

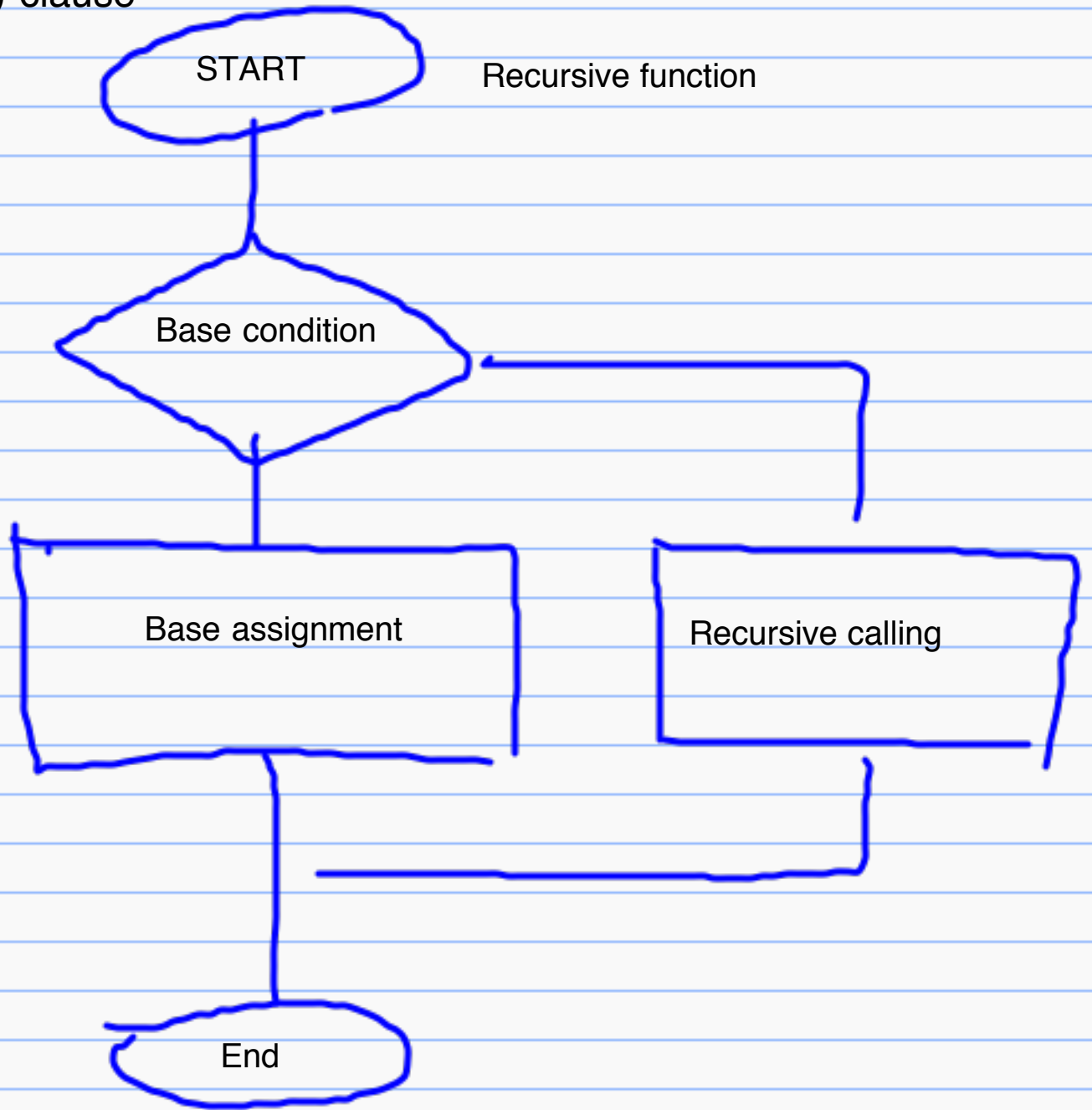
A recursive definition http://en.wikipedia.org/wiki/Recursive_definition

Base condition

Base clause

Recursive (Inductive) clause

Flow chart



Tasks

- A. Write down base condition, base assignment and recursive clause
- B. Draw flow charts
- C. Write Matlab codes

