Advanced C++ with Examples

This blog aims to explain Advanced C++ concepts with simple examples. I found that sometimes programmers can learn the concepts very easily with a well written and commented code rather then going through hundreds of book pages.

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Thursday, 2 April 2009

An example of C++ Multimap

The following is a simple example of C++ Multimap class.

```
//Program tested on Microsoft Visual Studio 2008 - Zahid Ghadialy
//This program shows use of multi-maps
//We input multiple phone numbers for different people
#include<iostream>
#include<map>
#include <string>

using namespace std;

//forward declaration
void printer(multimap<string, int> pN);

int main()
{
  multimap<string, int> phoneNums;

  //Insert key, value as pairs
  phoneNums.insert(pair<string, int>("Joe",123));
  phoneNums.insert(pair<string, int>("Will",444));
  printer(phoneNums);

  //Insert duplicates
  phoneNums.insert(pair<string, int>("Joe",369));
  phoneNums.insert(pair<string, int>("Smith",567));
  phoneNums.insert(pair<string, int>("Joe",888));
  phoneNums.insert(pair<string, int>("Will",999));
  printer(phoneNums);

  //Checking frequency of different keys
  cout<<"\n\nFrequency of different names"<<endl;
  cout<<"Number of Phones for Joe = "<<phoneNums.count("Joe")<<end
l;
  cout<<"Number of Phones for Will = "<<phoneNums.count("Will")<<e
ndl;
```

```
  cout<<"Number of Phones for Smith = "<<phoneNums.count("Smith")<<endl;
  cout<<"Number of Phones for Zahid = "<<phoneNums.count("Zahid")<<endl;

  //Print all Joe from the list and then erase them
  pair<multimap<string,int>::iterator, multimap<string,int>::iterator> ii;
  multimap<string, int>::iterator it; //Iterator to be used along with ii
  ii = phoneNums.equal_range("Joe"); //We get the first and last entry in ii;
  cout<<"\n\nPrinting all Joe and then erasing them"<<endl;
  for(it = ii.first; it != ii.second; ++it)
  {
    cout<<"Key = "<<it->first<<"    Value = "<<it->second<<endl;
  }
  phoneNums.erase(ii.first, ii.second);
  printer(phoneNums);

  return 0;
}

//This method prints the vector
void printer(multimap<string, int> pN)
{
  cout<<"\n\nMultimap printer method"<<endl;
  cout<<"Map size = "<<pN.size()<<endl;
  multimap<string, int>::iterator it = pN.begin();
  while(it != pN.end())
  {
    cout<<"Key = "<<it->first<<"    Value = "<<it->second<<endl;
    it++;
  }
}
```

The output is as follows:

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Based on a Widget by Review Of Web

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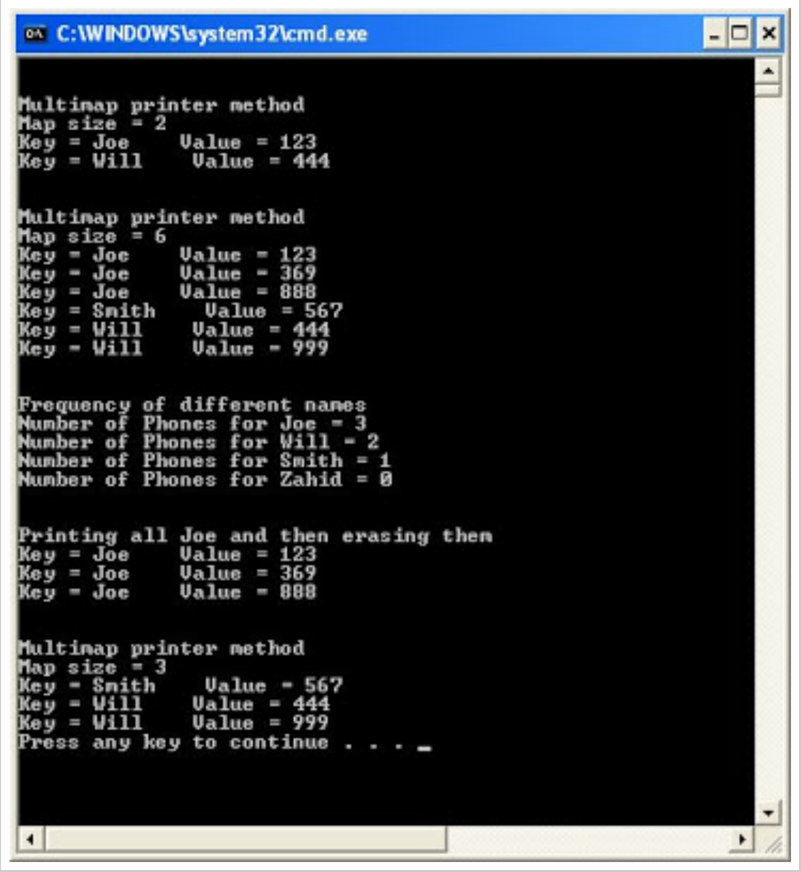
ZAHID GHADIALY



```
Multimap printer method
Map size = 2
Key = Joe     Value = 123
Key = Will     Value = 444

Multimap printer method
Map size = 6
Key = Joe     Value = 123
Key = Joe     Value = 369
Key = Joe     Value = 888
Key = Smith     Value = 567
Key = Will     Value = 444
Key = Will     Value = 999

Frequency of different names
Number of Phones for Joe = 3
Number of Phones for Will = 2
Number of Phones for Smith = 1
Number of Phones for Zahid = 0

Printing all Joe and then erasing them
Key = Joe     Value = 123
Key = Joe     Value = 369
Key = Joe     Value = 888

Multimap printer method
Map size = 3
Key = Smith     Value = 567
Key = Will     Value = 444
Key = Will     Value = 999
Press any key to continue . . . _
```

Posted by Zahid Ghadialy at 04:48

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Labels: Forward Declarations, Multimap, STL

9 comments:

Anonymous *14 August 2009 at 14:17*

Hi

Actually i have one question...

i just want to konw how can i instantiate a multimap if a declare it inside a calss..

Reply

Zahid Ghadialy *14 August 2009 at 17:06*

You can instantiate it in the constructor or in a method. I will post a simple example later today.

Reply

Anonymous *17 November 2010 at 15:19*

Mobile Telecoms Consultant, C++ Coder, Technology Analyst, Trainer, Technologist, Strategic Recruiter, Blogger @ 3g4g, Webmaster at 3g4g.co.uk, Managing Director @ eXplanoTech

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I need to use multi-map in C to store my data. I can't use the C++ Multimap.
is there any suggestions?

Reply

Zahid Ghadialy *17 November 2010 at 15:47*

You can try using linked-lists.

Reply

Anonymous *9 January 2011 at 08:22*

Thanks for this. I need to make use of every one of these examples you've shown. Thanks again

Reply

Anonymous *18 March 2011 at 14:14*

Great blog...good examples which are clear and concise. Keep up the good work.

Reply

Anonymous *12 May 2011 at 18:45*

Can you use class objects as the dataType? e.g.

multimap borrowedVideos;

Reply

Zahid Ghadialy *21 May 2011 at 11:39*

Yes you can but not as the way you have described. Suppose you have a class called Videos then you can have Videos borrowedVideos;

multimap is a STL container and you cant use it the way you have written.

Reply

Anonymous *19 January 2015 at 17:32*

Thanks.. A very helpful example.

Reply

Operations

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A Word and Letter Counter program example

An example of C++ Multimap

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