What this code is about

The `c++` code `LU.cpp` computes the matrix elements in equation (4.25)

$$P(n,m) = m! 2^{2n+2} \sum_{k=0}^{m} \frac{(-2)^k (2n+k+1)!}{(k!)^2 (m-k)!}. \tag{1}$$

The code writes the elements $P(n,m)$ to the file `matrix_p.txt` in a row-major fashion.

The file `run.sh` encapsulates commands to build and run the application using the `CMakeLists.txt` on a local machine running on Ubuntu 24.04.