EXPERIMENT NO: 12

TITLE: Develop a program to find the square root of a given number N and execute for all possible inputs with appropriate messages. Note: Don't use library function sqrt(n).

PROGRAM:

```
#include<stdio.h>
void main()
{
      float num, sqroot, i, f;
      printf("Enter a number\n");
      scanf("%f",&num);
      if(num<=0)
      {
            printf("No square root for given number\n");
      }
      else
      {
            for(i=1;i*i<=num;i++);
            i--;
            for(f=0.001;(i+f)*(i+f)<=num;f=f+0.001);
            f=f-0.001;
            sqroot=i+f;
            printf("The square root of %.3f is %.3f\n",num,sqroot);
      }

}
```

OUTPUTS:

- Enter a number
  -2
  No square root for given number
- Enter a number
  2
  The square root of 2.000 is 1.414
- Enter a number
  4
  The square root of 4.000 is 2.000

ALGORITHM:

STEP 1: Start

STEP 2: Read num

STEP 3: check **(num<= 0)**
if **yes** print No square root for a given number
goto step (12)

STEP 4: calculate integer part of square root
Initialize i= 1

STEP 5: check **(i * i <= num)**
if yes i = i + 1
goto step (5)

STEP 6: i = i – 1

STEP 7: calculate real part of square root
initialize **f = 0.001**

STEP 8: check **((i+f) *(i+f) <=num)**
if yes f = f+0.001
goto step (8)

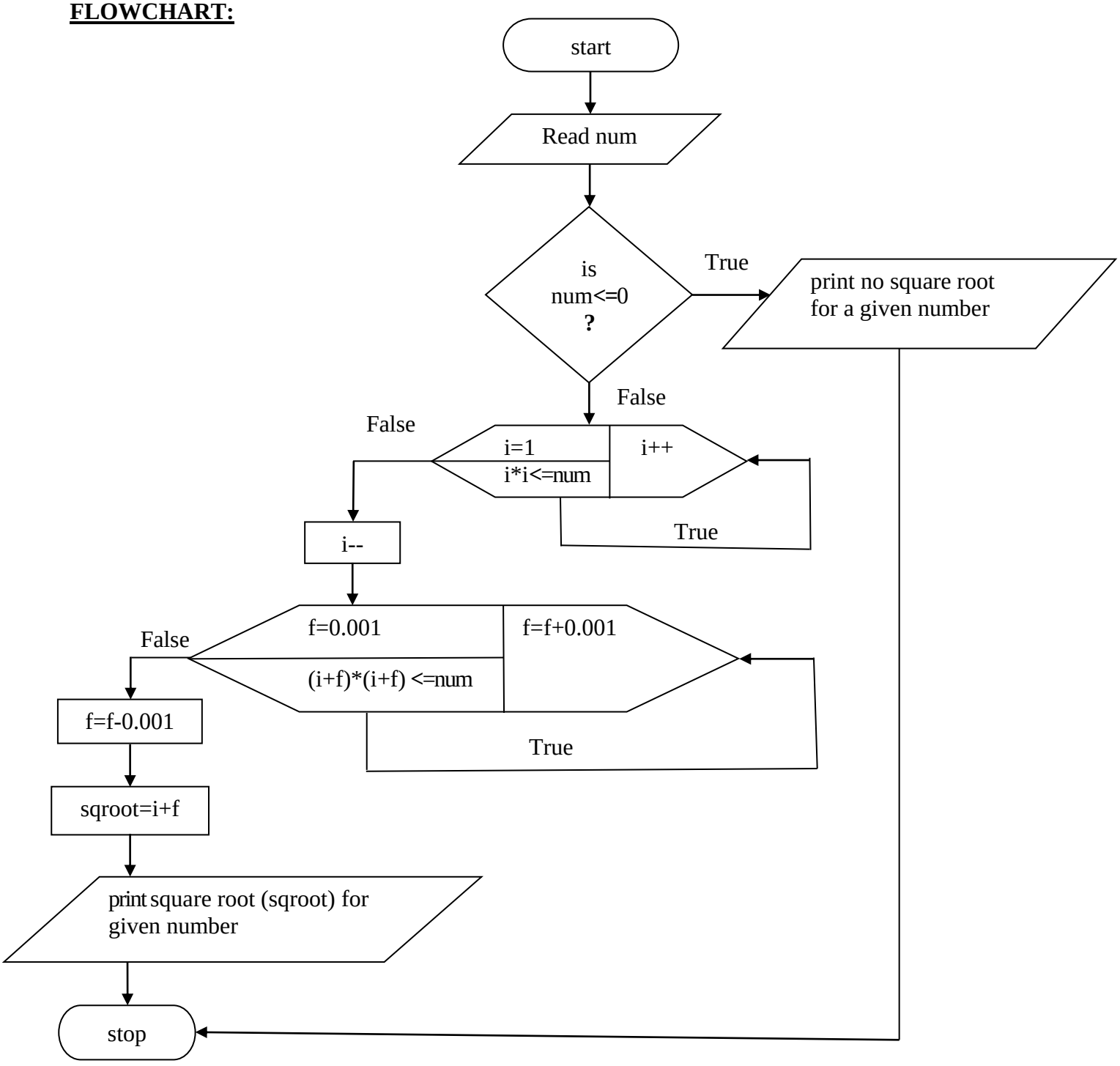
STEP 9: f = f – 0.001

STEP 10: sqroot = i+f

STEP 11: print square root (sqroot) for given number

STEP 12: stop

FLOWCHART:


start
Read num
is num<=0 ?
True
print no square root for a given number
False
False
i=1
i*i<=num
i++
True
i--
f=0.001
(i+f)*(i+f) <=num
f=f+0.001
True
False
f=f-0.001
sqroot=i+f
print square root (sqroot) for given number
stop