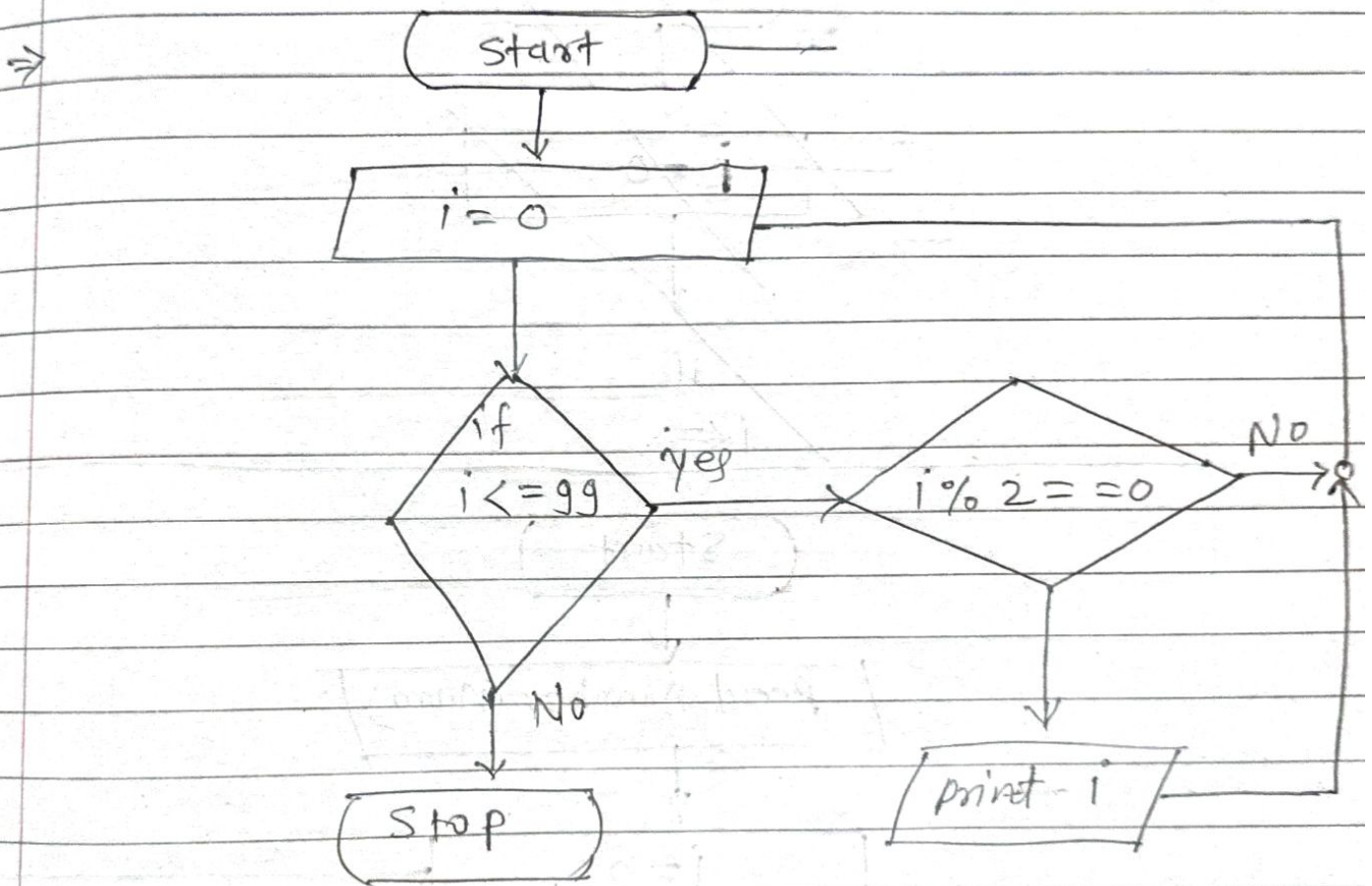Q.1 Write the algorithm and draw flowchart for the algorithm.

