**STUDENT EVENT WEBSHOP**

– Software Engineering Project –

**PROJECT PLAN**

**Team: Attila Gonczi (434519)**

**Jiening Wen (439947)**

**Dimitar Kolev (431646)**

**Arya Nawing (477490)**

**Lecturer: Eddy de Rooij**

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# Main Aims

The main aim of the project is to create a Student Event Webshop (further to be called Webshop) that provides a bridge between students looking for events and institutes providing events for students. The products of the Webshop will be events that registered by institutes (further to be called Partner Institutes) and organizations advertise in three major categories:

* Educational events (workshops, courses, educational excursions, etc.)
* Free time events (parties, concerts, excursions, etc.)
* Custom events - Within this category the Partner Institutes will be able to define custom categories that do not fit in the educational and in the free time categories.

Through the Webshop students will be able to sign up for the events, and if necessary, they will also be able to purchase tickets to the events of their choice.

The front-end of the Webshop aims to provide a flexible and pleasant interface for the students with the following main characteristics:

* It has to work in all major web-browsers (Firefox, Internet Explorer, Chrome, Safari)
* It will provide an intuitive interface for searching for events based on several different criteria, like event type, location, subject, providing institute, etc.
* It will provide account administration for students: They will be able to create an account, administrate their account, view history of purchases, use shopping cart for their purchases, etc.
* It will provide registration interface for companies that wish to become a Partner Institute.

When developing the front-end interface and underlying application and database logics, the possibility of future expansion of functionalities like social networking features between registered students will also be taken into consideration.

The back-end of the Webshop will provide a clear and flexible interface where registered Partner Institutes will be able to:

* Administrate their data
* Update product information (add, remove, change)
* View and administrate orders

The Webshop will be enable students to purchase products using their PayPal account.

# Stakeholders’ Analysis

|  |  |  |  |
| --- | --- | --- | --- |
| **Stakeholder** | **Importance** | **Role in Project** | **Expectations** |
| Students | High  It is essential that students are very satisfied with the product. | * End Users of the Webshop system * Purchase events provided * Administrate own user data | * All modern standard functionalities web-shops generally provide * Possibility to control their user accounts and view order history * Protection of their personal data * Proper delivery of products they purchased |
| Partner Institutes | High  It is essential that Partner Institutes are very satisfied with the product. | * Users of the Webshop System * Advertise products to be purchased * Administrate own products, orders, personal data | * All modern standard functionalities web-shops generally provide for merchants * Possibility to control their user accounts and orders placed by customers * Interface for product administration * Protection of their personal data * Receive accurate information of purchases, and payments related to the purchases |
| Developer Company | High  It can abort the development of the project | * Owner of the project * Finances the project * Has the authority to cancel the project | Receive a fully functioning final product that meets all planned minimum requirements within the deadlines and the planned budget. |
| Project Supervisor | Medium | * Represents interest of the company towards the developer team | * All development process deadlines and expectations are met. * Necessary changes initiated by the company or by the team members are properly communicated. |

|  |  |  |  |
| --- | --- | --- | --- |
| Developer Team | Medium-high  It has to provide a high quality product | * Develops the Webshop * Advises what technologies to be used * Creates the planning of the project * Executes the planned development steps * Initial testing of the final and the in-development product * Delivers final product | * Receive all necessary requirements from the supervisor before the project starts. * Proper communication with the supervisor in case of a change in the project plan is necessary. * Receive salary on time. * Company provides proper working conditions. * The deadlines are also met by each member of the team. |
| PayPal | Medium  There are several payment methods available on the market | * Provides a secure online payment solution for the end-users * Provides Secure Business Account Administration for Partner Shop | All Terms in PayPal’s user agreement are met by end-users, by the Partner Shops and by the Webshop. |
| Web Hosting Company | Medium – High  It has to ensure a high quality, secure system for running the online shop application. | * Provides Web Hosting services for the Webshop application | Receives agreed periodic payments for the services it provides. |
| Internet Providers | Medium | * Provides internet connection infrastructure between users and the webhosting company | Receives agreed periodic payments for the services it provides. |

# Development Process Information

For this project, we will use iterative development which slices the development of the Webshop system into iterations (Cycles). In each cycle a set of functionality is delivered through cross-discipline work, starting from the requirements through the testing and deployment.

The development of the project will be split into two development cycles and in each cycle waterfall development approach will be deployed.

