

Project Title – Console based application to access the details about large prime numbers and prime decomposition of natural numbers within a certain range using C.

Target–1. To find the nth prime number for any natural number n within 2 secs up to 10 million.
2. To find the number of primes up to any natural number n within 1 sec up to 10 million.
3. To find the prime decomposition of any natural number within 1 sec up to 10 million.

Remark – All targets so far have been achieved!!

Theories used –1. [Prime Number Theorem](#).
2. [Sieve of Eratosthenes](#).
3. [Fundamental Theorem of Arithmetic](#).
4. [Primality Test](#).

Features –1. Suitable colourful attractive user interface.
2. All types of instructions given in each step for using this application for users.
3. Various interesting information about prime numbers are there to explore.
4. All types of errors are handled to prevent sudden crash of the application.
5. Users can verify the results themselves by using the three different options easily.
6. Audio-visual error warnings are there for wrong or invalid inputs.
7. Consistent fast performance for repeated use of the programs.
8. Current date & time details will be given in the time of exiting the application.
9. Time taken to give the result is shown each time.

Future scopes –1. [Meissel - Lehmer algorithm](#) will be implemented for more optimistic results.
2. Automatic memory management will be added into the future versions.
3. Packaging will be added for the issue of platform dependency.
4. Graphical user interface will be added for better outlook.

The git repository link is [here](#).

Thanks for reading,
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