SIEVE OF ERATOSTHENES TO FIND PRIME NUMBERS

:DESCRIPTION:

GIVEN A NUMBER N, PRINT ALL PRIME NUMBERS SMALLER THAN OR EQUAL TO N.

PROCESS TO FIND OUT SIEVE OF ERATOSTHENES

1. AS PRIME NUMBER STARTS FROM 2
   THERE FORE MARK ALL MULTIPLES OF 2 AND EXCLUDE THEM.

   IF N = 10

2	6	10
3	7	
4	8	
5	9	

2. NEXT PRIME NUMBER WILL BE 3 , THERE FORE MARK ALL MULTIPLES OF 3 AND EXCLUDE THEM

IF N = 10

2	6	10
3	7	
4	8	
5	9	

3. AND THIS PROCESS WILL CONTINUE TILL WE REACH N .

IF N = 10

PRIME NUMBERS = 2,3,5,7

ENGLISH LIKE ALGORITHM:

STEP 1: FIRST FILL AN ARRAY TO TRUE UP TO N TIMES.

STEP 2: NEXT MAKE THOSE MULTIPLES OF NUMBERS TO FALSE

STEP 3: PRINT THOSE NUMBERS WHICH REMAINS TRUE

//PSEUDO CODE//

$$Prime(N):$$

$$Boolean\ a[N+1]$$

$$for\ i \leftarrow 2\ to\ N\ do:$$

$$\quad a[i] \leftarrow true$$

$$for\ i \leftarrow 2\ to\ N\ do:$$

$$\quad if\ (a[i] = True) Then$$

$$\quad\quad Print(i)$$

$$\quad\quad for\ j \leftarrow i * i\ to\ n\ do:$$

$$\quad\quad\quad a[j] \leftarrow False$$

Programs In Java

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1. https://github.com/AvinandanBose/JavaClassicalDataStructure/blob/main/sieveOfEratosthenes.java

2. https://github.com/AvinandanBose/JavaClassicalDataStructure/blob/main/SieveOfErastothenes1.java

3. https://github.com/AvinandanBose/JavaClassicalDataStructure/blob/main/SeiveOfErastosthenes.java