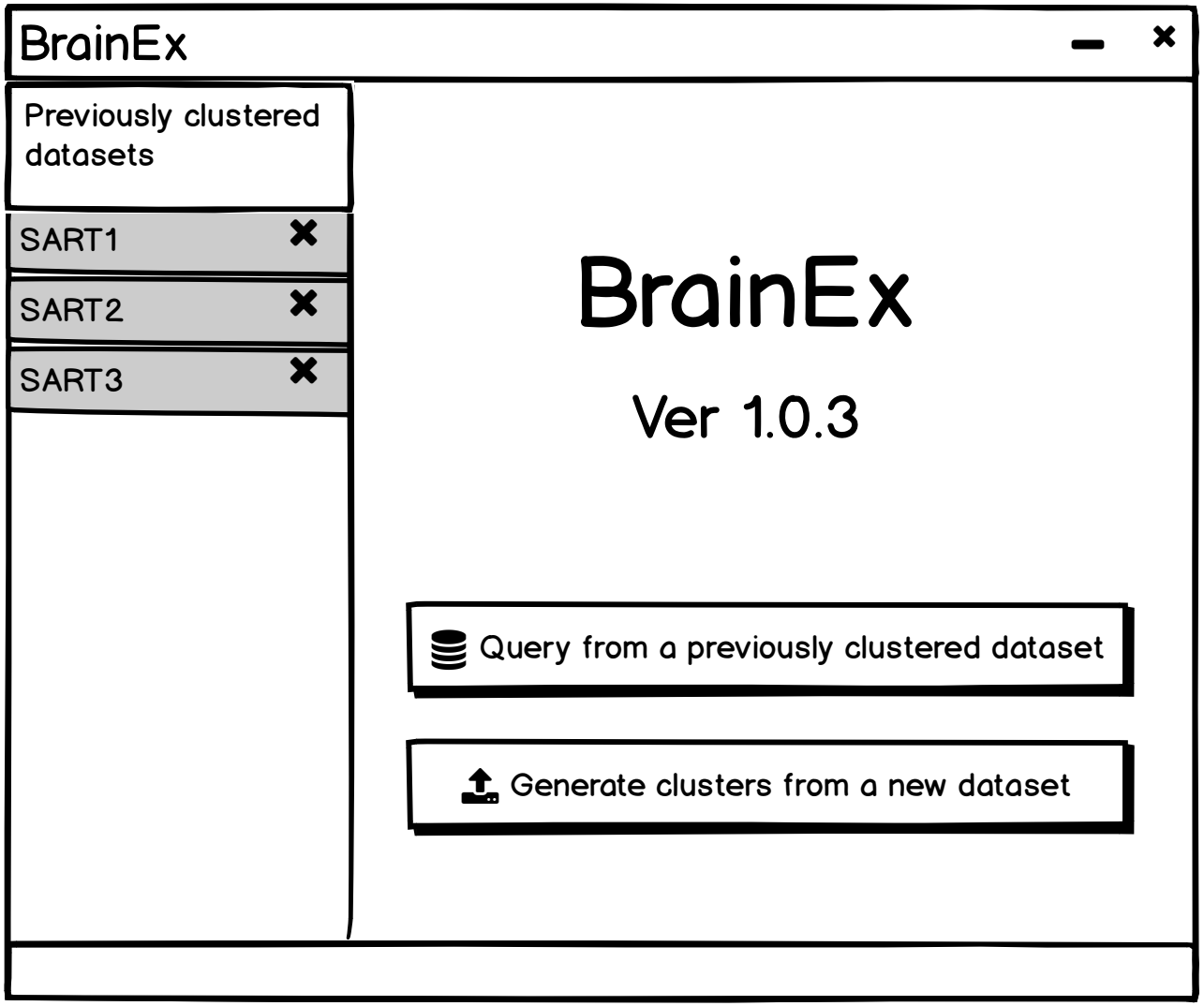
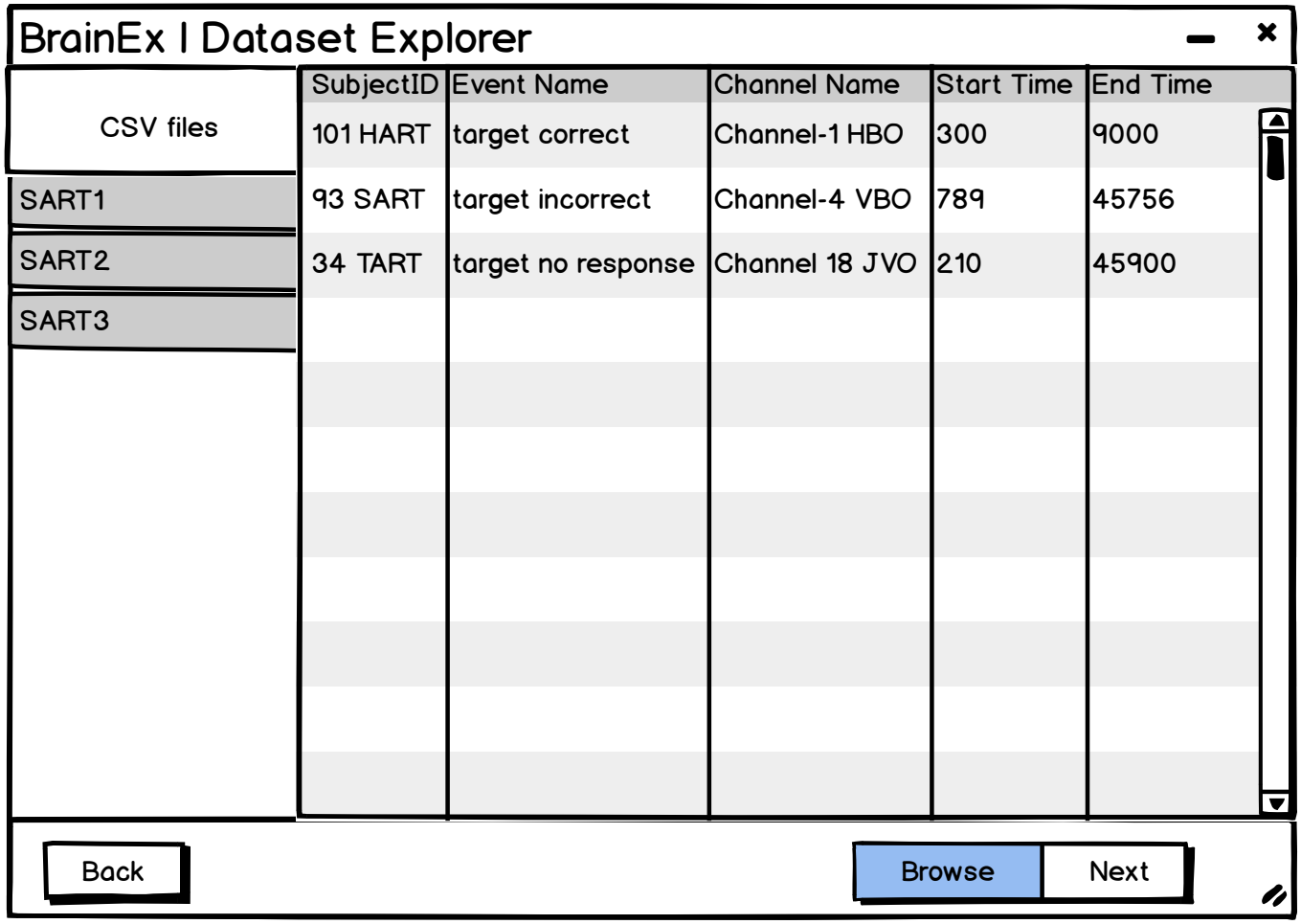
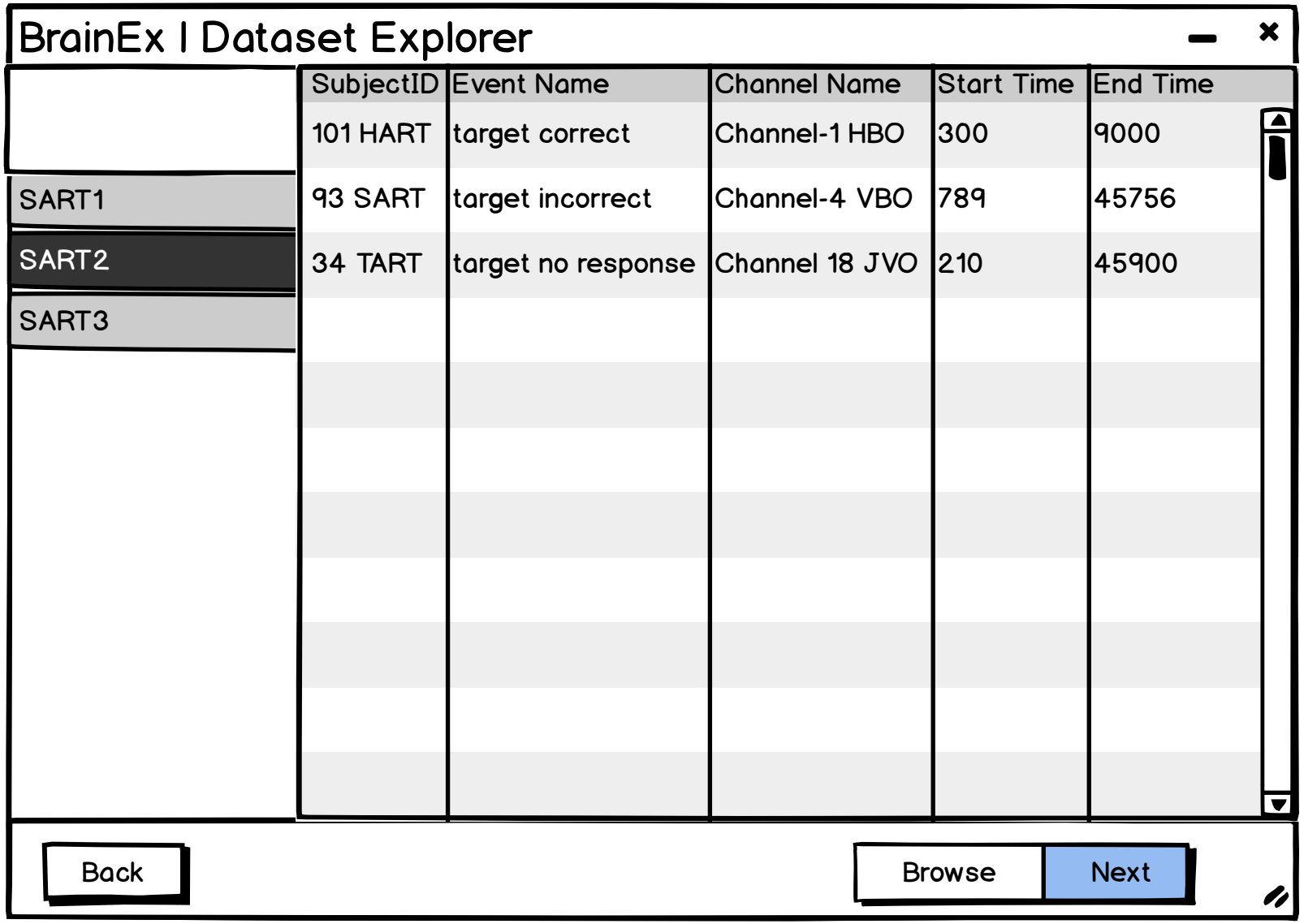
