

## *Prime number array*

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In this project we had to write a program which puts the first 100 prime numbers in an array.

### PYTHON CODE

```
import time
start = time.time()
Array = []
Count = 0

def IsPrime( Int ):
    if Int != 0 and Int != 1:
        for x in range(len(Array)):
            if Int%Array[x] == 0:
                return False
            break
        return True
    else:
        return False

while len(Array) < 100:
    Count = Count + 1
    if IsPrime( Count ):
        Array.append( Count )
        #print Count

print Array
end = time.time()
print "The array has " + str(len( Array )) + " elements"
print "Time needed " + str(end-start)
```

First i am importing the time library and then i set the beginning values. Then i am defining a new function called IsPrime() This function will return true if the given number is a prime number otherwise it will return false. After that i am starting the while loop which runs until i the array has 100 elements. In the while loop i am going through every real number by counting up. Then i am cheking if the number is a prime number with my IsPrime number function i defined before. If the IsPrime function returns true i the programm will append the number to my array. If it returns false we do nothing After the array reaches 100 elements i am printing the whole array. After that i am printng how many elements my array contains. Then i am getting the time the whole calculations took and print it. Then the program is finished.

## OUTPUT

```
[2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53,
59, 61, 67, 71, 73, 79, 83, 89, 97, 101, 103, 107, 109,
113, 127, 131, 137, 139, 149, 151, 157, 163, 167, 173,
179, 181, 191, 193, 197, 199, 211, 223, 227, 229, 233,
239, 241, 251, 257, 263, 269, 271, 277, 281, 283, 293,
307, 311, 313, 317, 331, 337, 347, 349, 353, 359, 367,
373, 379, 383, 389, 397, 401, 409, 419, 421, 431, 433,
439, 443, 449, 457, 461, 463, 467, 479, 487, 491, 499,
503, 509, 521, 523, 541]
The array has 100 elements
Time needed 0.125
```

The first part are the numbers in the array.  
The second part is the length of the array.  
The third part is the time the calculations took.