**Enterprise Framework Project 2012. Project Details.**

**Project : Easyb00k.**

**Team :**

**Dermot Healy.**

**Remi Fatus.**

**Simon Rahilly.**

**Clem Roberts.**

The technical report will fully document the following areas:

**1)Background research and investigations.**

**2)Project Plan. **

Due care was taken to accurately record details of which team member was assigned responsibility for each activity

Clement Roberts, Dermot Healy and Remi Fatus were assigned responsibility for coding of the project. Simon Rahilly was assigned writing the project report.

The team was named “DERESICL”

Introduction:

We are to design and create an e-commerce website that will serve as an online storefront. The website will display Holiday Homes in a virtual storefront. Users will be able to create accounts, log in, browse the database of Holiday Homes and make book a Holiday Home.

Goals:

The goal of the project is to have a functioning enterprise web application that can facilitate online bookings. The final developed application will be a user friendly site, with clear instructions on the steps to make a booking while also requiring authentication and providing security.

Strategy:

The web application will be developed using C# and ASP.net, the various stages of the project such as planning, design and development will be shared out equally among the team members.

Functionality:

When complete, the key characteristics of the application will be:

1. Holiday home owners will be able to create an account. Enter details about their Holiday home.
2. Authentication will be required for Owners when accessing their accounts on the site.
3. Allow the customers to browse through a various locations and holiday homes.
4. Provide functionality to add products to a shopping cart, and provide a summary of their selected goods in the form of a checkout.
5. The virtual storefront will be connected to a backend database, which can be updated also.

The customer will get a communication to confirm their booking.

Project Deliverables:

1. A working enterprise web application, as described above.
2. A written technical report to supplement the application.
3. A project log on gitHub detailing the development of all stages of the project.
4. Presentation.

Theteam will develop a web application that handles holiday home bookings. The application will attempt to

1. maintain a database of holiday homes.
2. record vacancy/booked periods.
3. record associated costs with renting the holiday home.
4. provide details of contract terms.
5. provide location of holiday homes.

The application will also allow holiday home owners to register as site-users which will then give them the capability to submit the details of their holiday home on the website etc.

**3) Software development methodology employed.**

The software development methodology used in software engineering is the framework that is used to structure, plan and control the process of developing a system or application. The system development lifecycle (S.D.L.C.) is a very deliberate, structured, methodical way to deliver the final system or application. There are a variety of frameworks for different situations eg Waterfall, Prototyping and Spiral.

The method used in this project was the Waterfall method. The stages in software development are

1. Requirements. b) Design.

c) Implementation. d) Verification. e)Maintenance.

Agile software development is a group of software development methods based on iterative and incremental development, where requirements and solutions evolve through collaboration between self organizing cross functional teams.

**4) Requirements analysis.**

Requirements analysis in software engineering are those tasks that determine needs or conditions to meet for new or altered products, taking into account various users. Requirements analysis includes eliciting; analyzing; documenting; validating and managing software or system requirements.

Requirements should be documented; actionable; measurable; testable and traceable and related to business needs and opportunities.

Requirements analysis includes three types of activity

1. Elicitation requirements.

b) Analysing requirements. c) Recording requirements.

Also the stakeholders who are anyone operating or benefitting from the system should be identified.

**5) Use cases.**

Use cases are a list of steps defining interactions between a role (known in UML as an “actor”) and a system to achieve a goal. When used at a higher level use cases may represent missions or stakeholders goals. Detailed requirements may be in contractual statements.

In real world situation, finding use cases would include many techniques such as, to mention a few, interviewing business users to elicit their requirements and/or studying documentation, and/or analysing problem/requirement statement.

In the above problem description we deduced a set of use cases, which are:

A)     Welcome.

B)   Accessing the home

C)    Searching the homes

D)     Place a booking

Use case Descriptions

1. Welcome

When a prospective customer wishes visits the sites.  The systems takes the user to the welcome page where the user can search of type homes sand also place an order.  If the user entered the wrong password or username is entered the application redirect back to the log on page until the right login details are entered.

1. Searching the Holiday Homes

A registered member can search for suitable products if the product is available. The application displays the names of the product by clicking or selecting the name of the product.  The application displays the product information including the price.

