



PROJECT MODULE FILE (IT DEPARTAMENT)

GROUP DAW2BIO

TITLE

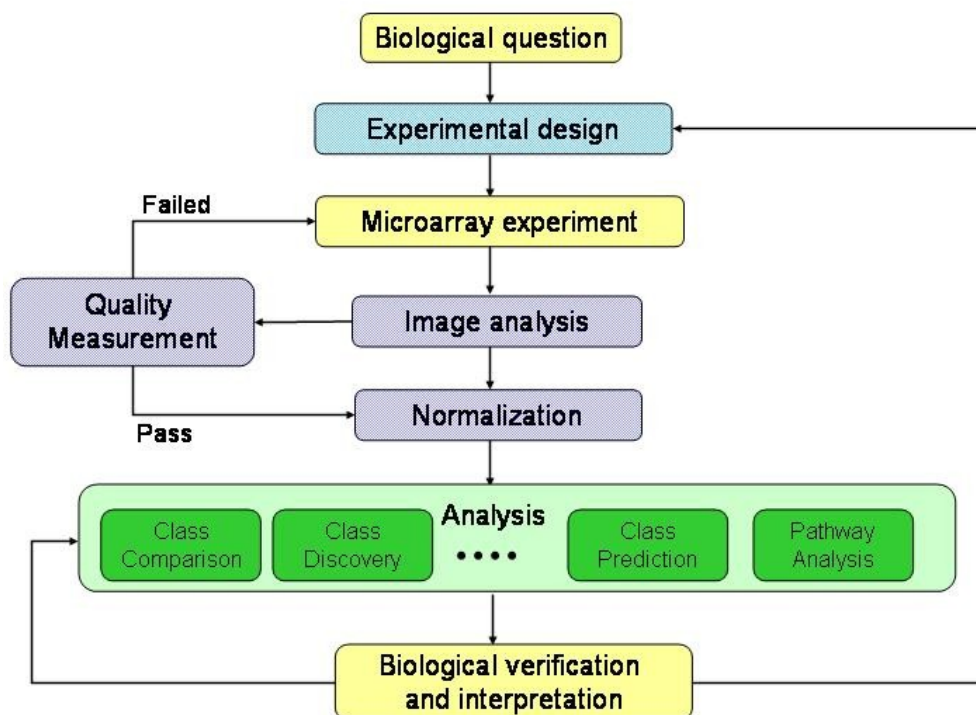
Microarrays: Analysis, normalization, quality measurement and gene expression

GROUP MEMBERS (The students' names that will develop the project)

Andrés Tenesaca Burgos
Pablo Sebastian Rodriguez

DESCRIPTION (Write in no more than 15 text lines the objectives of the project)

Continuing down the line of a prototypical pipeline in which microarrays are generally used, we want to focus our project in analyzing the gene expression of breast cancer cells in a recent experiment (GSE17636/E--GEOD--17636) through R scripts.



Our initial objective will focus among the lines of Image analysis, Normalization and Quality measurement, to finally reach the Analysis layer, for which we'll study differential gene expression, lineal-adjusted differential expression and hierarchical clustering

We'll express our results through and array of graphics options provided by Shiny package



MATERIALS REQUIRED AND TECHNICAL SPECIFICATIONS OF THE PROJECT

FUNCTIONAL REQUIREMENTS

(Draft version: it is a first version to specify all functionalities and their results, as well as the profile users who may run each functionality)

RF1. USER MANAGEMENT: as an administrator I want to manage DDBB tables that contains clients and biologic analysis 'users who can log in to the web page **Level: High.**

RF1.1 Create new user creation of users of two different types: clients or researcher. **Level: high.**

RF1.2 Modify user modify username or password of existing user. **Level: low**

RF1.3 Delete user delete user who already exists. **Level: medium**

RF2. DDBB MANAGEMENT as a researcher I want to manage DDBB tables that contains .cel files data and treat microarrays **Level: High**

RF2.1 Create table creation of the table that will contain micro array data. **Level: high.**

RF2.2 Modify table modification of tables. **Level: low.**

RF2.3 Delete table elimination of tables in case client doesn't want to continue with analysis or use it for further research. **Level: medium.**

RF3. .CEL MANAGEMENT as a researcher I want to manage .cel data files, microarrays and results graphics **Level: high.**

RF3.1 Reading data procedures to treat data in .cel files already stored or to be store. **Level: high.**

RF4. CLIENT MANAGEMENT as a client I want to log in and upload .cell files. **Level: high**

RF4.1 upload file upload file through our page. **Level: high.**

Rf5. DATA MANAGEMENT as a researcher I want to manage data of tables to show data in legible format; do tests of gene expressions and get graphical data. **Level: high**

RF5.1 add data chance to add new data in DDBB tables **Level: high.**

RF5.2 Visualize data visualize data through graphics or web page table. **Level: high.**

