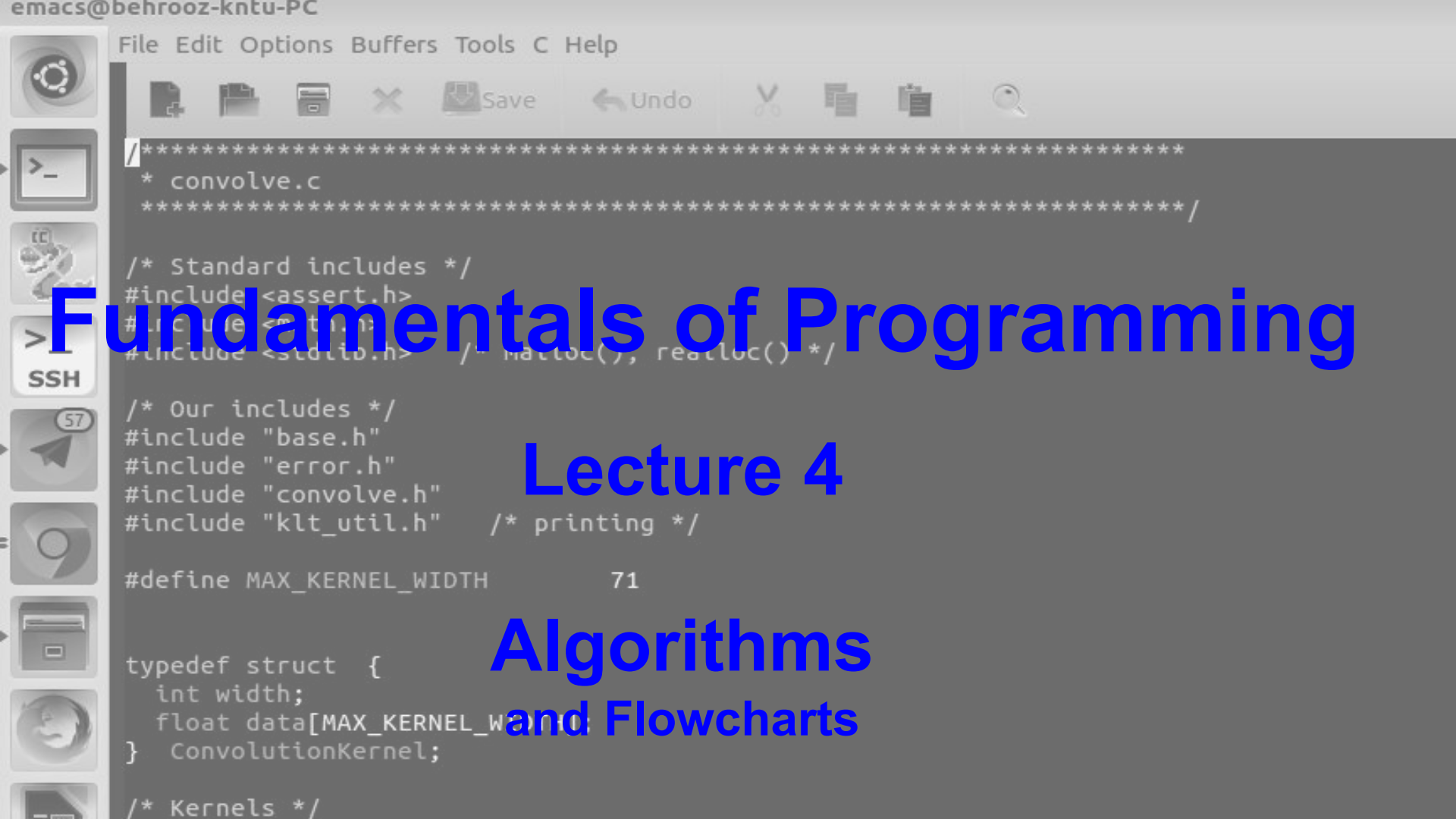
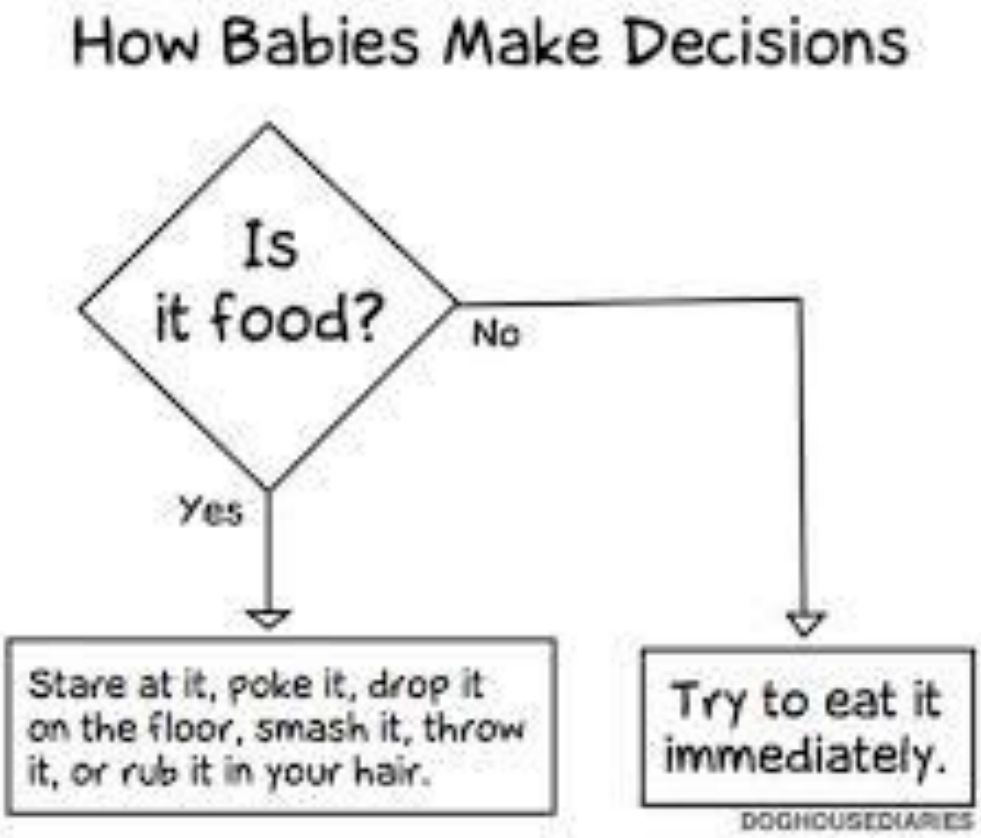

emacs@behrooz-kntu-PC
File Edit Options Buffers Tools C Help
Save
Undo
/* Standard includes */
/* Our includes */
#include "base.h"
#include "error.h"
#include "convolve.h"
#include "klt_util.h" /* printing */
#define MAX_KERNEL_WIDTH 71
typedef struct {
int width;
} ConvolutionKernel;
/* Kernels */
SSH
Fundamentals of Programming
Lecture 4
Algorithms
and Flowcharts

