



VISUALIZING 1 BILLION STARS

TEAM

BENJAMIN NECKAM

NICOLE CHERCHES

ALEXANDER GELB

AXINYA TOKAREVA

AGENDA

- 1 INTRODUCTION
- 2 LO-FI PROTOTYPE
- 3 HI-FI PROTOTYPE
- 4 CONCLUSION

INTRODUCTION

M1

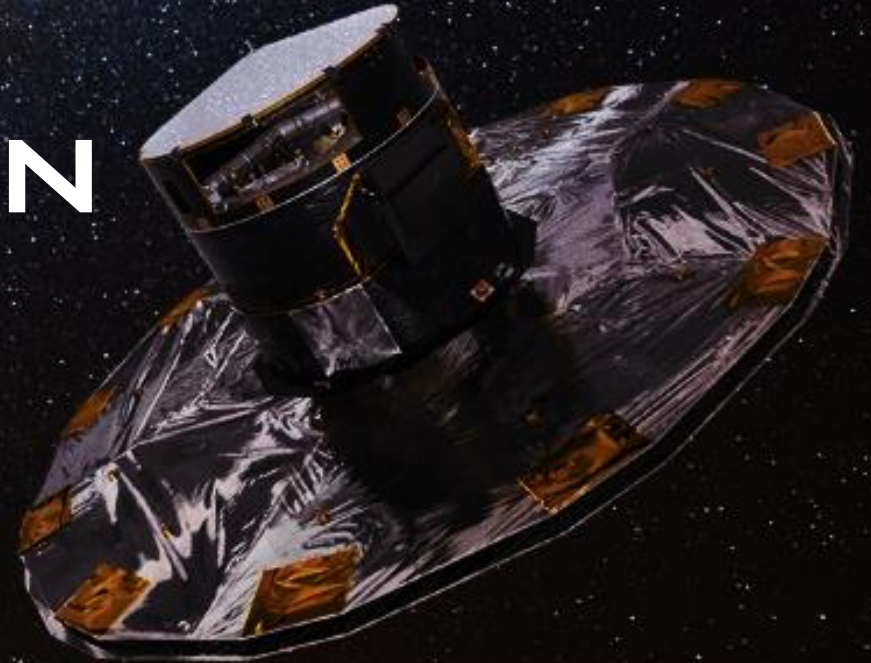
ESA MISSION

GAIA

FIRST CONTACT WITH DATA

TOPIC DESCRIPTION

MILLION STARS



M1

POSITIONS

CHARACTERISTICS

DISTANCES

DATASET

PARALLAXES

VALUES OF MOTIONS

MAGNITUDES

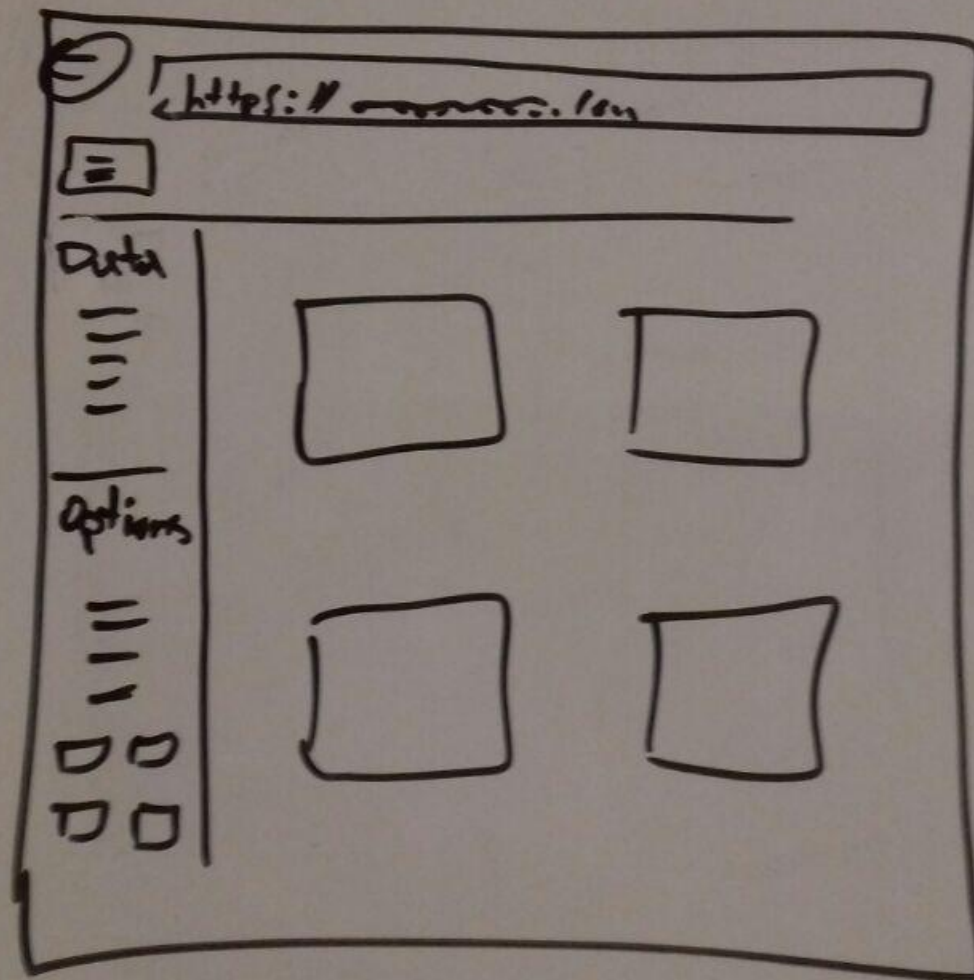