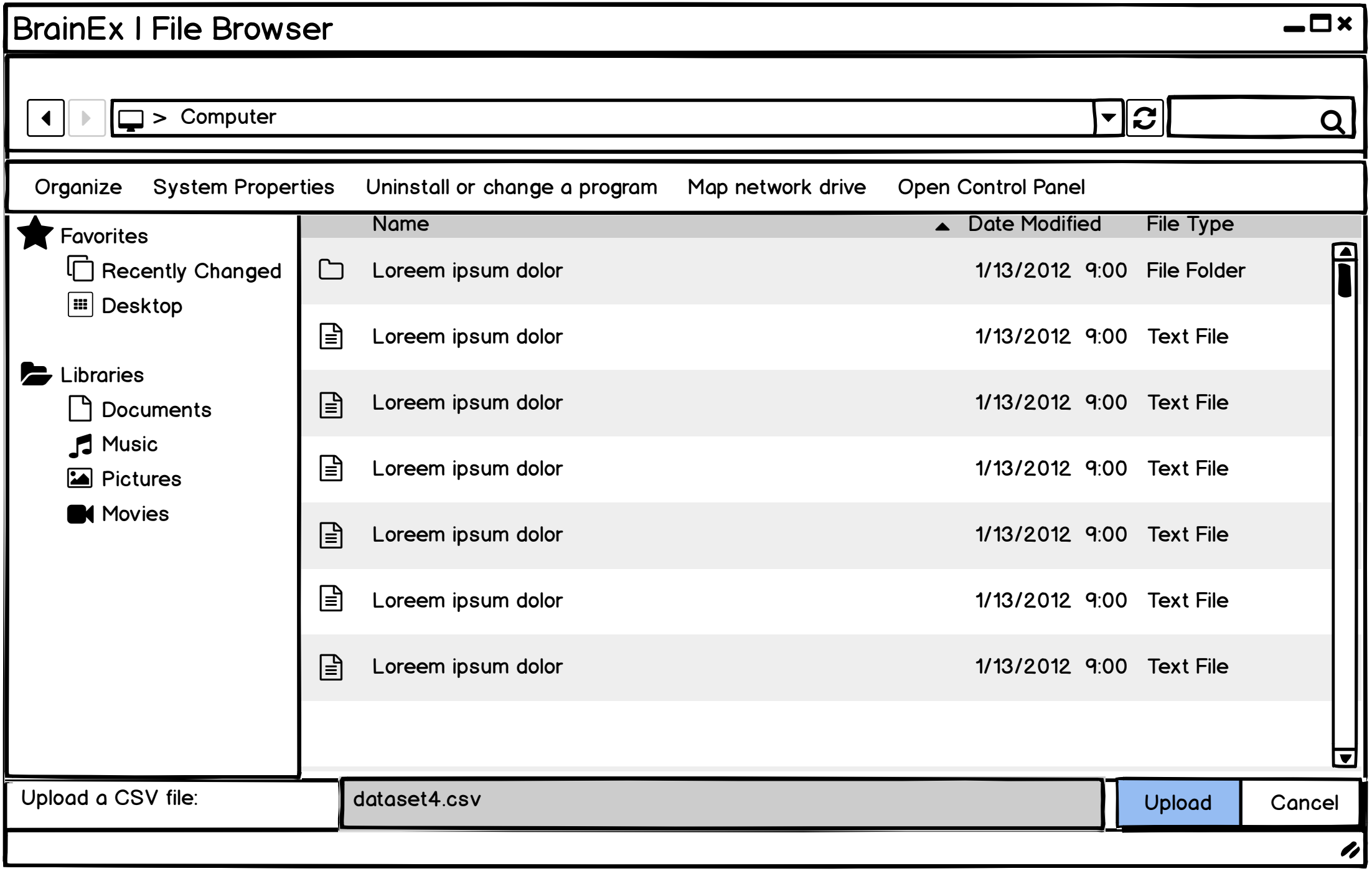
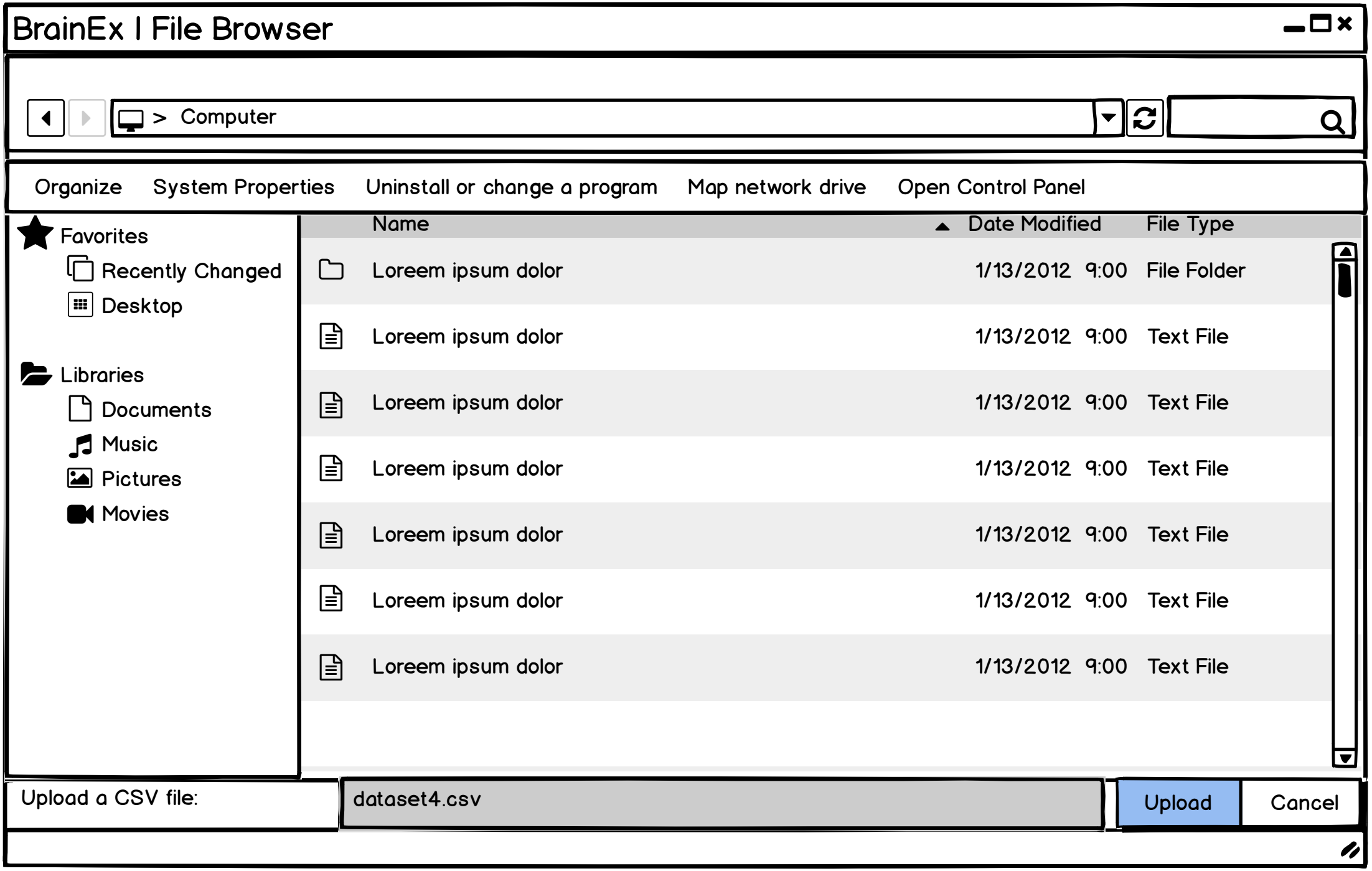