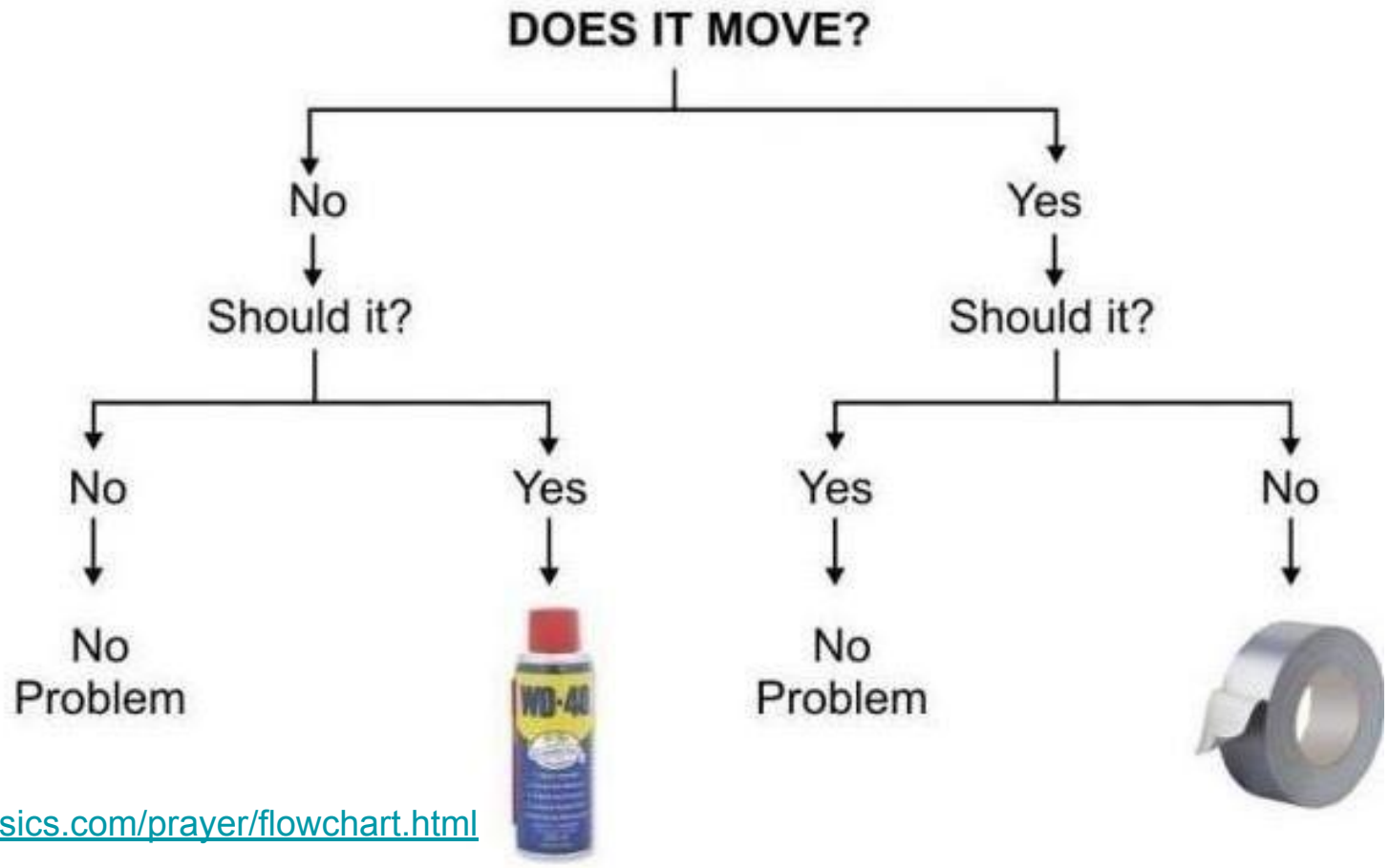
Algorithms

http://www.padhokhelo.com/algorithm-definition-very-funny/

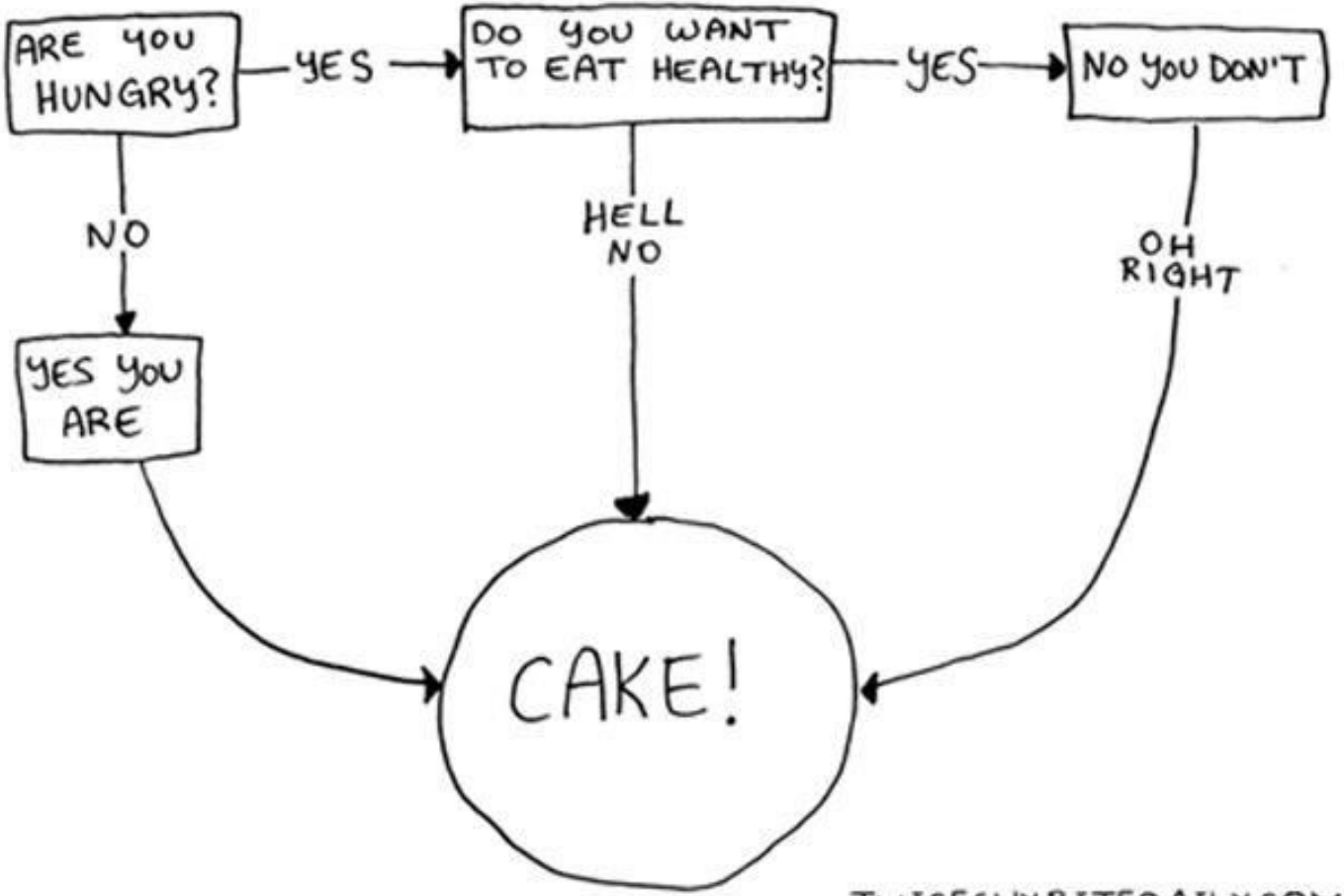


http://themetapicture.com/how-babies-make-decisions/

Engineering Flowchart

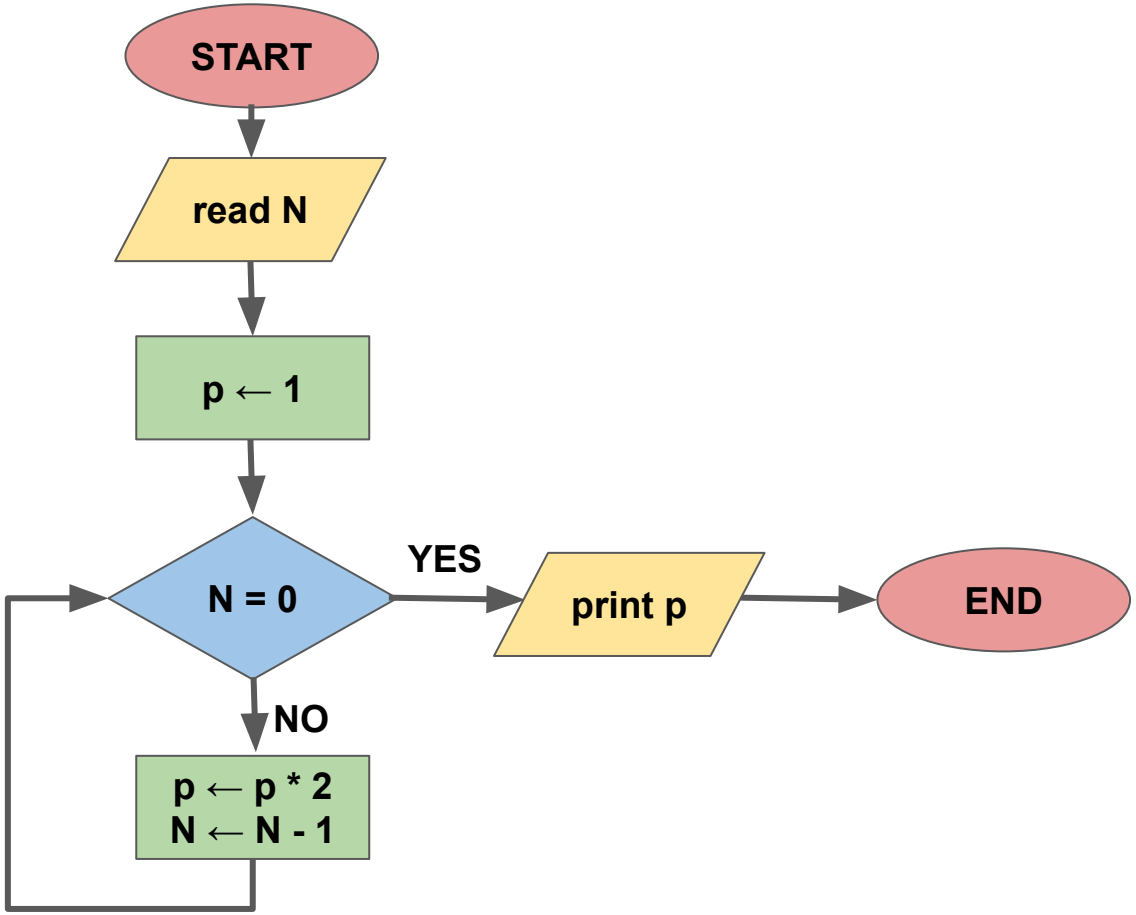


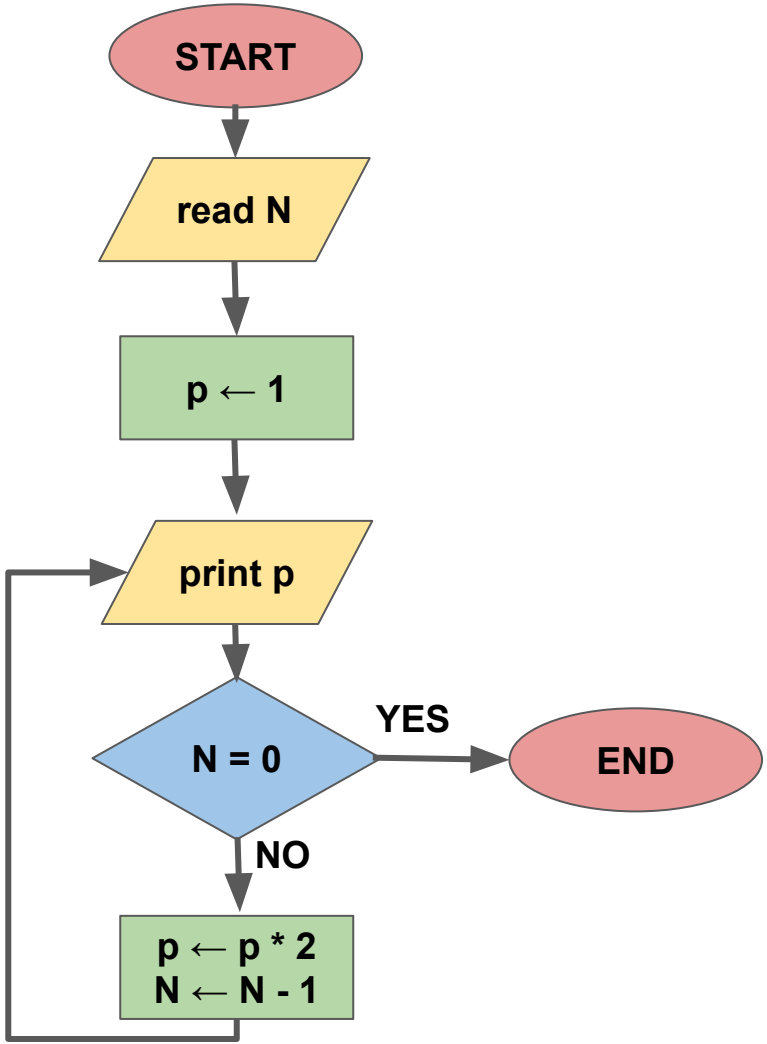
http://www.drphysics.com/prayer/flowchart.html

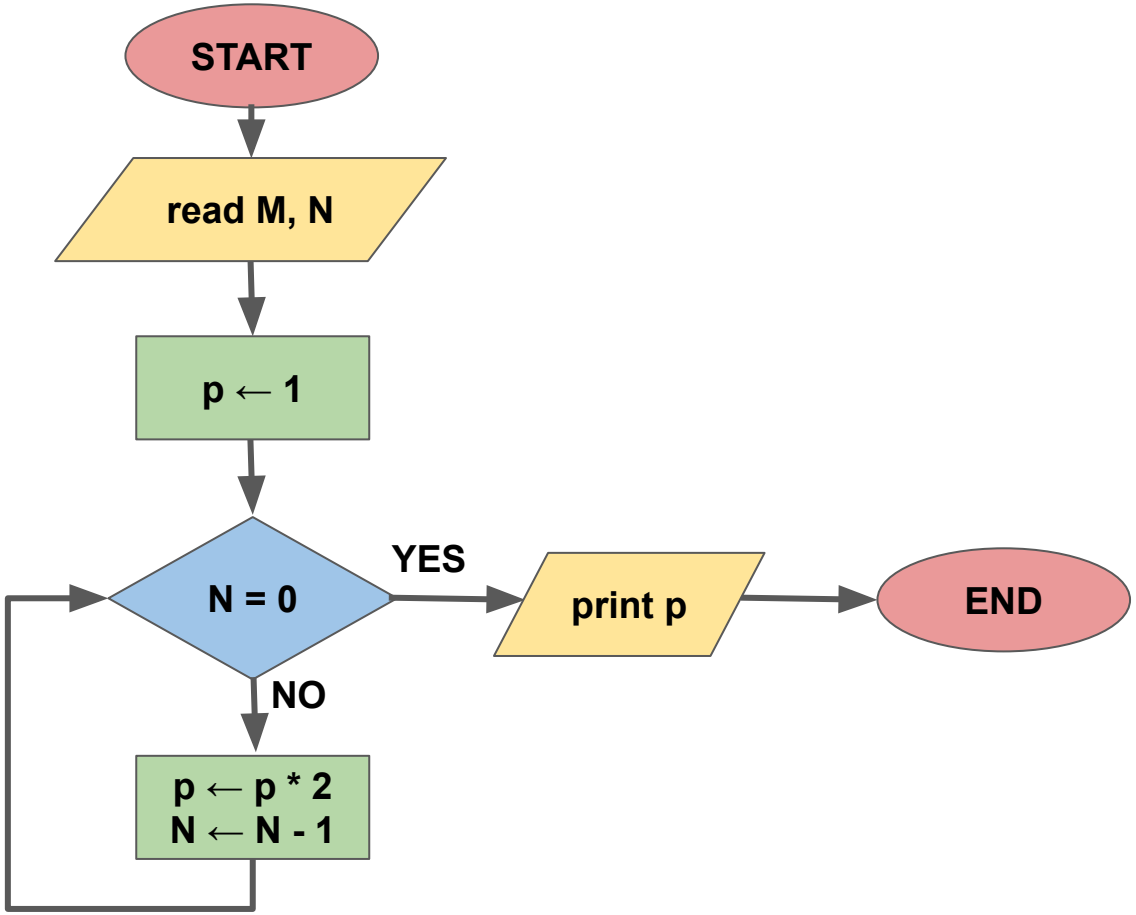

ARE YOU HUNGRY?
YES
DO YOU WANT TO EAT HEALTHY?
YES
NO YOU DON'T
NO
HELL NO
OH RIGHT
YES YOU ARE
CAKE!
TWICESHY.BITEDAILY.COM

