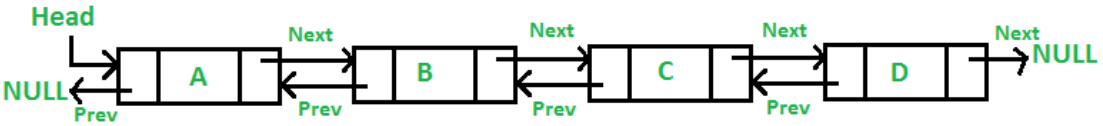
GCC, Make and C modularity

SETR 24/25
Lab Assignment 1

Paulo Pedreiras, Mar/2025

Assignment description (1)

Build a C module that implements a Doubly Linked List (DLL).



Requirements:

- **DLL should be statically allocated. The maximum number of elements and element size is passed as argument to the init function**
- **Each element is composed of a key (uint_16t), which uniquely identifies the element, and an array of unsigned chars, that contains the element's data**
- **You should provide the following interface functions:**
  - MyDLLInit(): Inits the module.
  - MyDLLInsert(): Adds an element to the DLL
  - MyDLLRemove(): Removes and element from the DLL, identified by its key
  - MyDLLFind(): Returns the data of an element, identified by its key, or error if it does not exist
  - MyDLLFind{Next,Previous}(): Returns the data of the next/previous element of the list, or error if it does not exist (current element is last/first, resp.)

Assignment description (2)

- **The interface functions' arguments should be defined by you**
- **Development methodology**
  - It is **a C module**
  - Code should be **documented with Doxygen**
  - SW versions managed with **git** (at least 5 meaningful commits)
  - A **test application** should be provided
    - The test application should "convince" the observer that the module operates correctly. E.g. apply a given sequence of actions that verify possible error conditions
  - Compilation via a suitable **makefile**

Assignment description (3)

- **Verification** and code upload at the **end of the 2nd class**
- Grading:
  - Basic implementation is limited to a mark of 16/20 values
  - Additional functionality required for getting higher marks
    - E.g. insert the IDs in ascending/descending order, binary search, ...

Please read the notes about cheating!!!!