# Package ‘primes’

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**Type** Package  
**Title** Generate and Test for Prime Numbers  
**Version** 0.1.0  
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**Description** Functions to test whether a number is prime and generate the prime numbers within a specified range. Based around an implementation of Wilson’s theorem for testing for an integer's primality.

**License** MIT + file LICENSE  

**Suggests** testthat  
**LinkingTo** Rcpp  
**Imports** Rcpp  
**NeedsCompilation** yes  
**Repository** CRAN  

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### R topics documented:

- prime .......................................................... 2  
- primes ......................................................... 2  

Index 3
**Generate and Test for Prime Numbers**

**Description**

generate prime numbers or test whether a sequence of numbers you have are prime or not.

**Usage**

```r
is_prime(x)
generate_primes(min = 0, max)
```

**Arguments**

- `x`: an integer vector containing elements you want to determine the primality of.
- `min`: the value to generate primes from.
- `max`: the maximum value to generate prime numbers up to.

**Details**

`is_prime` and `generate_primes` rely on Wilson’s theorem to test for a number’s primality; as primality algorithms go, this is actually a very slow approach - in theory. In practice, because of the limits R institutes around integer sizes, it’s fast enough for our needs. For example, 10m numbers, all 2^30-sized, can be tested for primality using this package in 100ms.

**Examples**

```r
# Test for primality
is_prime(1299827)
# [1] TRUE

generate_primes(max =12)
# [1]  2  3  5  7 11
```
Index

generate_primes (prime), 2
is_prime (prime), 2
prime, 2
primes, 2
primes-package (primes), 2