

Showcase your Android development and machine learning skills by building a **Colour Checker Verification App**. Good luck!

Project Overview

At MEQ, we want to utilise the latest technology to improve our ways of working. In this spirit, we allow and encourage the use of tools like ChatGPT, Cursor, Claude to solve this problem. Ultimately, as the developer, you will be responsible for the code that is generated so the outcome and final code quality is what's most important. You will also be asked pointed questions about why things are implemented in the way they are.

What is a Colour Checker?

A **colour checker** is a standardized tool used in photography, filmmaking, and computer vision to ensure accurate colour reproduction under different lighting conditions. It consists of a grid of precisely defined colour patches, including primary colours, neutral greys, and skin tones, which serve as a reference for calibrating cameras and displays. Colour checkers are widely used in **image processing, colour correction, and machine learning applications** to maintain consistency and improve colour accuracy. Specifically to MEQ, this is a feature that was built in < 12 hours by the MEQ team. As a good demonstration of the type of fast moving work we do, we thought this would be a suitable mini-project for you to get a sense of what we do.



Example of Colour Checker from datacolor.

Objective

Develop an Android application that leverages the device's camera to capture an image and accurately confirm whether a colour checker is present. This solution should work across different lighting conditions, offering feedback on its findings. The result is an application that integrates into workflows where consistent colour accuracy is crucial, without exposing unnecessary complexity to the user.

Examples

Pass



Fail



Submission Guidelines

Requirements:

- Minimum API Level: **21**
- Technologies: **CameraX, OpenCV, Kotlin, Jetpack Components**
- Deliverables:
 - **GitHub Repository** with source code
 - **README** including:
 - Project description
 - Setup and build instructions
 - Usage guide
 - Any assumptions or limitations
 - Potential enhancements

Evaluation Criteria

1. **Core Focus: Camera + Image Processing**
 - Efficient CameraX integration.

- Robust colour checker detection and validation.
- 2. **Code Quality**
 - Clean, modular, and well-documented code.
 - Proper use of Android architecture components.
- 3. **User Experience**
 - Simple and intuitive interface.
 - Visual feedback on detection results.
- 4. **Documentation**
 - Clear README with setup instructions and explanations.
- 5. **Extension Goals**
 - Provide a reason to the user as to why the colour checker validation failed, and a suggested corrective action
 - Operating in real-time against a video feed that automatically passes the validation once the colour checker is in frame is even more ideal

Assorted notes:

1. It is NOT required to implement any logic that modifies the image itself based on the colour checker. Simply assessing if it is entirely in frame.
2. Upon completion of this test, we will organise a technical interview. You will be able to use this time to explain your approach, and answer questions from our team