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Chapter 1

Class Index

1.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

Chapter 2

File Index

2.1 File List

Here is a list of all files with brief descriptions:

Chapter 3

Class Documentation

3.1 LinkedList Class Reference

`#include <LinkedList.h>`

Public Member Functions

- LinkedList ()
- ~LinkedList ()
- void push (int data)
- void print () const
- void clear ()
- void fillRandom (int count)
- void sortMerge ()
- void sortQuick ()
- void copyFrom (const LinkedList &other)

3.1.1 Constructor & Destructor Documentation

3.1.1.1 LinkedList()

`LinkedList::LinkedList ()`

Constructor.

3.1.1.2 ~LinkedList()

`LinkedList::~LinkedList ()`

Destructor.

3.1.2 Member Function Documentation

3.1.2.1 clear()

```
void LinkedList::clear ()
```

Clear the entire list.

3.1.2.2 copyFrom()

```
void LinkedList::copyFrom (
            const LinkedList & other)
```

Deep copy the list from another instance.

Parameters

other	List to copy from

3.1.2.3 fillRandom()

```
void LinkedList::fillRandom (
            int count)
```

Fills the list with random integers.

Parameters

count	Number of elements to generate

3.1.2.4 print()

```
void LinkedList::print () const
```

Print list.

3.1.2.5 push()

```
void LinkedList::push (
            int data)
```

Insert new element at head.

Parameters

data	Value to insert

3.1.2.6 sortMerge()

```
void LinkedList::sortMerge ()
```

Sorts the list using Merge Sort.

3.1.2.7 sortQuick()

```
void LinkedList::sortQuick ()
```

Sorts the list using Quick Sort.

The documentation for this class was generated from the following files:

- LinkedList.h
- LinkedList.cpp

3.2 Node Struct Reference

```
#include <LinkedList.h>
```

Public Member Functions

- Node (int val)

Public Attributes

- int data
- Node * next

3.2.1 Constructor & Destructor Documentation

3.2.1.1 Node()

```
Node::Node (
            int val)
```

Constructor.

Parameters

val	Initial value for node

3.2.2 Member Data Documentation

3.2.2.1 data

```
int Node::data
```

Data stored in the node.

3.2.2.2 next

```
Node* Node::next
```

Pointer to the next node.

The documentation for this struct was generated from the following files:

- LinkedList.h
- LinkedList.cpp

Chapter 4

File Documentation

4.1 LinkedList.cpp File Reference

```
#include "LinkedList.h"
#include <cstdlib>
```

4.2 LinkedList.h File Reference

```
#include <iostream>
```

Classes

- struct Node
- class LinkedList

4.3 LinkedList.h

Go to the documentation of this file.

```
00001 #ifndef LINKEDLIST_H
00002 #define LINKEDLIST_H
00003
00004 #include <iostream>
00005
00009 struct Node {
00010     int data;
00011     Node* next;
00012
00017     Node(int val);
00018 };
00019
00023 class LinkedList {
00024 private:
00025     Node* head;
00026
00027     // Merge sort helpers
00028     Node* mergeSort(Node* head);
00029     Node* sortedMerge(Node* a, Node* b);
00030     void frontBackSplit(Node* source, Node** frontRef, Node** backRef);
```

```
00031
00032     // Quick sort helpers
00033     Node* quickSort(Node* head);
00034     Node* quickSortRecur(Node* head, Node** newHead, Node** newEnd);
00035     Node* partition(Node* head, Node* end, Node** newHead, Node** newEnd);
00036
00037 public:
00041     LinkedList();
00042
00046     ~LinkedList();
00047
00052     void push(int data);
00053
00057     void print() const;
00058
00062     void clear();
00063
00068     void fillRandom(int count);
00069
00073     void sortMerge();
00074
00078     void sortQuick();
00079
00084     void copyFrom(const LinkedList& other);
00085 };
00086
00087 #endif // LINKEDLIST_H
```

4.4 main.cpp File Reference

```
#include <iostream>
#include <chrono>
#include "LinkedList.h"
```

Functions

- int main ()

4.4.1 Function Documentation

4.4.1.1 main()

```
int main ()
```

Main function to test merge sort and quick sort with timing.

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