



# Algorithmes

Cours



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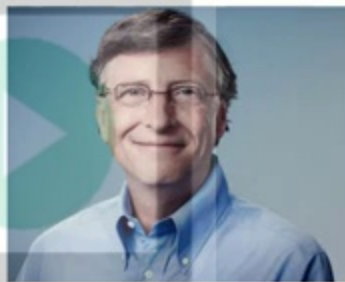
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# Algorithme factorielle

Solution récursive

$$\text{factoriel}(1) = 1$$

$$\text{factoriel}(2) = 2 * \text{factoriel}(1)$$

$$\text{factoriel}(3) = 3 * \text{factoriel}(2)$$

$$\text{factoriel}(4) = 4 * \text{factoriel}(3)$$

$$\text{factoriel}(5) = 5 * \text{factoriel}(4)$$

# Algorithme factorielle

## Solution récursive

```
Fonction factoriel ( N : Entier ) : Entier
```

```
  Début
```

```
    Si N = 0 ou N = 1 Alors
```

```
      Retourne 1
```

```
    Sinon
```

```
      Retourne N * factoriel ( N - 1 )
```

```
    Fin si
```

```
  Fin
```

```
  ...  
  Ecrire ( " Le factoriel du nombre " , 5 , " est : " , factoriel ( 5 ) )
```

```
Fin
```

factoriel ( 1 )

factoriel ( 2 )

factoriel ( 3 )

factoriel ( 4 )

factoriel ( 5 )

RAM

# Exercice

$$N = 0 \Rightarrow U_0 = 0$$

$$N = 1 \Rightarrow U_1 = 1$$

Cas de base



$N$

Si  $N < \underline{2}$

fibonacci (  $N - 1$  ) + fibonacci (  $N - 2$  ) Sinon

Cas récursif



fibonacci (  $N$  )



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**Algorithmme** suite\_fibonacci

**Fonction** fib(n : entier) : entier

**Variables**

n : entier

**Début**

Ecrire("Veuillez entrer un nombre ")

Lire (n)

**Fin**

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