**Figure 1.** Outline project plan for Student Event Webshop project

Project Plan

Iteration 1

Release

Week 14

Week 7

Launch

Beta test

Start project

Iteration 2

Week 12

Week 4

## Cycle 1

### Requirement

At the end of this cycle, the core features of the application should function properly including the database, the Data Access Layer that avoids the presentation layer from directly accessing the database, and a simple front end prototype with payment module.

Requirements for this cycle are:

* General application design should be clear.
* All core features and functionalities of this application should be clearly defined.
* All core features and functionalities of this application should work properly at the end of the cycle.
* Database (Data Layer) design and implementation should be completed.
* Data Access Layer design and implementation should be completed. This layer exists to avoid direct access from the Presentation Layer to the Data Layer.
* Front-end prototype (Presentation Layer) should be completed.
* PayPal payment module should be implemented.

### Design and Implementation

* Create the general design of the application, which defines all core features and functionalities of the application clearly.
* Analyze the necessary data in a web shop. Create the structure of the database (Data Layer) and describe it using ER diagram. Implement it using Microsoft SQL Server 2005. The data structure definition will be divided into three main blocks: user related data, product related data, log data.
* Design and create the Data Access Layer controller classes which communicate with the database (Data Layer). The functions of these classes are translating database tables into dataset objects and vice versa.
* Create a simple front end prototype (Presentation Layer) which displays the items. User can add the items to the shopping cart.
* Implement the payment method using the PayPal Development environment. When user decides to check out, they will be given an option to pay through online payment system offered by PayPal.

### Testing

Test data will be defined for testing purpose in this cycle. The test data will consist of:

* 1 super administrator.
* 10 organizations.
* 10 organization administrators (1 per organization).
* 50 products (5 per organization).
* 10 users (student data).

These data will be put into the database manually. All core features and functionalities of this application will be tested with the test data, and will be confirmed working if they work properly without any errors or bugs. Errors could be traced by using the debug feature in Microsoft Visual Studio.

### Duration

The duration of Cycle 1 is three weeks starting on week 5 of period 1

|  |  |  |
| --- | --- | --- |
| **Cycle 1** | | |
| **Period** | **week** | **Planned Development steps** |
| 1 | 4 | Define Data Base Structure and populate it with Test Data  Define PayPal Accounts in Development Environment  Design Basic front-end Interfaces:   * Product overviews/Details * Shopping Carts * Ordering interfaces * User account administration interfaces (students, institutes) * Login interfaces |
| 5 | Create Data Access Layer  Implement design of interfaces  Implement PayPal payment solution |
| 6 | Assemble, debug and test the application |
| 7 | Presentation of results to Supervisor  Collect feedback from colleagues and supervisor |

## Cycle 2

### Requirement

Based on the core features implemented in Cycle 1, a rich-content and user-friendly front end will be made in Cycle 2 along with a back end administration portal for the shop owners with a secure authentication system. At the end of this cycle the application should be ready for beta launch.

### Design and Implementation

* Create the back-end interface that will be used by the events' database administrators to easily enter, remove or update events for sale.
* Create the back-end interface that will be used by the institutions' database super administrator so that he can easily add more institutions which offer student events.
* Design a better, more flexible and more appealing interface for the end users.

### Testing

The test data defined in cycle one will be revised according to the changes needed in cycle two. New test data be added to the database through completed front-end and back-end websites. Updating and deletion of data will be tested on the front-end and back-end websites. Necessary testing scenarios will be used to confirm that authorized and unauthorized users will be able to access only the data and the part of the web application that is authored by their user roles.

### Duration

The duration of Cycle 2 is four weeks starting at week 1 of the second period.

|  |  |  |
| --- | --- | --- |
| **Cycle 2** | | |
| **Period** | **week** | **Planned Development steps** |
| 2 | 1 | Design the layout of front-end and back-end websites |
| 2 | Implement front-end and back-end websites |
| 3 | Implement front-end and back-end websites |
| 4 | Internal test and fix bugs if there is any |

**Testing**

|  |  |  |
| --- | --- | --- |
| **Testing and Final Phase** | | |
| **Period** | **week** | **Planned Development steps** |
| 2 | 5 | 1. Beta Public Testing:   Feedback Colleagues will be asked to create student and Institute accounts and try using the system will be collected   1. Parallel to beta testing writing of the Final report will be started |
| 6 | 1. Adjustments based on test results of Beta testing 2. Debugging 3. Finish Final Report |
| 7 | Final Presentation |

# Testing

To ensuring the coherence of the final product, testing is very important and it is what translates the software from the alpha version through the beta to the final release. Two types of testing will be used during the development: Unit testing and application testing.

