

MELISSA TRAN
COMPSCI 2208
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Assignment 4

DUE DATE: April 3, 2018
11:55pm

Question 1

Recursive call calculations for exponent equation

How many stack frames are needed to calculate x^n , when $n = 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11$, and 12 ?

When $n = 0$, you would need one stack frame only

When $n = 1$, you would need two stack frames

When $n = 2$, you would need three stack frames

When $n = 3$, you would need four stack frames

When $n = 4$, you would need five stack frames

When $n = 5$, you would need six stack frames

When $n = 6$, you would need seven stack frames

When $n = 7$, you would need eight stack frames

When $n = 8$, you would need nine stack frames

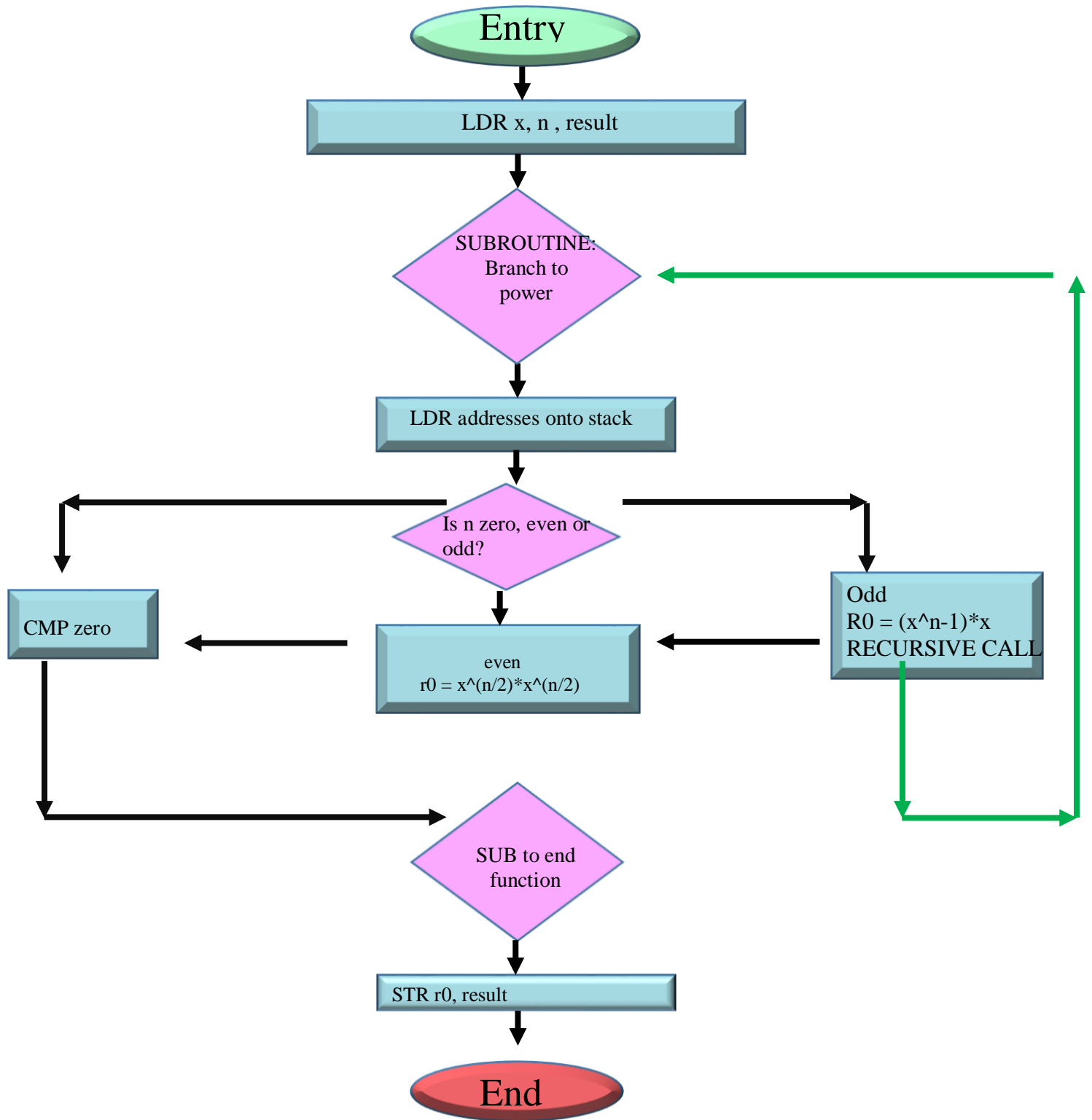
When $n = 9$, you would need ten stack frames

When $n = 10$, you would need eleven stack frames

When $n = 11$, you would need twelve stack frames.

When $n = 12$, you would need thirteen stack frames

Each time for every value of n , the stack frames you would need would be $n+1$. The reason for this is because we are doing a recursive call, and so each time we call the function again we are adding on another stack. So essentially when $n = 12$, then 13 stack frames would be needed for the stack



Stack Frame

Sketch the structure of the stack frame that you utilized in your program.