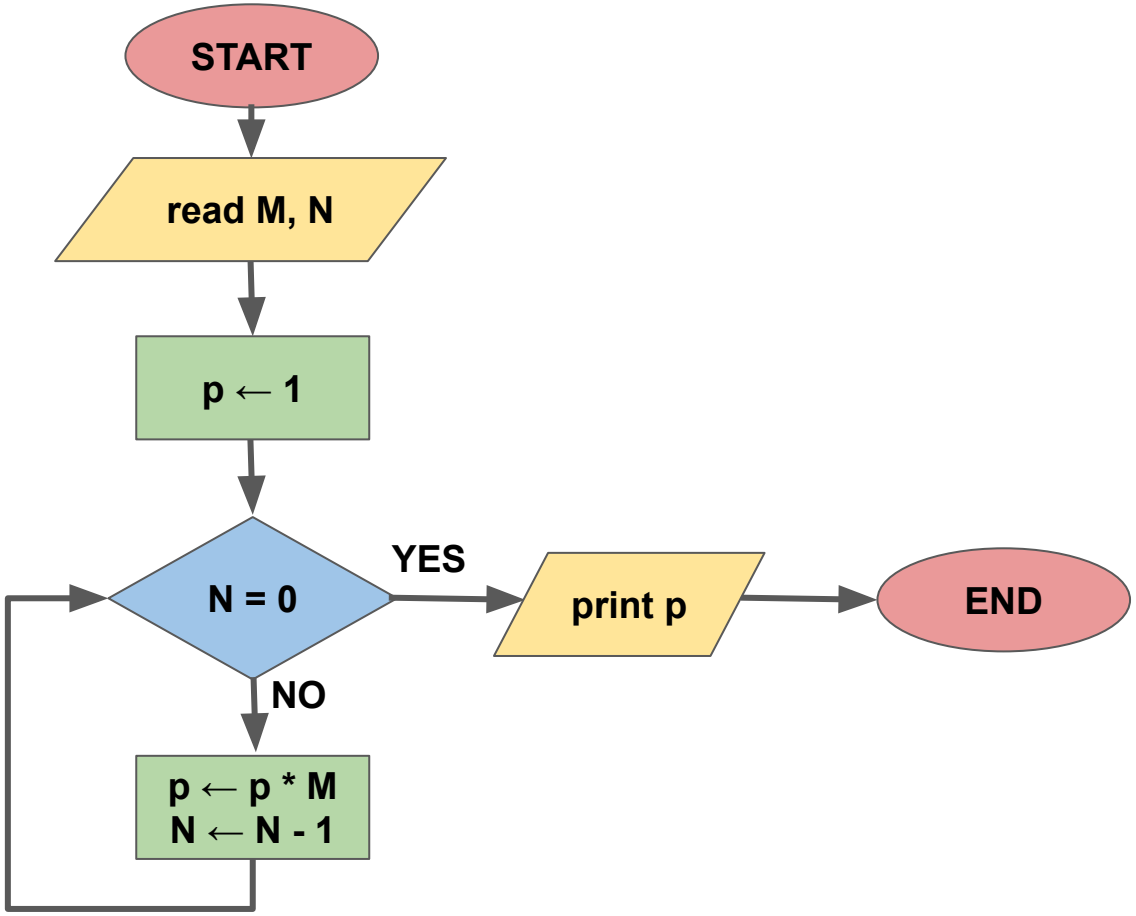
	**Terminal symbol (Start/Stop)** This oval shape represents terminal point in the flow chart and generally contains words like Begin, Start, End and Stop.
	**Progress or Computation** The Rectangle represent processing operation . A process changes or move the data.
	**Input or Output Process** This shape represents input and output task. It makes data available for processing(Input) or recording the processed information(Output).
	**Decision Making and Branching** The diamond shape represents decision or switching type of operation. That determines which of the alternative path is to be followed.
	**Connector** The circle represents logical flow one page of flowchart to another page.

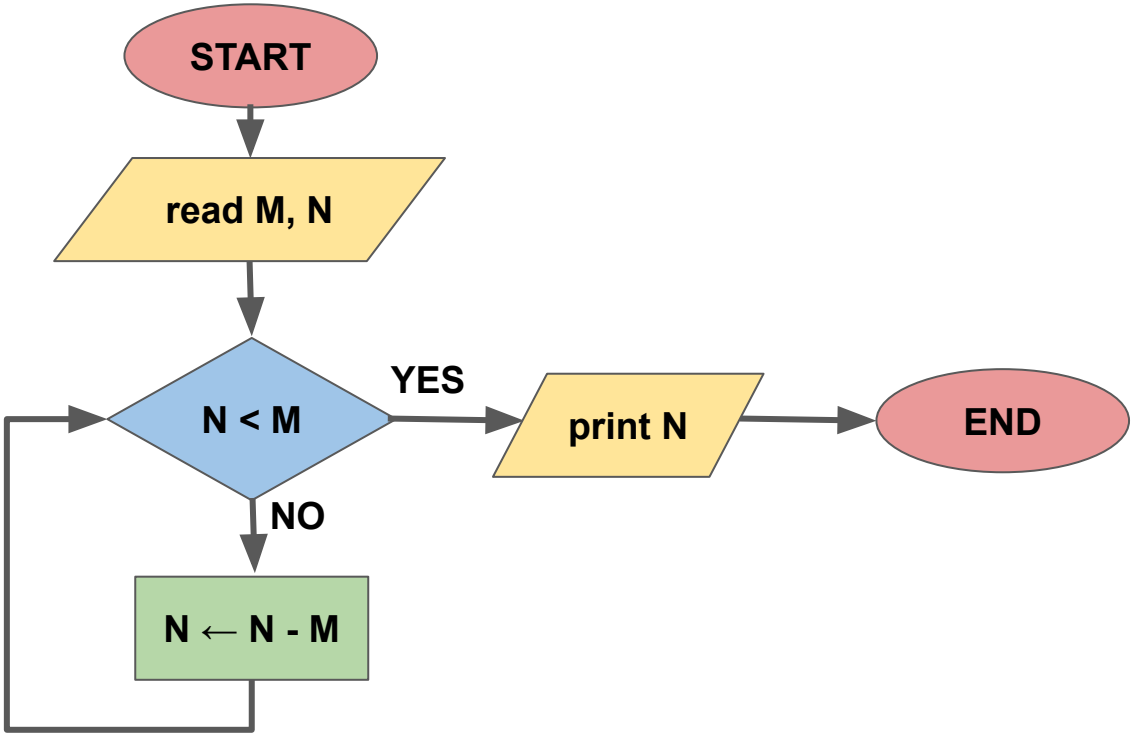
http://clanguageprograming.blogspot.com/p/flowchart.html

