Functional Requirements (FR)

ID	Description
FR1	Load external datasets into memory
FR2	Data selection, sorting, sampling, filtering
FR3	Join datasets
FR4	Group and aggregate data
FR5	Handle missing data
FR6	Apply mathematical/statistical functions
FR7	Generate descriptive statistics & summaries
FR8	Detect outliers
FR9	Normalize and rolling window calculations
FR10	Statistical hypothesis testing
FR11	Data visualizations
FR12	Export data and visualizations
FR13	Dataset information
FR14	Formal grammar specification
FR15	Static semantic & type checking
FR16	Compilation via IR (Intermediate Representation)
FR17	Interactive querying (Jupyter Kernel integration)
FR18	CLI interface support

Use Cases (UC)

ID	Title
UC1	Load Data Sources
UC2	Filter Data
UC3	Join Datasets

UC4   Group & Aggregate Data

UC5   Handle Missing Data

UC6   Data Visualization

UC7   Statistical Analysis

UC8   Export Data & Plots

UC9   Interactive Querying (Jupyter)

UC10   CLI Interaction

Matrix

FR \ UC	UC1	UC2	UC3	UC4	UC5	UC6	UC7	UC8	UC9	UC10
FR1	✅								✅	✅
FR2		✅							✅	✅
FR3			✅						✅	✅
FR4				✅					✅	✅
FR5					✅				✅	✅
FR6		✅		✅			✅		✅	✅
FR7							✅		✅	✅
FR8							✅		✅	✅
FR9							✅		✅	✅
FR10							✅		✅	✅
FR11						✅		✅	✅	✅
FR12								✅	✅	✅
FR13	✅	✅	✅	✅	✅	✅	✅	✅	✅	✅
FR14	✅	✅	✅	✅	✅	✅	✅	✅	✅	✅
FR15	✅	✅	✅	✅	✅	✅	✅	✅	✅	✅
FR16	✅	✅	✅	✅	✅	✅	✅	✅	✅	✅

FR17	☑	☑	☑	☑	☑	☑	☑	☑	☑	
FR18	☑	☑	☑	☑	☑	☑	☑	☑		☑