1. Book a Home

When visitors/member has found a suitable home he/she can proceed by clicking the order button. The system calculates the number of days being and proceeds for the user to enter his/her credit card details after the credit card details are entered the system asked the registered member to confirm order.  The application then generates a placed order details.

Application Overview:

The application is a Holiday Home, which will provide users with the ability to do the following:

·         Browse various holiday homes

·         Select a home to view more details

·         Add items to a shopping cart.

·         Proceed to the store checkout or placing an order

**6) Architecture/Design approach.**

The diagram below is a conceptual framework.

**7) Models (Class Models / Data Models etc.).**

Models notify their associated views and controllers when there has been a change in its state. This notification allows the view to produce updated output and the controllers to change the available set of commands.

Data models are abstract models that document and organize the business data for communication between team members and are used as plans to develop applications eg how data are stored and accessed.

There were three choices when developing the middle tier domain for this application. They were Domain model, Active record or Table model.

The Domain model was used in developing BookEasy application. Using this model the application started off totally ignorant of the database. The models used are based on the business requirements of the application and how the data flows. A table model was not used as the database is derived from the application models. Active record were not used as the data base would be to the forefront of the application.

**8)Implementation of particular OOP constructs.**

**9)Design patterns and architectural patterns implemented in the application.**

In software engineering a design pattern is a general reusable solution to commonly occouring problem within a given context in software design. Different types of design patterns are algorithm; computational; executional and structural.

**10) How cross-cutting concerns have been handled.**

In computer science cross-cutting concerns are aspects of a program which affect other concerns. These concerns cannot be removed from the design and implementation and can result in “Scattering” (code duplication) and “tangling” (significant dependencies between systems), Cross-cutting concerns are parts of a program which rely on or affect other parts of the system. Also cross-cutting concerns are things common to all the code that impact across all the layers. Cross-cutting concerns cause synchronization and Run-time constraints.

**11)Security of the application.**

The main aim of security is to protect information and property from theft, corruption or natural disaster.

Security in Windows can be provided by domain groups that organize different levels of authorization.

For security in Visual Studio, the following are ten security measures to defend code.

1. Do not thrust user input. Thrusting user input can lead to buffer overruns, cross-site scripting and SQL injection attacks.
2. Protect against buffer overruns.
3. A buffer overrun occours when data provided by the attacker is bigger than what the application expects and there is overflow into internal memory space.
4. Prevent cross-site scripting.
5. Prevent SQL injection.
6. Watch crypto code.
7. Reduce attack profile.
8. Employ principle of lest privilege.
9. Pay attention to failure modes.
10. Impersonation is fragile.
11. Write that non-administrator can actually use.

**12) Configuration of the application.**

The 5 tier architecture was used in developing the BookEasy application.

5 Tiers



**13)Scalability of the application.**

In software scalability is the ability of a system, network, process to handle a growing amount of work in a capable manner or its ability to be enlarged to accommodate the growth.

**14) Testing Approach (in terms of both functional and non-functional requirements).**

Testing is an investigation carried out to provide to provide stakeholders with information about the quality of the product or service under test.

The purpose of testing is to

1. Does the product or service meet the requirements that guided it’s design and development.
2. Does the product or service work as expected.
3. Can the product or service be implemented with the same characteristics.
4. Does the product or service satisfy the needs of stakeholders.

Functional testing refers to activities that verify a specific action or function of the code.

Non-functional testing refers to aspects of the software that may not be related to a specific function or user action such as scalability or other performance, behaviour under certain constraints or security.

**15)Other relevant features of the application (if used) e.g.,**

use of client-side processing,

use of Ajax,

use of web services,

use of a workflow engine etc.

use of an ORM tool

use of dependency injection / IoC containers

etc.

In this project, the developed application will exhibit the traits and qualities associated with an enterprise application. How the qualities of an enterprise

level application have been achieved will be clearly documented. The rationale behind decisions made with regards to the various aspects of the project (e.g., choice of technology, choice of development methodology and choice of testing strategy) will also be clearly documented.

The requirement to prepare a presentation and demonstrate the developed application will be done during week 10