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Distrubuted web application for human resources administration

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Thesis Purpose

The purpose of this thesis is designing and creating a distributed Web application, which will concentrate, classify and automate the activities and workflow processes in a Temporary Staffing Agency.

The Temporary Staffing Agencies are labor market intermediaries, meeting the needs of client companies for finding employees with the appropriate qualification for a certain period of time. This service is offered to companies, which have decided to outsource the employment activities to an external organization.

The goal is to create a working product, which:

- is capable of servicing a high number of users and groups (companies and their affiliates)
- is flexible enough to allow implementing add-ons to the offered functionality, according to prospective legislation changes, as well as the company's scope of business expansion;
- allows the management bodies to access versatile reports in real time;
- consolidates and systemizes detailed information about the staff, salaries, insurance payments and other data;
- enforces control over the activities of the personnel processing the staffing data.

Advantages

Such a solution for workflow optimization gives the following advantages:

- improves the efficincy of the workflow activities;
- automation of the time consuming activities such as staff employment, management and communication between the company and its clients;
- focus on the main business objectives and offer value-added services

The development of such a product is prospective and attracts interest, because the temporary staffing services are among the most rapidly developing in the recent years, while the currently existing software for human resource management and staffing is in most cases outdated and does not cover completely the specific requirements of the staffing industry.

Architecture

An tiered object oriented model is used for the program architecture. Delphi is chosen as the development language, using the integrated Borland Delphi 5.0 environment. The reason for this is its very good functionality for developing Internet-oriented applications, its speed, performance, reliability as well as the extensive support of various databases. The communication with the web server (Internet Information Server) is performed through ISAPI (Internet Information Server Application Programming Interface) Microsoft Technology, which allows the dynamic building of DLL compiled code into the server.

In the development of the application the MFC Document/Presentation model is used. This separation divides into separate architectural tiers the data storage, business rules, as well as the principles of the information presentation, resulting from the above two. The separation of the data presentation and the data itself allows to control the process of the system expansion. The applications can offer informational services using XML to describe the structure, presentation and transport of information.

One of the major advantages of the application is its scalability allowing for the distribution of the workload among two or more servers. The substantial part of the routines is carried on DCOM components. Among these are:

- DCOM server realizing the database connectivity, which works with a pool of opened database connections and query queues;

- DCOM server for XSL transformations;

- Jabber DCOM server which manages the chat sessions of the active subscribers on the real-time messaging module, which the system offers;

- DCOM server which authenticates the subscribers, stores the online user sessions and authorizes their access permissions;

The application allows the creation of an unlimited amount of user roles, which inherit the permissions of some of the basic roles – administrator, observer, employee, supervisor, etc. The access to certain resources can be managed on a role and group level.

Currently the basic functionality comprises the storage, approval and invoicing of the worked hours and expense statements, project and task management, as well as the accounting of the insurances and IRA contributions.

Add-on system modules are the one for offline message exchange, the option for defining mail templates, which could be sent to the system users upon the execution of certain events, as well as the live chat support.

Conclusion

The application features a flexible, intuitive and user-friendly interface and covers the major goals in terms of functionality and performance. At the current moment the application is used for servicing the business purposes of two companies, one of which offers commercial temporary staffing services. Despite the basic implementation of some modules and the need to further create new ones, the application has been already accepted, which forms the grounds for its future enhancements and development.