M1

FICTITIOUS USER

JOÃO ALVES

M2

LO-FI PROTOTYPE



Data

Table Name: _____

Column: _____

Rows: _____

Entries: _____

Entries

• Position X 13.4

• Position Y 10.0

• Position Z 0.0

• Velocity 300

Options

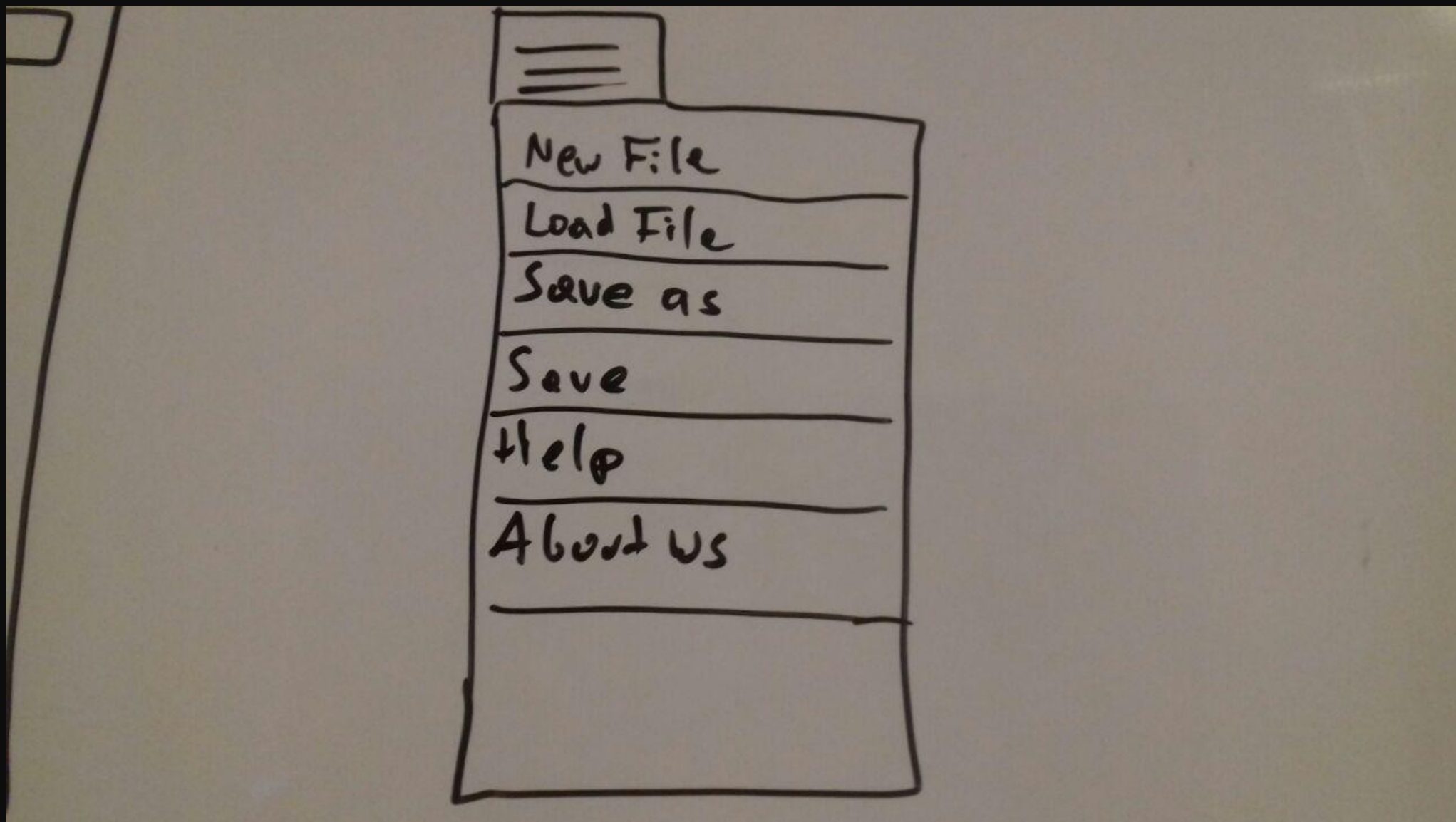
• Add Plot

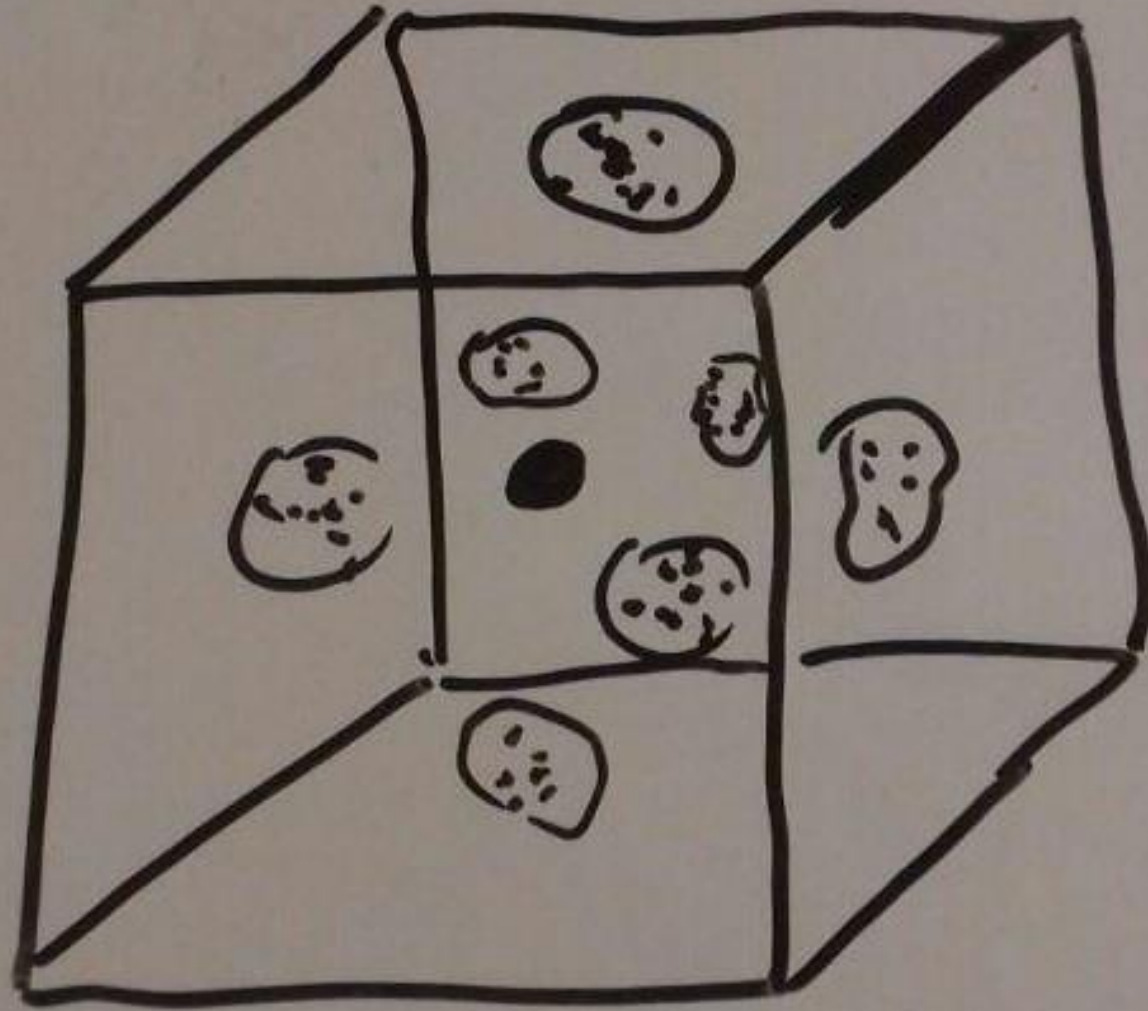
• Add Interaction

• Set scales

x ☐ y ☐

z ☐

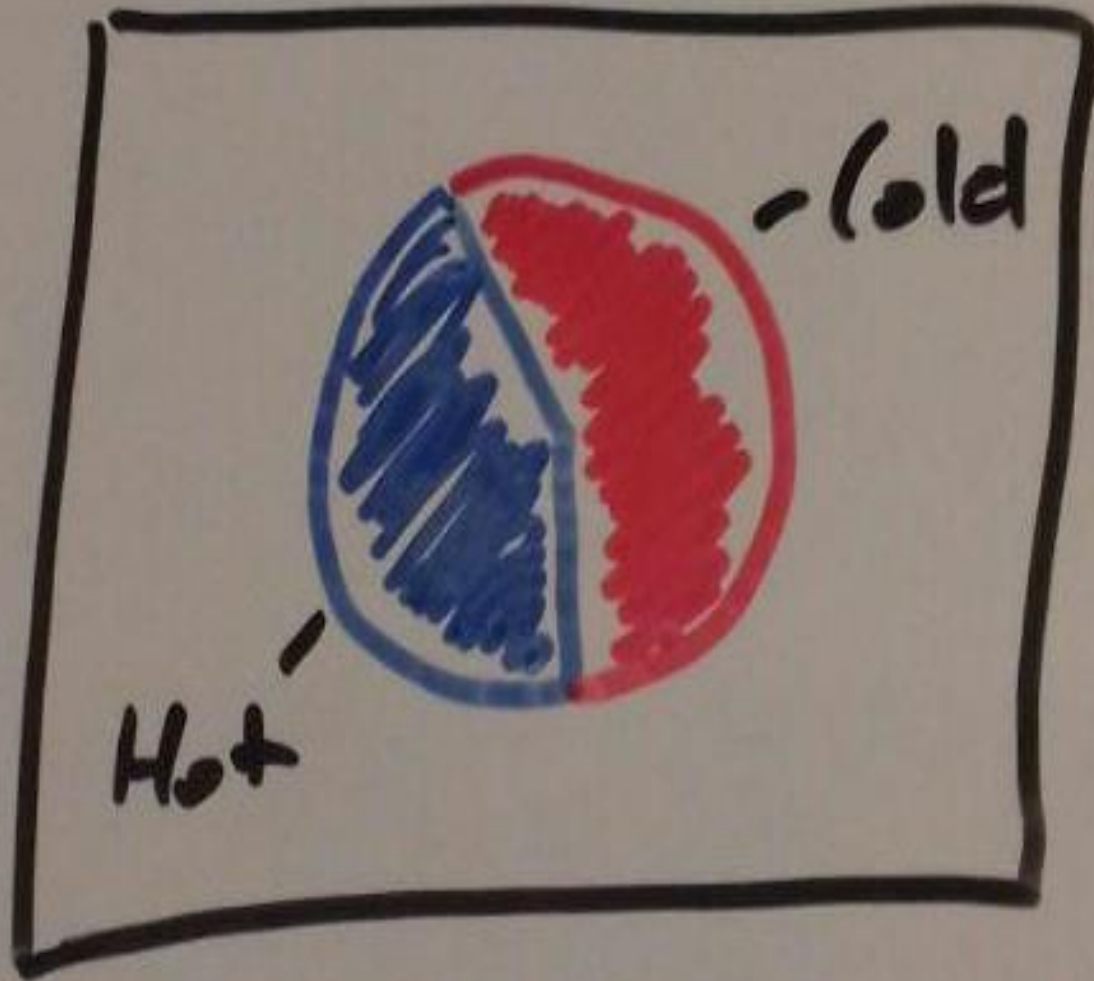




- Clusters around the sun

3.

