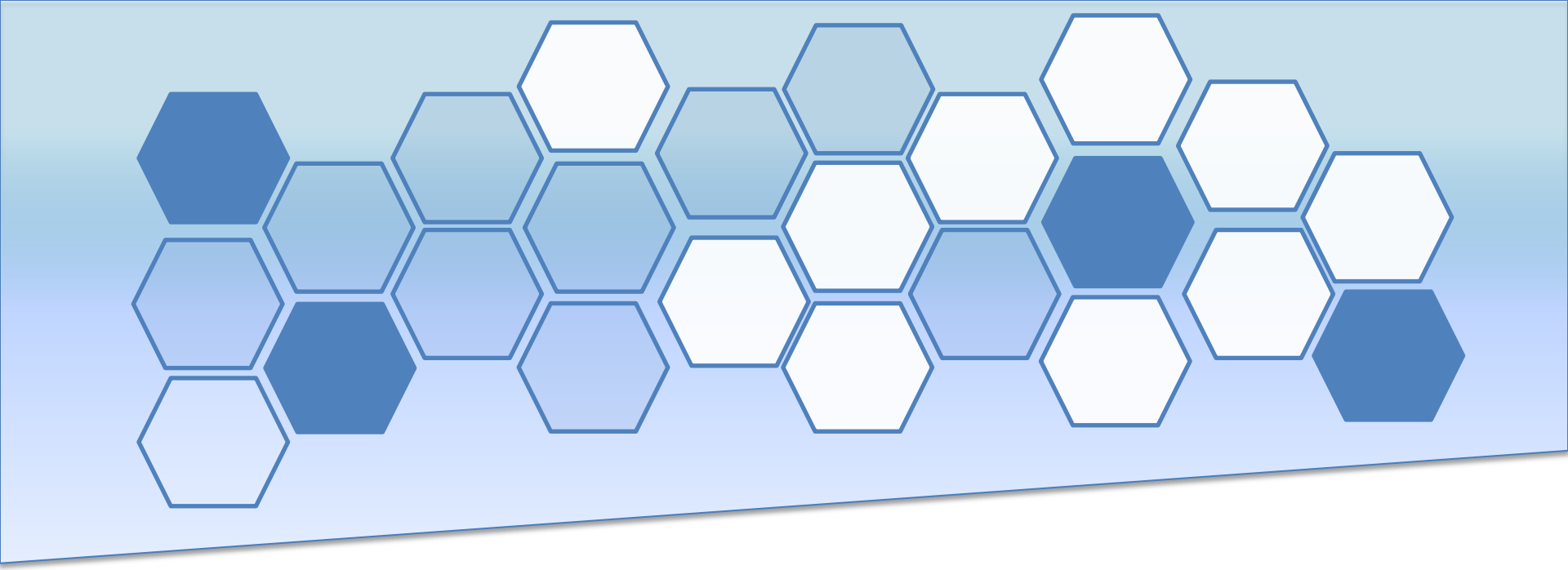


Web-Lar

First project results

Task assignements

Extension of the LAR.js and LAR-DEMO.js projects with convex cells	• Andrea Somma • Elisa Lamberti • Fabio Cumbo
Integration of the matrix computation web-service	• Fabrizio Rebecca • Luca Menichetti **(Group Leader)**
Integration of PDB visualization service	• Oscar Eijsermans

Extension of the LAR.js and LAR-DEMO.js projects with convex cells

Andrea Somma assigment: 1-A, 1-B
Elisa Lamberti and Fabio Cumbo assigment: 2-A, 2-B

Extension of the LAR.js and LAR-DEMO.js projects with convex cells

Description

Extension of the LAR.js and LAR_DEMO.js projects with convex cells

Summary

1. ***Implementation of the cartesian product function between convex cell***
   - Integration of the lar.js project with the ***larProduct*** function, which will allow to do the product between convex cells

2. ***Reimplementation of the "extract" function, generalizing it to make it work on cells with general shape***
   - Implementation of the ***larFacets*** function in the lar.js project, currently provided with an extraction function that works only on simplexes.