### Unit Testing

Unit testing is a type of testing that is done during the coding. After each function, if the language allows it, you create a special block (it can also be a normal function if there is no such feature provided by the language), and inside it you call the last function you wrote with a parameter and check if the result is what you expected, if not then you have a mistake in your code. Usually unit tests are called when the program is run in debug mode and before it starts its normal operation. Unit tests are not compiled in the final release.

### Application Tests

After the application components are assembled into one unit, we test if that unit works in different conditions. In our case that translates to testing the back-end's database coherence, speed of SQL transactions, checking for bottlenecks and so on.

On the front end that Application Testing translates to: Can the user buy an item from the store, change his profile settings and view his purchase history? Are the payment methods working? This has to be checked on several different browsers: IE 6.0 and higher, Chrome, Firefox, and Safari.

# Hardware and Software

Hardware needed for development of the project:

* Minimum specification for client and development purpose:
  + Processor : Pentium 300MHz or faster.
  + RAM : 128MB or higher.
  + Hard disk : minimum 20GB
* Minimum specification for server purpose:
  + Processor : Pentium 550MHz or faster
  + RAM : 256MB or higher
  + Hard disk : 60GB

Software requirements for development for this project:

* Microsoft Windows XP for client and development purpose
* Microsoft Windows Server with Internet Information Services (IIS) for server purpose (specific version to be decided later)
* Microsoft Visual Studio 2008
* Microsoft SQL Server 2005 Express Edition
* Adobe Photoshop CS4
* Various web browser applications (Internet Explorer, Mozilla Firefox, Google Chrome, and Apple Safari)

# Literature

### Beginning ASP.NET 2.0 with C#

Authors : Chris Hart, John Kauffman, David Sussman, Chris Ullman

Description : Using code examples in C#, this invaluable beginner's guide shows you how to program web applications in ASP.NET 2.0 and see dynamic results with minimal effort.

Publisher : Wrox (May 8, 2006)

Language : English

ISBN-10 : 0470042583

ISBN-13 : 978-0470042588

### Head First Design Patterns

Authors : Elisabeth Freeman, Eric Freeman, Bert Bates, and Kathy Sierra

Description : The book uses a visually-rich format designed for the way your brain works. Using the latest research in neurobiology, cognitive science, and learning theory, Head First Design Patterns will load patterns into your brain in a way that sticks in a way that lets you put them to work immediately. In a way that makes you better at solving software design problems, and better at speaking the language of patterns with others on your team.

Publisher : O'Reilly Media, Inc.; 1 edition (October 25, 2004)

Language : English

ISBN-10 : 0596007124

ISBN-13 : 978-0596007126

sourcemaking.com

A very good website for design patterns and anti-patterns

Link: <http://sourcemaking.com/>

MSDN

The Microsoft Developer Network

Link: <http://msdn.microsoft.com/en-us/default.aspx>

Online tutorials on C#

If we need to learn a new concept it is always good to search for a tutorial.

C# Tutorials

Link: <http://msdn.microsoft.com/en-us/library/aa288436(VS.71).aspx>

### PayPal development environment

Documentation on the API's of the different payment methods. We need to know what functions the interfaces expose and how to use them.

Link: <https://cms.paypal.com/us/cgi-bin/?cmd=_render-content&content_ID=developer/howto_api_reference>

# Roles

Development Team:

* Attila Gönczi – Team Leader/Developer:
  + Leads the team members.
  + Plans and coordinates project meetings.
  + Creates notes of project meetings.
  + Registers the deadlines in Logbook.
  + Makes sure the deadlines of the project are met.
  + Database (Data Layer) design and implementation
* Jiening Wen – Secretary/Developer
  + Makes sure the Logbook is being properly updated.
  + Gives advises to Team Leader, if necessary.
  + Front end (Presentation Layer) design and implementation
  + Back end (Presentation Layer) design and implementation
* Dimitar Kolev – Developer
  + Back end (Presentation Layer) design and implementation
  + Input validation control (Communication Layer)
  + Event data control (Communication Layer)
* Arya Nawing – Developer
  + Page control (Communication Layer)
  + User data control (Communication Layer)

Supervisor/Manager:

* Eddy de Rooij – Supervisor/Manager
  + The person to whom Development Team should give report routinely
  + Evaluates Development Team performance and work
  + Gives advises to Development Team

# Deliverables

Below is the list of things to be delivered after the project is finished:

* Software

Complete application source code

* Documentation

Including all documents, report, and group evaluation

* User guide and help function

Could be integrated with the application

* Presentation

Including project plan presentation, presentation for each development cycle, and final presentation