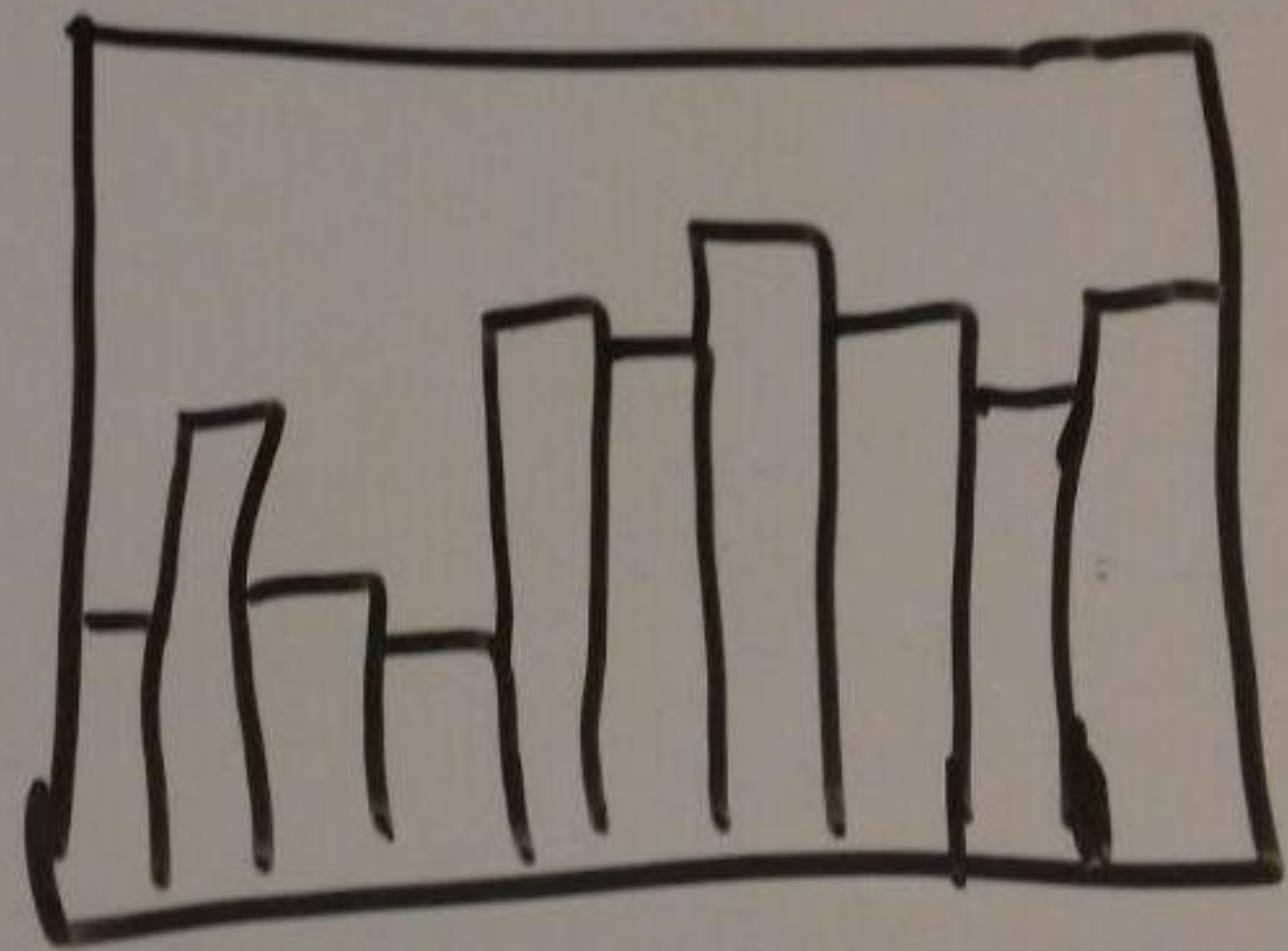
M2



4

M2

Size

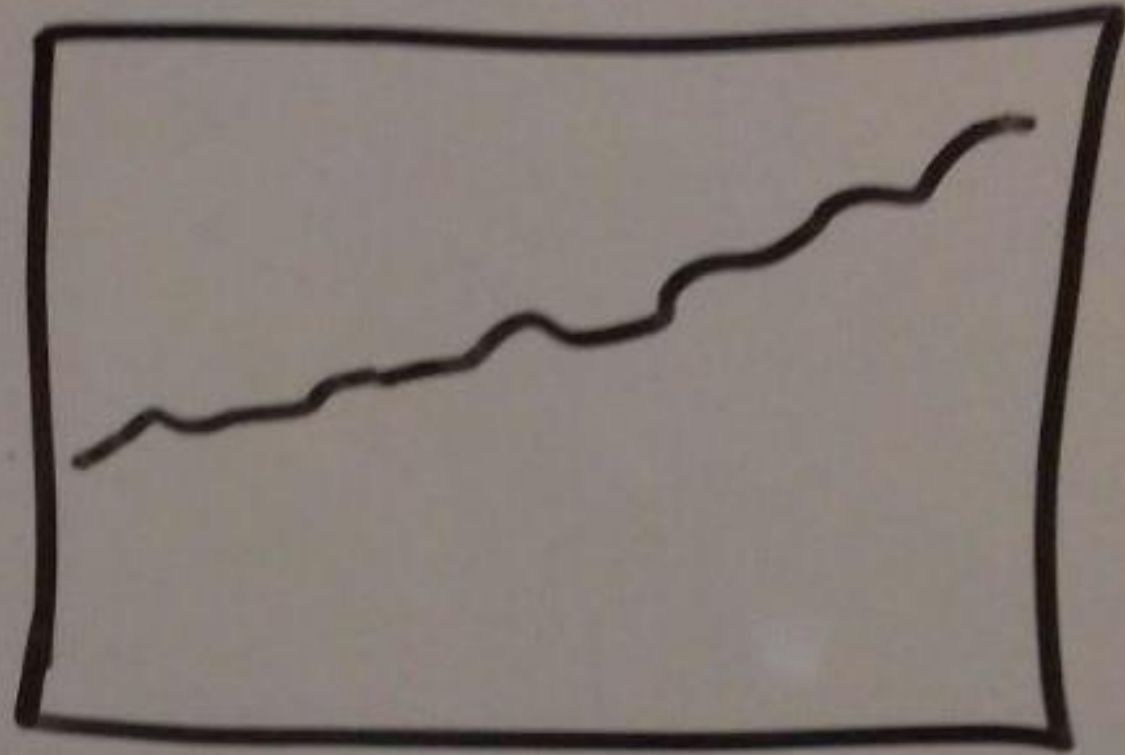


clusters

5.