BrainEx
Previously clustered datasets
SART1
SART2
SART3
BrainEx
Ver 1.0.3
Query from a previously clustered dataset
Generate clusters from a new dataset

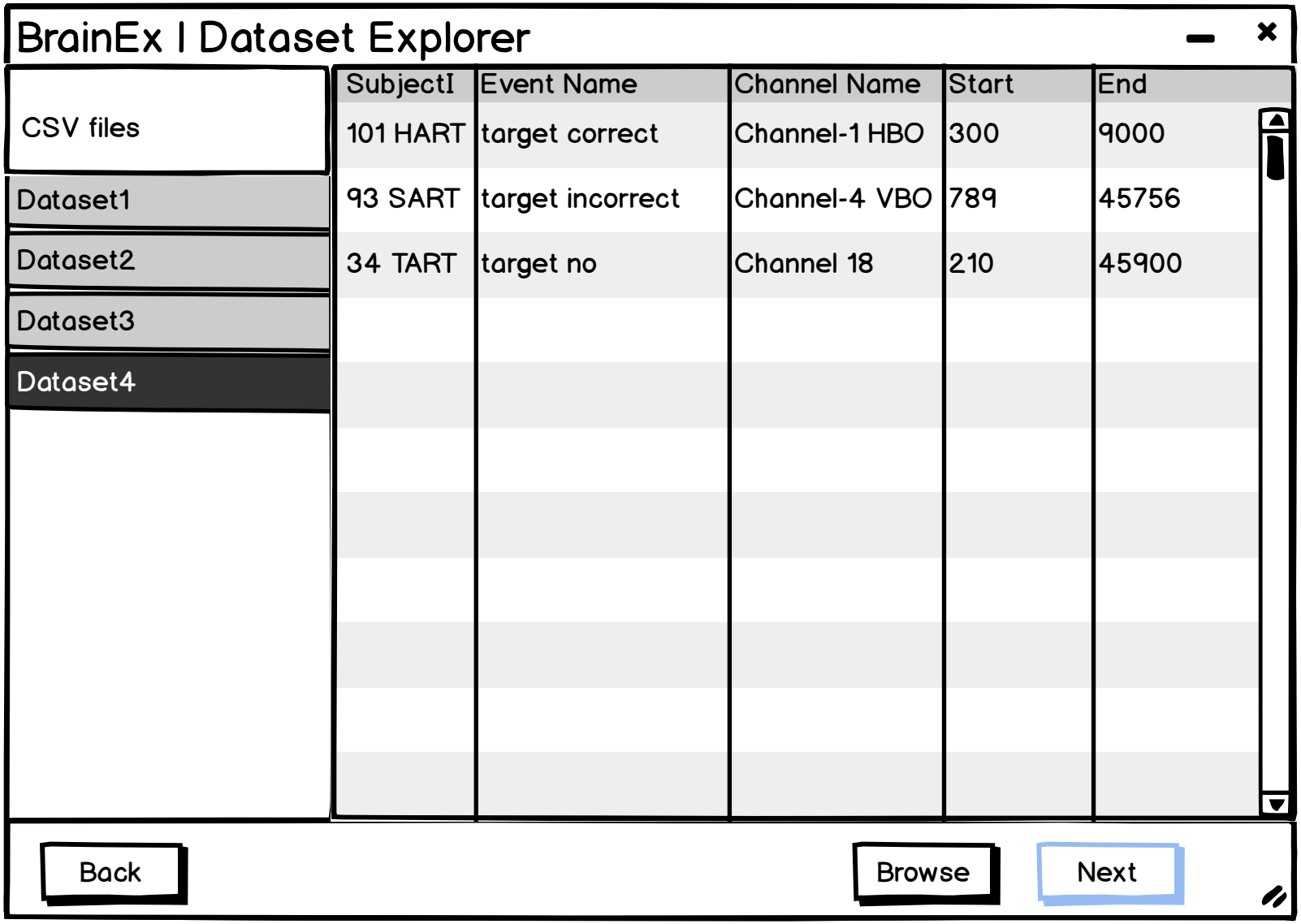


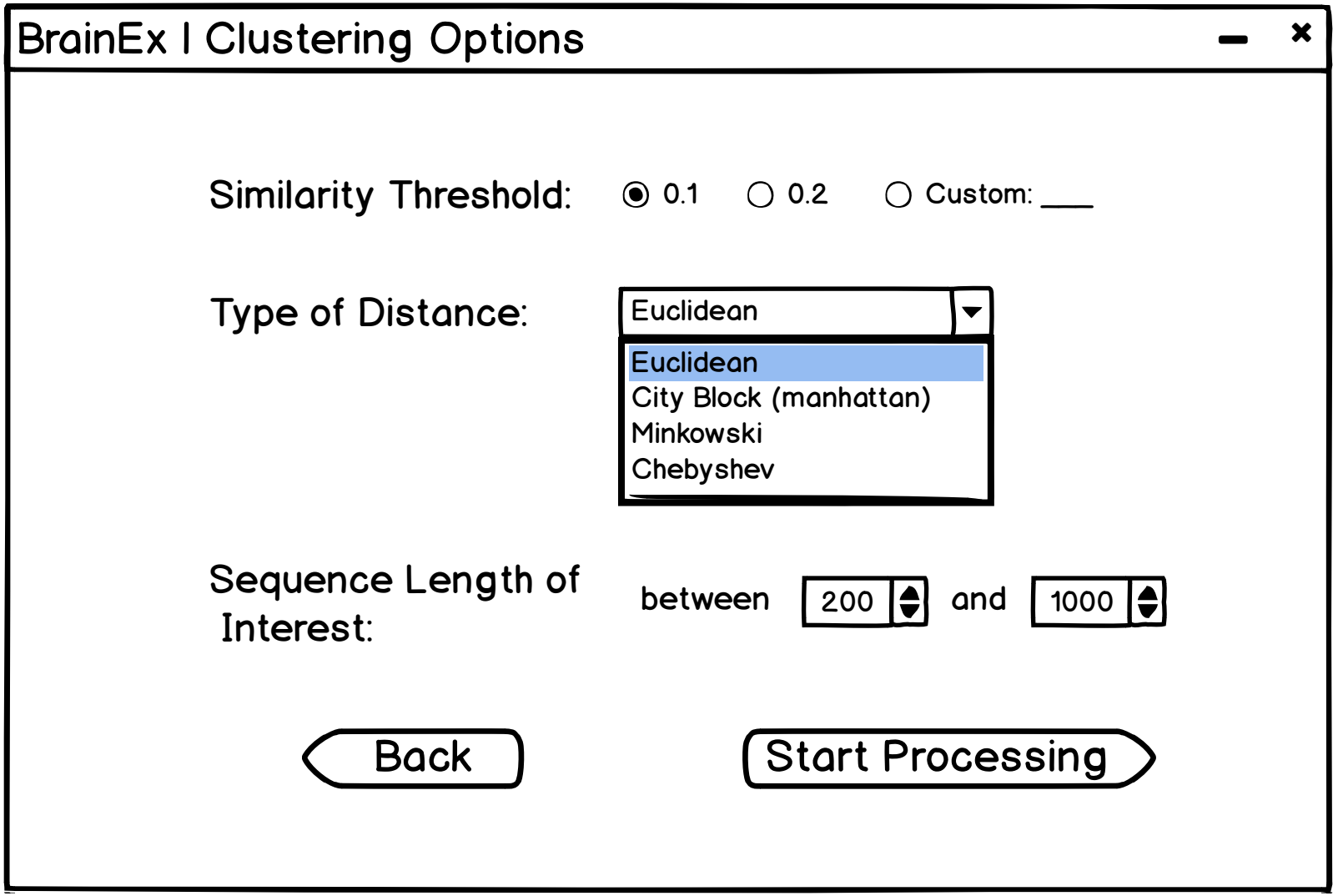

Note: Next will be greyed out if no selection is made.

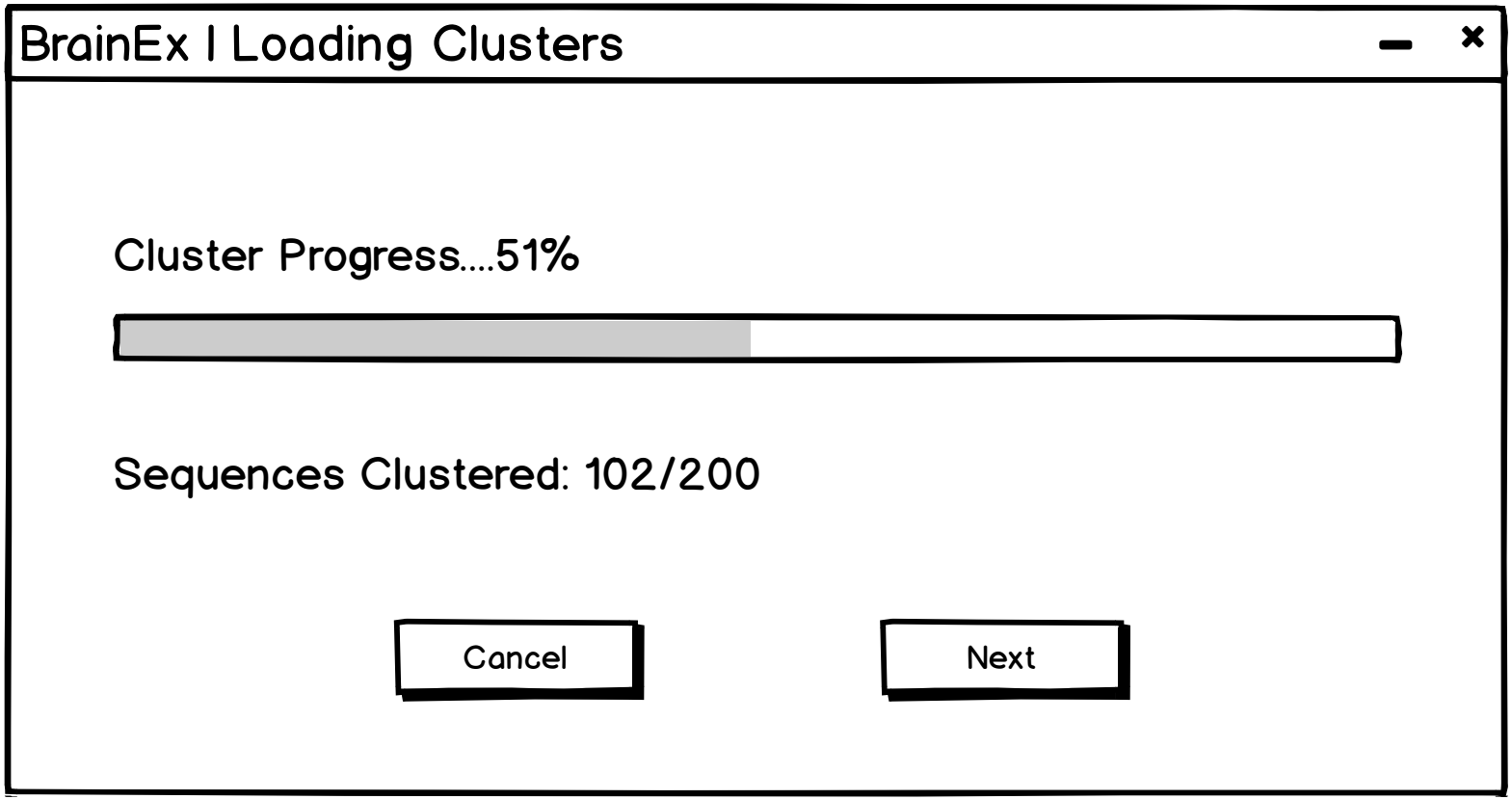

BrainEx I Dataset Explorer
SART1
SART2
SART3
SubjectID
Event Name
Channel Name
Start Time
End Time
101 HART
target correct
Channel-1 HBO
300
9000
93 SART
target incorrect
Channel-4 VBO
789
45756
34 TART
target no response
Channel 18 JVO
210
45900
Back
Browse
Next


BrainEx | File Browser
> Computer
Organize
System Properties
Uninstall or change a program
Map network drive
Open Control Panel
Favorites
Recently Changed
Desktop
Libraries
Documents
Music
Pictures
Movies
Name
Date Modified
File Type
Loreem ipsum dolor
1/13/2012 9:00
File Folder
Text File
Upload a CSV file:
dataset4.csv
Upload
Cancel


BrainEx | File Browser
> Computer
Organize
System Properties
Uninstall or change a program
Map network drive
Open Control Panel
Favorites
Recently Changed
Desktop
Libraries
Documents
Music
Pictures
Movies
Name
Date Modified
File Type
Loreem ipsum dolor
1/13/2012 9:00
File Folder
Text File
Upload a CSV file:
dataset4.csv
Upload
Cancel