(a) Print even numbers between 0 and 99.

Start

$i = 0$

if $i <= 99$ yes

$i \% 2 == 0$ No

No

Stop

print i

(b) Print odd numbers less than given numbers. it should also calculate their sum and count.

```
        ┌─────────┐
        │  Start  │
        └─────────┘
             │
             ▼
        ┌─────────┐
        │  i = 0  │
        └─────────┘
             │
             ▼
            if
          i <= i
```

```
              ┌─────────┐
              │  Start  │
              └─────────┘
                   │
                   ▼
        ┌──────────────────────────┐
        │  Read Number (num)       │
        └──────────────────────────┘
                   │
                   ▼
        ┌──────────────────────────┐
        │         i = 0            │◄─────────┐
        └──────────────────────────┘          │
                   │                           │
                   ▼                           │
                  if                           │
               i <= num    yes      ◇ i%2 != 0 ◇── No ──►
                                                 │
             No                                 yes
              │                                  │
              ▼                                  ▼
        ┌─────────┐                    ┌──────────────────┐
        │  Stop   │                    │  Print i sum     │
        └─────────┘                    │        count     │
                                       └──────────────────┘
```
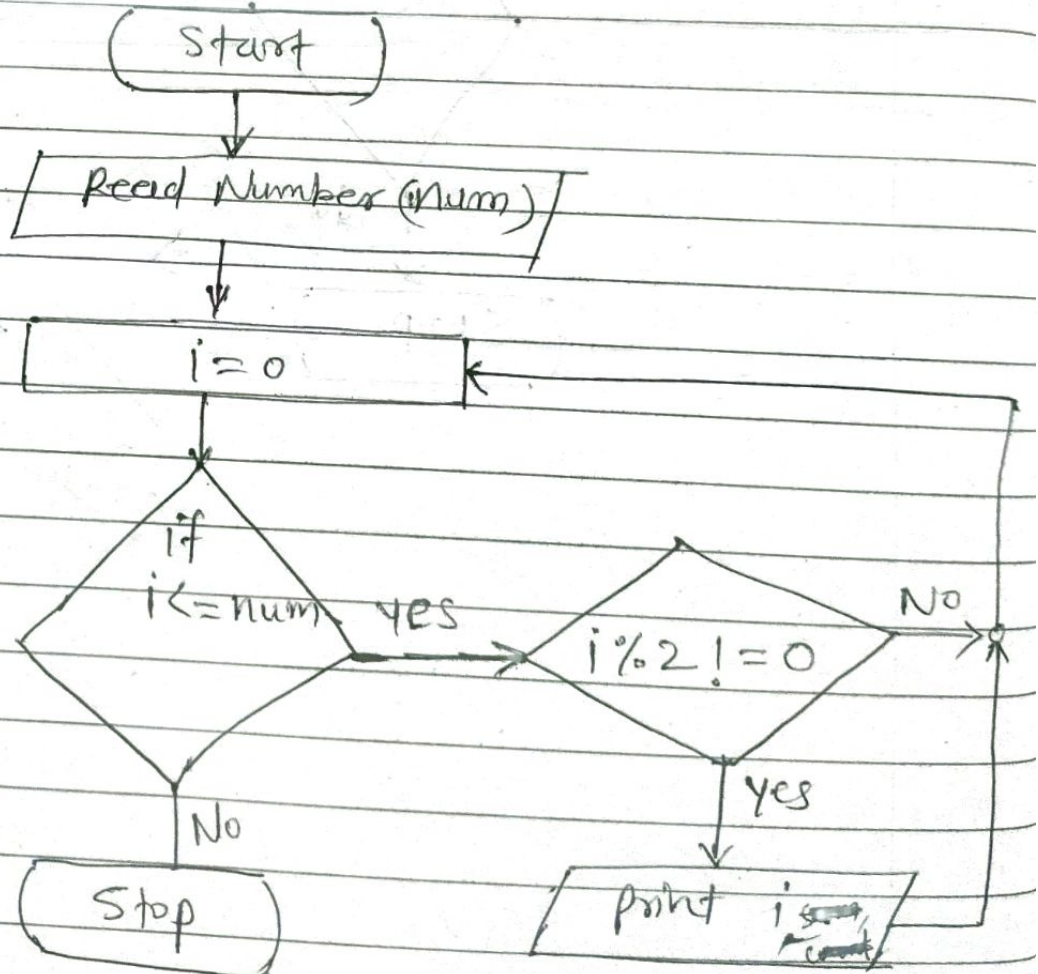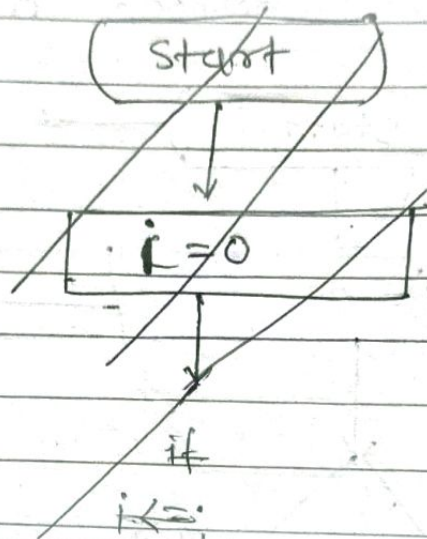
© Claculate the average of 25 test scores.

```
                    ( Start )
                        |
                        v
      / Read I'th        /
     / Exam score       /
    /      X           /
                        |
                        v
    | I = 1             |
    | Sum = 0           |
    | N = 25            |
                        |
                        v
    | Sum = Sum + X     |
                        |
                        v
    | I = I + 1         |
                        |
                        v
              if                yes
    NO       I > N      ------------->   | Avg = sum/N |
                                                |
                                                v
                                        / print Avg  /
                                                |
                                                v
                                          ( Stop )
```

