

```
#include <stdio.h>
#include <math.h>
#include <stdlib.h>

int main(int argc, char **argv)
{
    //-----MPI
    int i,
        j,
        myRank,
        procN,
        source,
        tag=1,
        dest,
        nWorkers;

    FILE *filePrime;
    FILE *fileVector;
    //-----MPI

    //-----Siede de Arethosthenes
    int sizeVector = 100000, //tamanho do vetor a ser alocado
    *vectorN, // vetor que irá armazenar os dados
    primoCont = 0;
    //-----Siede de Arethosthenes

    srand (time (NULL));

    vectorN = (int*) malloc( sizeVector * sizeof (int) );

    for (j = 1; j < 11; j++)
    {

        fileVector = fopen("vetor_gerado.txt","w");

        for (i=0; i<sizeVector; i++)
        {
            vectorN[i] = (rand() %100)+2;
            fprintf(fileVector, "%i\n", vectorN[i]);
        }

        fclose(fileVector);

        for (i=0; i<sizeVector; i++)
        {
            if ( vectorN[i] != 2 && (vectorN[i] % 2) == 0 )
            {
                vectorN[i] = 0;
            }
        }

        for (i=0; i<sizeVector; i++)
        {
            if ( vectorN[i] != 3 && (vectorN[i] % 3) == 0 )
            {
                vectorN[i] = 0;
            }
        }

        for (i=0; i<sizeVector; i++)
        {
            if ( vectorN[i] != 5 && (vectorN[i] % 5) == 0 )
            {
                vectorN[i] = 0;
            }
        }

        for (i=0; i<sizeVector; i++)
```

```
        {
            if ( vectorN[i] != 7 && (vectorN[i] % 7) == 0 )
            {
                vectorN[i] = 0;
            }
        }

filePrime = fopen("primos.txt","w");

for (i=0; i<sizeVector; i++)
{
    if (vectorN[i] != 0)
    {
        primoCont++;
        fprintf(filePrime, "%i\n", vectorN[i]);
    }
}

printf("%d\n", primoCont);
fclose(filePrime);
primoCont = 0;
}
free(vectorN);
}
```