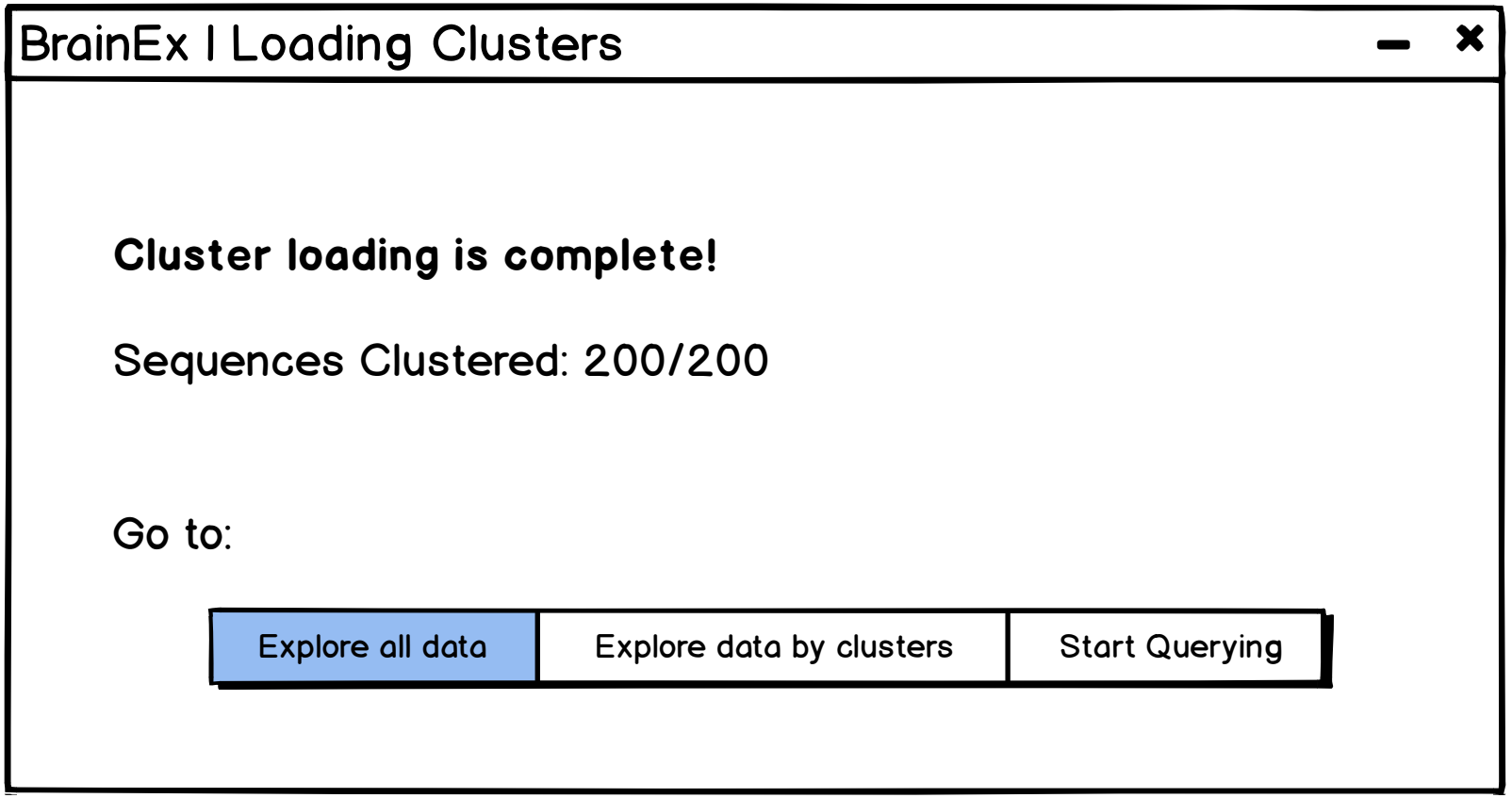

BrainEx I Dataset Explorer
CSV files
Dataset1
Dataset2
Dataset3
Dataset4
SubjectI
Event Name
Channel Name
Start
End
101 HART
target correct
Channel-1 HBO
300
9000
93 SART
target incorrect
Channel-4 VBO
789
45756
34 TART
target no
Channel 18
210
45900
Back
Browse
Next

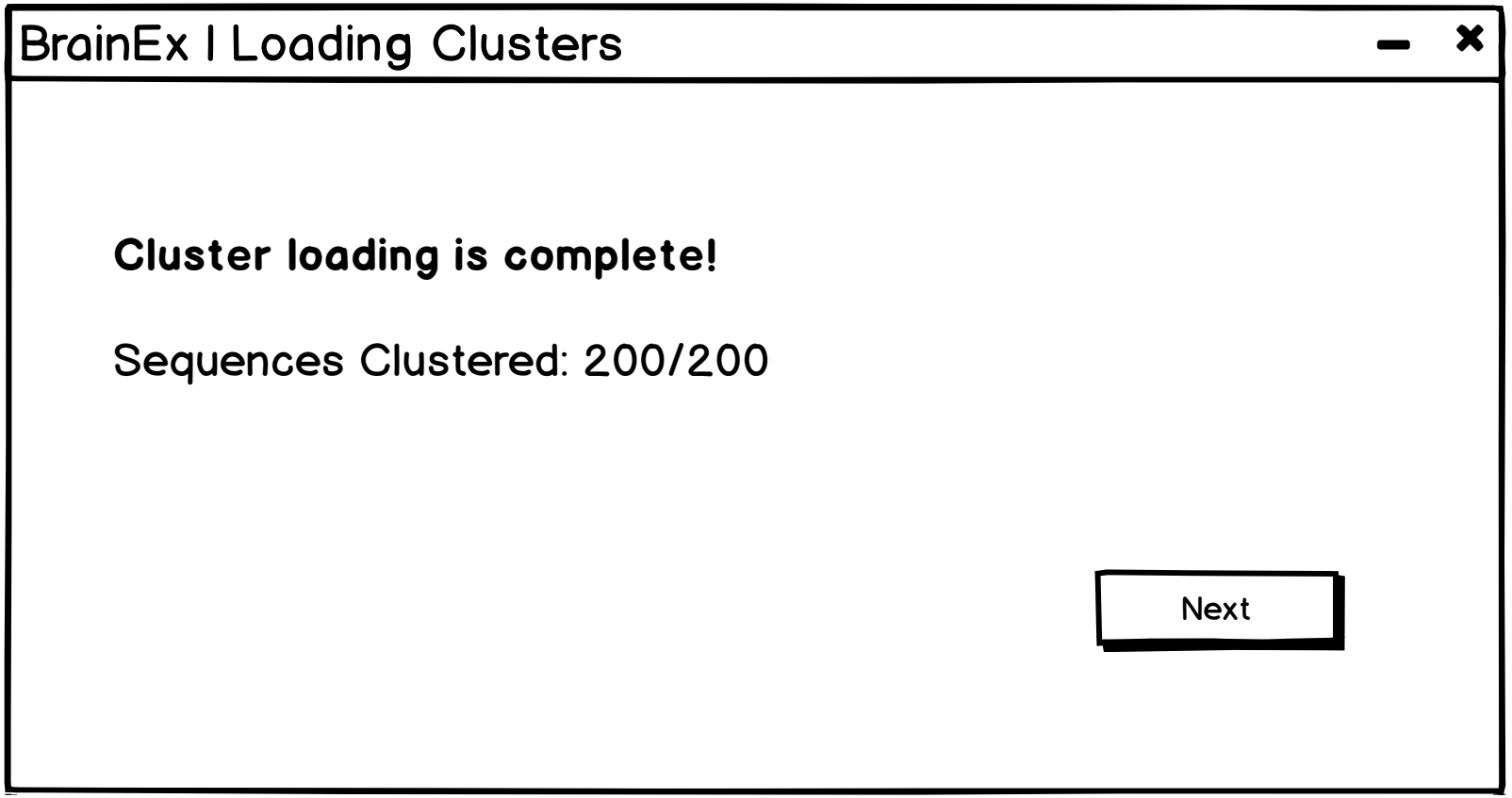

BrainEx | Clustering Options
Similarity Threshold:
0.1
0.2
Custom: ___
Type of Distance:
Euclidean
Euclidean
City Block (manhattan)
Minkowski
Chebyshev
Sequence Length of Interest:
between
200
and
1000
Back
Start Processing

