OOP

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Assignment no-7

Title: To use map associative container.

problem statement:

write a program in c++ to use map associative container. The keys will be the names of states & the values will be the populations of the states. when the program runs, the user is promted to type the name of a state. The program then looks in the map, using the state name as an index & returns the population of the state.

Prerequisites: oop.

objective :- to learn to use a map associative container.

Theory:

Map associative Container:

Map associative container are associative containers that store elements in a mapped fashion. element has a key val Each value & a map value.

No ~~map~~ two mapped values can ~~be~~ have Same key values.

Syntax:

map :: operator[]

This operator is used to the at() function, t the to ~~of~~ reference the element present at position given inside the operator. It is position is not in similar be only difference is that at() function throws an out of range exception when the bounds of the size of map, while this operator causes undefined behaviour.

mapname [key]

parameters :

key value mapped to the element to be fetched.

Returns :

Direct reference to the element at given key Value,

Examples:

Input : map mymap;
mymap['a'] = 1 ;
mymap['a'] ;

output :
1

Input : map mymap;
mymap["abcd"] = 7 ;

mymap ["abcd"];

output : 7

```
// program
# include <map>
# include <iostream>
# include <string>
 using namespace std;

  int main()
{  // map declaration
  map<int, string> mymap;

   // mapping integers to strings
  mymap [1] = "Hi";
   mymap[2] = "This";
    mymap[3] = "is";
    mymap[4] = "NBN";

    // using operator [] to print string
    // mapped to integer 4
    cout << mymap[4];
     return 0;
}
```

Output: NBN

Algorithm:

1. start
2. Give a header file to map associative container.
3. Insert states name so that we get values as population of that state.
4. Use population Map. insert( )
5. Display the population of states.
6. End.

I/P:

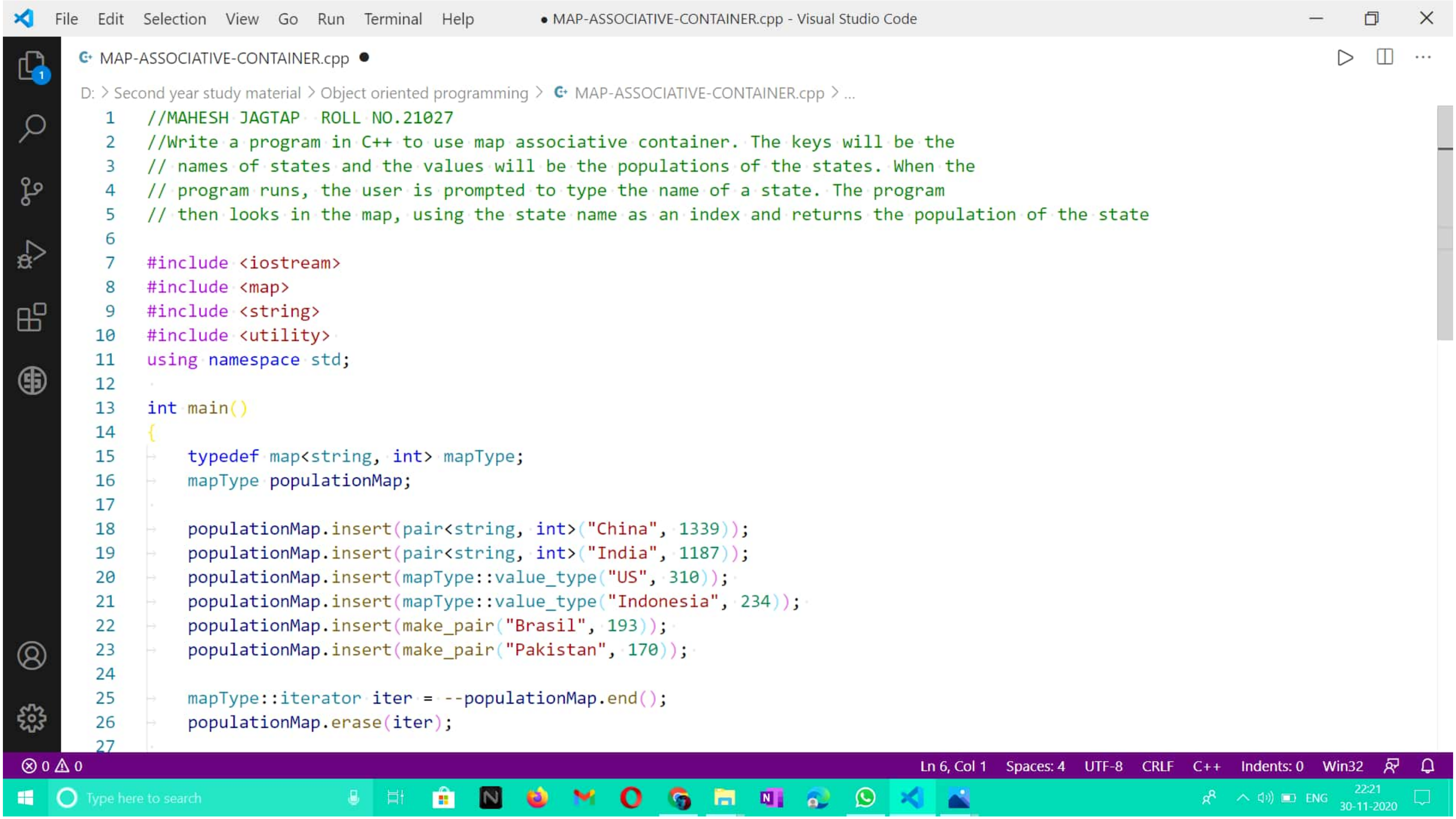
Information such as state name to map associative container.

