Erasmusline:
Executive Information System

2010 / 2011

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Acknowledgments

Abstract

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Glossary

MySQL A popular, generally available Open Source Relational Database Management System.

UTF8 A multibyte character encoding for Unicode. It has a wide range of characters in which all European characters are included.

Plonk An open source PHP Library developed by Bramus Vandamme, implementing the Model-View-Controller design architecture.

MVC (Model View Controller) A software architecture to separate the logical code apart from the layout (view), the data management (model) and the business Workflow (controller).

cURL A short version for "Client for URL". Developed 1997 by Daniel Stenberg and open source under the MIT – Licence.

JSON (JavaScript Object Notation) A text based standard design for data interchange, used initially on Javascript code and spread to other technologies due to it's lightweight syntax.

3DES (Triple Data Encryption Standard) The application of the Data Encryption Standard algorithm three times on target data blocks, making it harder to brute force hacking attempts.

HTTPS The encrypted form of the Hypertext Transfer Protocol used on websites.

ODS An operational data store is a database designed to integrate data from multiple sources for additional operations on the data.

DW A Data Warehouse is a database used for statistical and reporting purposes.

OLAP (Online Analytical Processing) Interactive analysis of data that has been transformed from raw (operational) data into understandable enterprise-wide data.

Objective Tangent goals the EIS is trying to demonstrate and are later translated to KPI's.

KPI (Key Performance Indicator) Statistical value that indicates progress or predicts future progress of a business process.

Dimension A dimension is a structural attribute acting as an index for identifying measures within a multidimensional data model. A dimension is basically a domain, which may be possibly partitioned into an hierarchy of levels. For example, in the context of selling goods, possible dimensions are product, time, and geography; chosen dimension levels may be Product category, Month, and District.

Measure A measure is a point into the multidimensional space. A measure is identified if for each dimension a single value is selected. For example, a "sales volume" measure is identified by giving a specific product, a specific sale time, and a specific location.

Drill-Down The navigation among levels of data raging from higher level summary (up) to lower level summary or detailed data (down). The drilling paths may be defined by the hierarchies within dimensions or other relationships that may be dynamic within or between dimensions. An example query is: for a particular product category, find detailed sales data for each office by date.

Roll-Up The querying for summarized data. Aggregation involves computing the data relationships (according to attribute hierarchy within dimensions or to cross-dimensional formulas) for one or more dimensions. For example, sales offices can be rolled-up to districts and districts rolled-up to regions; the user may be interested in total sales or percent-to-total.

Slice and Dice The process employed by users to explore and query multidimensional information within a OLAP cube interactively.

ETL(Extract,Transform,Load) Techniques used to integrate data from heterogeneous data sources into another data store.

Data Refreshment Plan Rules and guidelines to integrate information into the Data Warehouse.

SSD Solid State Drives are disk drives that can be accessed like a conventional Hard Drive but instead of electro-magnetized metal plates, SSD's use microchips to store information, like a conventional USB disk pen.

btrfs The B-Tree File System is a GPL licensed file system for GNU/Linux Operating Systems. Among other features, it supports crash recovery, snapshots, transactions and defragmentation.

Chapter 1

Introduction

1.1 Project Scope

1.2 Project Description

1.2.1 Specifications

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Chapter 2

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4.1 Project Outcome

After three months of work the Orange Team crossed the finish line of the 2011 MUTW Project. In the last 103 days the team achieved several goals of this project and had a productive time working together in a multinational european team.
The goal of this project was to develop a web-application which covers all necessary needs for applying for the Erasmus Exchange Process. In more than 30 meetings the team held to discuss the development of the application, fixed problems and coordinated further work. Beside the specified weekly monday meetings, several special meetings were held to discuss and fix problems between the affected teams.
After this hard work, the ErasmusLine application developed by the Orange Team will certainly fulfill the expectations and is a strong symbol for multinational european teamwork.

4.2 Acomplished Goals

The following lists discriminate the acomplished goals that each each package team has set in the planning of this project.
P1-CONFIG (Germany)

- Database design
- Home page and main menu
- Website layout design
- Data management
- User management
- Access permissions

P2-INFOX (Germany)

- Information exchange with JSON and cURL
- File exchange with cURL

- Encryption

P3-ALERT (Bulgaria)

- Sending emails according to deadlines

P4-OUT (Belgium)

- Outgoing workflow design
- Form design
- Pre-candidate phase
- Setup phase
- Prepare stay phase
- Stay phase
- Tear down phase

P5-IN (Greece)

- Form Design
- Plonk integration
- Validation in Javascript, PHP, jQuery
- Store – pull data from database using MySQL
- Email forms to coordinators/institutions

P6-EXAM (Bulgaria)

- Students request to take exams at host university
- Home/host coordinator accepts students request

P7-MATCH (Iceland)

- Searching the website of an institution for course information
- Matching corresponding courses
- Listing all matched courses

P8-STATS (Portugal)

- Data Warehouse database design and integration
- ETL and Data Refreshment design and implementation
- EIS web-interface design and integration

4.3 Other Contributions

Given the project schedule and deadlines, the several package teams decided to help other teams with development and documentation. These phases of inter-package help resulted in the following functionalities:

Developed by the **P8-STATS** team:

- Institutions Partnership
- Institution Management
- Education / Courses Management
- Residence / Owner Management
- Synchronization of Institution, Educations, Courses, Residence and Owners data between Application instances
- **P2-INFOX** draft message protocol and message encryption code

Developed by the **P8-STATS** and **P4-OUT** teams:

- **P2-INFOX** integration for various modules
- **P5-IN** package integration and workflow testing
- Overall testing and validation

4.4 Final Thoughts

"It was an unique experience, for which I am grateful to be a part of, with some great benefits for my future career." - Pedro Ferreira

"An extraordinary trip where we faced a great deal of tough decisions, but we emerged more grown up, more cooperative and we take home the fond memories of this amazing experience." - Daniel Lopes

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Appendix 1