Team 3 - Project Proposal
Cloth Simulation

Objective

To develop, demonstrate, and optimize an interactive cloth simulation, allowing users to engage directly with the simulated cloth entity in an environmental setting, showcasing the complexities and dynamics of cloth behaviours.

Goals

1. Cloth Model and Properties:
   - Construct a cloth model with adjustable parameters including elasticity, density, and flexural rigidity.
   - Implement options for different cloth resolutions, ranging from coarse to fine meshes, to demonstrate varying levels of detail.

2. Cloth Dynamics:
   - Capture fundamental cloth behaviours like stretching, bending, shearing, and damping
   - Implement external forces, such as wind or point forces, that can affect the cloth's dynamics.
   - Utilize constraints and anchors to provide realistic and stable simulation behaviours.

3. User Interaction:
   - Design a user-friendly interface allowing direct interactions with the cloth—such as pinning or applying forces.

4. Simulation Optimization:
   - Incorporate adaptive mesh refinement techniques, focusing computational resources on regions of the cloth with high deformation or activity.
   - Implement collision detection and response mechanisms to prevent the cloth from intersecting with itself or other objects in the scene.

5. Environment Setting:
   - Construct a scene to serve as the backdrop for the cloth simulation, ensuring the primary focus remains on the cloth's behaviour.
   - Integrate basic environmental elements that can interact with or affect the cloth dynamics.