M2

Velocity

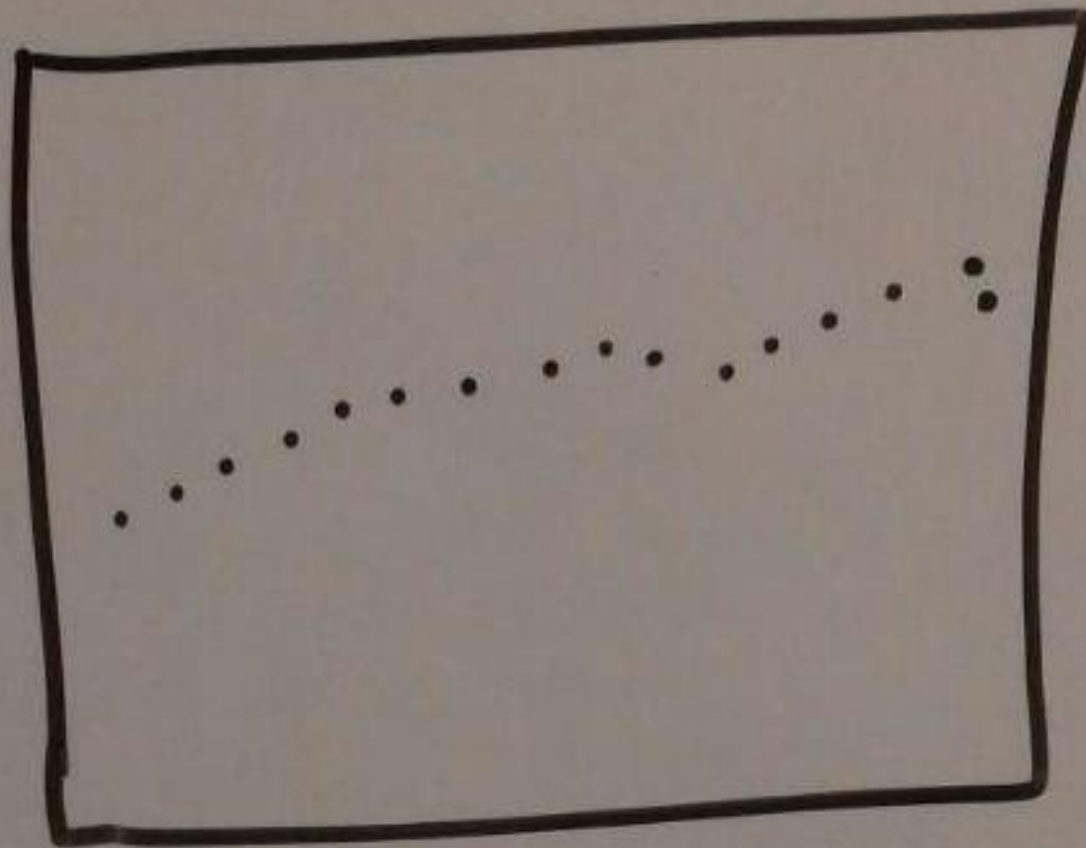


Dist to Sun

6

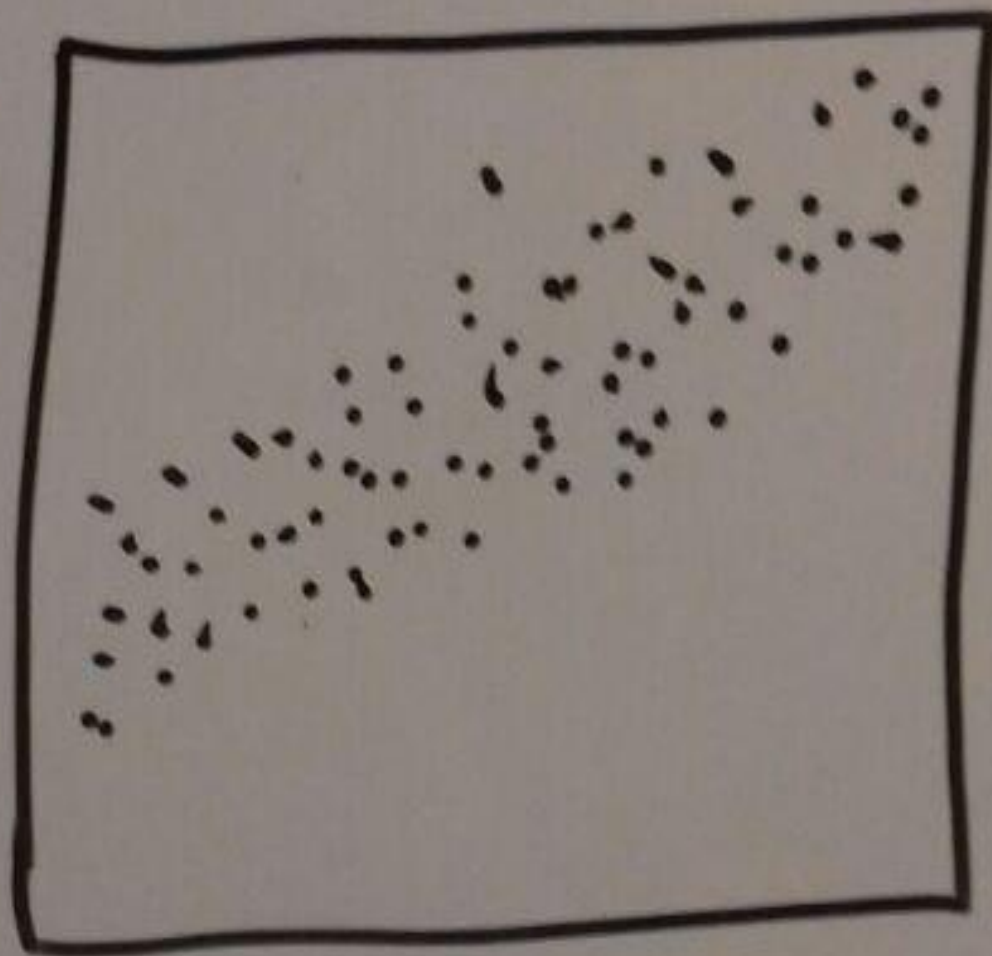
M2

Distance



Time

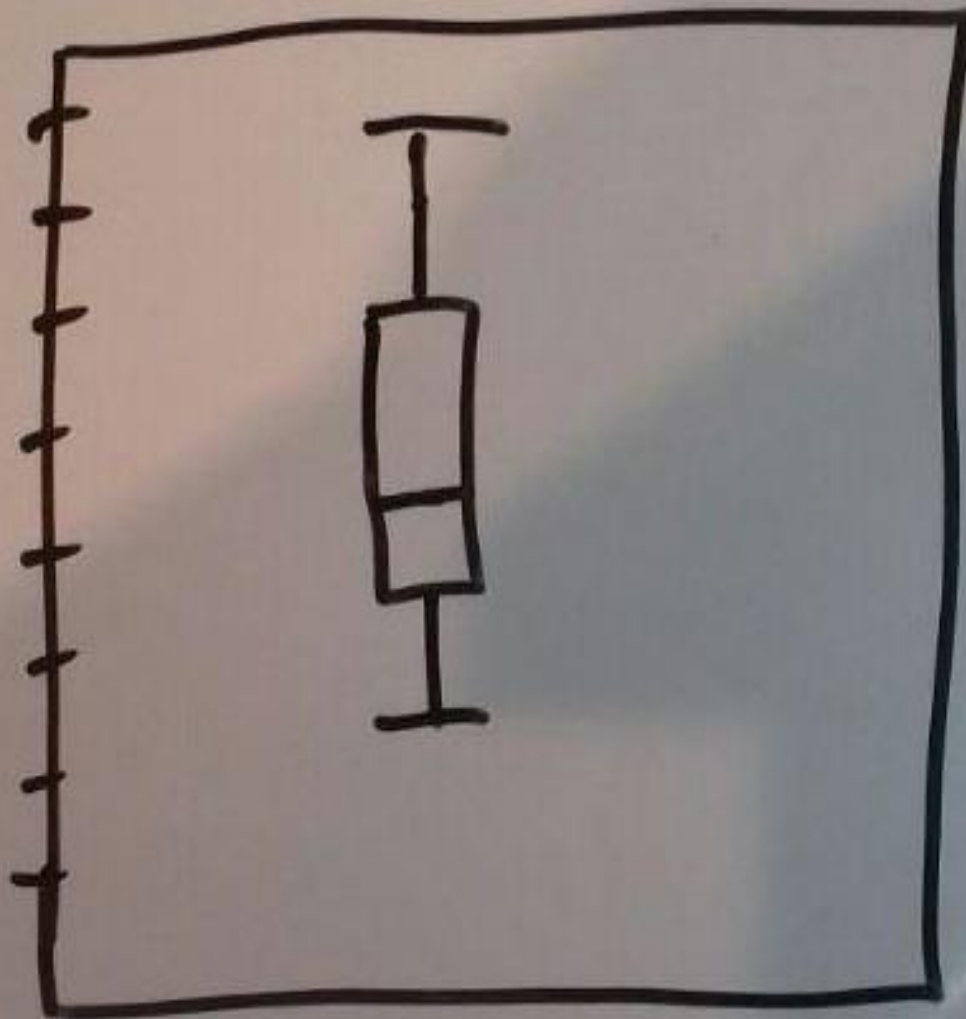
Correlation



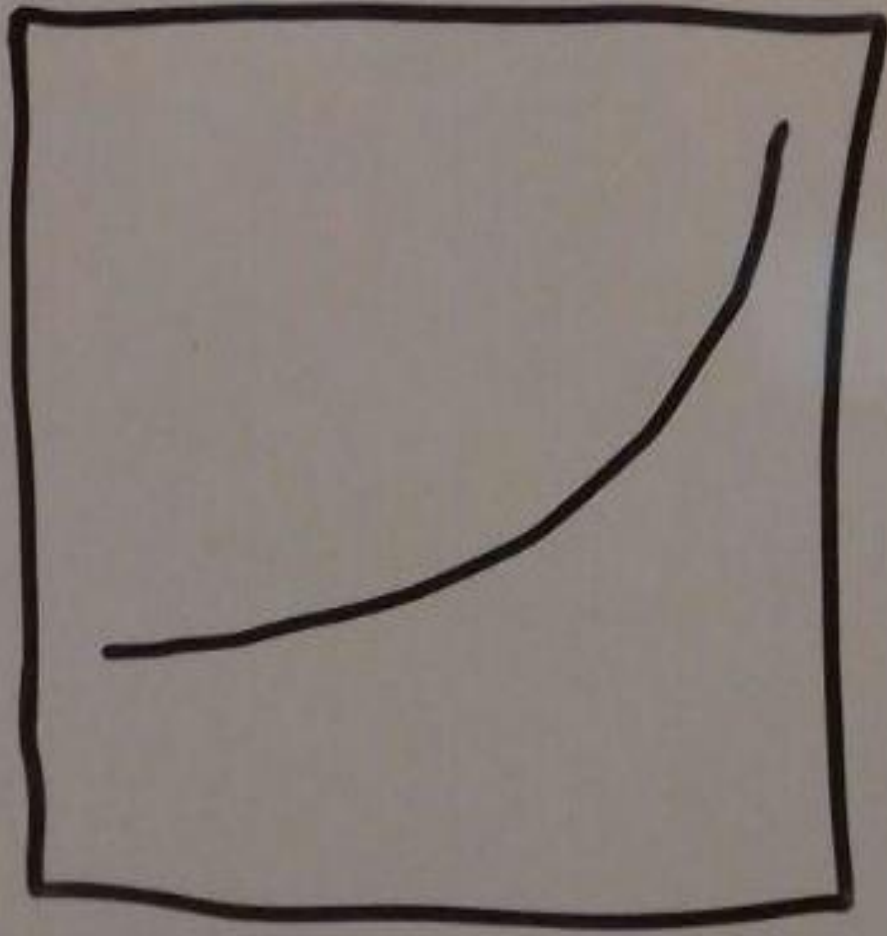
Parallax

8.

