

Practical No – 07 (Group C)

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Problem Statement :

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 population of the state.

Static :

Program code :

```
#include <iostream>

#include <map>

using namespace std;

int main () {

typedef map<string, int> mapType;

mapType populationMap;

populationMap.insert(pair<string, int>("Maharashtra", 702365));

populationMap.insert(pair<string, int>("Rajasthan", 549681));

populationMap.insert(pair<string, int>("Karnataka", 789465));

populationMap.insert(pair<string, int>("Punjab", 469452));

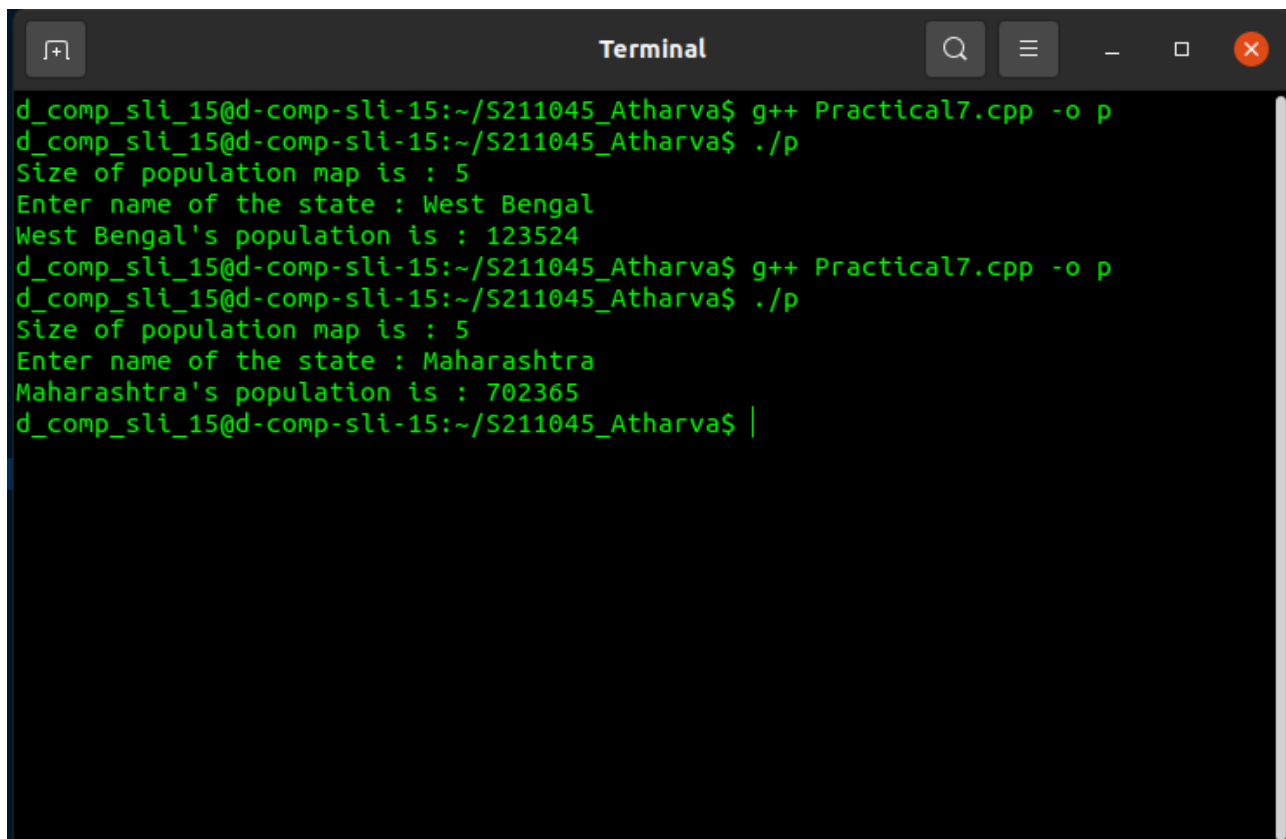
populationMap.insert(pair<string, int>("West Bengal", 123524));


mapType :: iterator iter;

cout<<"Size of population map is : "<<populationMap.size()<<endl;
```

```
string statename;
cout<<"Enter name of the state : ";
getline(cin>>ws, statename);
iter = populationMap.find(statename);
if (iter != populationMap.end())
cout<<statename<<"'s population is : "<<iter->second<<endl;
else
cout<<"Key is not in the population Map"<<endl;
populationMap.clear();
return 0;
}
```

Output :

A terminal window titled "Terminal" with standard macOS window controls (search, menu, zoom, close). The terminal shows the execution of a C++ program. The user runs 'g++ Practical7.cpp -o p' and './p'. The program outputs "Size of population map is : 5". The user enters "West Bengal", and the program outputs "West Bengal's population is : 123524". The user runs the program again, enters "Maharashtra", and the program outputs "Maharashtra's population is : 702365".

```
d_comp_sli_15@d-comp-sli-15:~/S211045_Atharva$ g++ Practical7.cpp -o p
d_comp_sli_15@d-comp-sli-15:~/S211045_Atharva$ ./p
Size of population map is : 5
Enter name of the state : West Bengal
West Bengal's population is : 123524
d_comp_sli_15@d-comp-sli-15:~/S211045_Atharva$ g++ Practical7.cpp -o p
d_comp_sli_15@d-comp-sli-15:~/S211045_Atharva$ ./p
Size of population map is : 5
Enter name of the state : Maharashtra
Maharashtra's population is : 702365
d_comp_sli_15@d-comp-sli-15:~/S211045_Atharva$ |
```

Dynamic :

Program Code :

```
#include <iostream>
#include <map>
using namespace std;
int main () {
typedef map<string, int> mapType;
mapType populationMap;

int n;
cout<<"Enter the size of the map : ";
cin>>n;
for (int i=0; i<n; i++) {
string state;
int population;
cout<<"Enter name of the state : ";
cin>>state;
cout<<"Enter population of the state : ";
cin>>population;
populationMap.insert(pair<string, int>(state, population));
}

mapType :: iterator iter;
cout<<"\nSize of population map is : "<<populationMap.size()<<endl;

string statename;
cout<<"Enter name of the state : ";
getline(cin>>ws, statename);
iter = populationMap.find(statename);
if (iter != populationMap.end())
cout<<statename<<"s population is : "<<iter->second<<endl;
else
cout<<"Key is not in the population Map"<<endl;
populationMap.clear();
return 0;
}
```

Output :

```
Terminal
d_comp_sli_15@d-comp-sli-15:~/S211045_Atharva$ g++ Practical7_Dynamic.cpp -o p
d_comp_sli_15@d-comp-sli-15:~/S211045_Atharva$ ./p
Enter the size of the map : 4
Enter name of the state : Maharashtra
Enter population of the state : 196875
Enter name of the state : Gujarat
Enter population of the state : 19822
Enter name of the state : Assam
Enter population of the state : 469852
Enter name of the state : Karnataka
Enter population of the state : 19864

Size of population map is : 4
Enter name of the state : Maharashtra
Maharashtra's population is : 196875
d_comp_sli_15@d-comp-sli-15:~/S211045_Atharva$ |
```