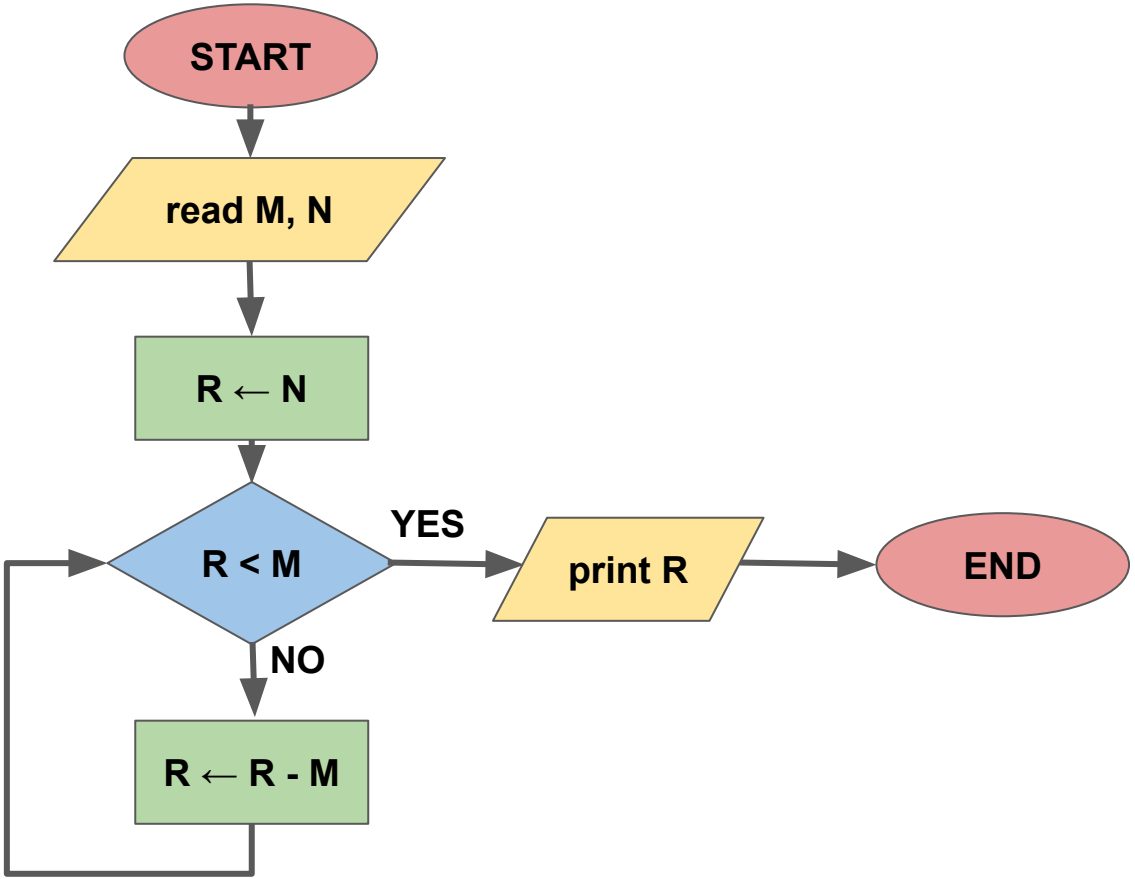

START
read N
p ← 1
N = 0
YES
print p
END
NO
p ← p * 2
N ← N - 1

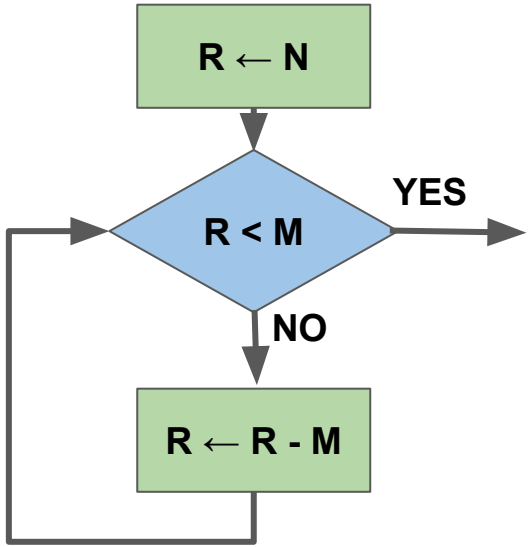

START
read N
p ← 1
print p
N = 0
YES
END
NO
p ← p * 2
N ← N - 1

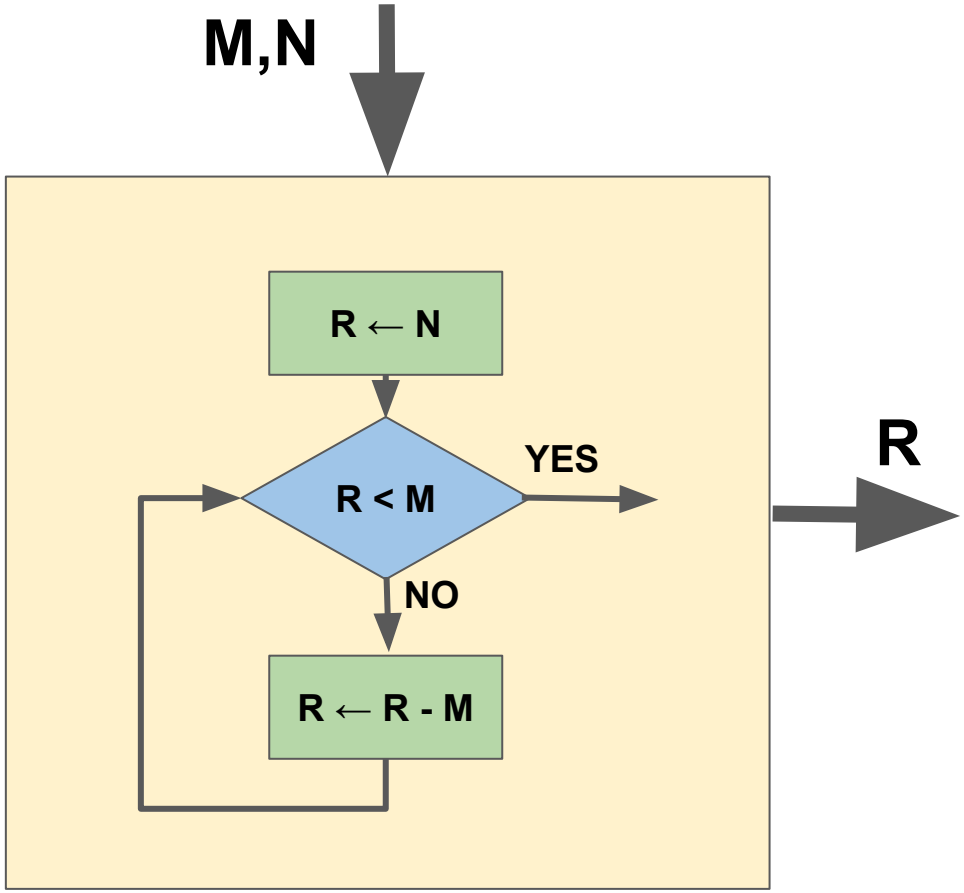

START
read M, N
p ← 1
N = 0
YES
print p
END
NO
p ← p * 2
N ← N - 1

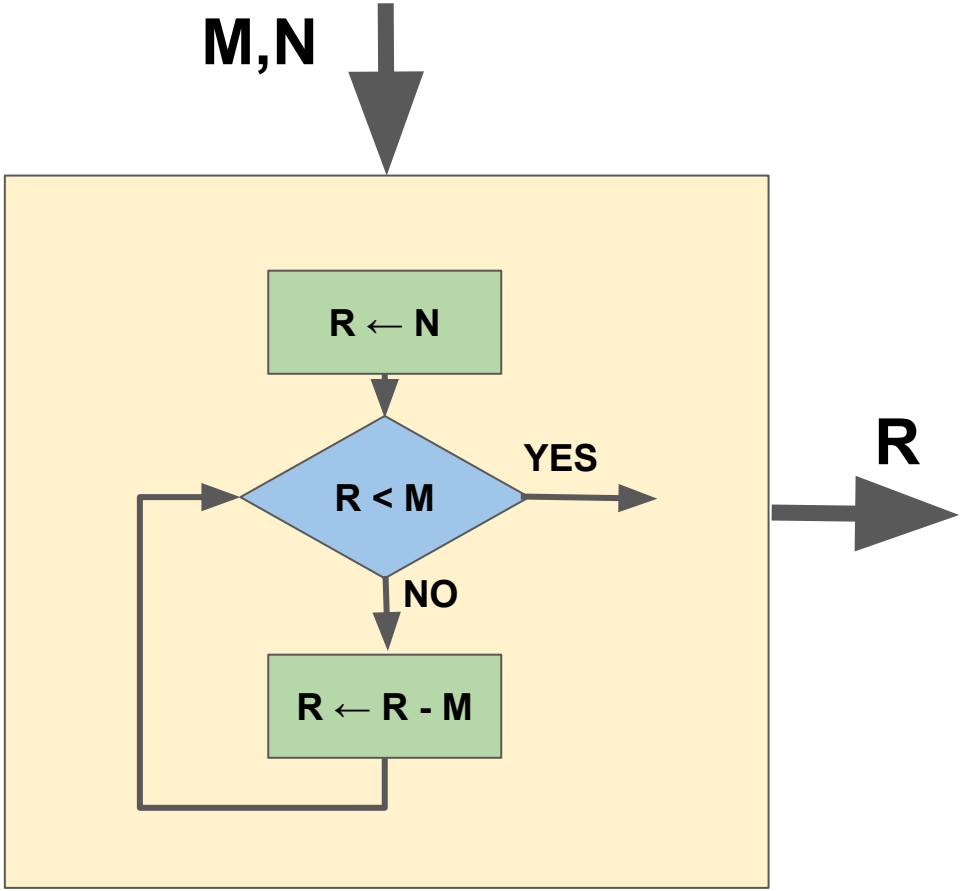

START
read M, N
p ← 1
N = 0
YES
print p
END
NO
p ← p * M
N ← N - 1


START
read M, N
N < M
YES
print N
END
NO
N ← N - M


START
read M, N
R ← N
R < M
YES
print R
END
NO