M2

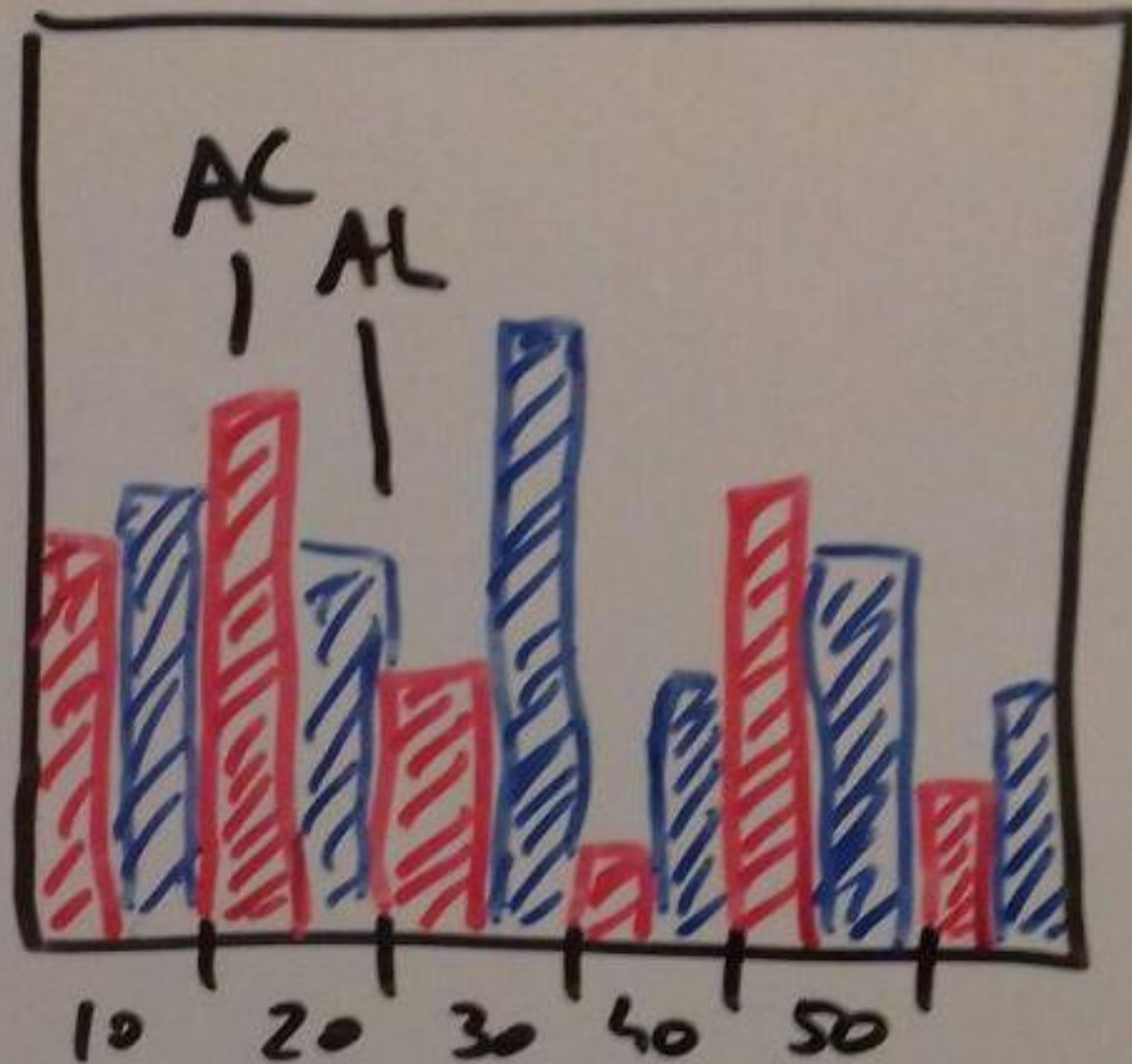


Error



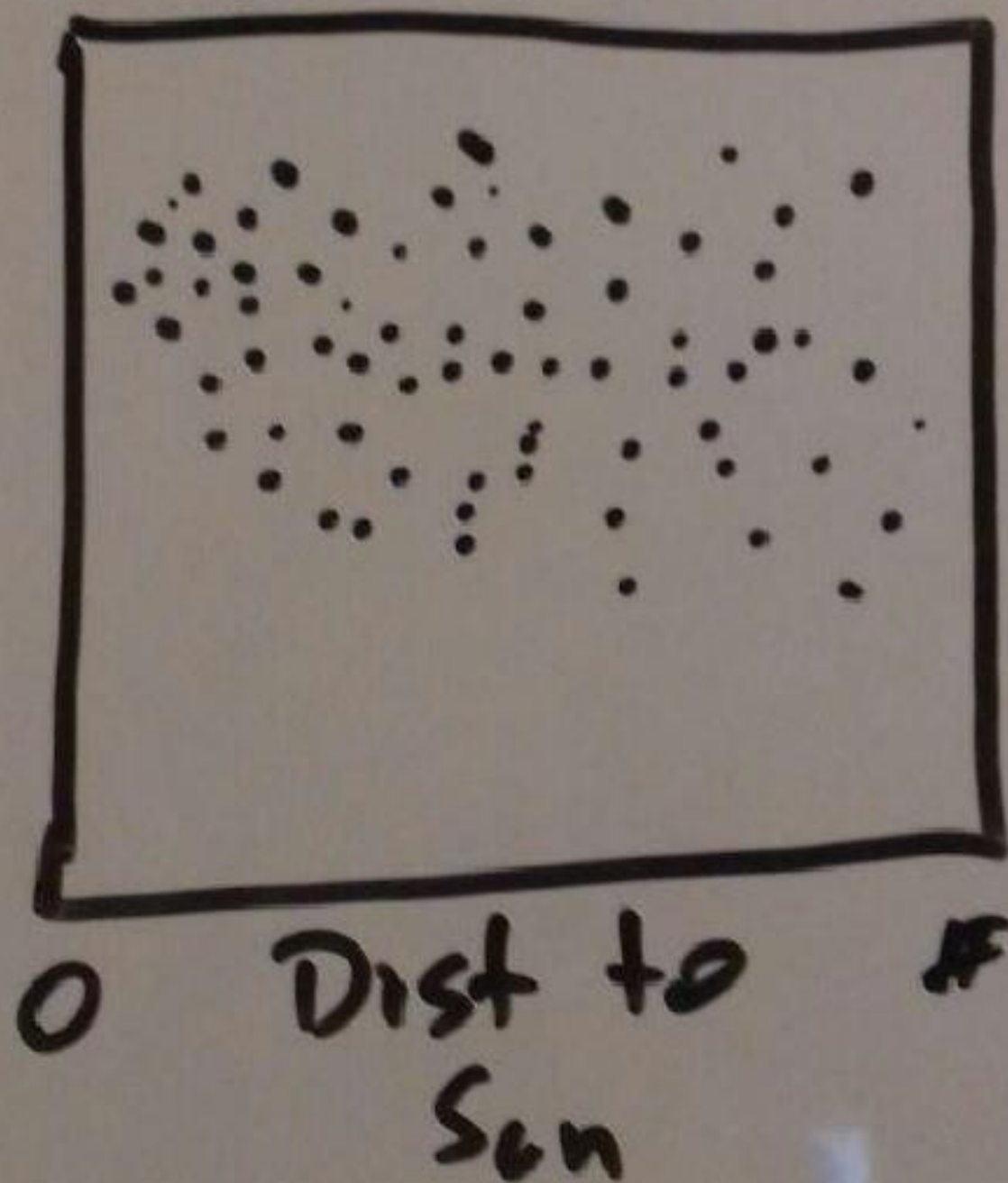
Velocity

Weight

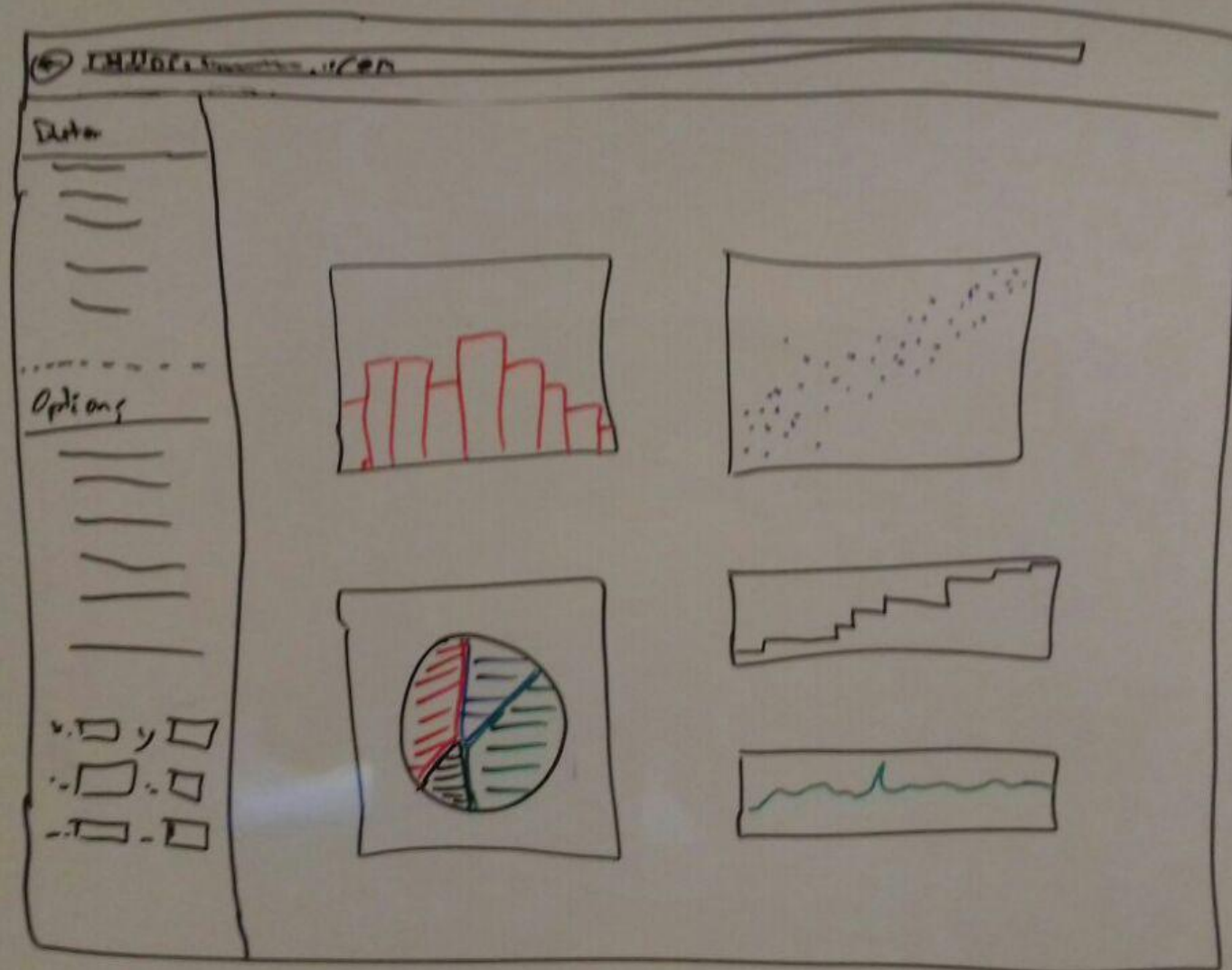


