```cpp
#include <iostream>
#include <time.h>
#include <math.h>
using namespace std;

int binarySearch(int array[],int target,int arraySize);
void arrTest(int*, const int);

int main() {
  const int
    size1 = 128,
    size2 = 512,
    size3 = 2048,
    size4 = 8192,
    size5 = 32768,
    size6 = 131072,
    size7 = 524288,
    size8 = 2097152;

  int * arr;
  arrTest(arr, size1);
  arrTest(arr, size2);
  arrTest(arr, size3);
  arrTest(arr, size4);
  arrTest(arr, size5);
  arrTest(arr, size6);
  arrTest(arr, size7);
  arrTest(arr, size8);
}

void arrTest(int * arr, const int size) {
  clock_t start;
  arr = new int[size];
  for(int i = 0; i < size; i++)
    arr[i] = i;
  start = clock();
  for(int i = 0; i < 10000000; i++)
    binarySearch(arr, size+1, size);
  cout << "Time elapsed: " << ((double)clock() - start) / CLOCKS_PER_SEC << "
Seconds " << endl ;
  delete[] arr;
}

int binarySearch(int array[],int target, int arraySize) {
  int first, mid, last;

  first = 0;
  last = arraySize-1;

  while(first <= last) {
    mid = ceil(first + last) / 2;
    if(array[mid] > target)
      last = mid - 1;
    else if(array[mid] < target)
      first= mid + 1;
    else
      return mid;
  }
    return -1;
}

```