Matlab Function Usage Guideline

I hope the following information can be of a little help for students with no or little knowledge in C.

This course have the following “Matlab Function Usage Guideline” for two main reasons.

1. Students using C/Java/Python should not have any disadvantage just because they are using C/Java/Python. In other words, we need to be fair to all students whether they are using Matlab or other language.

2. You will learn more about image processing by implementing more fundamental functions.

The function list in Matlab documents are separated into two parts: default set of commands and the toolboxes. It is of no doubt that commands from the toolboxes are not allowed for this class. The default set of commands are categorized to 7 groups:

1. Tools
2. Mathematics
3. Programming
4. Graphics
5. 3D Visualization
6. User Interface (UI)
7. External Interface

Functions in 1~7 except 2 are fine, EXCEPT hist().

Regarding functions in 2, as long as a matrix structure is involved, they are NOT allowed, because there is no concept of matrix operations in C language. For example, if you want to sum up two matrix A and B, instead of writing a Matlab code A+B, please invoke a “for” loop to add up each component. This is why "sum()" function is not allowed.

However, there are some cases when some important functions in Matlab have no equivalence in C, and are irreplaceable, for example, the memory allocation are dealt differently from C, so some functions, such as size() or length() or sort(), are thus inevitable and irreplaceable. For this reason, you are allowed to use these functions.

Later on, you might find “for” loops are really time-consuming during execution. To speed up, you may invoke the default functions, but the files you wrote as equally effective replacements should be included in your submission, and the situation should be indicated in your readme file. Please make it easy for the grader to execute your replacement.