## **Binary Files**

```
using namespace std;
 1
 2
     #include <fstream>
 3
     #include <iostream>
 4
     #include <string>
 5
     #include <iomanip>
 6
 7
     struct houserecord
 8
9 - {public :
         string address;
10
         string city;
11
12
         string state;
         string zip;
13
14
         double price;
15
         double bathrooms;
16
         int bedrooms;
17
   L };
18
     void loadarray(houserecord house[], int size);
19
     void printfile();
20
     void printreport(houserecord houses[], int size);
21
22
     void printhouse(houserecord house);
     void printheader();
23
     void printform(houserecord house);
24
     void addhouse(houserecord & house);
25
     void printtofile(houserecord house[], int size);
26
     void readfromfile(houserecord house[], int size);
27
     void readarecordfromfile();
28
20
```

This is the setup of the struct and the functions used in the program.

31	int main()		
32			This line opens the file
33 -	<pre>{ fstream fout;</pre>		this line opens the file
34	<pre>int i,size, max = 10;</pre>		house2.dat
35	houserecord house[11], temp;	// Declares array of 11 slots and 1 individual house record.	
36	loadarray(house, 10);	// Load 10 houses in array from text file.	ios::out indicates to the file
37	<pre>printreport(house, 10);</pre>	// Print houses in report format	is to be written to
38	<pre>printtofile( house, 10);</pre>	// Writes the array to file in binary format	is to be written to.
39	<pre>readfromfile(house, 10);</pre>	// Reloads the array from the binary file	
40	addhouse( temp);	// Add a new house from function	los::binary indicates to the
41	printhouse(temp);	// Prints the added house	file is to be in a binary
42			format
43	fout and "house 2 dats" day		Tormat
44	fout.open( nouse2.dat , 105	tout 105 ::Dinary 105::app);	
45	fout close():	<pre>char *&gt;(&amp;temp), sizeof(temp));</pre>	ios::app indicates that
40	Tout.close();		temp is to appended to the
47	readfromfile(house 11):	// Reloads the array with 11 slots from the hinary file	
49	readarecordfromfile():	// Seeks and reads a selected record from binary file	end of the file.
50		// Changes the value of the price of the selected record	
51		// Write the updated house back to the binary file	The new structure is
52	readfromfile(house, 11);	// Reloads the array with 11 slots from the binary file	appended to the binary file
53	return 0;	··· , , , , , , , , , , , , , , , , , ,	
54 L	· }		(now 11 records)
55	-		

Reading from the binary file							
341 BULLavard	Moo York	MY	223322	275000	з	5	
4 Rube Bulls	Moose Cow	Kaos	66622	25000	1	4	
123 Street King	Slap Out	Grace	77755	112000	2	З	
123 A nat on Meigh	Bug Tussel	Mind	11223	55000	2	з	
12 GullaBULL	Moo York	Grace	77992	315000	2	з	
4 Red Nek Comma Mist	YouallCrane	Kaos	88899	1000	з	4	
12 Moose Mile	Mostlee	Disturbed	55667	62000	1	5	
2 Farm Out	No Hope	Mind	78912	200000	з	5	
1 Frozen over	Sideberia	Chaos	99881	315000	з	5	
123 Big Moose Take	Cirrus	Disturbed	77661	180000	2	2	
123 main	Wiggins	MS	55667	10000	0	1	

Record number 5 is actually the sixth record because of the the zero slot.

Notice the price of the record has changed to \$1000.

Also notice there is now a record 11 in the datafile of Wiggins MS.



Writing structure to a binary format in a datafile								
341 BULLavard	Moo York	MY	223322	275000	з	5		
4 Rube Bulls	Moose Cow	Kaos	66622	25000	1	4		
123 Street King	Slap Out	Grace	77755	112000	2	з		
123 A nat on Meigh	Bug Tussel	Mind	11223	55000	2	з		
12 GullaBULL	Moo York	Grace	77992	315000	2	з		
4 Red Nek Comma Mist	YouallCrane	Kaos	88899	175000	з	4		
12 Moose Mile	Mostlee	Disturbed	55667	62000	1	5		
2 Farm Out	No Hope	Mind	78912	200000	з	5		
1 Frozen over	Sideberia	Chaos	99881	315000	3	5		
123 Big Moose Take	Cirrus	Disturbed	77661	180000	2	2		



Address	City	State	Zip	Price Ba	ths E	leds
341 BULLavard	Moo York	MY	223322	275000	3	5
4 Rube Bulls	Moose Cow	Kaos	66622	25000	1	4
123 Street King	Slap Out	Grace	77755	112000	2	з
123 A nat on Meigh	Bug Tussel	Mind	11223	55000	2	з
12 GullaBULL	Moo York	Grace	77992	315000	2	з
4 Red Nek Comma Mist	YouallCrane	Kaos	88899	175000	з	4
12 Moose Mile	Mostlee	Disturbed	55667	62000	1	5
2 Farm Out	No Hope	Mind	78912	200000	з	5
1 Frozen over	Sideberia	Chaos	99881	315000	з	5
123 Big Moose Take	Cirrus	Disturbed	77661	180000	2	2



Reading record 5 temp 4 Red Nek Comma Mist	YouallCrane	Kaos	88899	175000	з	4	
Read position : 336 Write position : 336	Size of structur Size of structur	re: 56 R re: 56 R	ecord number ecord number	: 56 : 56			
Reading from the binar 341 BULLavard	y file Moo York	MY	223322	275000	з	5	
4 Rube Bulls	Moose Cow	Kaos	66622	25000	1	4	
123 Street King	Slap Out	Grace	77755	112000	2	з	
123 A nat on Meigh	Bug Tussel	Mind	11223	55000	2	з	
12 GullaBULL	Moo York	Grace	77992	315000	2	в	
4 Red Nek Comma Mist	YouallCrane	Kaos	88899	1000	з	4	
12 Moose Mile	Mostlee	Disturbed	55667	62000	1	5	
2 Farm Out	No Hope	Mind	78912	200000	з	5	
1 Frozen over	Sideberia	Chaos	99881	315000	з	5	
123 Big Moose Take	Cirrus	Disturbed	77661	180000	2	2	
123 main	Wiggins	MS	55667	10000	ø	1	

## RANDOM ACCESS FILES

The use of binary files composed of structures becomes basically an array on the storage device. This allows the same random access techniques used on array in memory can be applied to datafiles due to the structured data of the file.

Record number 5 is actually the sixth record because of the zero slot.

Notice the price of the record has changed to \$1000.