3
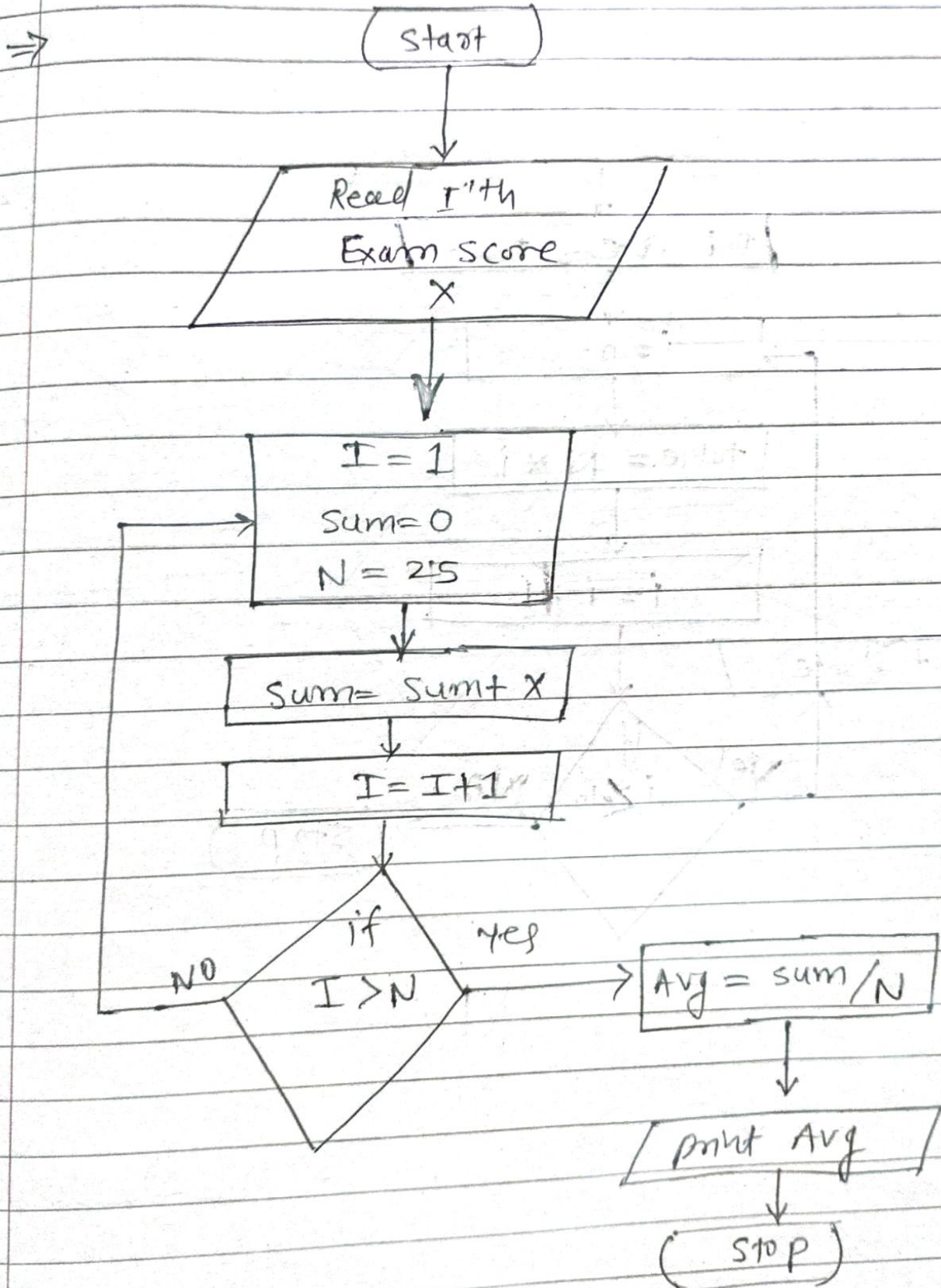
(d) Print table of any number

⇒

```
                        ┌──────────────┐
                        │    Start     │
                        └──────┬───────┘
                               │
                               ▼
                    ┌────────────────────────┐
                    │   Read Number (N)       │
                    └───────────┬─────────────┘
                                │
                                ▼
          ┌──────────────────────────────────┐ ◄────────────┐
          │            i = 1                  │              │
          └────────────────┬─────────────────┘              │