Problem

1. Fibonacci number $F[n]=F[n-1]+F[n-2]$, $F[0]=0$, $F[1]=1$.
2. Weighted Fibonacci number $G[n]=a*G[n-1]+b*G[n-2]$, $G[0]=0$, $G[1]=1$
3. Extended Fibonacci number $F[n]=F[n-1]+F[n-2]+F[n-3]$, $F[0]=0$, $F[1]=1$, $F[2]=1$
4. Great Common Divisor (gcd)
5. Factorial number
6. Hanoi tower
7. Binary to decimal translation
8. Determinant of a square matrix, $\det(A)$

$$a = \text{bin2dec}(b)$$

$$b_1 = b(n)$$

$$b_2 = b(1:n-1)$$

$$a = \text{bin2dec}(b_2)$$

$$\times 2 + b_1$$

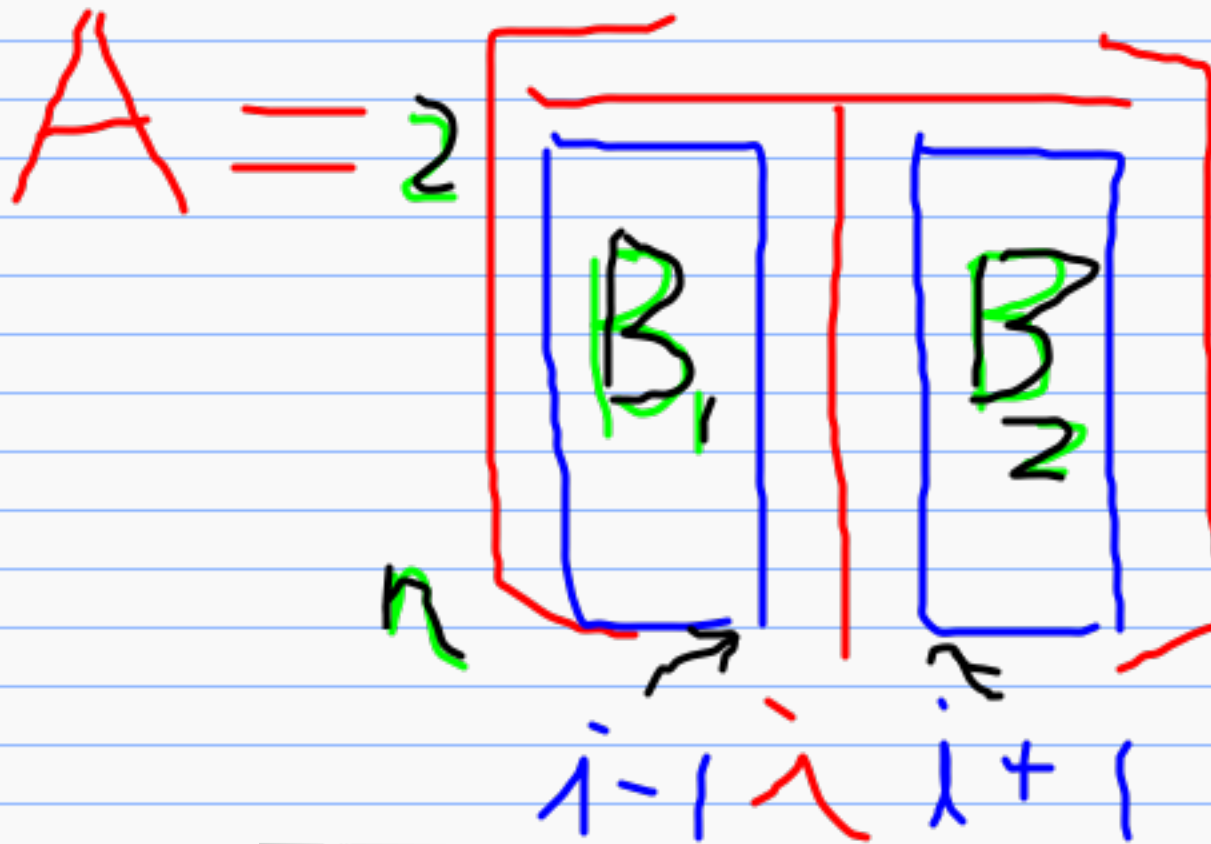
$$b = [b_n \ b_{n-1} \ \dots \ b_2 \ b_1]$$

$n = \text{length}(b)$

if $n == 1$

$a = b$

end



matrix \tilde{A}_i

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B1=A(2:n,1:i-1)
B2=A(2:n,i+1:n)
B=[B1 B2]
  
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