# Indexing Mechanism

The Tensor class stores the multi-dimensional array data as a flat array. Let’s develop a robust indexing mechanism.

Note: For now, we are dealing with 2D matrices only.

**Access & Modify:**

aTensor(i, j) -> Access as a 1x1 Tensor AND modify this location in the 'aTensor'

aTensor(i, :) -> Access as a row vector Tensor AND modify this row in the 'aTensor'

aTensor(:, j) -> Access as a column vector Tensor AND modify this column in the 'aTensor'

aTensor(i1:i2, j1:j2) -> Access specific sub matrix AND modify this sub matrix in the 'aTensor'

# Parallel programming

**OpenCL setup using Intel OneAPI toolkit**

<https://community.intel.com/t5/Intel-DevCloud/ocl-icd-opencl-dev-package/td-p/1291224>

“Thank you for reaching out. Please try editing the CMAKE file by adding the path to openCL headers and libraries. OpenCL headers and libraries can be found in this path: /opt/intel/oneapi/compiler/latest/linux/include/sycl/CL.”

<https://cdrdv2-public.intel.com/785315/oneapi_programming-guide_2024.0-771723-785315.pdf>

<https://www.intel.com/content/www/us/en/docs/oneapi/programming-guide/2023-0/example-compilation.html>