



## Master project 2024-2025

### Personal Information

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### Project

## Web development & bioinformatic tools

#### Project Title:

Integrative QC and Variant Navigation Interface: Enhancing Laboratory Efficiency and Clinical Interpretation

#### Keywords:

mongodb, mysql, django, NGS, genomics

#### Summary:

The project aims to create an internal web interface application to enhance Quality Control (QC) processes and facilitate navigation through genetic variant data. This includes integrating information from two main databases: the Laboratory Information Management System (qLims) stored in MySQL, and the genetic variants database (qVariants) stored in MongoDB. Key features include: - QC Monitoring: Wet-lab managers can visualize a panel displaying the evolution of various QC parameters. This enables them to anticipate changing trends and make informed decisions about sequencing planning. - Navigation for Clinical Interpretation: Members of the clinical interpretation department can navigate through variants, genes, samples, and analyses within the genetic variants database. They will have access to frequencies, clinical interpretations, and other relevant information related to genetic variations observed historically within the company. This functionality will provide them with comprehensive tools for their interpretation tasks. The application will be developed using Django, a high-level Python web framework. Additionally, depending on the candidate and project outcomes, machine learning methods may be implemented to predict hidden trends in QC sequencing metrics. This would further enhance the application's functionality by alerting wet-lab managers to potential issues, enabling proactive planning and decision-making.

#### Expected skills:

computational background, self-management, problem solving, communication, team work

#### Possibility of funding:

To be discussed

#### Possible continuity with PhD:

No

#### Comments:

The lab is located at Esplugues de Llobregat and there's possibility of hybrid work model.