ETH
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Programming Techniques for Scientific Simulations Exercise 4

HS 10
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Problem 4.1 Binary Tree Sort

Write a generic program to sort numbers using a binary tree which is constructed and transversed by pointers. One word of remark – be careful of memory management! You should start with the following:

```
template <class T>
class tree::vertex
{
public:

typedef T value_type;

vertex() : _pt2less(this) , _pt2more(this) {};
vertex(value_type value) : _value(value) , _pt2less(this) , _pt2more(this) {};
~vertex();

inline value_type& operator() const { return _value; }
inline vertex& operator= (value_type const & value); { _value = value; return
this; }

vertex<value_type>* _pt2less;
vertex<value_type>* _pt2more;


private:

value_type _value;
};


template <class T>
class tree
{
public:
tree();
~tree();

void insert(value_type value);


private::
class vertex;
```

bool initialized;
vertex<value_type>* _mytree;
};

template <class T>
std::ostream& operator<<(std::ostream& out, tree<T> mytree);

Do enjoy this exercise. You should do proper file management, ie. compiling the classes and functions first into dynamical libraries, eg. <libtree.so>.