(NOTE: as a result of your initial interviews with the clients, you may use whatever you consider necessary in order to clarify what the client precisely wants: diagram, graphic, description, etc)

NON-FUNCTIONAL REQUIREMENTS

Back-end: apache, php (laravel)

Front-end: HTML, Bootstrap

DDBB management: phpmyadmin, MySQL

Data management: R and other R-related packages (like BioConductor)

Graphics: Shiny

Ubuntu Server



MOCKUPS OR WIREFRAMES

Login Page

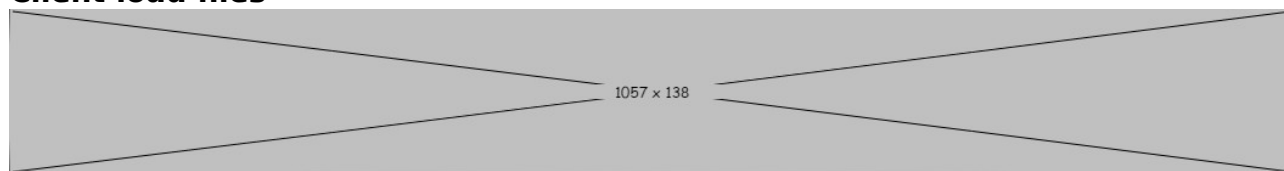
A wireframe for a login page. It features a blue circular button at the top with the text "Log in user". Below it are two rectangular input fields: the first is labeled "text" and the second is filled with asterisks "*****". At the bottom is a gray rectangular button labeled "Log in".

Index client page - About us

A wireframe for an "About us" page. The main content area is a large gray rectangle with a width of 1063 and a height of 138. Below this area are two dark gray buttons labeled "About us" and "Upload". Centered below the buttons is a square placeholder with a width and height of 100 x 100. Below the placeholder is a large rectangular box containing two paragraphs of Lorem Ipsum text. The first paragraph is: "Lorem ipsum dolor sit amet, consectetur adipiscing elit. Proin ac est vitae ex auctor tincidunt. Integer eget leo bibendum, varius neque sit amet, convallis ex. Suspendisse in laoreet elit, sit amet malesuada sem. Donec sed erat a libero euismod egestas egestas et dui. Aliquam ut magna sed odio feugiat auctor. Praesent finibus quam odio, ac mollis lorem ultrices nec. Morbi sit amet lobortis nulla. Donec bibendum, justo eget scelerisque tempor, tellus nisi dapibus purus, ut luctus urna ex quis sem. Fusce egestas massa mi. Maecenas ut risus nisl. Nullam tristique elit non tortor venenatis, sit amet condimentum libero eleifend." The second paragraph is: "Morbi ac dictum velit. Praesent non nisl sodales, cursus lectus ut, maximus nisl. Aliquam sit amet neque non ipsum dictum scelerisque. Sed bibendum, eros id accumsan rhoncus, elit ex ultrices velit, eu dignissim odio magna non erat. Integer euismod efficitur neque, ac semper felis hendrerit ac. Vestibulum venenatis sit amet nibh id ultricies. Nunc quis magna eget mi posuere sodales sed non enim. Morbi iaculis mauris in tortor tempor faucibus. Ut in sapien nec est imperdiet scelerisque ut non magna. Etiam a malesuada tortor. Suspendisse odio nisi, suscipit id aliquam sed, suscipit et augue." The bottom of the page features a gray footer bar with the word "Footer" centered.



Client load files



About us

Upload

Name

Surname

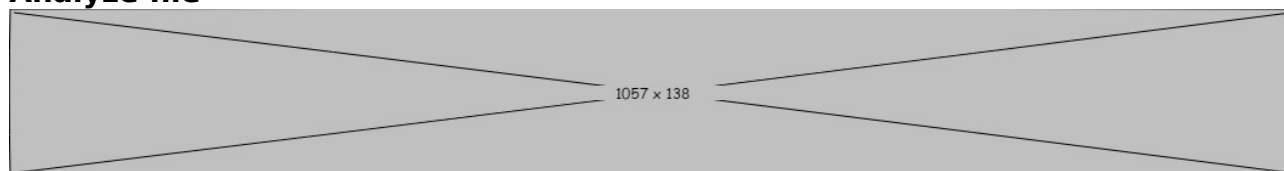
E-mail

Description

Upload file

Footer

Analyze file



Analyze data

Compare data

Select a file:

Select

Cancel

Options:

- ☐ Retrieving intensities
- ☐ Retrieving annotations
- ☐ Create plots to asses quality
- ☐ Calculate quality measures to assess quality

Futher options...

Footer



Compare files

1057 × 138

Analyze data

Compare data

Select a file:

Select

Cancel

Select a file:

Select

Cancel

Graphic

Graphic

Footer