# My Project

Generated by Doxygen 1.10.0

# 1 Class Index

## 1.1 Class List

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



# 2 File Index

## 2.1 File List

Here is a list of all files with brief descriptions:

# 3 Class Documentation

## 3.1 BinaryTree Class Reference

### Classes

- struct Node

### Public Member Functions

- BinaryTree ()
- BinaryTree (const vector< Teacher > &teachers)
- void insert (const Teacher &obj)
- Node * insertRecursively (Node *node, const Teacher &obj)
- Node * search (const std::string &key)

### Private Member Functions

- Node * searchRecursively (Node *node, const std::string &key)

### Private Attributes

- Node * root

### 3.1.1 Constructor & Destructor Documentation

#### BinaryTree() [1/2]

```
BinaryTree::BinaryTree ( )  [inline]
```

#### BinaryTree() [2/2]

```
BinaryTree::BinaryTree (
            const vector< Teacher > & teachers )  [inline]
```

### 3.1.2 Member Function Documentation

#### insert()

```
void BinaryTree::insert (
            const Teacher & obj )  [inline]
```

#### insertRecursively()

```
Node * BinaryTree::insertRecursively (
            Node * node,
            const Teacher & obj )  [inline]
```

#### search()

```
Node * BinaryTree::search (
            const std::string & key )  [inline]
```

#### searchRecursively()

```
Node * BinaryTree::searchRecursively (
            Node * node,
            const std::string & key )  [inline], [private]
```

### 3.1.3 Member Data Documentation

#### root

```
Node* BinaryTree::root  [private]
```

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

- C:/Users/Turik/CLionProjects/Test/c.cpp

## 3.2 BinaryTree::Node Struct Reference

#### Public Member Functions

- Node (Teacher obj)

#### Public Attributes

- Teacher data
- Node * left
- Node * right

### 3.2.1 Constructor & Destructor Documentation

#### Node()

```
BinaryTree::Node::Node (
            Teacher obj )  [inline]
```

### 3.2.2 Member Data Documentation

#### data

```
Teacher BinaryTree::Node::data
```

#### left

```
Node* BinaryTree::Node::left
```

#### right

```
Node* BinaryTree::Node::right
```

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

- C:/Users/Turik/CLionProjects/Test/c.cpp

## 3.3 Teacher Struct Reference

#### Public Member Functions

- bool operator== (const Teacher &teacher)
- bool operator< (const Teacher &teacher)
- bool operator<= (const Teacher &teacher)
- bool operator> (const Teacher &teacher)
- bool operator>= (const Teacher &teacher)

#### Public Attributes

- string name = "Surname_Name_MiddleName"
- string faculty = "Faculty"
- string academic_title = "Title"
- string degree = "Degree"

#### Friends

- ostream & operator<< (ostream &os, const Teacher &teacher)

### 3.3.1 Member Function Documentation

#### operator<()

```
bool Teacher::operator< (
            const Teacher & teacher )  [inline]
```

#### operator<=()

```
bool Teacher::operator<= (
            const Teacher & teacher )  [inline]
```

#### operator==()

```
bool Teacher::operator== (
            const Teacher & teacher )  [inline]
```

#### operator>()

```
bool Teacher::operator> (
            const Teacher & teacher )  [inline]
```

#### operator>=()

```
bool Teacher::operator>= (
            const Teacher & teacher )  [inline]
```

### 3.3.2 Friends And Related Symbol Documentation

#### operator<<

```
ostream & operator<< (
            ostream & os,
            const Teacher & teacher )  [friend]
```

### 3.3.3 Member Data Documentation

#### academic_title

```
string Teacher::academic_title = "Title"
```

#### degree

```
string Teacher::degree = "Degree"
```

#### faculty

```
string Teacher::faculty = "Faculty"
```

#### name

```
string Teacher::name = "Surname_Name_MiddleName"
```

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

- C:/Users/Turik/CLionProjects/Test/c.cpp

# 4 File Documentation

## 4.1 C:/Users/Turik/CLionProjects/Test/c.cpp File Reference

```
#include <iostream>
#include <string>
#include <vector>
#include <fstream>
#include <ctime>
```

