prime.cpp

```cpp
#include <iostream>
#include <time.h>
#include <vector>
#include <limits.h>
// #include "bits/stdc++.h"

using namespace std;

bool isPrimeNumber(int n) {
    if (n <= 1) return false;
    if (n <= 3) return true;
    if (n % 2 == 0 || n % 3 == 0 || n % 5 == 0 || n % 7 == 0
            || n % 11 == 0 || n % 13 == 0) {
        return false;
    }
    for (int i = 5; i * i <= n; i = i + 6)
        if (n % i == 0 || n % (i + 2) == 0)
            return false;
    return true;
}
int main() {
    const int n = INT_MAX;
    std::vector<int> result;
    clock_t start = clock();
    for (int i = 0; i < n; i++) {
        if (isPrimeNumber(i)) {
            result.push_back(i);
            // std::cout << "i = " << i << " is prime\n";
        }
        if (i % 10000000 == 0) {
            std::cout << i << "\n";
        }
    }
    clock_t end = clock();
    double timeCost = (double)(end - start) / CLOCKS_PER_SEC;
    std::cout << "the number of primes within " << n <<
        " is: " << result.size() << "\n";
    std::cout << "the cpu computation time is: " << timeCost << " sec \n";
    return 0;
}
```

```
the number of primes within 2147483647 is: 105097560
the cpu computation time is: 2715.59 sec
```