

Student should fill the **Concluded/Correct** percentage

Minimum functionality enough to pass	10 Values	Concluded/Correct (<u>100</u> %)
Implementation of a clipboard that accepts multiple simultaneous local connections: clipboard_connect, clipboard_copy, clipboard_paste	The minimum functionalities that are required are all implemented and they are all working properly according to the specifications.	
Synchronization	+1 value	Concluded/Correct (<u>100</u> %)
Definition of the various critical regions and implementation of correct synchronization	There are two types of access that a thread can do: read or write. The write guarantees mutual exclusion to the region of the local clipboard. Each message sent to a shared file descriptor is serialized since two writes are performed.	
Efficient synchronization	+1 value	Concluded/Correct (<u>100</u> %)
Implementation of synchronization on the critical regions guaranteeing that they are the shortest possible	In order to decrease the critical regions, for example, when a certain thread wants to paste the content of a certain region, the critical region is only a memcpy() and after that, the send of the region is done after unlocking the region.	
Clipboard_wait	+1 value	Concluded/Correct (<u>100</u> %)
Correct implementation of the clipboard_wait function	The clipboard_wait() function is working properly. Every time a copy is done to a certain region, if there are applications waiting for that same region, then they will receive it via pthread_cond_wait()/pthread_cond_broadcast().	
Connection to another clipboard	+1 value	Concluded/Correct (<u>100</u> %)
Implementation of the -c option, basic replication of the data among the various clipboards Detection of disconnect e correct execution afterwards	When the user uses the -c option, then the synchronization will be done and the clipboard it's ready to accept new connections, even from applications or from remote clipboards. If a clipboard disconnects from its parent, it will be running on single mode.	
Correct replication among clipboards	+1 value	Concluded/Correct (<u>100</u> %)
Implementation of a correct synchronization algorithm that guarantees the consistency of the data when two simultaneous copies occur in different clipboards	The synchronization is done sending the messages to the parent clipboard and then the clipboard that is on the top, the one that is working on single mode, changes its region and send to its children that region. The clipboards that receive a copy request from its parent knows that has to change its region with that content.	
Errors treatment	+1 value	Concluded/Correct (<u>100</u> %)
Verification, correction and report of communication errors Verification, correction and report of execution errors on the clipboards	The return values of all functions are checked in order to handle the possible errors that may occur during the execution of the program.	
Correct Resources management	+1 value	Concluded/Correct (<u>100</u> %)
Correct management (destruction) of threads, sockets, memory	Before exit the program, the memory is released, the sockets are closed and the threads are destroyed. Each time a thread terminates the resources that are allocated for it and that are not shared, have to be removed	
Code structure	+1 value	Concluded/Correct (<u>100</u> %)
Report	+1 value	Concluded/Correct (<u>100</u> %)
Discussion	+1 value	Concluded/Correct (____ %)
Incorrect implementation of the API	-1..0 values	Concluded/Correct (<u>0</u> %)

Architecture and components**Communication protocol****Resources management****Critical regions****Synchronization****Replication****Error management****Code Structure**