Clusters

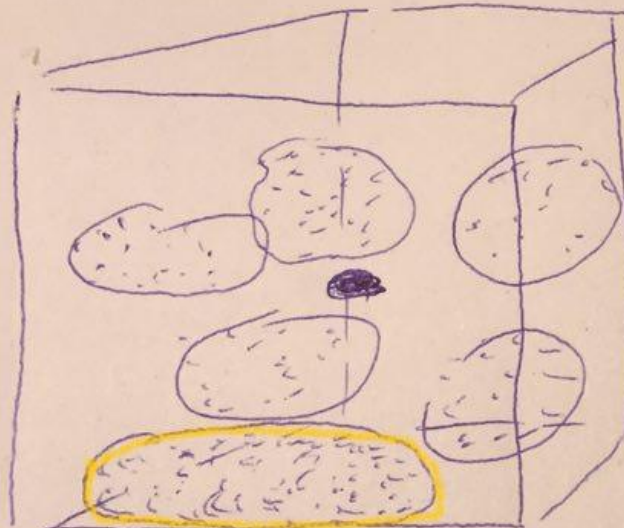
Number
of
Stars



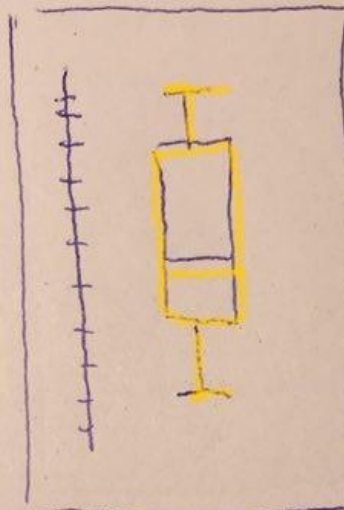
M2



One billion stars... (Dashboard 4)



