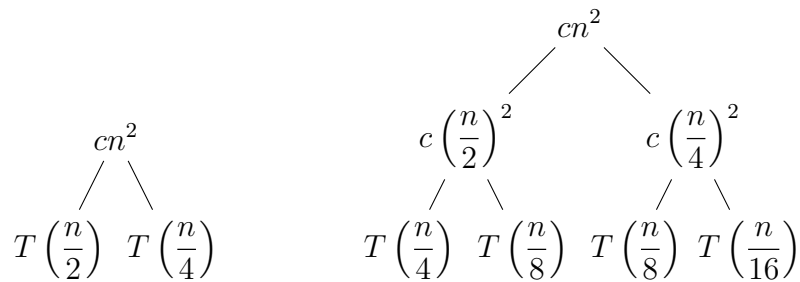
VERTEX-COVER( $k, G = (V, E)$ )

```
1   $i = 0$ 
2   $S = \emptyset$ 
3  while ( $i \leq k$ )
4       $i = i + 1$ 
5       $v = \text{CHOICE}(V)$ 
6       $S = S \cup \{v\}$ 
7  if (ISVERTEXCOVER( $S, E$ ) == TRUE)
8      return succes
9  else return fail
```

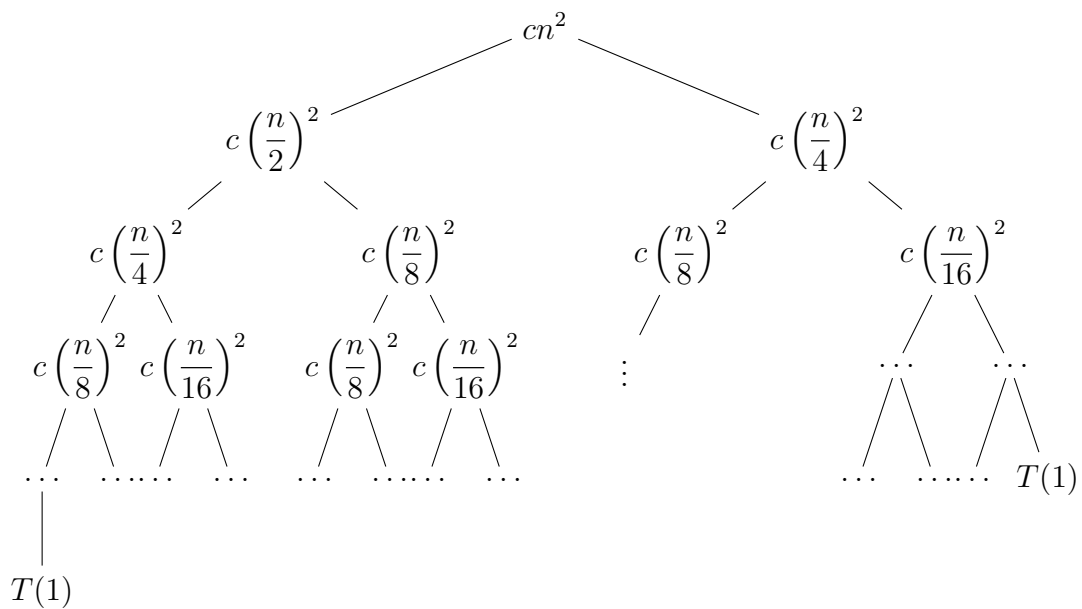
## 2 Sample Recurrence tree

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

