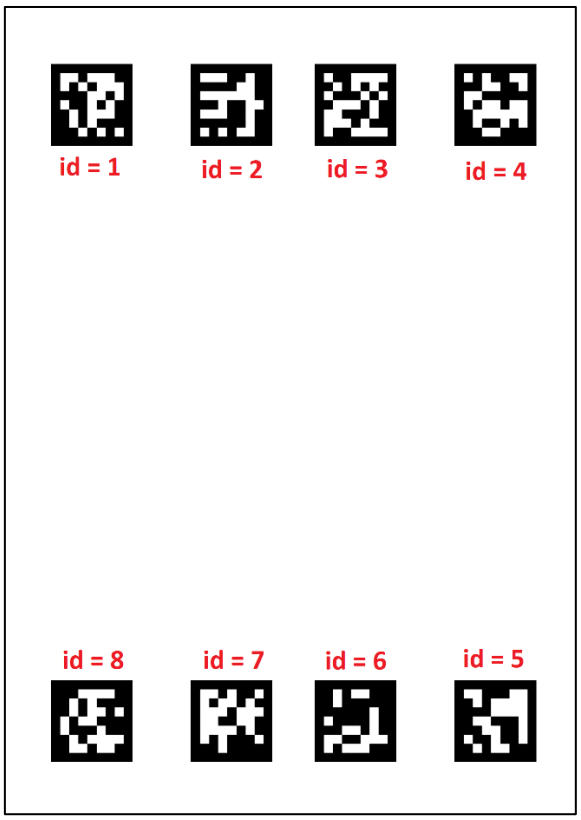
The library OpenCV has several functions for handling Aruco markers related tasks, such as generation, identification and others. This library is available for use in Python and C++ (and also in Matlab, although the setup process is a bit more complicated). For more information visit:

https://docs.opencv.org/4.x/d5/dae/tutorial_aruco_detection.html

The Aruco markers in these templates were obtained from the pre-defined dictionary DICT_7X7_50. This is very important since you'll need to use this **exact** dictionary when detecting the Arucos. The Aruco markers in the template 1 and template 2 correspond to the first 4 or 8 markers in the dictionary, respectively, and are placed clockwise, as shown below.



An example of the basic procedure to detect the Aruco markers can be found here. Remember that for PIV templates it would be necessary to replace the line

```
cv::Ptr<cv::aruco::Dictionary>dictionary =
cv::aruco::getPredefinedDictionary(cv::aruco::DICT_6X6_250);
```

with

```
cv::Ptr<cv::aruco::Dictionary>dictionary =
cv::aruco::getPredefinedDictionary(cv::aruco::DICT_7X7_50);
```