                           │  ◄──────────────────────┐       │
                           ▼                          │       │
                         ╱ if ╲                       │       │
                        ╱ i<=10 ╲ ──yes──► ┌─────────┐│  ┌─────────┐
                        ╲        ╱          │print N*i├──►│ i=i+1   │
                         ╲      ╱           └─────────┘   └─────────┘
                           │
                          No
                           ▼
                    ┌──────────────┐
                    │    Stop      │
                    └──────────────┘
```
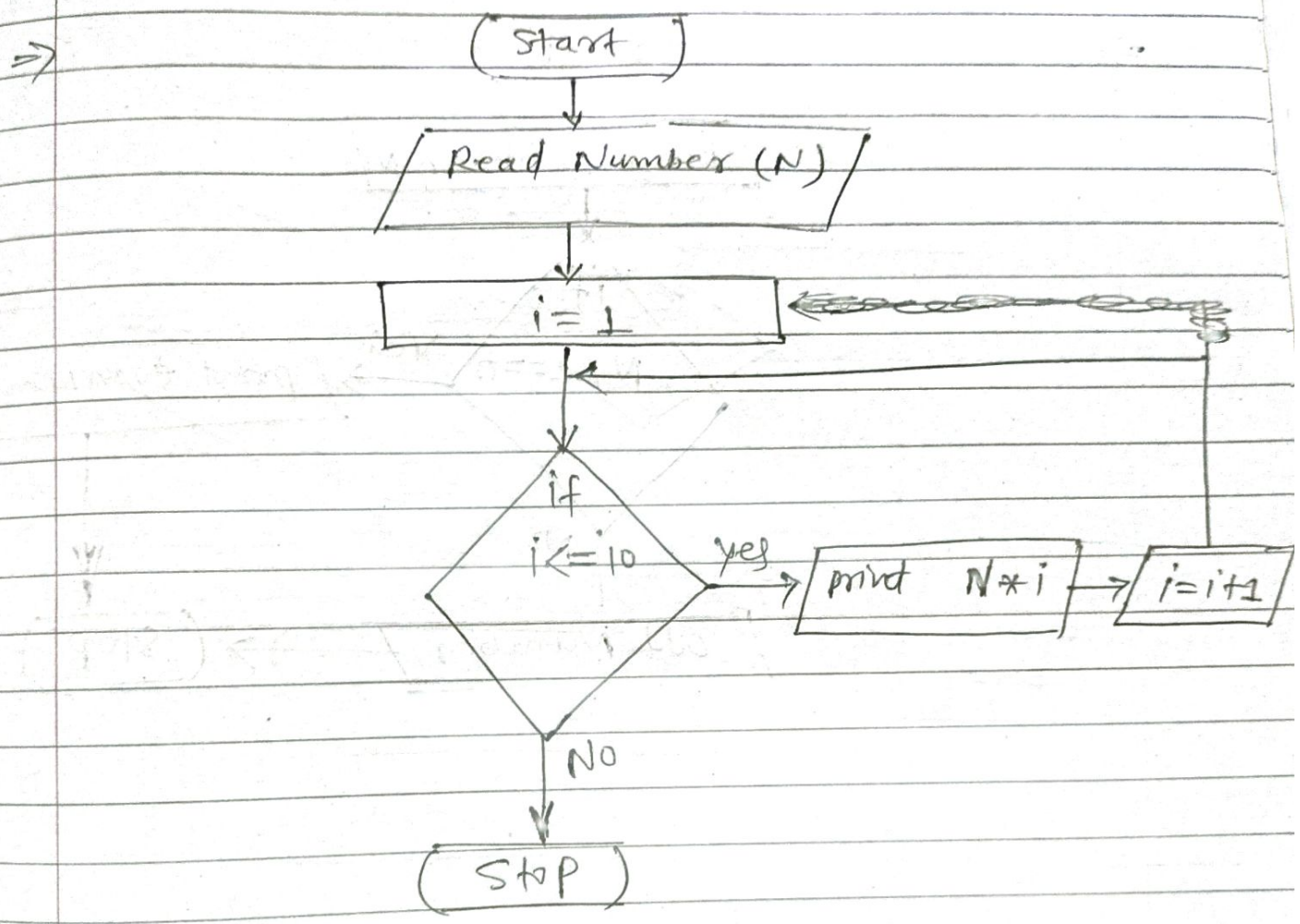
(e) Check given number is prime or Not.