R ← R - M

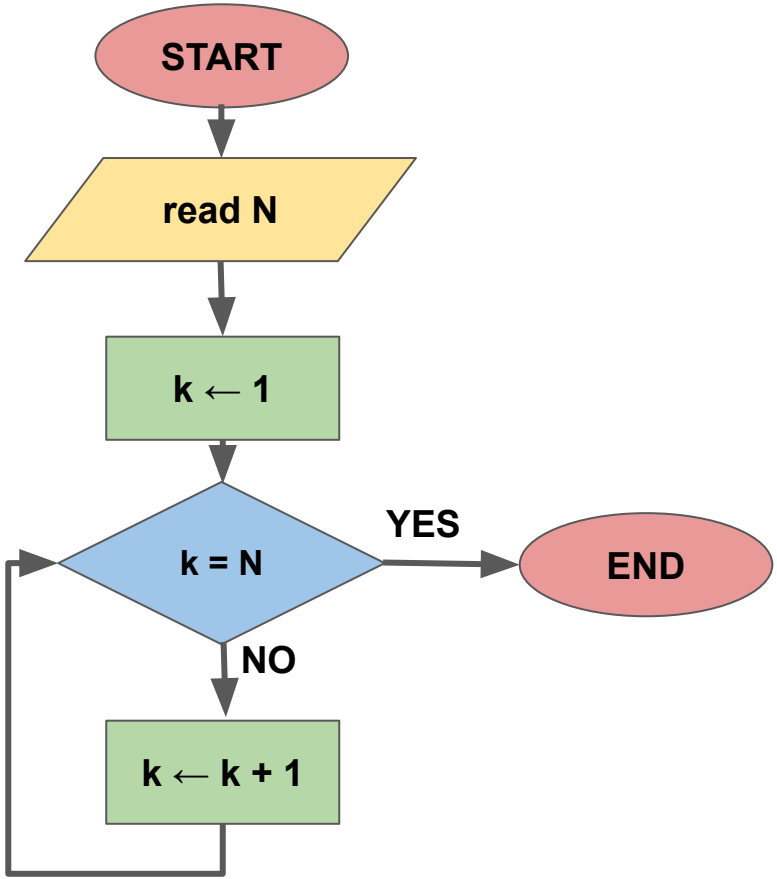

R ← N
R < M
YES
NO
R ← R - M

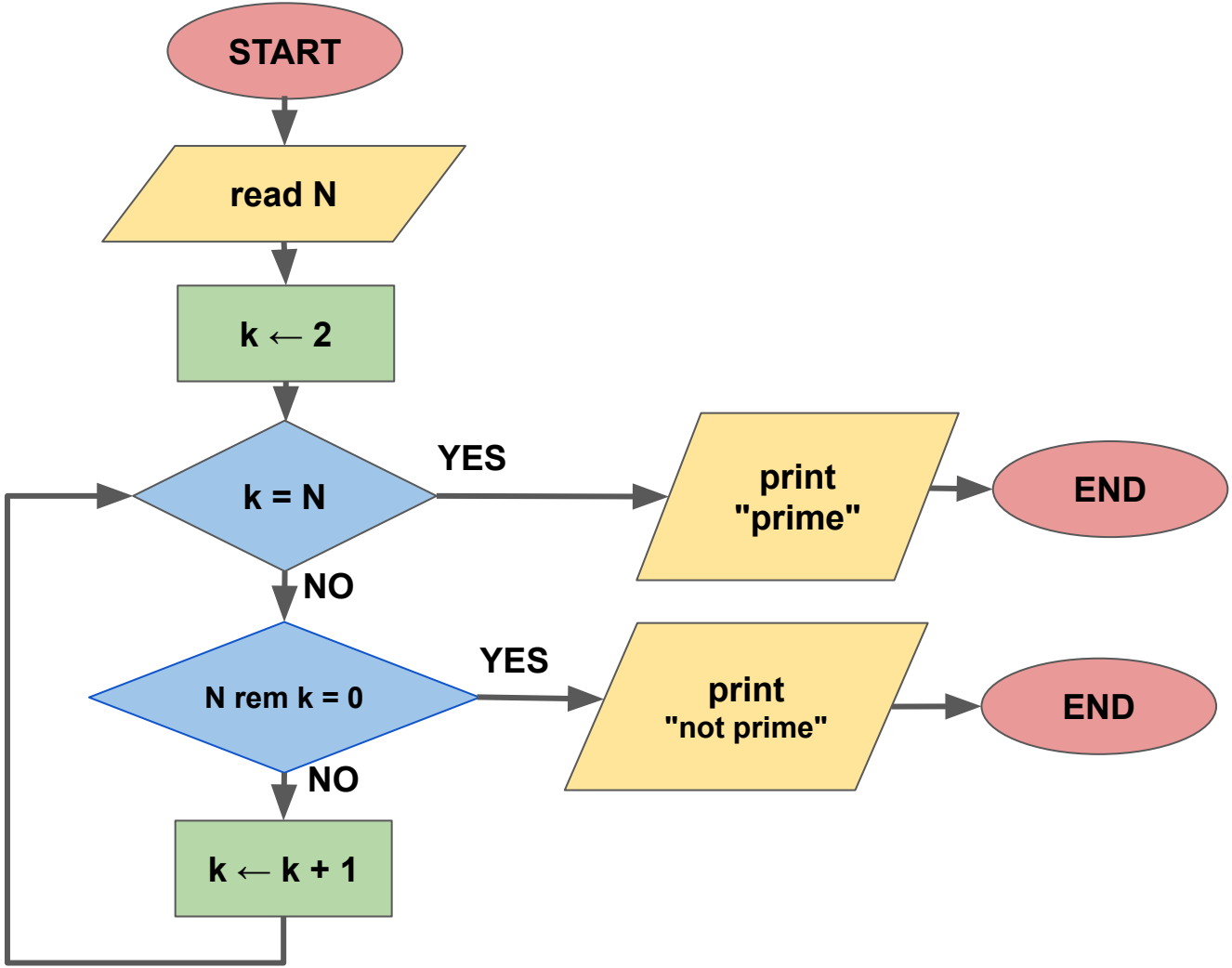

M,N
R ← N
R < M
YES
NO
R ← R - M
R

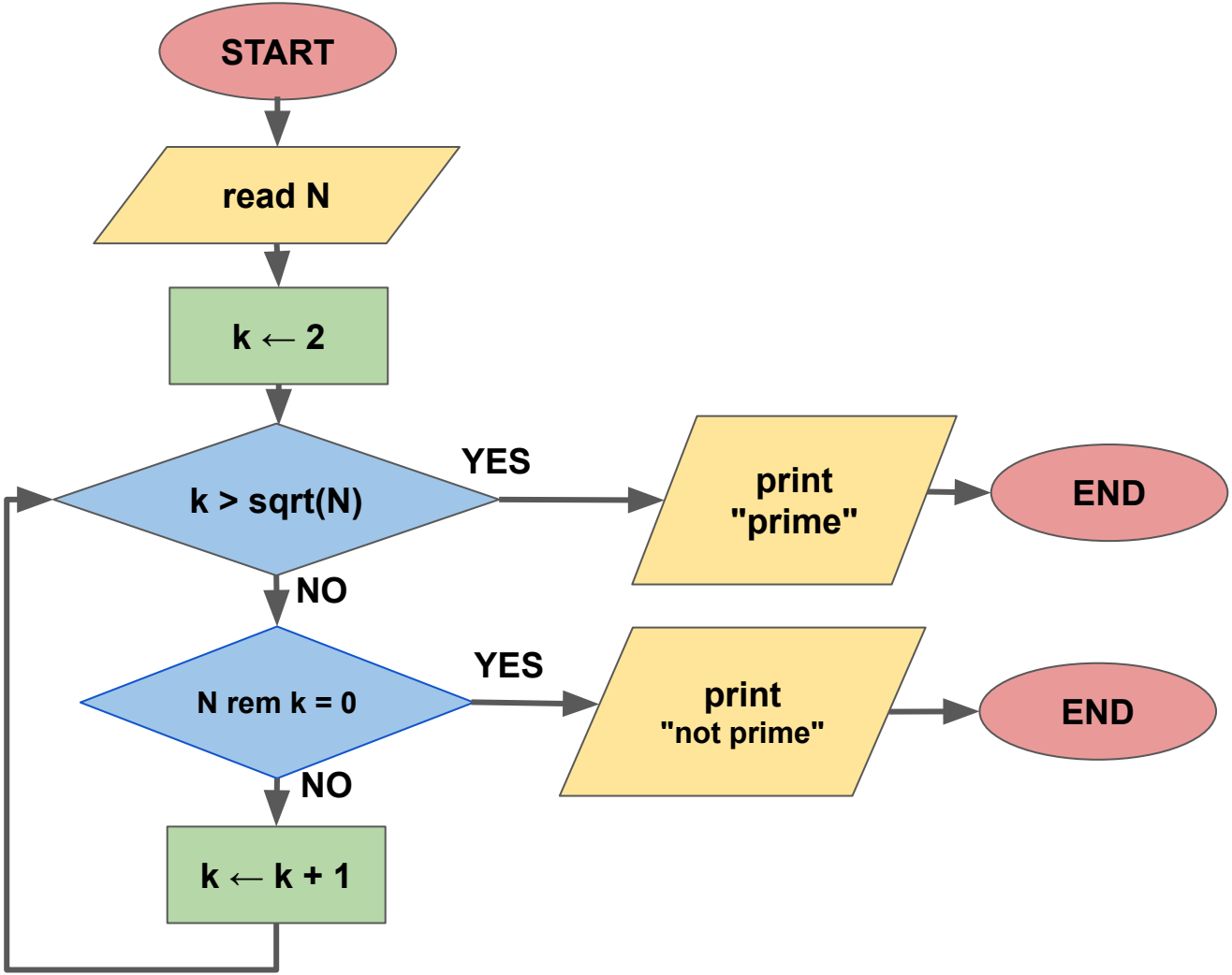


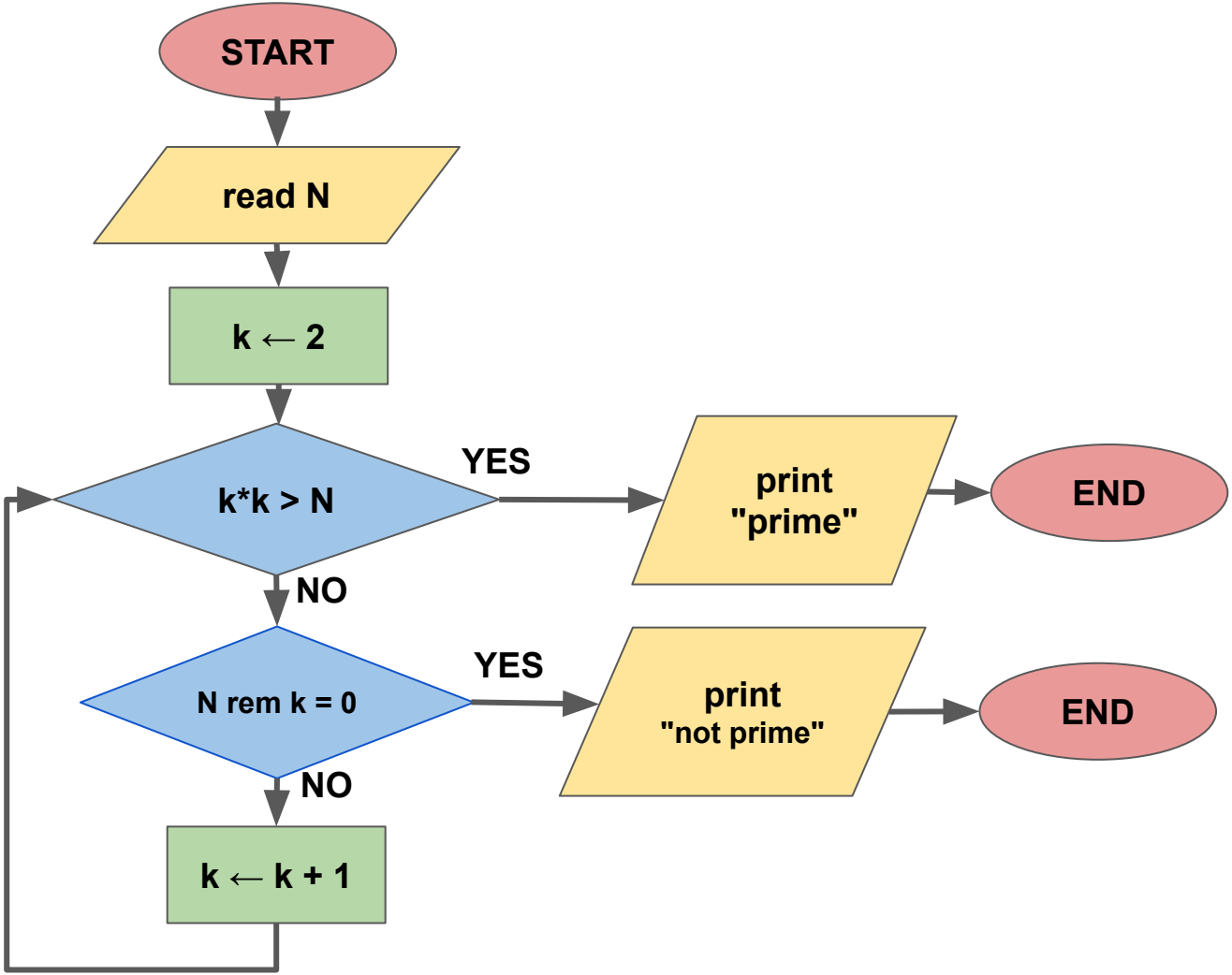
R ← N rem M

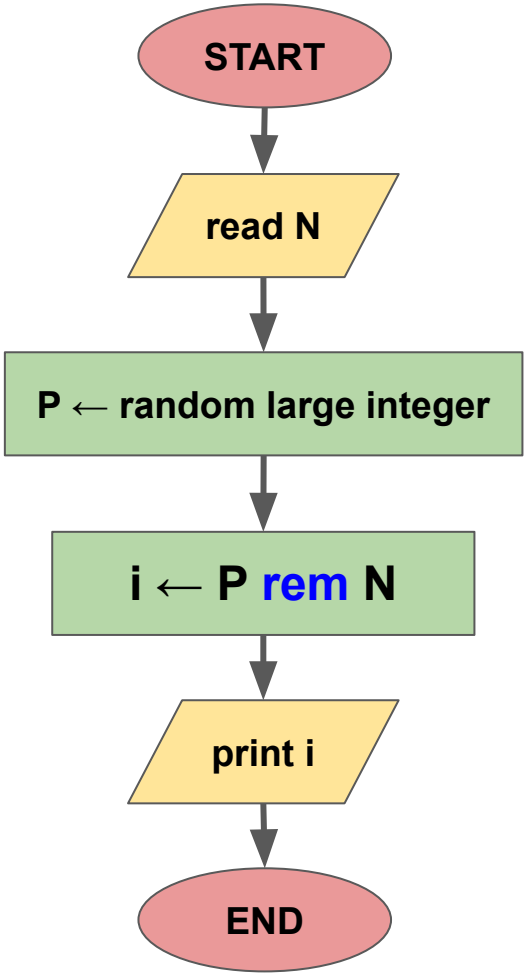
R ← N % M

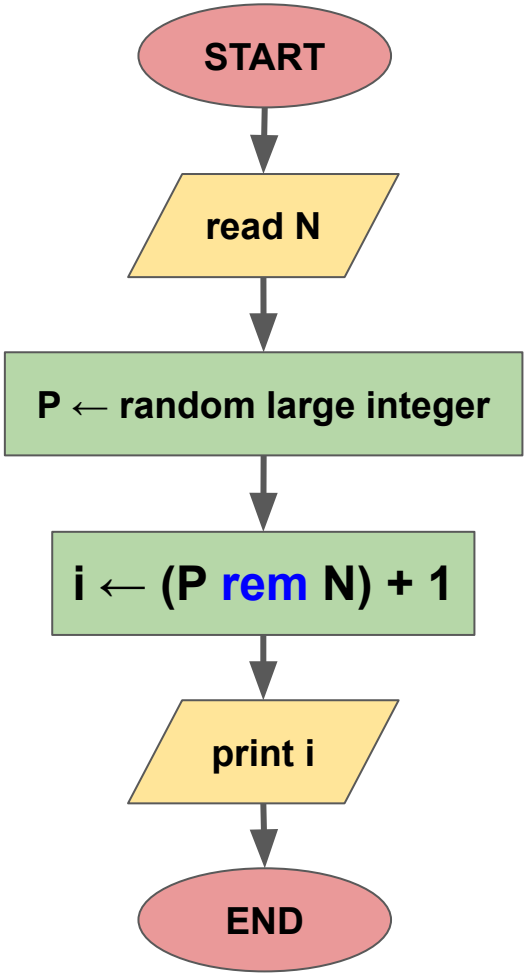

START
read N
k ← 1
k = N
YES
END
NO
k ← k + 1

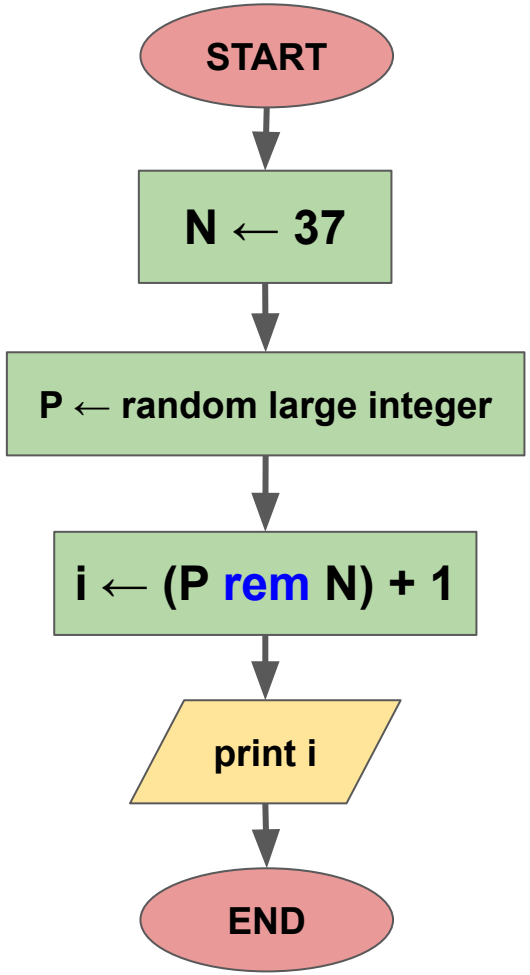

START
read N
k ← 2
k = N
YES
print
"prime"
END
NO
N rem k = 0
YES
print
"not prime"
END
NO
k ← k + 1


