Finding Square Root of a number

* Square Root of a number is obviously less than that number.

⇒ Do binary search (Sort of nos)

For example: Sqrt(36)

PERECT SQUARE:

* ⇒ 0 - 36

⇒ Mid = 18

Is 18*18 = 36 NO

18*18 > 36

Then End = Mid - 1

⇒ 0 - 17

⇒ Mid = 8

Is 8*8 = 36 NO

8*8 > 36

Then End = Mid - 1

⇒ 0 - 8

Mid - 4

Is 4*4 = 36 NO

4*4 < 36

Start = Mid + 1

⇒ 5 - 8

Mid = 6

Is 6*6 = 36 Yes

* Then sqrt of 36 = 6.

General:

```
if (m*m > n){
    end = m-1);
else
    start = m+1;
```

Square root is a decimal value:

For example:

sqrt(40) = 6.32

⇒ The Integer value can be gotten with above method.

⇒ But to get the decimal values.

* Increment the decimal values in its place.

⇒ sqrt = 6 is got from above method.

1. Is 6*6 < 40 Yes
2. Inaement 1st decimal value
   6.1 ⇒ 6.1 * 6.1 = 40 NO
   6.1 * 6.1 < 40
3. Incement 1st decimal value
   6.2 ⇒ 6.2 * 6.2 < 40
4. Increment 1st decimal value
   6.3 ⇒ 6.3 * 6.3 < 40
5. Incement 1st decimal value
   6.4 ⇒ 6.4 * 6.4 > 40
6. Then decrement ⇒ 6.3 this is the answer
7. Then add second decimal value
   6.3 + 0.01 ⇒ 6.31
   ⇒ 6.31 * 6.31 < 40
8. Increment the 2nd decimal place
   ⇒ 6.32 ⇒ Ans

TIme Complexity : O(log(n))

Time complexity of binary Search is also O(log