Q: Design an algorithm and a flow chart to find the root of the eqn $ax^2 + bx + c = 0$.

Algorithm

Step 1. Input a, b, c

Step 2. $d = b^2 - 4ac$

Step 3. if $d \geq 0$

$$x_1 = \frac{-b + \sqrt{b^2 - 4ac}}{2a} \quad \frac{-b + \sqrt{d}}{2a}$$

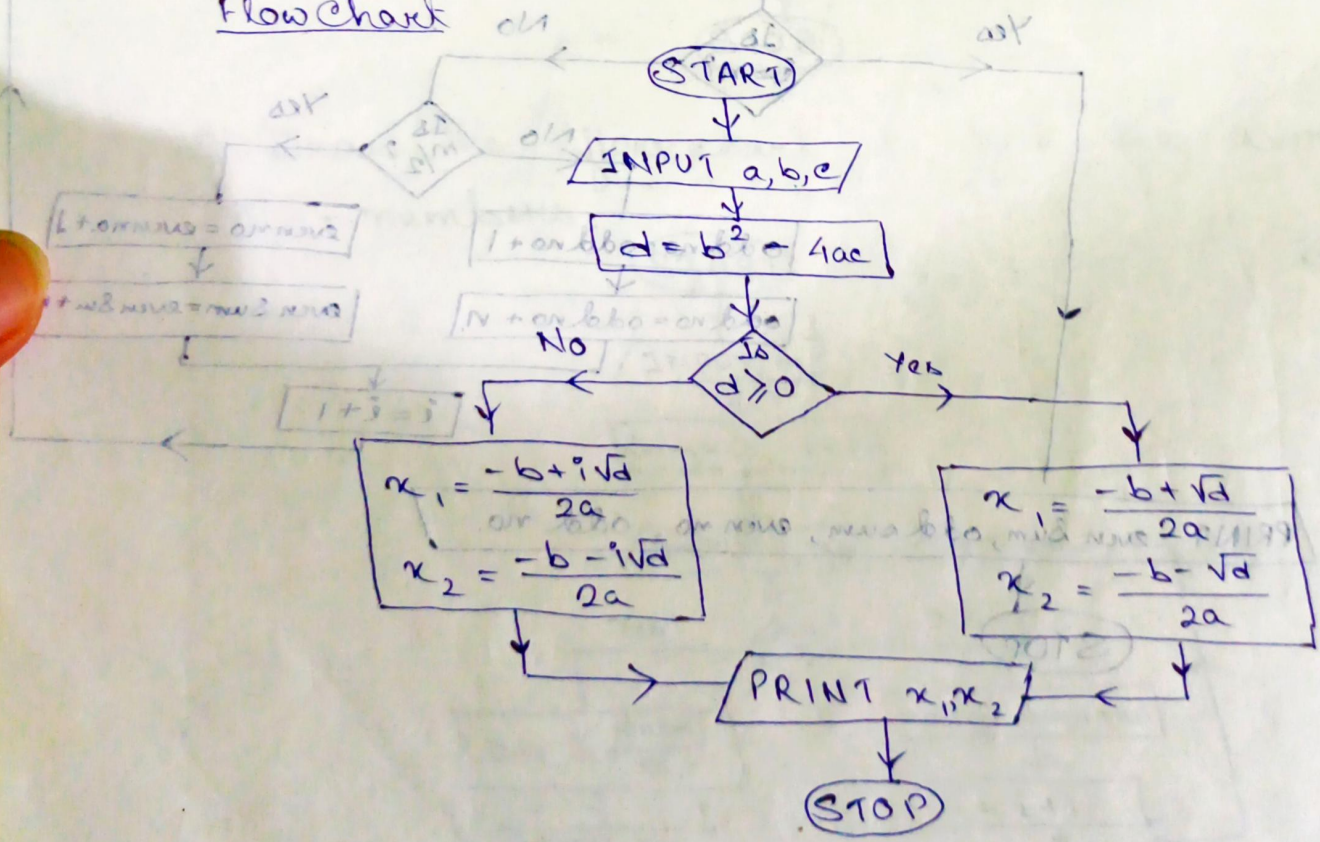
$$x_2 = \frac{-b - \sqrt{d}}{2a}$$

else

print "no real roots"

Step 4. PRINT "Real roots".

Flowchart



Fibonacci Numbers:

First and second terms in the sequence are 0 and 1. Subsequent terms are found by adding the preceeding two terms in the ~~subse~~ sequence

0, 1, 1, 2, 3, 5, 8, 13, 21, - - -

Q: Obtain a flow chart to find all no. in Fibonacci sequence less than 200.

