

TDT4200 Assignment 1a

1.

One of the pros of using macros such as `#define U_prv(i) buffers[0][(i) + 1]` is that when writing code, you do not need to focus on indexing when taking care of the boundary values. After you set the macro once, you can continue using the convention you are used to (iterating from 0 to n) without thinking about exceeding array limits or one-indexing. The code is also more readable.

The drawback is that macros do not have type checking, which can lead to runtime errors. Macros could also lead to unintended side effects, for example when naming a macro the same as an existing function.

2. Another possible boundary condition could be the Dirichlet or Robin boundary condition.
3. If you don't allocate memory in T1, you will run into a segmentation fault error. This is because you are trying to access memory that does not belong to you or has not been allocated to you by the OS.
4. The difference is that `float const * a` means that you can change where `a` points, but you cannot change the value at that location. `float * const b` means that you cannot change where `b` points, but you can change the value that exists at that location.