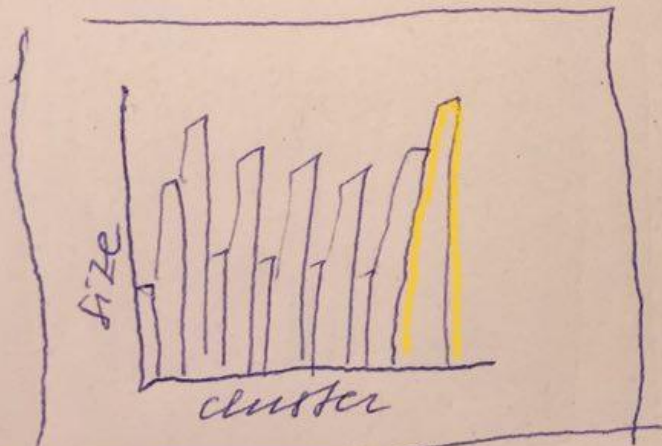
1. Stars clusters around sun



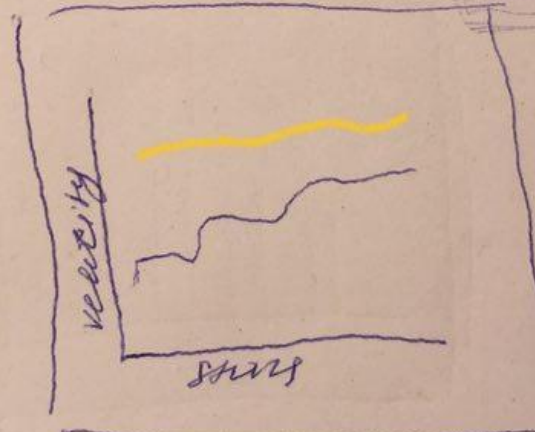
2. Stars of a specific cluster

New File
Load Data
Save
Save as
Help
About us

Data	Options
Name: ...	Add Plot
Entries:	Add Interaction
X Y Z E	Set scales: X Y Z



3. Size of specific star clusters



4. Velocities of stars in specific cluster



5. Weight

2 DISCOVERY OF NEW OBJECTS

1 APPEARANCE AND DEVELOPMENT
OF OUR GALAXY WITH THE HELP OF
A SURVEY OF STARS

3 DETAILED MAP

TASKS

M2/3

5 OVERVIEW OF THE DATA

4 EXISTENCE OF BLACK HOLES

M3

HI-FI PROTOTYPE

Data

Datasetname: Gaia Source

Rows: 64

Columns: 54

Options

Plottype:

☐ Scattermatrix

☐ Correlogram

☐ Histogram

☐ PCA

Data Value

solution_id ▾

#Bin ☐ 20 ▴ ▾

Multiple Data

solution_id ^

source_id

random_index

ref_epoch

ra ▾

Plot

Remove

Data-Plots

//TODO SCATTERMATRIX IMAGE1

//TODO SCATTERMATRIX IMAGE2

Data

Datasetname: Gaia Source

Rows: 64

Columns: 54

Options

Plottype:

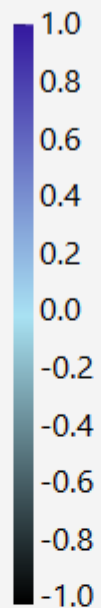
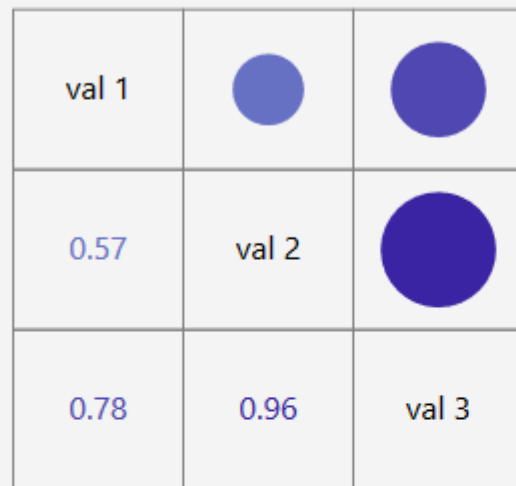
- ☐ Scattermatrix
- ☒ Correlogram
- ☐ Histogram
- ☐ PCA

Data Value
I#Bin ☒ 15Multiple Data
phot_g_mean_r
I
b
ecl_lon
ecl_lat

Plot

Remove

Data-Plots



Data

Datasetname: Gaia Source

Rows: 64

Columns: 54

Options

Plottype:

- ☐ Scattermatrix
- ☒ Correlogram
- ☐ Histogram
- ☐ PCA

Data Value |

#Bin ☒ 15

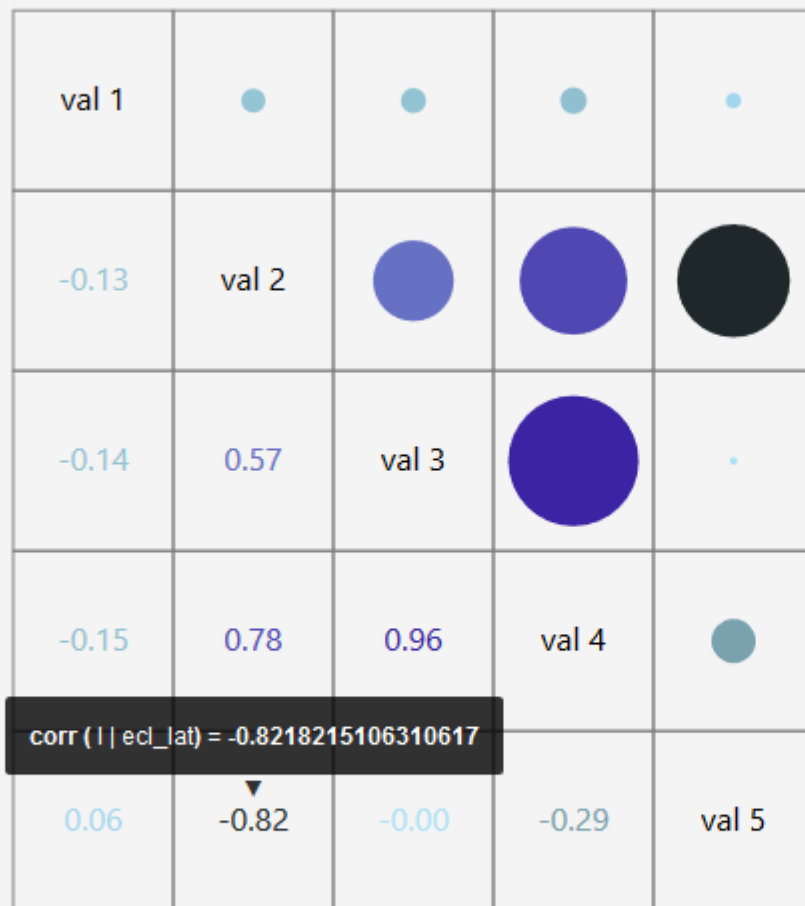
Multiple Data

phot_g_mean
l
b
ecl_lon
ecl_lat

Plot

Remove

Data-Plots



Data

Datasetname: Gaia Source

Rows: 64

Columns: 54

Options

Plottype:

- ☐ Scattermatrix
- ☒ Correlogram
- ☐ Histogram
- ☐ PCA

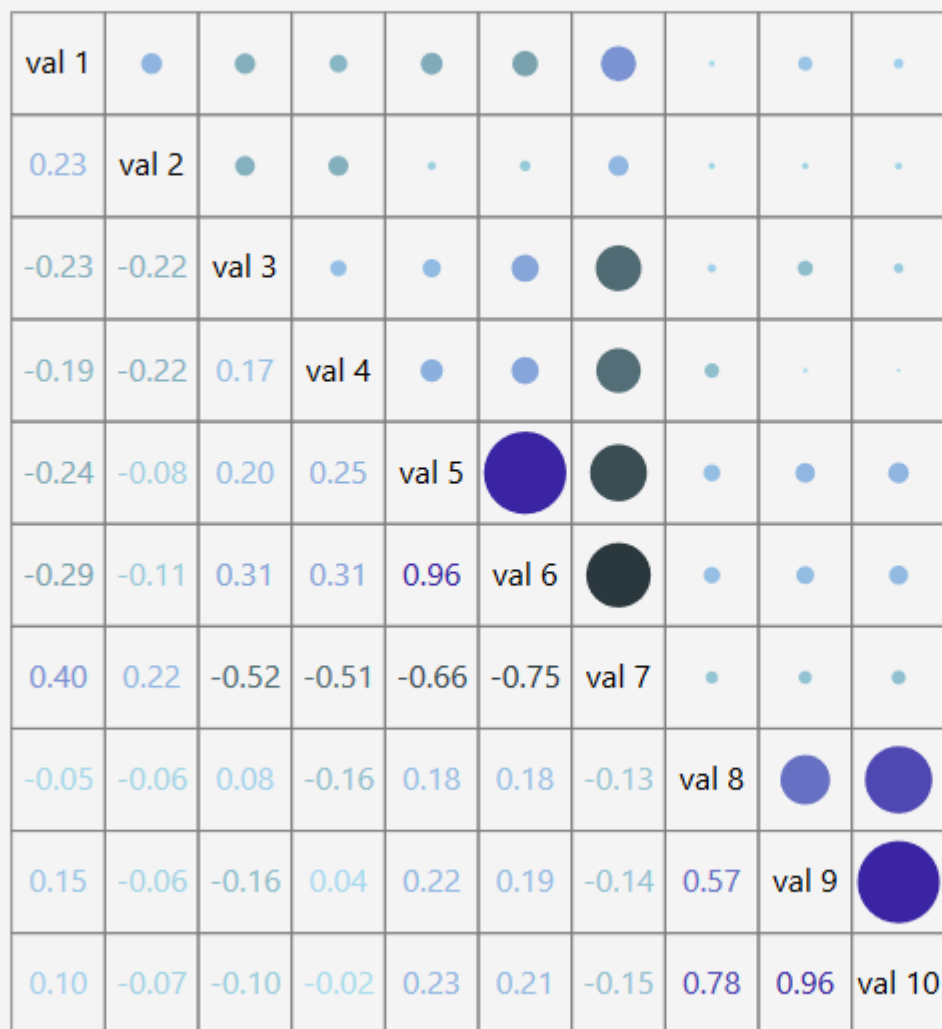
Data Value | ▾

#Bin ☒ 15 ▴ ▾Multiple Data
scan_direction_
scan_direction_
scan_direction_
scan_direction_
scan_direction_ ▾

Plot

Remove

Data-Plots



1.0

0.8

0.6

0.4

0.2

0.0

-0.2

-0.4

-0.6

-0.8

Data

Datasetname: Gaia Source

Rows: 64

Columns: 54

Options

Plottype:

☐ Scattermatrix

☐ Correlogram

☒ Histogram

☐ PCA

Data Value | ▾

#Bin ☒ 15 ▴ ▾

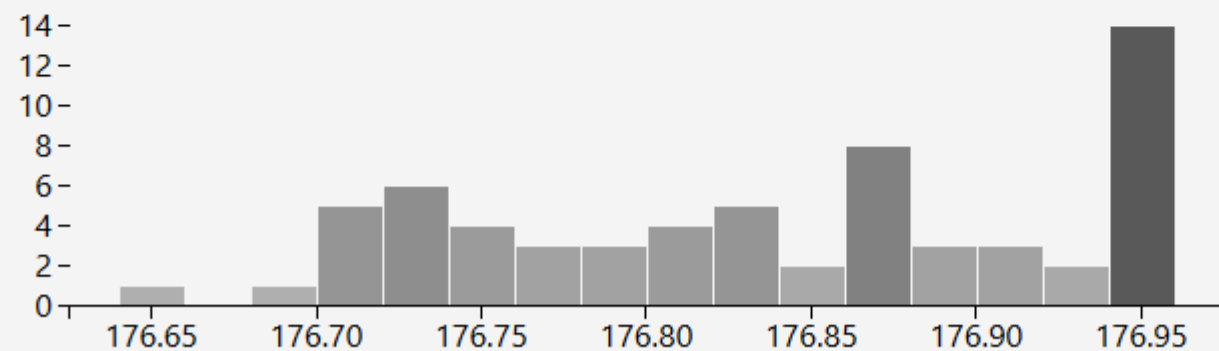
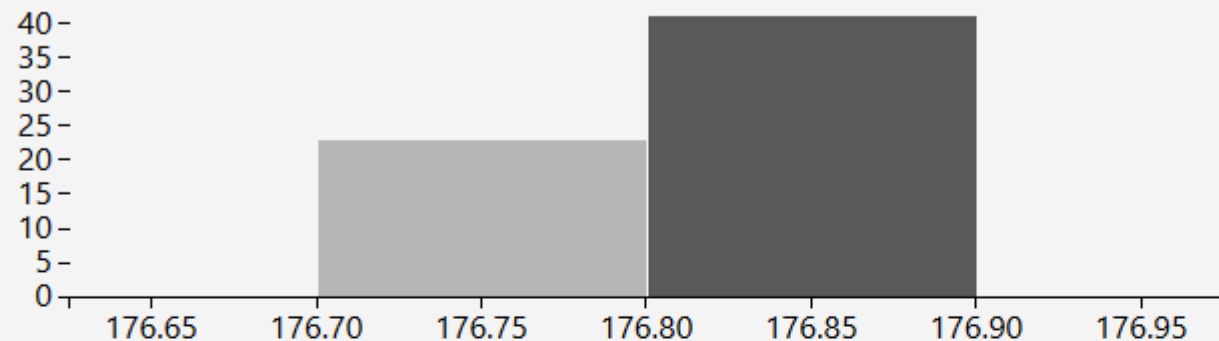
Multiple Data

astrometric_n_c
astrometric_n_b
astrometric_n_b
astrometric_del
astrometric_exc

Plot

Remove

Data-Plots



Data

Datasetname: Gaia Source

Rows: 64

Columns: 54

Options

Plottype:

☐ Scattermatrix
☐ Correlogram
☒ Histogram
☐ PCA

Data Value

scan_direction ▼

#Bin ☐ 5 ▲▼

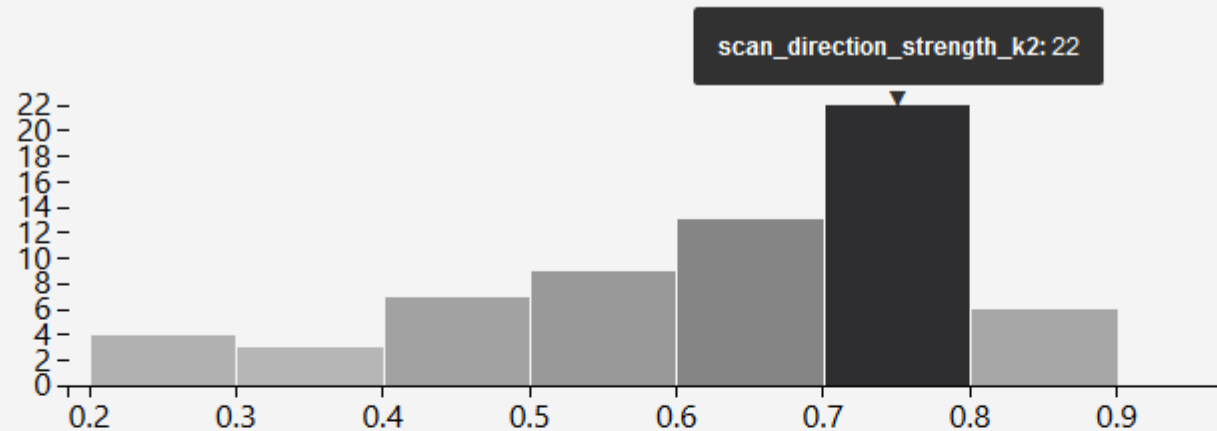
Multiple Data

solution_id
source_id
random_index
ref_epoch
ra ▲▼

Plot

Remove

Data-Plots



//TODO PCA IMAGE1

//TODO PCA IMAGE2

TECHNIQUES

- 1 TOOLTIPS
- 2 CORRELATION OVER
MULTIPLE VAR
- 3 FILTER
- 4 BRUSHING & LINKING

LITERATUR

1 [HTTP://WWWLAB.CS.UNIVIE.AC.AT/~A1368965/VIS17/](http://wwwlab.cs.univie.ac.at/~A1368965/vis17/)

2 [HTTP://SCI.ESA.INT/GAIA/58275-DATA-RELEASE-1](http://sci.esa.int/gaia/58275-data-release-1)

3 GOOGLE IMAGES

A vibrant, colorful nebula in space, featuring swirling clouds of gas in shades of blue, purple, pink, and orange. The background is a deep black, filled with numerous small, distant stars. The text "VIELEN DANK" is overlaid in the center in a bold, white, sans-serif font. A small, dark, spherical object is visible in the lower right quadrant of the image.

VIELEN DANK

A cosmic background featuring a dark space filled with numerous stars and vibrant nebulae. On the left, there are blue and purple nebulae. On the right, there are pink, red, and orange nebulae. The word "FRAGEN?" is centered in a bold, white, sans-serif font.

FRAGEN?