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Assignement 3

RISC assembley:

.text

.intel\_syntax noprefix

mov r10, #256

.global p

p:

add r26, r27, r16

sll r16, #2, r1

ret r25, 0

sub r1, #1, r1

.global q

q:

add r9, r0, r10

callr r25, p

sub r0, r26, r11

callr ret r25, 0

add r0, r0, r0

.global f

f:

sub r26, #0, r0 {C}

jlt basecase

XOR r0, r0, r0

sub r26, #1, r10

callr \_f ret r25, 0

mul r26, r1, r1

basecase:

mov r1, #1

Ackermann fucntion written in python.

import time

def A(m, n):

if m == 0:

return n + 1

if n == 0:

return A(m - 1, 1)

n2 = A(m, n - 1)

return A(m - 1, n2)

startTime = time.time()

result = A(3, 6)

# result for (3,6) = 509

elapsedTime = time.time() - startTime

print elapsedTime

# it took 0.052726984024 seconds to run on my machine