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\* optimize.s

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\* Author: Ni Qingqing & Hou Linxin

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.syntax unified

.cpu cortex-m4

.fpu softvfp

.thumb

**.global** optimize

@ Start of executable code

**.section** **.text**

@ CG/[T]EE2028 Assignment 1, Sem 1, AY 2024/25

@ (c) ECE NUS, 2024

@ Write Student 1’s Name here: Anna Kavtaradze

@ Write Student 2’s Name here: Parv Bhadra

@ Look-up table for registers:

@ R0 = location of input params

@ R1 = x

@ R2 = lam

@ R3 = 2a

@ R4 = 10b

@ R5 = fp/change

@ R6 = round

@ R8 = temp

@ write your program from here:

**optimize:**

PUSH {R14}

**SUBROUTINE:**

LDM R0, {R3, R4}

LSL R3, #1 @2a

MOV R5, #10

MUL R4, R5 @10b

MOV R6, #0 @round

**loop:**

MLA R5, R3, R1, R4 @ fp = 2\*a\*x + b \* 10;

MUL R5, R2

MOV R8, #100

SDIV R5, R8

CMP R5, #0

BEQ exit

SUB R1, R5

ADD R6, #1

B loop

**exit:**

LDR R0, =ANSWER

STM R0, {R1, R6}

POP {PC}

.lcomm ANSWER 8