EOPSY Task4

What is the goal of the algorithm?

This algorithm is used for modifying virtual pages that do not have physical page linked.

Description of the algorithm?

This algorithm has a while loop who is searching the oldest page saves in the memory and the first page which is linked to a physical page. The program stays in this loop while the variable “mapped” == False or until it tests all the pages stocked in the “mem” vector.

Description of the process?

* In a first time, we check if the current page is linked to a physical page (“page.physical” != -1).
* If the virtual page is liked to a physical page, we search the first page by checking if the state of the variable “firstPage” change from its initial value -1.
* At the same time, we search which page is the oldest. For this, we check the variable “inMemTime” that we compare with the next one. For example, if we create 5 virtual pages which are linked to one physical page, we will have 50, 40, 30, 20, 10 ms. In this case, this part of the program will not find anything because the oldest page in memory is the first one.
* However, if some modifications have occurred and we have for example 20, 10, 50, 40, 30 ms.
* In this case, this loop will find that the oldest is the third page because when it will check the second one and third one, the variable “inMemTime” of the third one is greater than the one of the second one.
* So, we store the position in the Vector “mem” of the third page in the variable “oldestPage” and change the state of the variable “mapped” to True for exit of the while loop.
* Now we know which page is the oldest one, and we are able to retrieve these information’s and store them in the new virtual page which result a page fault.
* To do this, in the first line (Page page = (Page) mem.elementAt( oldestPage ) ) we retrieve the information of the oldest page. After, we retrieve the information of the page to replace.
* After, in the GUI, we delete the address of the physical page from the oldest page (virtual page) and we put this address in the field physical page of the virtual page to modify.
* At the end, we reset all the data of the oldest page by the default data.