Step 1. Set F0 = 0 and F1 = 1

Step 2 Compute F2 = F0 + F1

Step 3. If F2 < 200 then

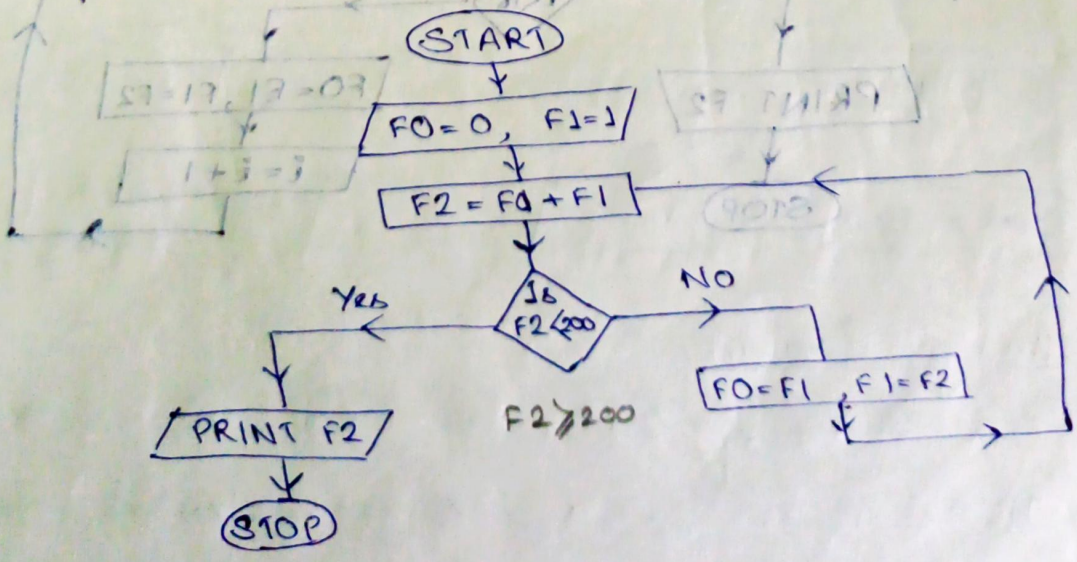
I. PRINT F2

II Set F0 = F1 and F1 = F2

III. Go to Step 2.

end if

Step 4. STOP / end



Q: Find the first 20 Fibonacci Nos.

Algorithm

Step 1 : Set F0 = 0 , F1 = 1 and i = 0

Step 2 : Compute F2 = F0 + F1.

Step 3 : if i < 18 then

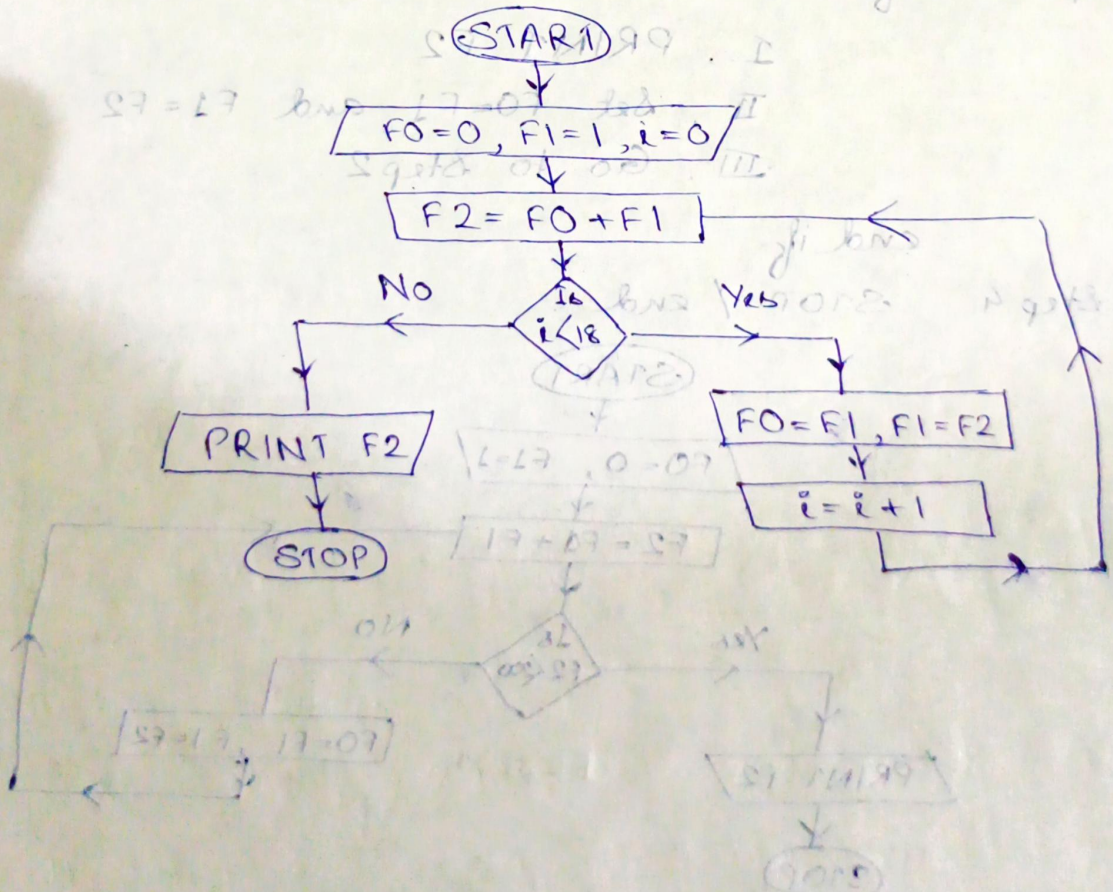
I. PRINT F2

II. Set F0 = F1 , F1 = F2 , i = i + 1

III. Go to Step 2.

endif

Step 4 : end.



Q: Draw a flow chart to find the sum of natural nos. upto n.