O/P:

```
Size of population map : 5
Bazil : 193 Million.
China : 1339 Million
India : 1187 Million
Pakistan : 170 Million
Indonesia : 234 Million
Pakistan's Population is 234 million.
```

Conclusion:

Hence, we have successfully studied the concept of map associative container.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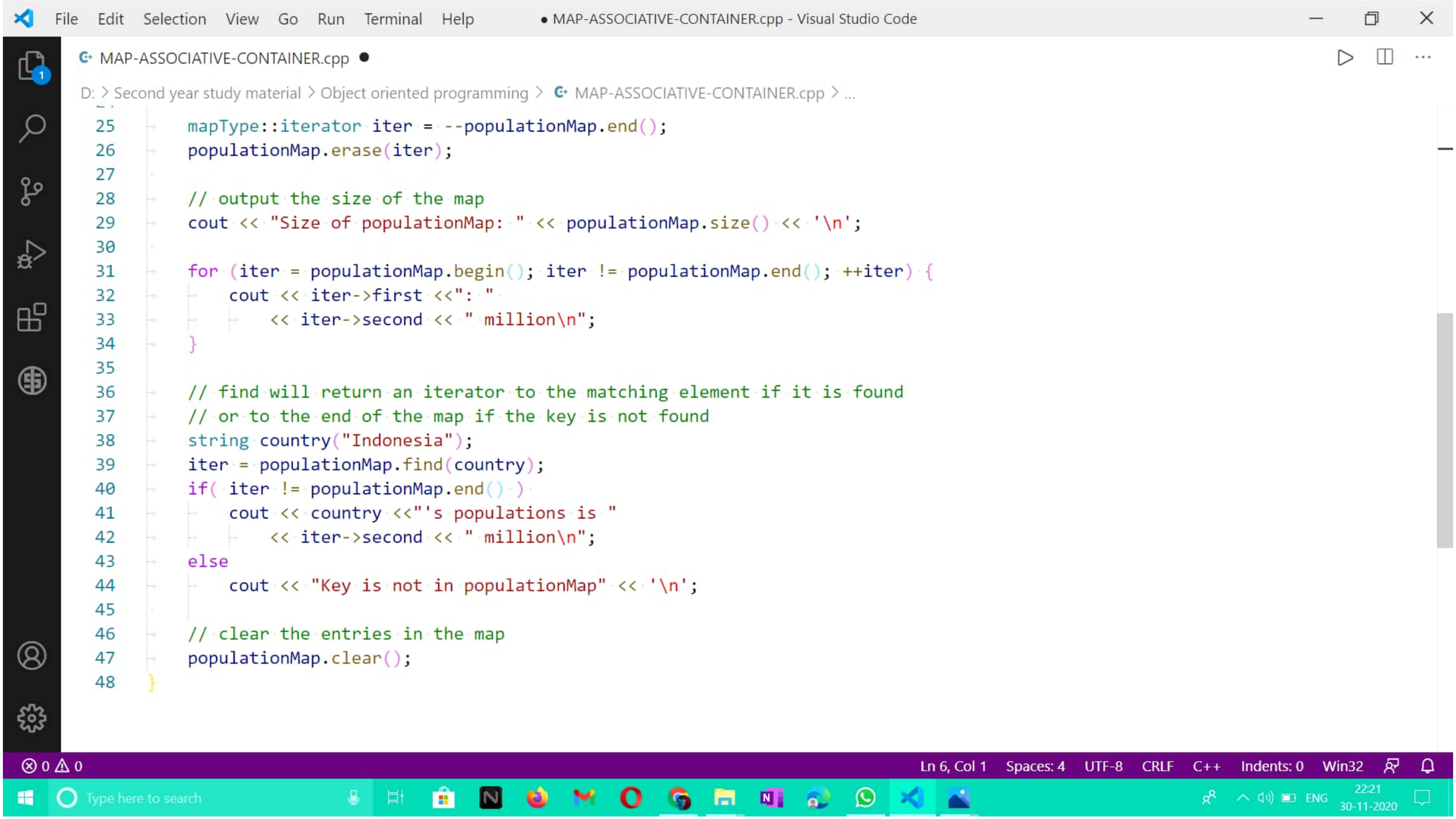
//MAHESH JAGTAP  ROLL NO.21027
//Write a program in C++ to use map associative container. The keys will be the
// names of states and the values will be the populations of the states. When the
// program runs, the user is prompted to type the name of a state. The program
// then looks in the map, using the state name as an index and returns the population of the state

#include <iostream>
#include <map>
#include <string>
#include <utility>
using namespace std;

int main()
{
    typedef map<string, int> mapType;
    mapType populationMap;

    populationMap.insert(pair<string, int>("China", 1339));
    populationMap.insert(pair<string, int>("India", 1187));
    populationMap.insert(mapType::value_type("US", 310));
    populationMap.insert(mapType::value_type("Indonesia", 234));
    populationMap.insert(make_pair("Brasil", 193));
    populationMap.insert(make_pair("Pakistan", 170));

