Prac4 MPI

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Chapter 1

Prac4 Main Page

1.1 Introduction

The purpose of Prac4 is to learn some basics of MPI coding.

Look under the Files tab above to see documentation for particular files in this project that have Doxygen comments.

Chapter 2

File Index

2.1   File List

Here is a list of all files with brief descriptions:

Chapter 3

File Documentation

3.1 Prac4.cpp File Reference

```
#include "Prac4.h"
```

Functions

- void Swap (int ∗xp, int ∗yp)

    Pivot method used in the sort functions.
- int Partition (int arr[ ], int beginning, int ending)

    Partition function for QuickSort()
- void QuickSort (int arr[ ], int beginning, int ending)

    QuickSort function.
- void Master ()
- void Slave (int ID)
- int main (int argc, char ∗∗argv)

3.1.1 Function Documentation

3.1.1.1 main()

```
int main (
          int argc,
          char ** argv )
```

This is the entry point to the program. MPI programs start with MPI_Init

find out how big the world is

and this processes' rank is

MPI programs end with MPI_Finalize

3.1.1.2 Master()

```
void Master ( )
```

This is the master node function, describing the operations that the master will be doing

Local vars

j: Loop counter

stat: Status of the MPI application

Read the input image

Allocated RAM for the output image

Gets the number of rows in the image

Gets the width of the image

Output

The file Output.jpg will be created on success to save the processed output.

3.1.1.3 Partition()

```
int Partition (
            int arr[],
            int beginning,
            int ending )
```

Partition function for QuickSort()

3.1.1.4 QuickSort()

```
void QuickSort (
            int arr[],
            int beginning,
            int ending )
```

QuickSort function.

3.1.1.5 Slave()

```
void Slave (
            int ID )
```

This is the Slave function, the workers of this MPI application.

3.1.1.6 Swap()

```
void Swap (
            int * xp,
            int * yp )
```

Pivot method used in the sort functions.