Corrigé de la Composition d'Informatique

Les Principes des Langages de Programmation (INF 321)

Promotion 2008

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Exercice 1

1.

```
static int c(List l) {
 if (l == null) return 0;
 if (l.hd == 0) return 1 + c(l.tl);
 return 0;}
```

Exercice 2

1.

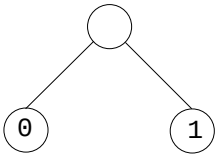
```
static int f(int n) {
 if (n % 2 == 1) return 0;
 if (n == 4) return 4;
 return 6;}
```

Exercice 3

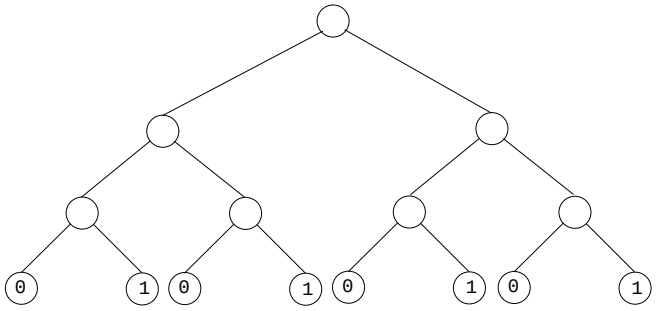
1. 2^n
2. `1 1 1 1 0 0 1 1`
3.

```
static List feuilles(Arbre a, int n) {
 if (n == 0) {return new List (a.val,null);}
 {Arbre g; Arbre d;
   if (a.gauche == null) {g = a;} else {g = a.gauche;}
   if (a.droite == null) {d = a;} else {d = a.droite;}
   return List.append (feuilles(g,n-1),feuilles(d,n-1));}}
```

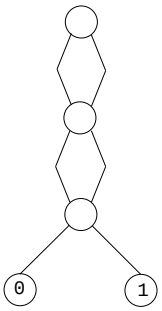
4.



5.



6.



7. À compresser une suite d'entiers.

Exercice 4

1.

```
static void c (int x, int y, int n) {
 if (n != 1) {noir(x,y,n/2); c(x,y+n/2,n/2); c(x+n/2,y+n/2,n/2);}}

public static void main (String [] args){
 c(0,0,256);}
```

Exercice 5

1. 3
2. 3