University of Edinburgh

Job Description Template

SBSC23R

1. Job Details

Job title: Scientific Programmer – System Administrator
School / Support Department: School of Biological Sciences
Unit (if applicable): Institute of Evolutionary Biology
Line Manager: Principal Investigator (Award holder)

2. Job Purpose

Complete maintenance of existing QTL Express system. Design and implementation of GridQTL portal including re-factoring of all QTL Express servlets to work on the UK e-science grid.

3. Main Responsibilities

The complete maintenance of the existing QTL Express web server farm, including hardware, system administration and QTL analysis algorithm upgrades/changes to ensure the continued existence of an international QTL analysis web resource. (10%)

Initiate a QTL Express portal with responsibility for the choice of framework technology for portal/portlet creation, and including local installation and on-going administration/maintenance. (20%)

Refactor the existing servlets as portlets and utilize the existing web farm hardware installation in order to create a portal test bed for the new portlets (GridQTL) prior to hosting on the UK e-science grid (National Grid Service). (60%)

Produce all documentation including on-line user guides covering all aspects of use, answer on-line queries, set up a FAQ of common queries and possibly set up an on-line forum for expertise exchange ensuring high quality user support for GridQTL. (5%)

Supervise the IEB programmer responsible for programming new modules for data reduction, variance components analysis and multi-trait analysis for direct incorporation into GridQTL to provide support and expertise in scientific programming. (5%)

4. Planning and Organising

Design the new portal version of QTL Express (including user interface). This will be an ongoing process of improvement as user and GridQTL group member feedback will be taken into account with respect to re-factoring the portal.

Design a standard data schema for passing information to/from other web/grid services and integrate collaborators’ 3rd party portlets into GridQTL. This will take place mid to late project as the first priority is to produce a working grid-based Portal albeit at a basic level.

Respond to QTL Express/GridQTL users queries regarding its use and to any potential problems/bugs. Initially response will be to a chosen local set of testers however, towards the end of the project GridQTL should be open to an international user base.

5. Problem Solving

Installation, integration and administration of a number of complex software resources such that they work seamlessly to provide an easy to use web-based QTL analysis system. This involves creating a test-bed for the GridQTL Portal, installing & testing system software components and replacing them if they prove to be either unsuitable or unstable, programming JSR168 compliant portlets for data input/output/analysis/manipulation as required. Dealing with problems resultant from re-factoring servlets to a combination of portlets and java applications, e.g. how to pass the parameters between portlets and applications that would normally be passed between the existing servlets as web-page parameters.

6. Decision Making

What the best combination of software components for complete system is (see 5. Problem Solving).

What the best hardware configuration for system is.

What the best programming method to solve a problem is.
7. **Key Contacts / Relationships**
Liaise with the programmers at National e-Science Centre (NeSc) regarding installation of all re-factored portlet modules and new analysis modules onto the grid with responsibility for ensuring the high standard & compatibility of code produced at IEB. Liaise with the post doctoral researchers, programmer and grant holders at IEB and Roslin Institute with respect to the integration of new numerical methods. Negotiate with NeSc and Roslin staff the best software implementation possible for QTL analysis from the quantitative genetics/biological researcher viewpoint, providing project-wide guidance for an integrated solution.

8. **Knowledge, Skills and Experience needed for the Job**
Linux administration, web server administration, Java programming, numerical analysis expertise, web page (HTML) production, project management and understanding of quantitative genetics.

9. **Dimensions**
One member of staff directly reports to the job holder.
Five members of staff are directly affected by this job, many others through the use of QTL Express for research.
Fifteen M.Sc. students, five PhD students and visitors are affected by this job through the use of QTL Express for teaching.
Over one hundred different users per annum use QTL Express, which is provided as a free international resource for QTL analysis (During March to April 2006, 165000 successful requests from 47 distinct countries).

10. **Job context and any other relevant information**
not applicable.