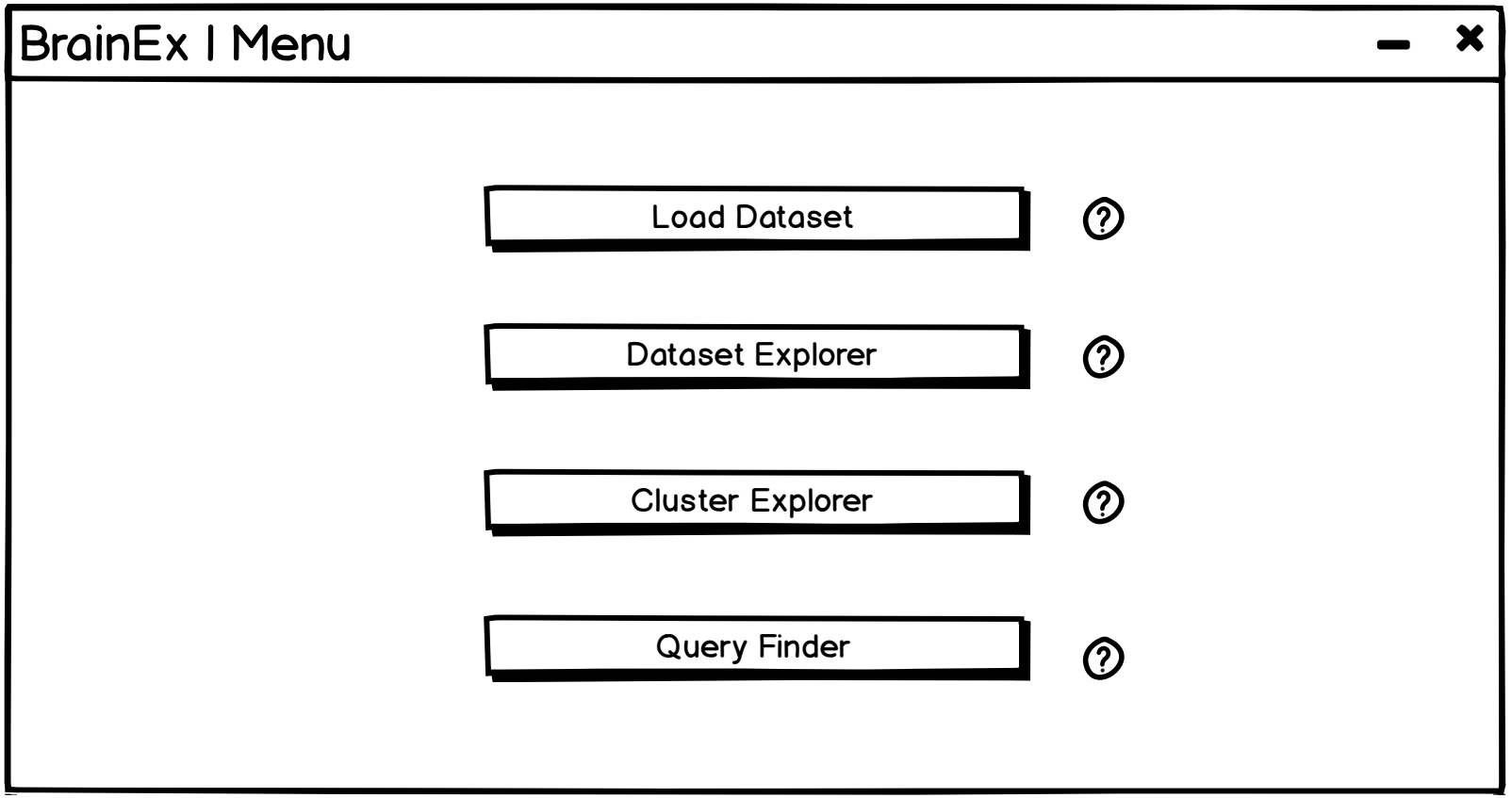


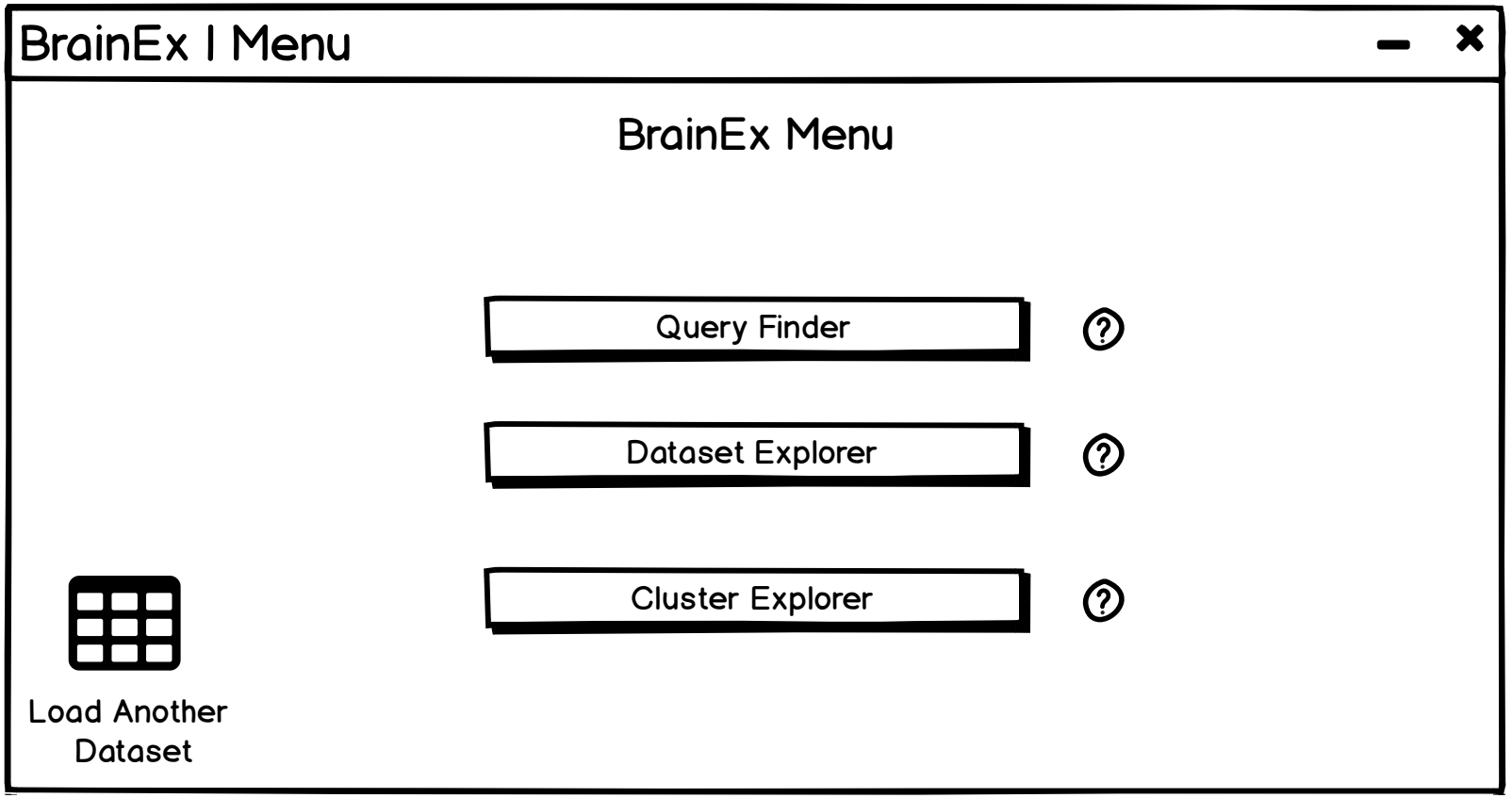

Notes:

This page is intended to automatically load and display the finished loading clusters page. However, you need to click next because of Balsamiq's (prototype website that we used for creating this mockup) limitations on transitions.


