École Centrale de Nantes

AlPro

Tutorial 3

3.1 Merge sort

The merge sort is a recursive sorting algorithm :

1. **If the array has only one element, it is already sorted.**
2. **Otherwise, separate the array into two approximately equal parts.**
3. **Recursively sort the two parts with the merge sort algorithm.**
4. **Merge the two sorted arrays into one sorted array.**

3.2 Processing of machining orders

We consider a machining machine that processes the machining orders in an unsorted order list present in a file. An order contains the type of part, the machining duration (in hours), and the desired end date (in hours from an absolute reference).

— **define a simply chained list structure to manipulate a list of production orders,**

3.2.1 Processing in the file order

Initially, the machining orders will be processed in the order of the file. Write the secondary functions and the main program to :

— **load production orders from a file into memory,**
— **process the production orders, with a display of the list and the production delay at each modification,**

3.2.2 Processing in order of finish date

— **In a second step, the machine processes first the production order with the smallest desired end date.**