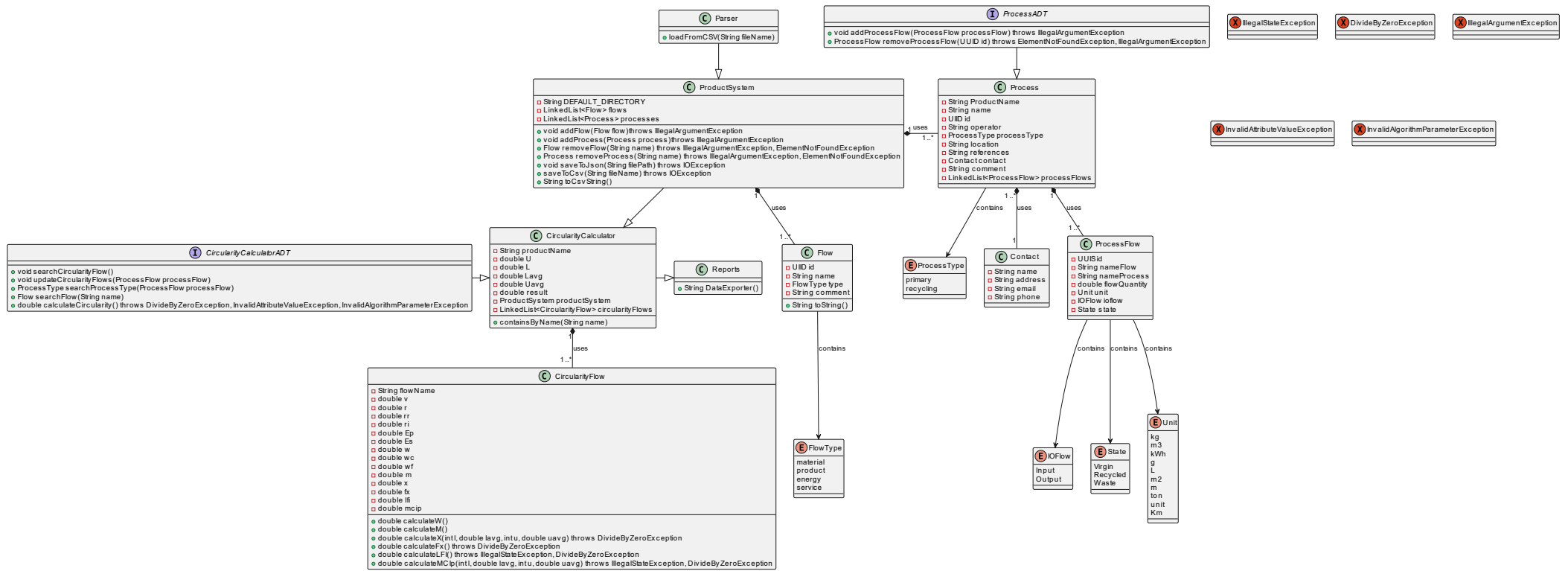# Class Diagram

In the domain of a class diagram, the productSystem stands as a central class encapsulating two vital components: flows and processes. Flows, representing materials, energy, or information, are manipulated by the various processes within the system. The relationship between processes and flows is governed by the processFlow class, acting as a connector to establish connections and dependencies.

Crucially, the processFlow class incorporates state information, categorizing flows into states such as 'virgin,' 'waste,' or 'recycling.' This classification is instrumental in providing insights into the environmental sustainability and resource management dimensions of the product, offering a comprehensive overview of raw material usage, waste generation, and the integration of recycled materials.

A significant element in this ecosystem is the calculator class, which plays a pivotal role in assessing the circularity index of a product. To perform this calculation, the calculator relies on information derived from circularityFlows. Each circularityFlow is intricately linked to a specific flow, enabling a detailed analysis of sustainability metrics, including factors like material reuse, recycling potential, and waste minimization.

Moreover, the system encompasses functionalities for importing and exporting information, facilitating real-time insights and external integration. The calculator class utilizes this imported information to make informed circularity calculations. The generation of customized reports, incorporating circularity metrics and sustainability factors, enhances communication and decision-making within the system.

In essence, this class diagram encapsulates the interconnected relationships between the productSystem, flows, processes, processFlow, and calculator. It visually represents how these classes collaborate to evaluate and enhance the sustainability and circularity aspects of the productSystem.