Assignment 3: Reflective Performance Analysis Report (30%)

- **Individual.** One (max 5pages) PDF document. Online **submission by 5pm Friday Wk13**

Each student must reflect on their final AR application and analyse its performance metrics using Unity's Profiler. This assignment is designed to help students critically evaluate the impact of AR features on performance and develop optimisation skills. Your report should include the following key components:

1. Reflection on the Final Product

- Discuss the overall performance of your AR application.
- Reflect on the development process, (challenges faced and design decisions that impacted performance.)
- Identify areas where performance could be improved and discuss the trade-offs made between functionality, visual quality, and efficiency.

2. Performance Metrics Analysis

Evaluate the following performance aspects, which may (or may not) include:

- **Rendering & Graphics**: Frames per second (FPS), draw calls, shader complexity.
- **Tracking Stability & Latency**: Accuracy and response time of tracking.
- **Memory Usage**: Asset sizes, garbage collection frequency.
- **Physics & Collision Performance**: Efficiency of physics interactions.
- **Networking & Data Handling (if applicable)**: Latency, data transfer rates.
- **Battery & Thermal Performance**: Power consumption, device temperature over time.

3. Comparative Analysis

Conduct a comparative study based on one of the following approaches:

- **Comparison Between Two Mobile Devices**: Evaluate performance differences between two different mobile devices, using the metrics listed above.
- **Comparison Between a Mobile Device and a Computer**: Focus on FPS, CPU/GPU usage, memory consumption, and input latency to assess performance differences across platforms.

4. Performance Optimisation Discussion

Based on your findings:

- Identify performance bottlenecks and their potential causes.
- Suggest optimisations or improvements to enhance efficiency.
- Discuss trade-offs between quality, responsiveness, and resource consumption.

Report Structure

1. **Introduction**
   - Brief overview of the analysis.
   - Purpose of the performance evaluation and reflection.
2. **Reflection on Final Product**
   - Discussion of development challenges and design decisions.
   - Insights on how performance considerations shaped the final product.
3. **Methodology**
   - Explanation of the test setup, devices used, and Unity tools utilised.
4. **Performance Metrics Evaluation**
   - Detailed analysis with graphs, screenshots, and data tables (if applicable).
5. **Comparative Analysis**
   - Side-by-side comparison of key performance indicators.
6. **Discussion & Recommendations**
   - Interpretation of findings and suggested optimisations.
7. **Conclusion**
   - Summary of key takeaways and reflections.
8. **References** (if any)