Gidre : Genome Integrated Databases Retrieval Environment

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Abstract

This paper presents an overview of Gidre : Genome Integrated Database Retrieval Environment. Gidre provides biological researchers with facilities to access information of interest. Gidre allows users to refer easily to various genome databases and to execute many useful genome applications with a pointing device by its graphical user interfaces. And we adopted a 'client/server' mechanism as Gidre's model. With its flexible structure we can expand easily Gidre's functions and components. Now it operates on Sun workstations.

1 Introduction

The Human Genome Center's objectives are to develop useful softwares and integrated genome database systems, to make them to be available to biologists, and to provide public network database services on the GenomeNet. Although many sites hold similar network services, most of them are equipped with character-based user interfaces and do not supply enough information about services. Genome researchers need and want to utilize a huge amount of data accumulated ever by genome projects in order to extract biological information and examine data obtained during their experiments. To make these data to be more useful, it is necessary to integrate all databases managed separately. At integration of databases, we consider that following points are necessary for genome database service. These are: (1)To keep all public data up to date. (2)To inform users what tools and functions are available to them (3)To provide user with friendly and plain interfaces.

2 Integration of Databases

At present there are two approaches to integrate genome databases. One is tight integration and the other is loose integration of databases. We select the later approach. In the approach, integration of databases is achieved at a user interface layer and a function management layer. Although each database and tool are managed independently in loose integration, with the common user interface users can move from a database to another database smoothly. This approach has advantages in expansibility and flexibility when a scheme of an existing database is modified or a new database is created and integrated. Nowadays many useful programs and databases are being developed and distributed. It is important to make them to be available immediately to users.

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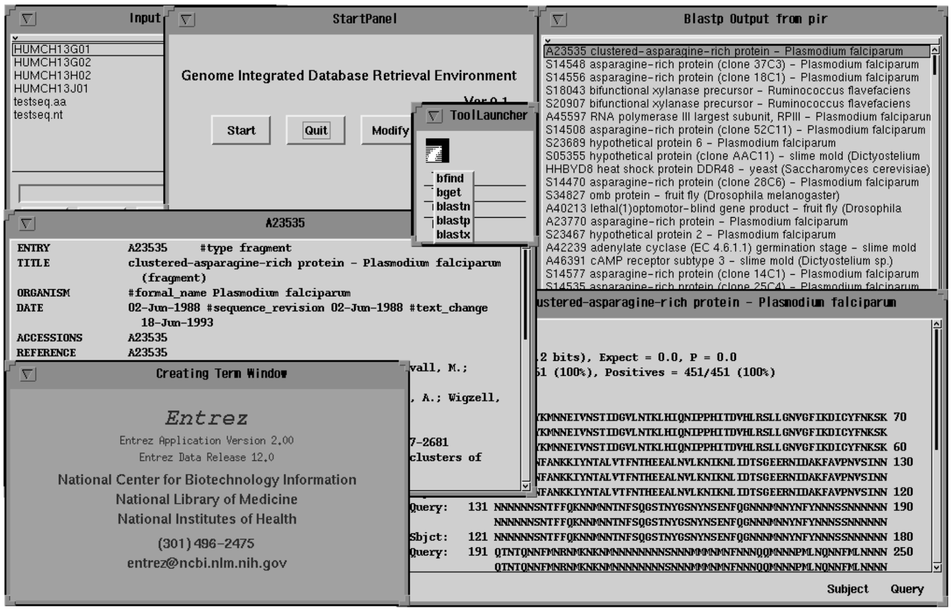

Figure 1: The screen image of Gidre

3 System and Functions

Gidre has been developed and operates on SUN SPARCstation under SunOS 4.1.3-JLE1.1.3 with X-window V11R5 system and Motif library. The Gidre system is composed of three modules: daemon, server and client modules. Basal functions of Gidre are similar to those of command interpreters like a shell program of UNIX.

When a user starts a client of Gidre and connect to a server of Gidre on a service site (e.g., the Human Genome Center), the client loads a menu bar in which all programs are registered from the server. And only by selecting one of them, he or she can start it. Users' requests are transferred to the service site, and the returned answers from the server are displayed on the client windows. Then only by selecting a word in the client window displaying the answer of the previous request, a related request, like cross-reference or detail-reference, is transferred to the service site.

Currently the following programs are registered in Gidre : ENTREZ, DBget which are data retrieval programs and Blast homology search programs.

4 Conclusions

Gidre can support both character-based and window-based programs for biological analysis. In addition, we keep genome databases on our site up to date. We will start a new network service with Gidre in the next spring.

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