BrainEx | Loading Clusters
Cluster loading is complete!
Sequences Clustered: 200/200
Go to:
Explore all data
Explore data by clusters
Start Querying

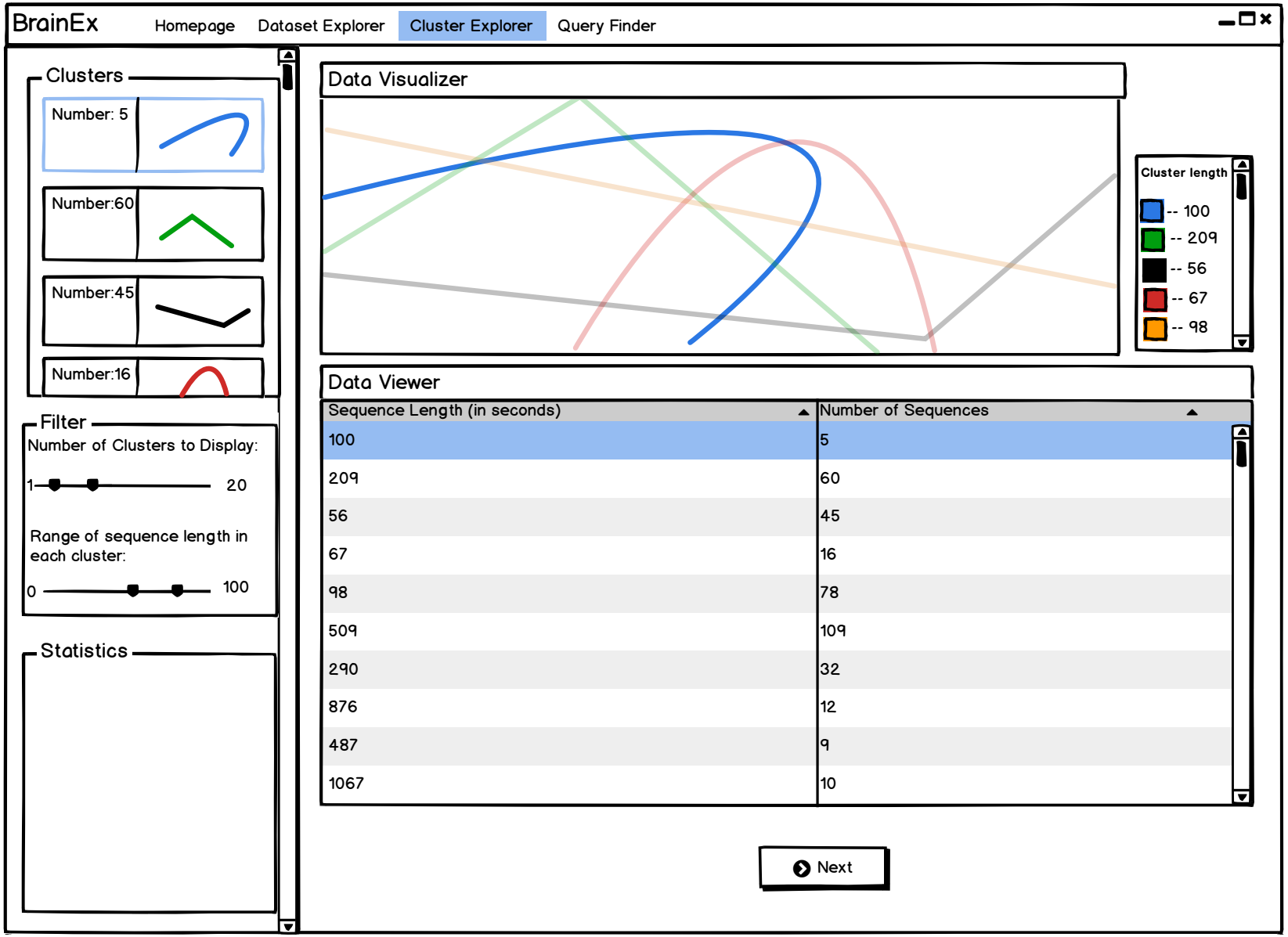

BrainEx | Loading Clusters
Cluster loading is complete!
Sequences Clustered: 200/200
Next


BrainEx | Menu
Load Dataset
Dataset Explorer
Cluster Explorer
Query Finder


BrainEx | Menu
BrainEx Menu
Query Finder
Dataset Explorer
Cluster Explorer
Load Another Dataset


Notes:
Sort the data here in descending order of (end time - start time)

Design Justification:
We wanted to make the screen starightforward, simple to look at and easy to navigate. Keeping these goals in mind, we put all the user parameter selections on one side (the left) and visualizations on the other (the right).
After performing necessary functions, the user can save the file and then proceed to the next step which is querying the sequence.
At the top, there is a naviagtion bar that allows the user to go to the main page as well as each of the explorer/query pages.
We chose a slider instead of brushing on chart region so it does not interfere with selecting an actual sequence from the chart.




Notes:
Data Visualizer will display the user specified amount of cluster representatives
Data Table will have length (time) of sequences and number of sequences
There will never be a cluster with the same length so can just use length as unique cluster ID -> this is false
There can be multiple clusters with the same length as long as they are not similar in shape
All sequences in a cluster will have the same length
Selecting cluster and representaive will highlight it on the data visualizer graph

Filters:
Number of clusters (top 15 or 20)
Range of length (slider)

Statistics:
Show the cluster with the most/least sequences
Show the top 3/least 3 with the greatest/least length of sequences

Question:
How do we decide how many representatives to display to the user (maybe ask to input a number from 1-10) and on what basis (show representatives of the top 10 clusters with most data points)?
If we have 30,000 clusters, how do we filter them down to approx 20? Should we ask for user input or another screen?
How to identify each cluster? Should we assign an id to each?

Design Justification:
To keep the UI simple, this cluster explorer screen as well as the rest of the explorer/query finder screens have the same layout with user inputs on the left and visualizations on the right
The view data shapes area displays the data shape of the representative of each cluster which would make it simpler for the user to view and easier to pick which area to investigate more
The number of sequences in each cluster is displayed as the label for the view data shapes area to make it easier for users to view that information. The filters are meant to allow the user to narrow down the number of clusters to view at a time

BrainEx | Homepage | Dataset Explorer | Cluster Explorer | Query Finder

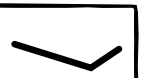
**Current Selection**

**Clusters**

Number: 5

Number: 60

Number: 45



Number: 16

**Filter**

Number of Sequences from this Cluster to Display:

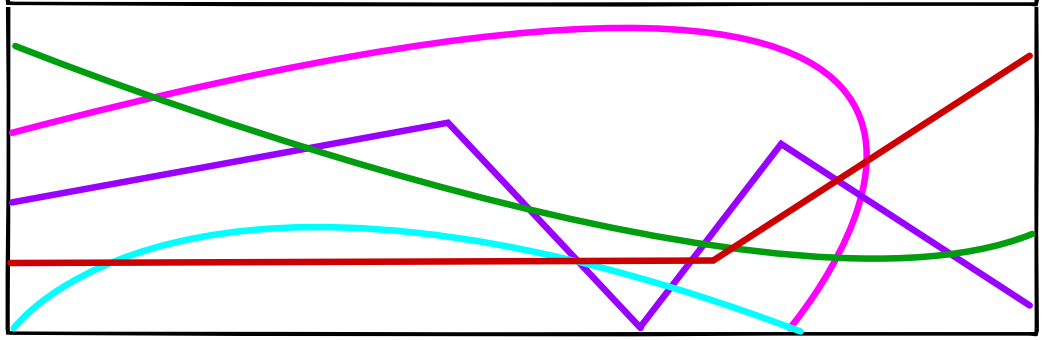
1 — 20

Range of sequence length:

0 — 500

**Statistics**

**Data Visualizer**



Legend
- -- 100
- -- 209
- -- 56
- -- 67
- -- 98

**Data Viewer**

| SubjectID | Event Name | Channel Name | Start Time | End Time | Sequence Length (in seconds) |
|---|---|---|---|---|---|
| 101 HART | target correct | Channel-1 HBO | 300 | 9000 | 100 |
| 93 SART | target incorrect | Channel-4 VBO | 789 | 45756 | 67 |
| 34 TART | target no response | Channel 18 JVO | 210 | 45900 | 45 |
| 101 HART | target correct | Channel-1 HBO | 300 | 9000 | 90 |
| 93 SART | target incorrect | Channel-4 VBO | 789 | 45756 | 78 |

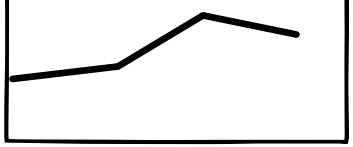
Back | Query Selected Sequence | Save file

Notes:
Data Visualizer will display the sequences in the cluster selected
Data Table will have data information for each sequence in the cluster selected

Design Justification:
In order to make the cluster explorer more understandable and easy to use, we have a graph that displays the current user selection at the top of the screen.
The user can filter some options and select the number of sequences to view in the cluster as well as the range of the sequence length. This part is to allow the user to narrow down the number of sequences to view at a time

BrainEx Homepage Dataset Explorer Cluster Explorer Query Finder

Current Selection



Query sequence

- ○ Upload a sequence file
- ○ Use selection from dataset explorer
- ◉ Use selection from cluster explorer