Extension of the LAR.js and LAR-DEMO.js projects with convex cells

Brief explanation

The lar.js wasn't provided of:

- **Cartesian product between convex cells**
- **Extract function**

Solution

So, the actual workflow for points 1 & 2 for today's demo was to:

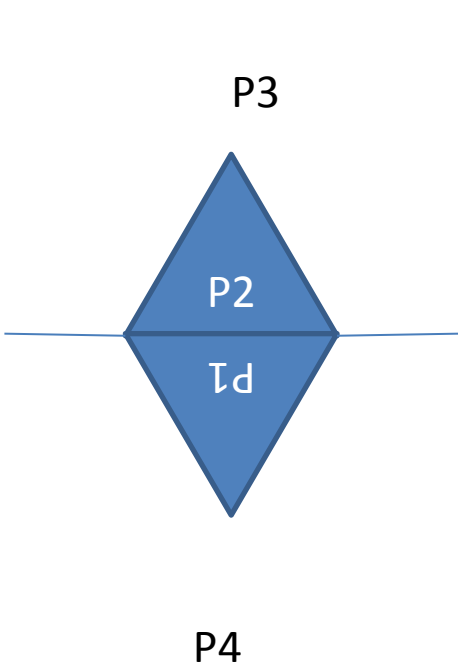
- ✓ **Implement the lar.py functions "larProduct" & "larFacets" using dense matrixes, in lar.js.**

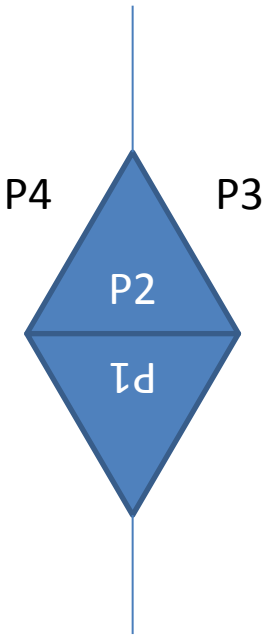
Actually, we have readapted those functions and we have implemented a "beta version", which works well with simple models.

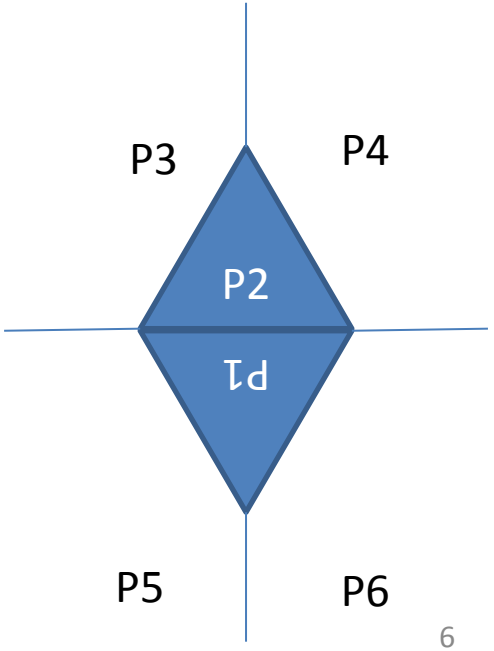
Extension of the LAR.js and LAR-DEMO.js projects with convex cells

To Do

- Other test and examples for Cartesian product
- External space partitioning for larFacets:
  How to do that? What the criteria?







