

## ASSIGNMENT-09

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**TITLE:** Associative Container Map

**PROBLEM STATEMENT:** Implement a map associative container in which the keys will be the Permanent Registration Number (PRN) of the students and the values will be the name of the respective student. Develop a program that prompts the user for PRN and then it looks in the map, using the PRN as an index and returns the name of the student.

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```
#include <iostream>
```

```
#include <map>
```

```
#include <string>
```

```
using namespace std;
```

```
int main() {
```

```
    typedef map<int, string> mapType;
```

```
    mapType populationMap;
```

```
    populationMap.insert(pair<int, string>(1234, "Amit XYZ"));
```

```
    populationMap.insert(pair<int, string>(2222, "Rahul"));
```

```
    populationMap.insert(pair<int, string>(3333, "Shweta"));
```

```
    populationMap.insert(pair<int, string>(4444, "Aditi"));
```

```
    populationMap.insert(pair<int, string>(9999, "Pooja"));
```

```
    populationMap.insert(pair<int, string>(7777, "Ketaki"));
```

```
    cout << "=====  
Student PRN Directory  
=====  
\\n";
```

```
    cout << "\\nSize of populationMap: "  
        << populationMap.size() << "\\n\\n";
```

```
    cout << "All Students (PRN : Name):\\n";
```

```
    for (mapType::iterator iter = populationMap.begin();
```

```
        iter != populationMap.end();
```

```
        ++iter)
```

```
    {
```

```
        cout << iter->first << " : " << iter->second << "\\n";
```

```
    }
```

```
    int PRN;
```

```
    cout << "\\nEnter PRN of the student to search: ";
```

```

cin >> PRN;

mapType::iterator iter = populationMap.find(PRN);

if (iter != populationMap.end())
    cout << PRN << " belongs to " << iter->second << "\n";
else
    cout << "PRN not found in populationMap.\n";

cout << "\nEnter PRN to erase: ";
int erasePRN;
cin >> erasePRN;

if (populationMap.erase(erasePRN))
    cout << "PRN " << erasePRN << " erased successfully.\n";
else
    cout << "PRN " << erasePRN << " not found.\n";

cout << "\nAfter erase, remaining records:\n";
for (auto it = populationMap.begin(); it != populationMap.end(); ++it) {
    cout << it->first << " : " << it->second << "\n";
}

cout << "\nBefore swap:\n";
cout << "Size of populationMap: " << populationMap.size() << "\n";

// Swap with itself (no change)
populationMap.swap(populationMap);

cout << "\nAfter swap:\n";
cout << "Size of populationMap: " << populationMap.size() << "\n";

populationMap.clear();
cout << "\nAfter clear populationMap size = "
    << populationMap.size() << "\n";

return 0;
}

```

## OUTPUT:

===== Student PRN Directory =====

Size of populationMap: 6

All Students (PRN : Name):

1234 : Amit XYZ

2222 : Rahul

3333 : Shweta

4444 : Aditi

7777 : Ketaki

9999 : Pooja

Enter PRN of the student to search: 2222

2222 belongs to Rahul

Enter PRN to erase: 7777

PRN 7777 erased successfully.

After erase, remaining records:

1234 : Amit XYZ

2222 : Rahul

3333 : Shweta

4444 : Aditi

9999 : Pooja

Before swap:

Size of populationMap: 5

After swap:

Size of populationMap: 5

After clear populationMap size = 0

=== Code Execution Successful ===

**GITHUB:**