⇒

```
                    ( Start )
                        |
                        v
              / Read  Number /
                        |
                        v
            [ i = 1    flag = 0 ]
                        |
                        v
        NO    < n == 2 >    YES
        |                    |----> / Print "No. is prime" /
        |                                        |
        v                                        |
  NO  < i < n-1 >              YES              v
  |----              < flag == 0 >----> ( Stop )
  |        |                    |              ^
  v      yes                   NO              |
[ i = i+1 ]                     |---> / print "No. is Not prime" /
  ^        |
  |        v
NO  < n % i == 0 >
|----
^        |
|      yes
|        v
|   [ flag = 1 ]
|_____|
```
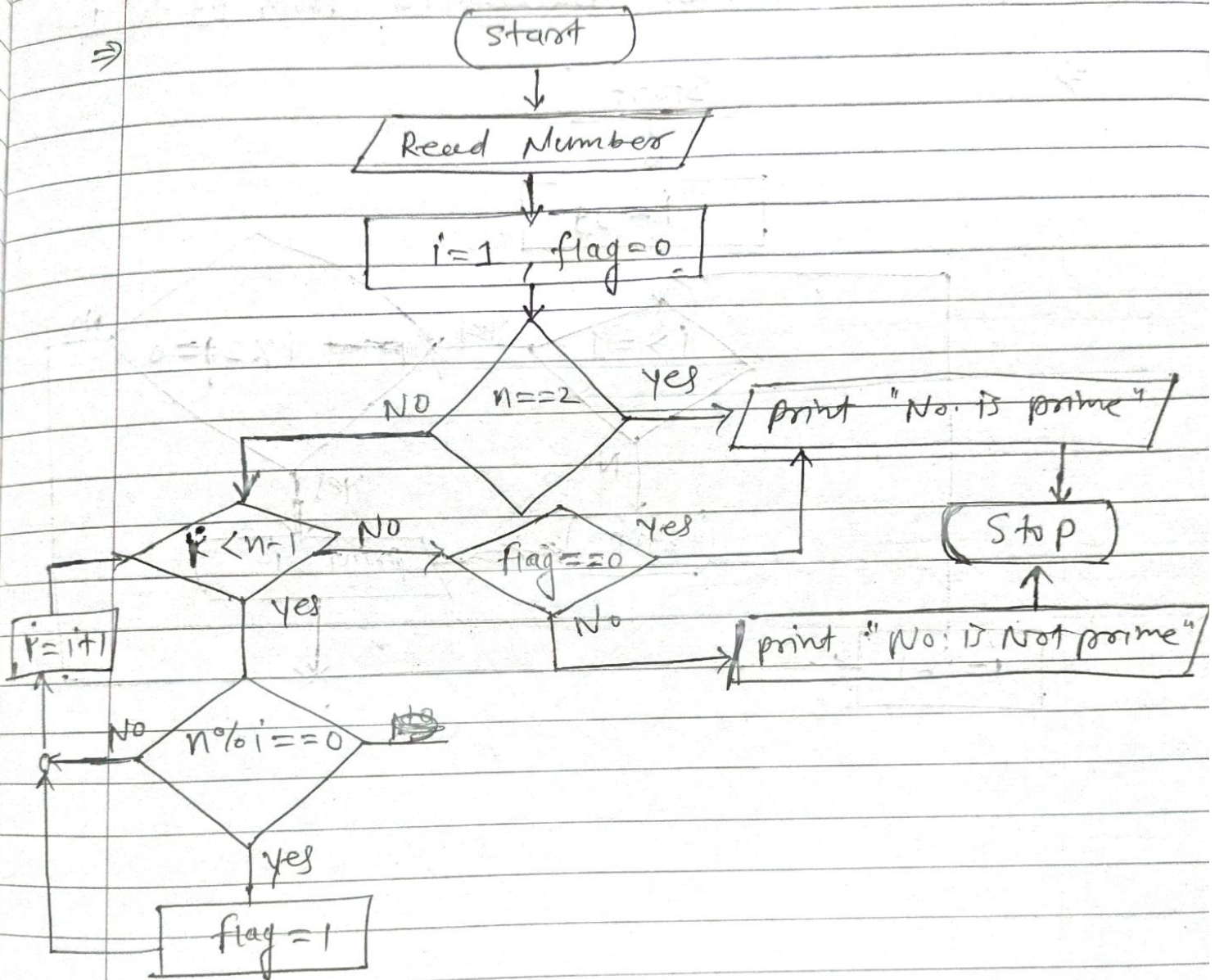
(f) Print odd numbers backward from 99 to 1.

→

```
Start
  ↓
i = 99
  ↓
i >= 1 ──Yes──→ i % 2 != 0 ──No──┐
  │ No                  │ Yes       │
  ↓                     ↓           │
Stop              print i ←─────────┘
                        ↓
i = i-1 ←───────────────┘
  (loops back to i >= 1)
```

6