**Machine Code**

20 2000 load r0 w 0

22 2100 load r1 w 0 (sum)

24 2201 load r2 w 1 (+1)

26 2300 load r3 w 0 (n-1 Fibo)

28 2401 load r4 w 1 (n Fibo)

30 2612 load r6 w 18 (initial age)  
3A 27FF load r7 w -1 (for exclusive)

3B 2912 load r9 w 18 (base age)

7A B96A if age = 0, end with sum = 0

21 5534 (n-1) + (n), load to r5

23 5252 r5 + sum, load in sum

25 4043 copy r4 to r3

27 4054 copy r5 to r4

2A 5874 (added num) – 1

2B 9808 load r8 with negative of r4

2C 5989 (age) - (Fibonacci), load to r9

2D 4095 copy r9 to r5

2E 2676 (initial age) -1 (for loop) (positive check)

2F 2979 (base age) – 1 (to check if still positive with loop)

40 B921 if gets to 0 => result was positive, can repeat

42 B62E if becomes 0 => base age went negative => need to return last fibo and halt

4A 5474 last Fibo – 1

4B 9404 two’s compl. (last) to -(last)

4C 5141 subtract last from sum

6A C000 Halt

**Pseudocode**

Create variable Sum = 0

Create variable Fibo (Fibonacci Number) = 0

Create variable Fibo2 (second Fibonacci Number) = 0

Create variable Age = 18

Create variable Helper = 0

If Age is smaller or equal to 0,

print Sum

if Age is not smaller or equal to 0,

Add one to Fibonacci number (Fibo= Fibo +1) -> Fibo = 1

While the Age is bigger than 0, do

Add Fibo to Sum (Sum = Sum + Fibo)

Subtract the Fibo from Age (Age = Age - Fibo)

Determine next Fibonacci number ->

Helper = Fibo

Fibo = Fibo + Fibo2

Fibo2 = Fibo2 + Helper

If Age < 0

subtract last Fibo from Sum (Sum = Sum - Fibo)

Print the Sum