#### Classes

- struct Teacher
- class BinaryTree
- struct BinaryTree::Node

#### Functions

- ostream & operator<< (ostream &os, const Teacher &teacher)
- void bubbleSort (vector< Teacher > &teachers)
- void quickSort (vector< Teacher > &teachers, int start, int end)
- void mergeSort (vector< Teacher > &teachers, int l, int r)
- vector< Teacher > readFile (string file, int size)
- int main ()

### 4.1.1 Function Documentation

#### bubbleSort()

```
void bubbleSort (
            vector< Teacher > & teachers )
```

#### main()

```
int main ( )
```

### mergeSort()

```
void mergeSort (
            vector< Teacher > & teachers,
            int l,
            int r )
```

### operator<<()

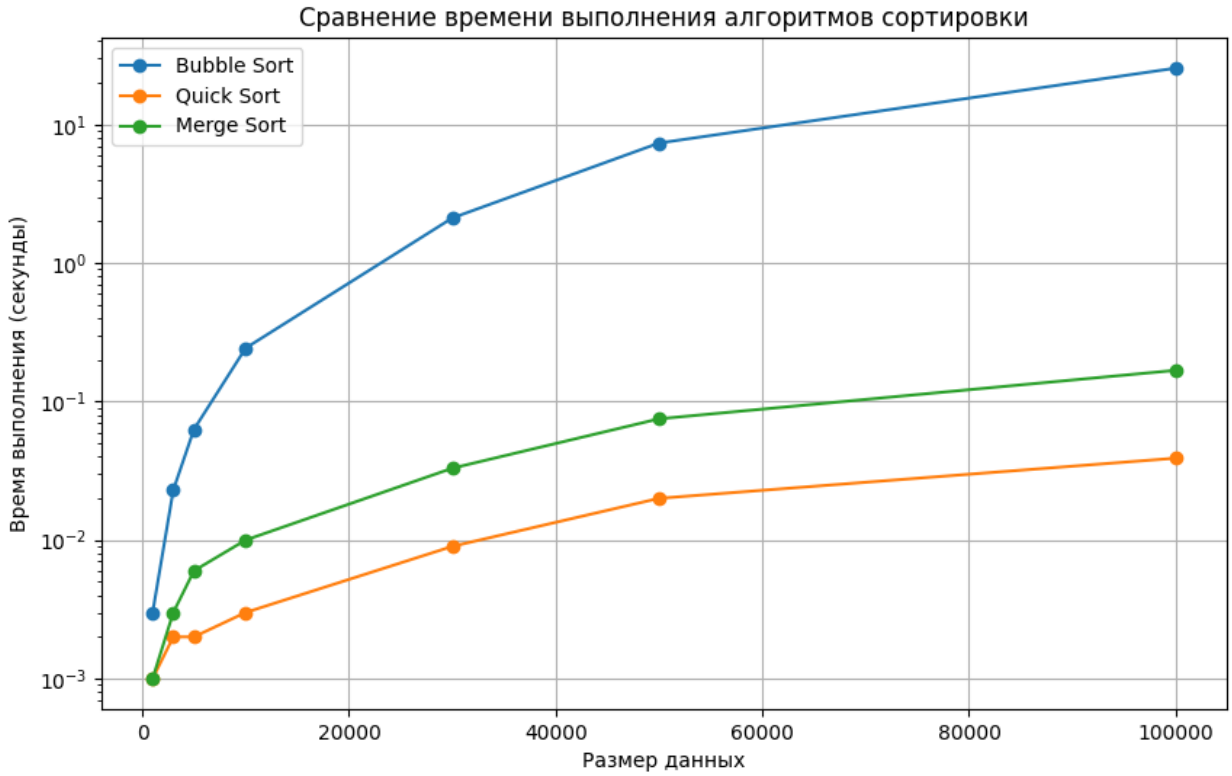
```
ostream & operator<< (
            ostream & os,
            const Teacher & teacher )
```

### quickSort()

```
void quickSort (
            vector< Teacher > & teachers,
            int start,
            int end )
```

### readFile()

```
vector< Teacher > readFile (
            string file,
            int size )
```


Сравнение времени выполнения алгоритмов сортировки
Bubble Sort
Quick Sort
Merge Sort
Время выполнения (секунды)
$10^{1}$
$10^{0}$
$10^{-1}$
$10^{-2}$
$10^{-3}$
0
20000
40000
60000
80000
100000
Размер данных

# Index