START
read N
k ← 2
k > sqrt(N)
YES
print
"prime"
END
NO
N rem k = 0
YES
print
"not prime"
END
NO
k ← k + 1


START
read N
k ← 2
k*k > N
YES
print
"prime"
END
NO
N rem k = 0
YES
print
"not prime"
END
NO
k ← k + 1

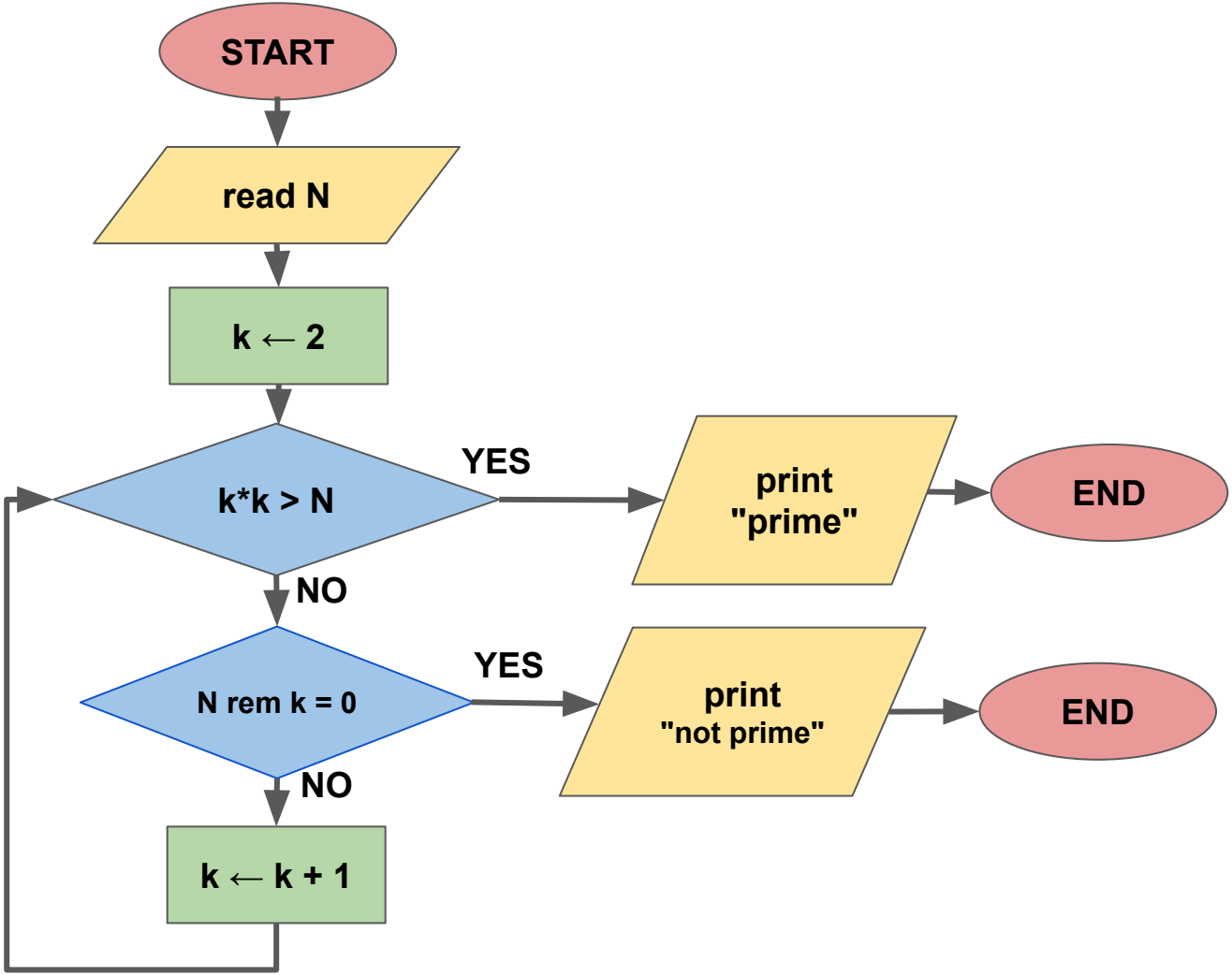

START
read N
P ← random large integer
i ← P rem N
print i
END


START
read N
P ← random large integer
i ← (P rem N) + 1
print i
END

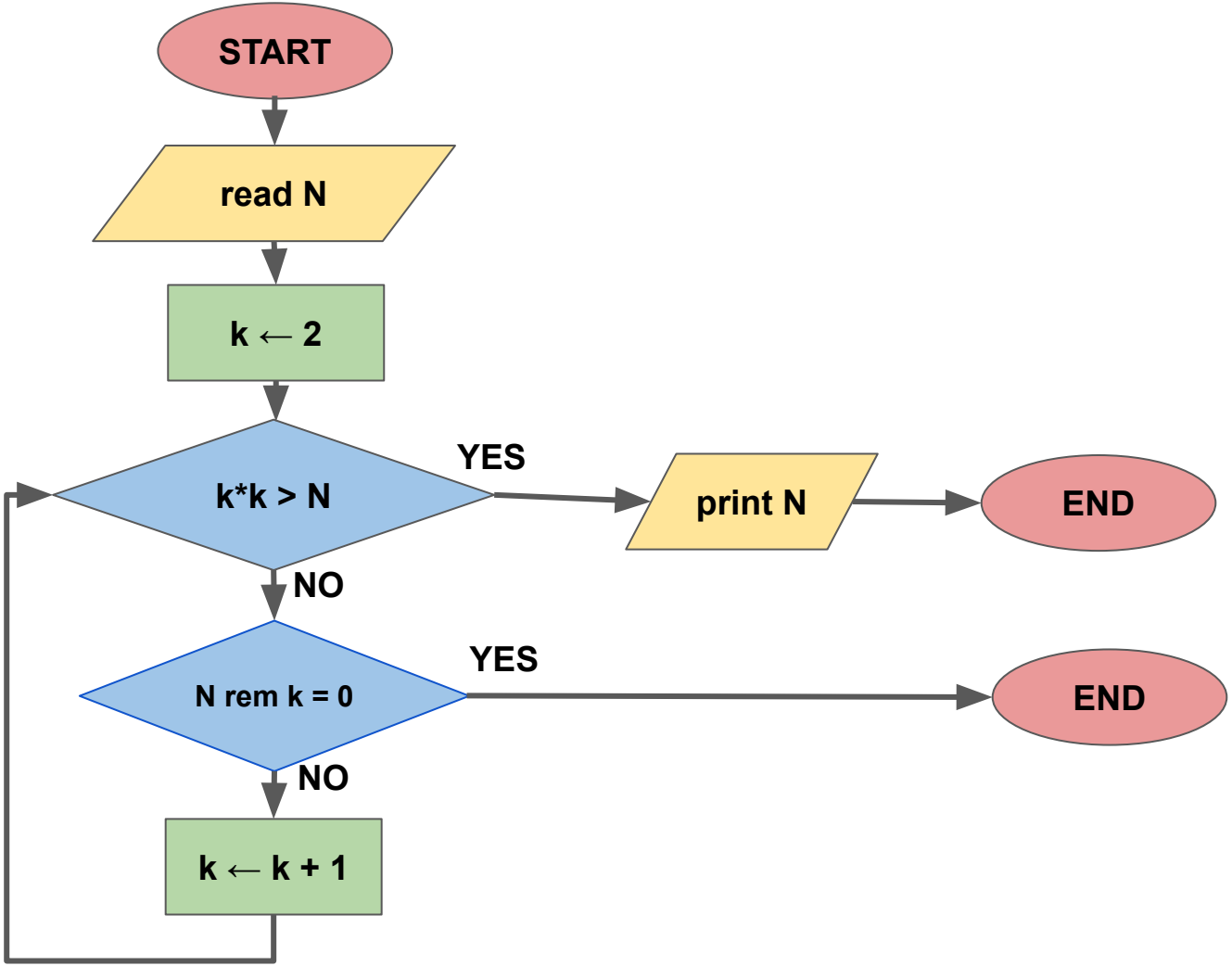

START
N ← 37
P ← random large integer
i ← (P rem N) + 1
print i
END

Remind from the previous session!