    mapType::iterator iter = --populationMap.end();
    populationMap.erase(iter);
```



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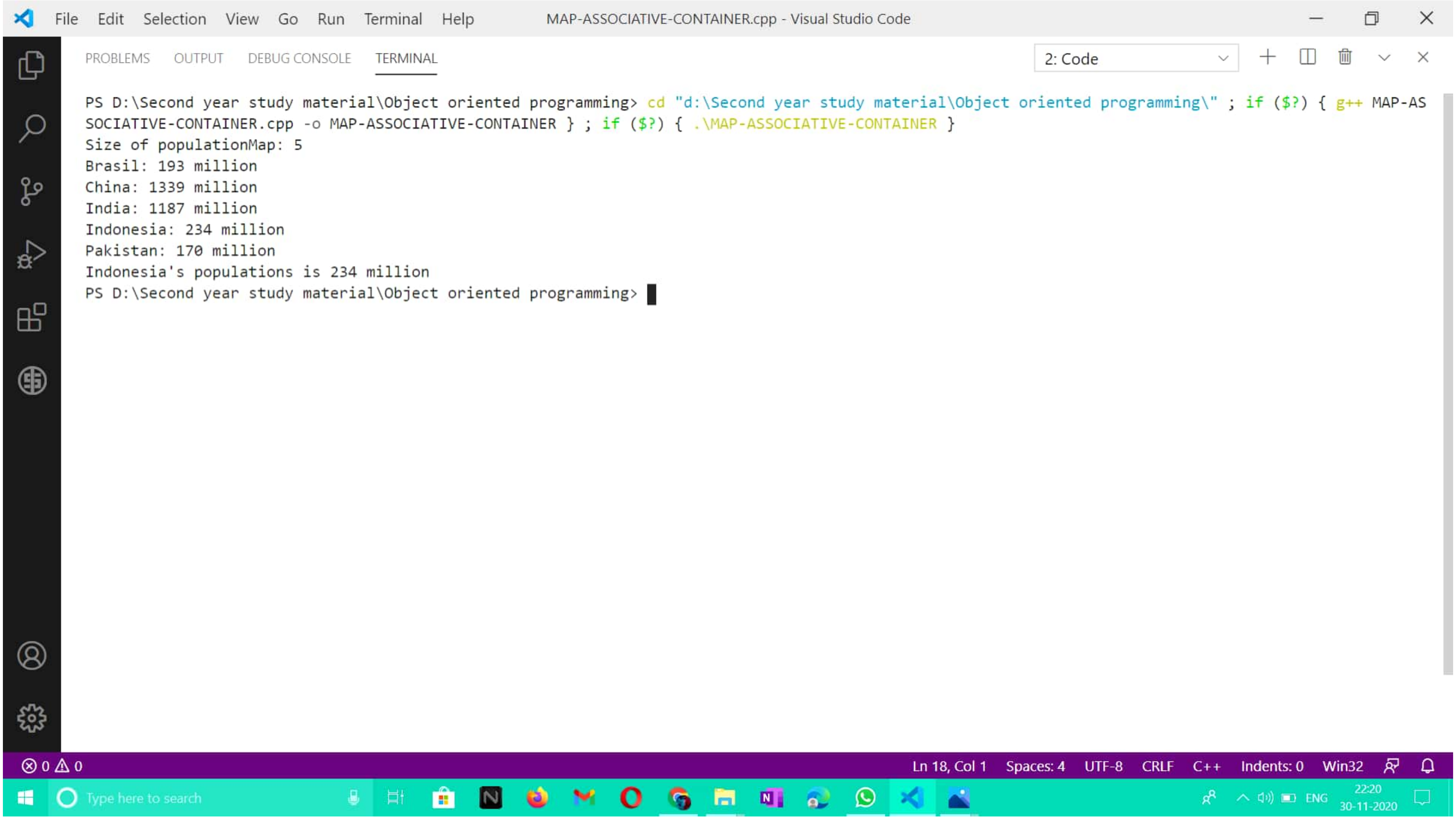
```
    mapType::iterator iter = --populationMap.end();
    populationMap.erase(iter);

    // output the size of the map
    cout << "Size of populationMap: " << populationMap.size() << '\n';

    for (iter = populationMap.begin(); iter != populationMap.end(); ++iter) {
        cout << iter->first <<": "
            << iter->second << " million\n";
    }

    // find will return an iterator to the matching element if it is found
    // or to the end of the map if the key is not found
    string country("Indonesia");
    iter = populationMap.find(country);
    if( iter != populationMap.end() )
        cout << country <<"'s populations is "
            << iter->second << " million\n";
    else
        cout << "Key is not in populationMap" << '\n';

    // clear the entries in the map
    populationMap.clear();
}
```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```
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Size of populationMap: 5
Brasil: 193 million
China: 1339 million
India: 1187 million
Indonesia: 234 million
Pakistan: 170 million
Indonesia's populations is 234 million
PS D:\Second year study material\Object oriented programming>
```