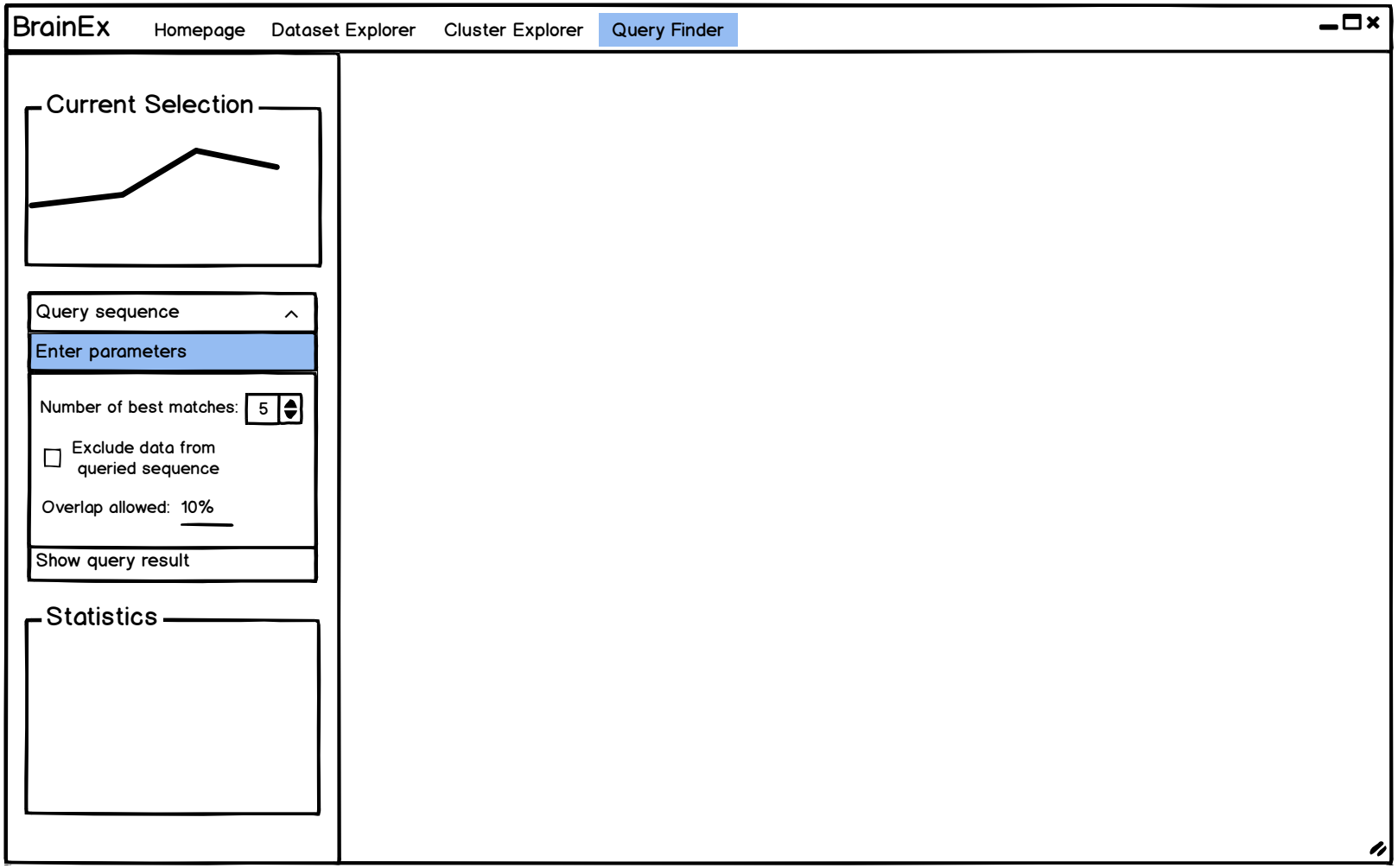
Enter parameters

Show query result

Statistics

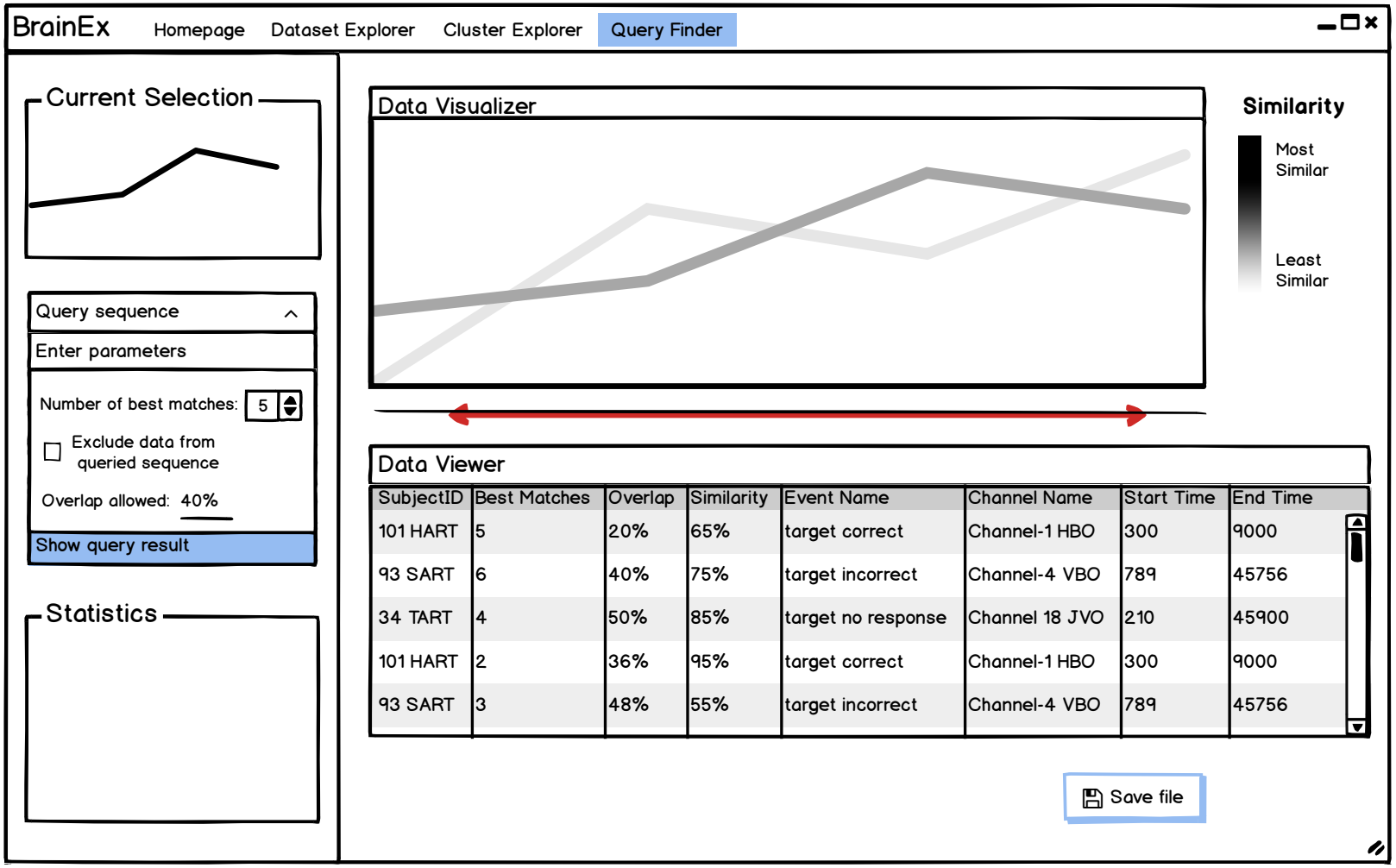
Notes:
Show query result is disabled on this page because parameters have not been entered.
Gray out selection if selection not made in cluster explorer/dataset explorer.

Design Justification:
The input required for query is setup as an accordion because we wanted to show the sequential order of input that is required for this step.




Notes:

Design Justification: A default overlap percentage of 10 is pre-set, this value has been confirmed with Leo.




Notes:
Data Table: Best matches, overlap, similarity (95% similar), subject ID, channel, start, end
Visualization: data points in each explorer are displayed in graph (same as graph in cluster explorer copy)

Design Justification:
A slider is used here instead of the brushing on chart region for consistensy with the previous screens, also making it easier for the user to select one specific sequence.