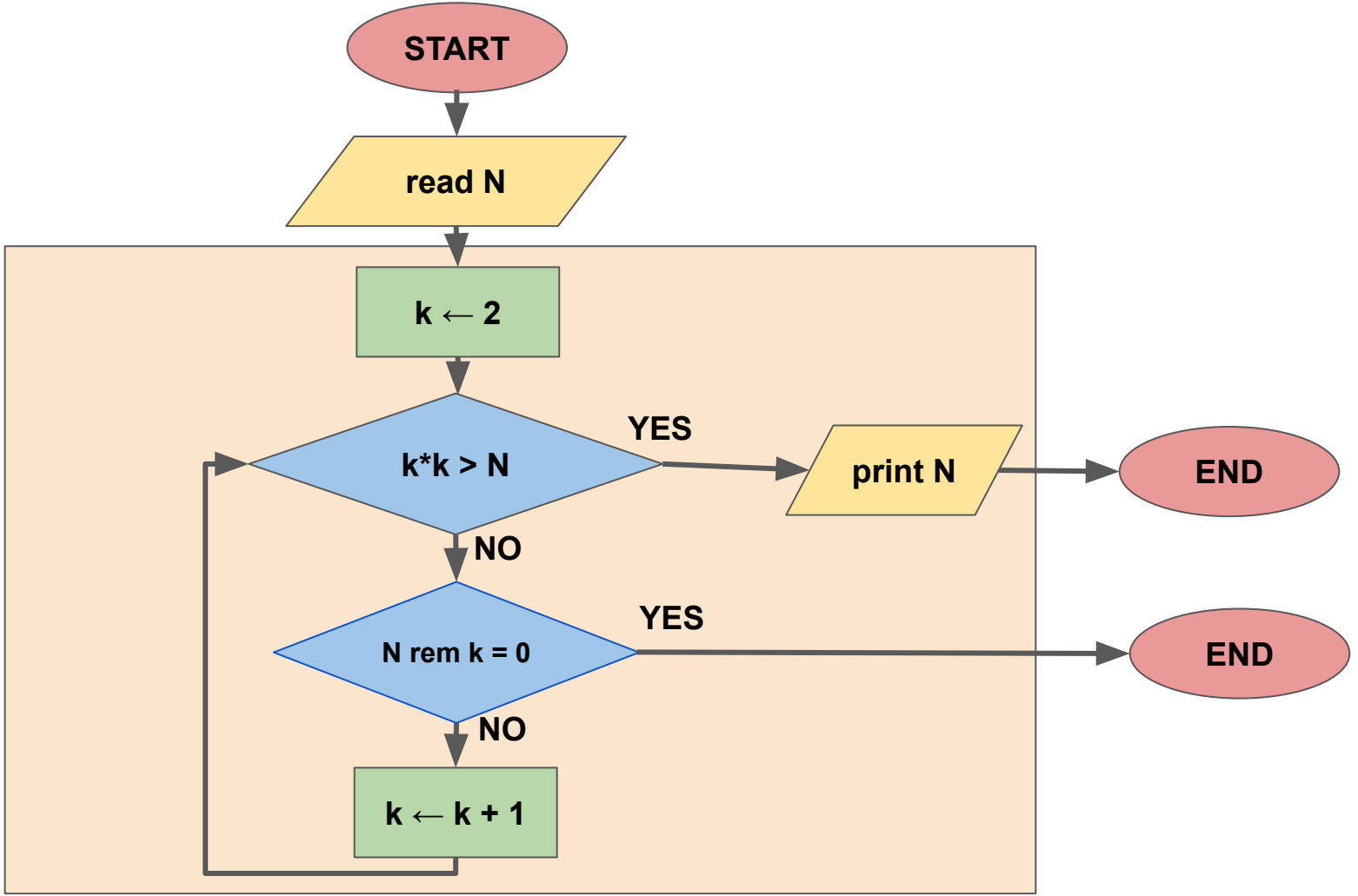
Write an algorithm which takes a number **N** and prints if it is prime or not

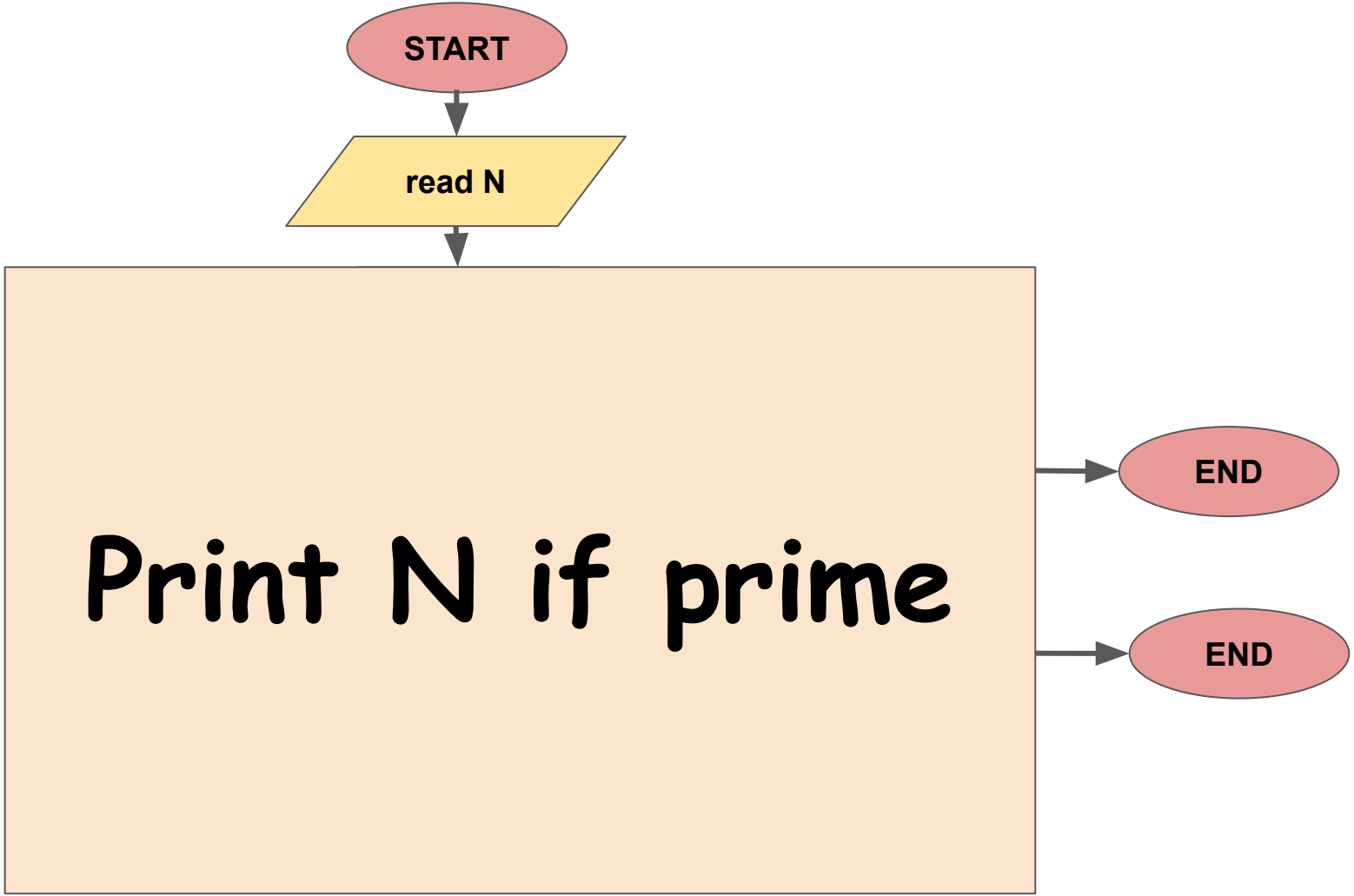

START
read N
k ← 2
k*k > N
YES
print
"prime"
END
NO
N rem k = 0
YES
print
"not prime"
END
NO
k ← k + 1

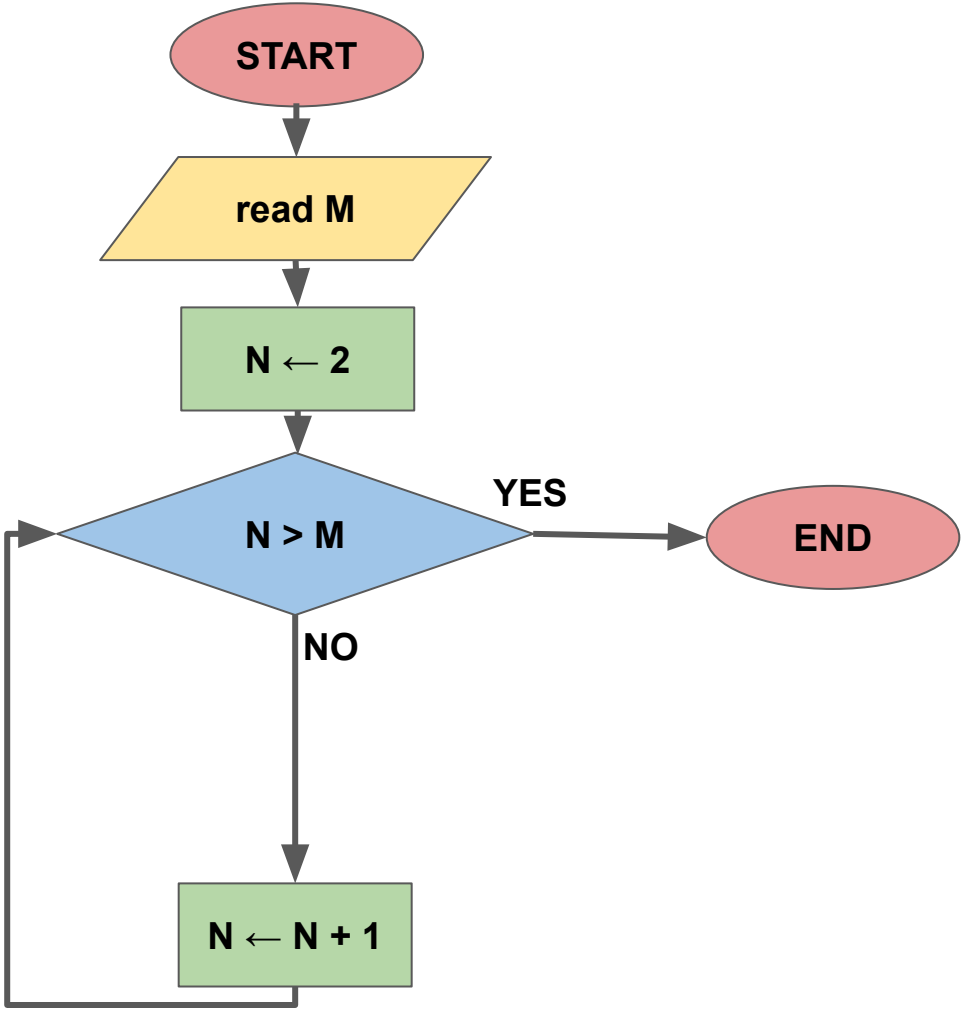
Write an algorithm which takes a number **N** and prints it if **N** is prime

