Assignment #3.a

Prime numbers

This assignment will give you practice using a one-dimensional array that you must pass to functions. Write a C++ program that uses the Sieve of Eratosthenes to compute the prime numbers under 1000 and print then them to the standard output.

The Sieve of Eratosthenes

See https://en.wikipedia.org/wiki/Sieve_of_Eratosthenes for a description of the sieve algorithm. Keep track of which numbers are prime or not in a one-dimensional array. In an outer loop, identify the next prime number, and then in an inner loop, mark all the prime's multiples as not prime. When you're done, all you will have left are prime numbers.

Your program must use the sieve algorithm and not repeated trial divisions

Array and functions

Create your array in the main. Pass the array to a compute_primes function that uses the Sieve of Eratosthenes. Then pass the array to a print_primes function.

Expected output Print the prime numbers in rows of twenty primes, followed by Done!

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  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
547 557 563 569 571 577 587 593 599 601 607 613 617 619 631 641 643 647 653 659
661 673 677 683 691 701 709 719 727 733 739 743 751 757 761 769 773 787 797 809
811 821 823 827 829 839 853 857 859 863 877 881 883 887 907 911 919 929 937 941
947 953 967 971 977 983 991 997

Done!
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