Functional Specifications

Background

MetaboAnalyst is a widely used web platform for metabolic analysis among laboratory researchers. However, the platform requires specific input formats that often differ from the raw data collected by researchers in their experiments. To facilitate smoother interaction with the website, a package that processes raw experimental data into a compatible format is essential. This solution will streamline the research process and enhance overall productivity for scientists.

User Profile

The primary users of this system are research scientists specializing in metabolism. This group typically possesses limited programming skills and relies on user-friendly tools to analyze metabolic data. While they may be familiar with basic web navigation, their lack of extensive programming knowledge can hinder their ability to prepare data for analysis on platforms like MetaboAnalyst.

Use Cases

Use Case 1: Metabolite Selection

Objective: A researcher aims to identify specific metabolites for further study.

Expected Interactions: The researcher interacts with the packaging system to input their raw data. The system processes this data, allowing the researcher to filter and narrow down a selection of metabolites based on predefined criteria. The user can view the results in an accessible format, facilitating easier analysis.

Use Case 2: Regulation Analysis

Objective: A researcher wants to find up-regulators or down-regulators within their metabolic data.

Expected Interactions: The researcher engages with the system to input their data. The system automatically analyzes the input and identifies potential up-regulators and down-regulators, presenting the findings in a user-friendly report. This automation simplifies the research process, allowing scientists to focus on interpretation rather than data processing.