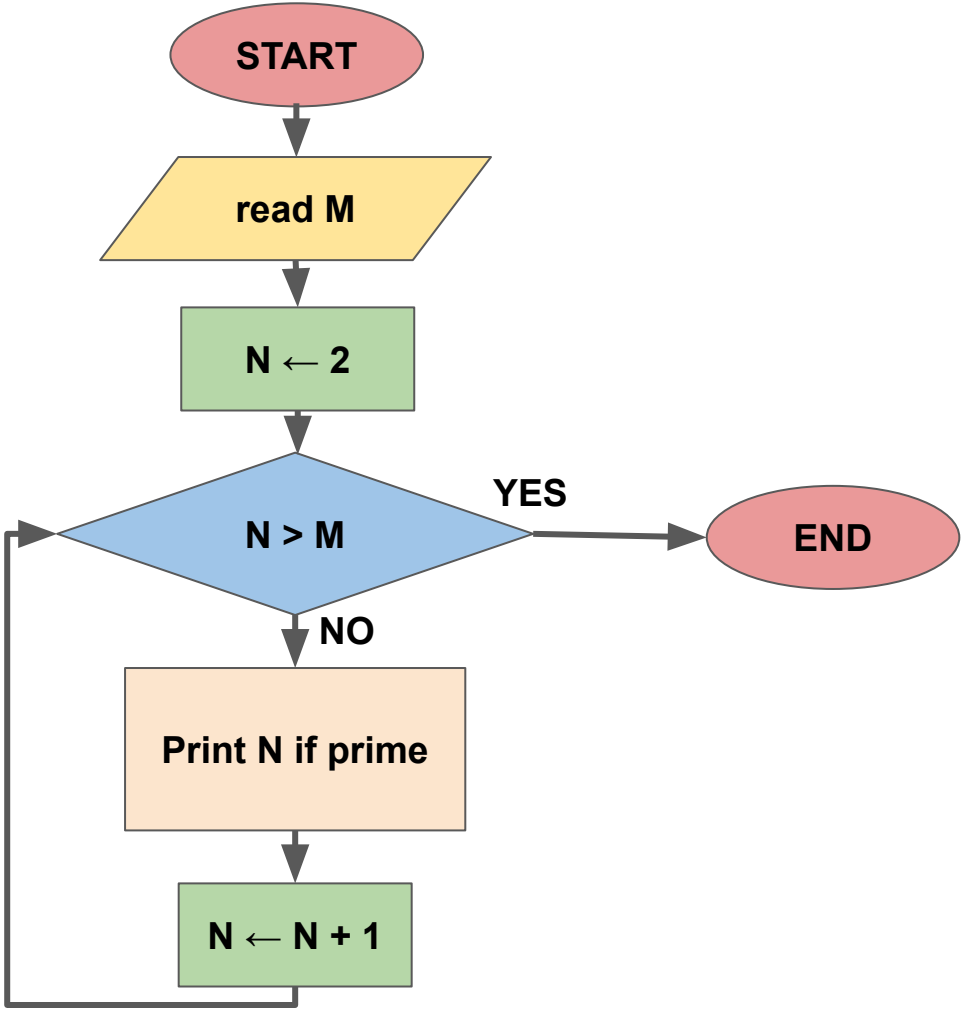

START
read N
k ← 2
k*k > N
YES
print N
END
NO
N rem k = 0
YES
END
NO
k ← k + 1

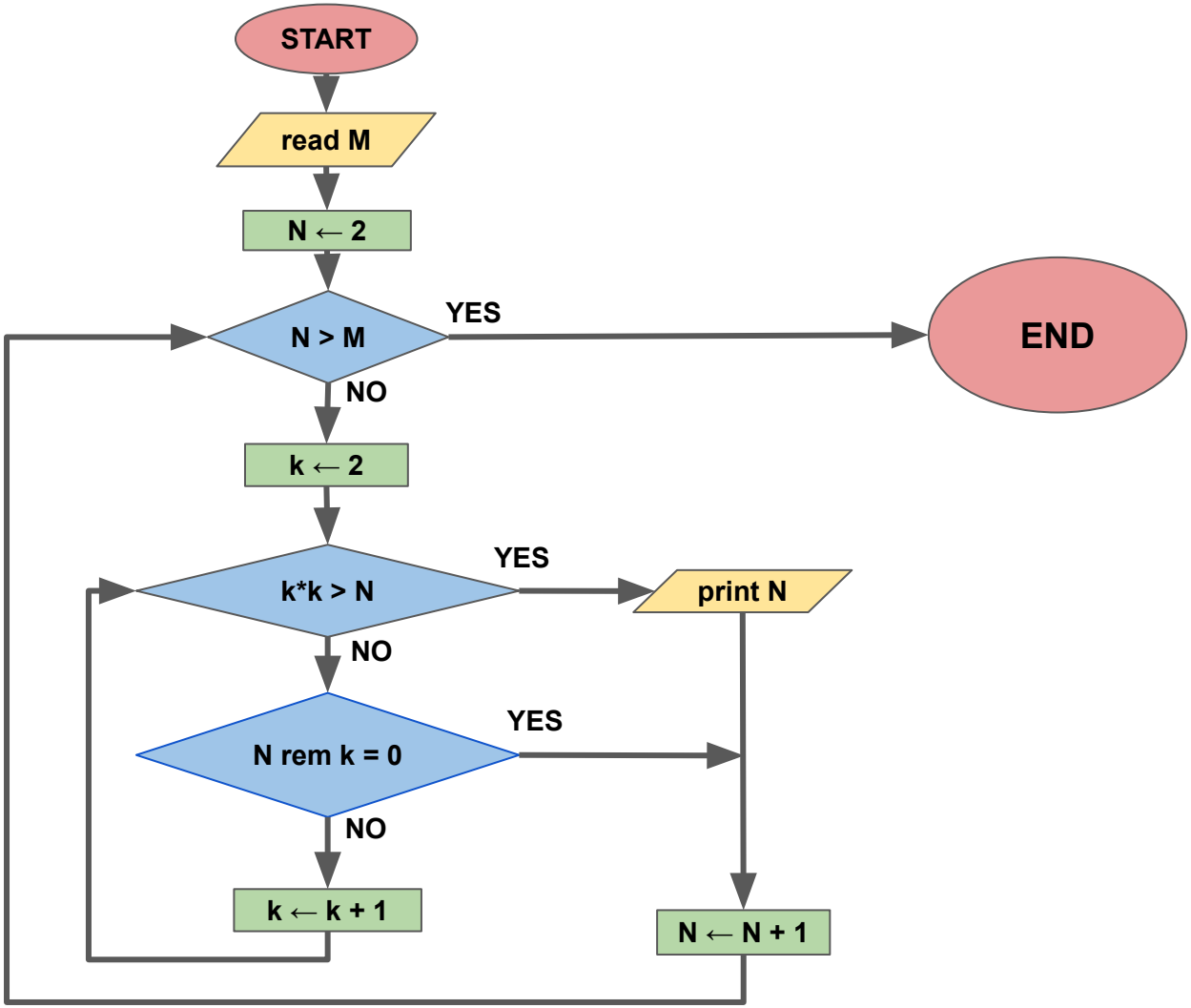
Write an algorithm which takes a number **M** and print **all prime numbers up to M**


START
read N
k ← 2
k*k > N
YES
print N
END
NO
N rem k = 0
YES
END
NO
k ← k + 1

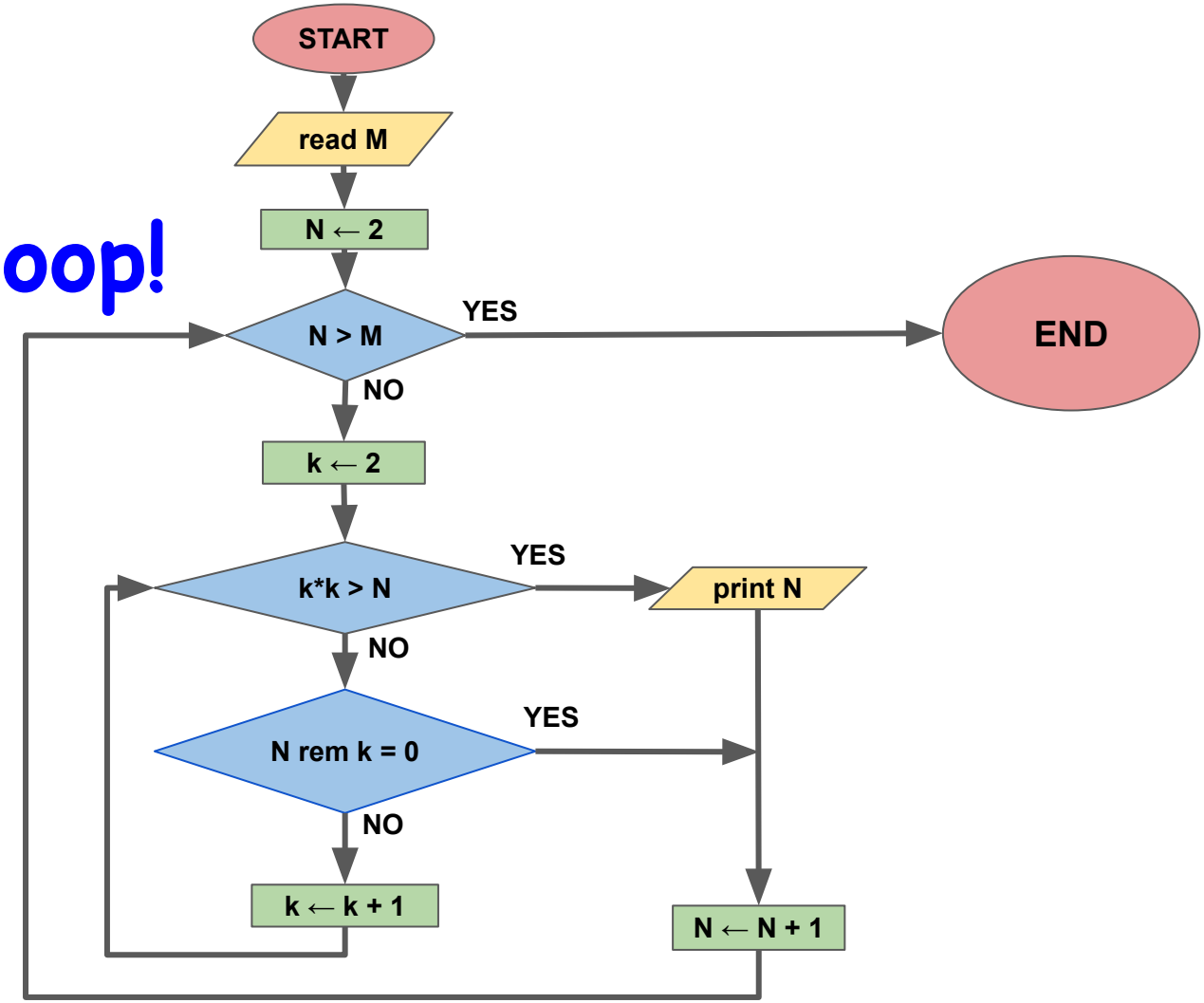

START
read N
Print N if prime
END
END


START
read M
N ← 2
N > M
YES
END
NO
N ← N + 1


START
read M
N ← 2
N > M
YES
END
NO
Print N if prime
N ← N + 1


START
read M
N ← 2
N > M
YES
END
NO
k ← 2
k*k > N
YES
print N
NO
N rem k = 0
YES
NO
k ← k + 1
N ← N + 1

nested loop!


START
read M
N ← 2
N > M
YES
END
NO
k ← 2
k*k > N
YES
print N
NO
N rem k = 0
YES
NO
k ← k + 1
N ← N + 1

nested loop!