Extension of the LAR.js and LAR-DEMO.js projects with convex cells

Integration of the matrix computation web-service

Fabrizio Rebecca assigment: communication
Luca Menichetti assigment: handler

Integration of the matrix computation web-service

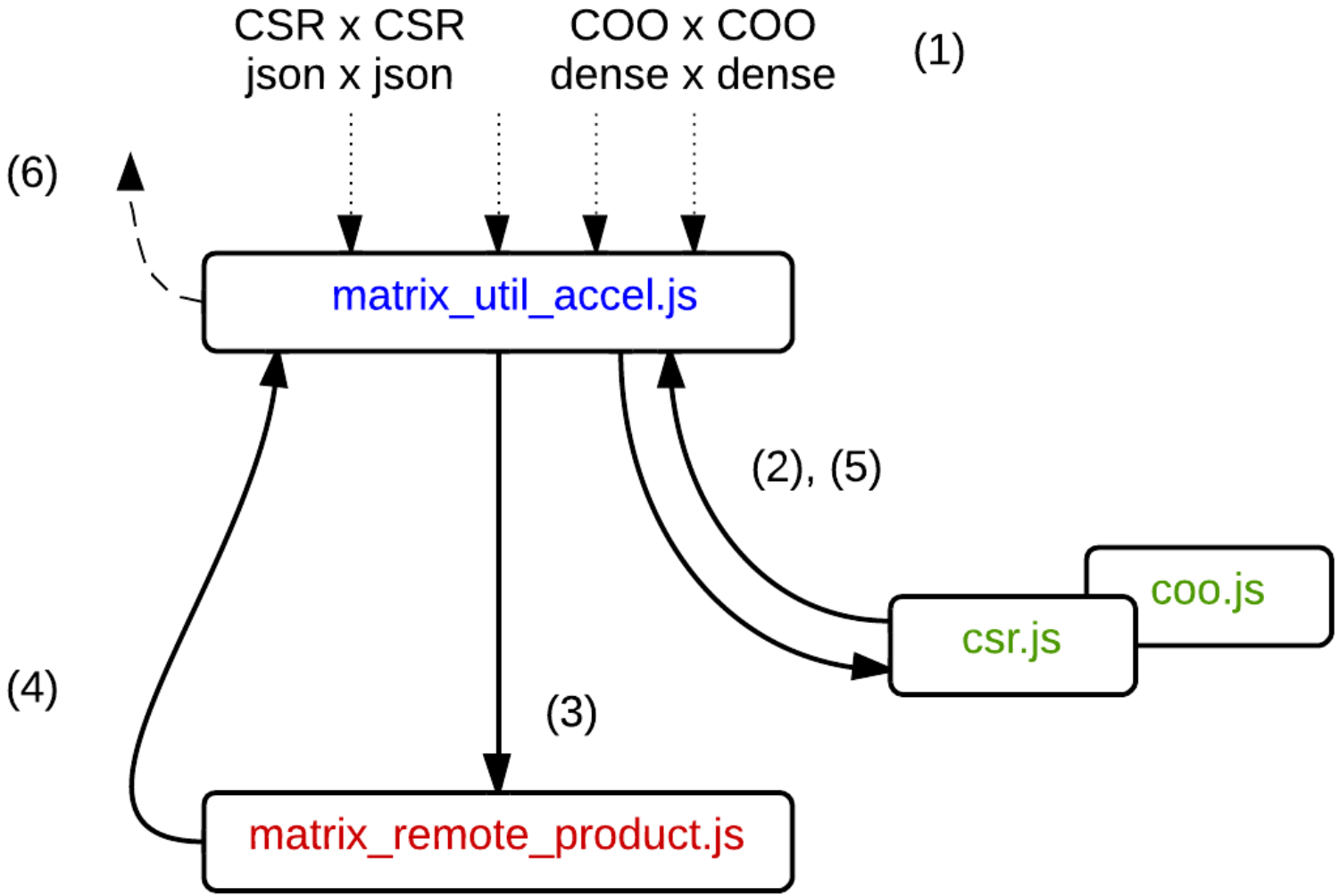
Description

Create a webservice that provides fast matrix operations on the network

Summary

1. ***Localization of code's sections that use matrix operations***
   - Replacement with a call to an external procedure (*interface*)
2. ***Creation of a proper layer that implements the computation of matrix's operation hiding the logic implementation***
   - Definition of a **matrix_util_accel.js** layer (responsable to handle format or encoding, such as csr, coo, json)
   - Realization of a HttpRrequest with the matrix computation webservice using Representational state transfer – REST – in the **matrix_remote_product.js** layer (This layer is also responsable to manage the answer, with an opportune decoding in order to satisfy the spefics)
3. ***Setup a web service that offers such operation online***
   - available with node.js;
   - acquisition of the request using REST;
   - executing the computations (OpenCL) and forwarding the results;
   - create a *domain name* in which will be available such services online

Integration of the matrix computation web-service



Integration of the matrix computation web-service

Integration of PDB visualization service

Oscar Eijsermans assigment

Integration of PDB visualization service

Description

Integration of WebMOL and WebPDB projects

Summary

1. ***Identify the structure and functionalities of WebPDB and WebMOL***
   - Data structure and communication protocols
2. ***Identify the connections between the two projects***
   - Make changes where necessary
3. ***Merge the two projects in one project***

Integration of PDB visualization service

WebMOL-WebPDB interaction:

- **step 1** - install CouchDB and Node.js
- **step 2** - install node modules and configure the database
- **step 3** - populate the database with proteins
- **step 4** - start the WebPDB rest service
- **step 5** - start WebMOL and input the id of the desired protein

Integration of PDB visualization service