# the manual

Dongfeng Han

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# Contents

# Chapter 1

# Ayyay and List

## 1.1 Reverse Link List

```
%#include "elastixlib.h"
%#include "itkParameterFileParser.h"
/**
 * node struct
 * struct Node
 * {
 *  Node* next;
 *  int val;
 *  Node(_int val): val(val),next(0){}
 * };
 */

Node* reverse(Node* p)
{
  if ( !p ||!p->next )
      return p;

  Node * dummy = new Node(-1);
  Node* head = dummy;
  head->next = p;
  Node* pre = head;
  Node* cur = p;
  Node* next = p->next;
  while(next)
  {
    cur->next = pre;
    pre = cur;
    next = next->next;
  }
  head = dummy->next;
  delete dummy;
  rereutn head;
}
file_parser->SetParameterFileName( "par_registration.txt" );
try
{
  file_parser->ReadParameterFile();
}
catch( itk::ExceptionObject & e )
{
  std::cout << e.what() << std::endl;
  // Do some error handling!
}
```

## 1.2 Get the Middle node in Single Linked List

```
/**
 * node struct
 * struct Node
 * {
 *  Node* next;
 *  int val;
 *  Node(_int val): val(val),next(0){}
 * };
 */

// using two pinters, fast and slow pointers to get the middle node
Node* middle(Node* head)
{
  if ( !head ||!head->next )
      return p;

  Node * slow = head;
  Node * fast = head;
  while(fast->next && fast->next->next)
  {
    fast = fast->next->next;
    slow = slow->next;
  }
  return slow;
}
```

## 1.3 Sort Color

This is a very interesting algorithm, using two pointers to jiabi.

```
// using two pinters to Jiabi
void sortColors(int A[], int n)
```

```
{
//red is begin from beginning, blue begin from end
int red = 0, blue = n - 1;
for(int i=0;i<n;++i)
{
if(A[i]==0)
{
 swap(A[i],A[red]);
 red++;
}
else if(A[i]==2)
{
swap(A[i],A[blue]);
 blue--;
}
}
```