Product Lines for Web Portals

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I Introduction

Software has invaded human lives exponentially over the years. After the evolution of Internet, Business practices proved more effective if the enterprise had a consistent presence in the virtual world. This concept of Virtual presence compelled IT Companies, Hospitals, Universities, and almost every domain to go live on the Internet. With Time, this practice has extended from mere advertising to managing the Organization's data in portals.

Today, in this realm of Big Data, there is a lot of data to be managed, organized and presented as portlets for different users. So, the demand for web developers has increased a lot over the last decade. However, people of today and the future want to be more Independent and become entrepreneurs and do everything themselves. This led to frameworks which helped build portals or websites with much ease. For simple portals, frameworks proved useful, but for large enterprises or universities where there are many child portals to be made, there is no easy approach. This led to the idea of a portal factory which can generate portals based on the requirements. In this document, I would like to specify the technical aspects as well as the challenges faced in this experience to build a product line for portals. This project is made open source on Github. Our team consists of 3 students and myself from the Indian Institute of Information Technology, Sri City.

II Overview

The main idea of the project is to create a product line and prove it to be effective in generating portals which can be customized. One example case which I would take is a University as there are many varied types of portals needed in this case like Hostel Portal, Library Portal, Mess Portal, Courses Portal, Campus News Portal, Student Portal, Sharing Portal, Clubs Portal etc.

II.(a) Customers

Customers of the system would be many Universities as it is convenient to use uniform but customized portals, all those Entrepreneurs who hate coding, all those Enterprises or Companies which cannot compromise on their time-to-market by wasting time in making portals, etc.

II.(b) Functionality

The Application helps in

(i) Exhibiting Portal Designs :
The user can look at various portals created using the platform.

(ii) User Authentication :
The user logs into his session where he can create portals, customize them and save his progress.

(iii) Choosing Language :
The user can choose the language medium of the portals to be designed.

(iv) Selecting his Requirements :
The user can drag and drop the variant requirements he needs and add them to the common requirements to generate portals they need.

(v) Generate Product :
Once the user completes customizing the portal he can generate the final portals along with their source code.

(vi) Providing Common Security :
Every portal is secured from threats like SQL Injection, Unreliable Authentication.

II.(c) Platform

The platform in this case is a web-based one with javascript and xml for database management and AJAX nad javascript for front end.

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II.(d) Development Responsibility

Details about development responsibility, maintenance responsibility, licensing issues should be noted down here.
For example, the following may be the content of this section:

The openXYZ team will be responsible for implementing the functionality that they commit to in Section 3 of this document. It is expected that a team from the SERL will be responsible for developing the database for the XYZ system. The openXYZ will not be responsible for creation of the database.

III. Goals and Scope

Section 2 outlined the overall functionality of project. This section should detail the functionality that the OpenXYZ team intends to implement for the final release in November 2011.

This section should step through the functionality listed in section 2.2 and detail specifically what is in or out of scope for the final release.

IV Deliverables

Feature specification (requirements), product design (design document), deployment document, weekly status reports will be delivered during the process.

V Risk Management

V.(a) Risk Identification

Identify and list down the details of various risks in this project. For example you should detail the technology risks, resource risks, scope creep, etc.

V.(b) Risk Mitigation

This section will describe what will be done to mitigate the risks listed in section 5.1.
The list should follows the same order as section 5.1.

VI Scheduling and Estimates

Milestone	Description	Release Date	Deliverables
M1	Finalizing Common and Variant Features	September 20, 2015	Feature Specification Doc
M2	Documenting the Project flow	September 24, 2015	UML Diagrams
M3	Implementing the Common Features	October 4, 2015	No
M4	Implementing the Variant Features - (drag and drop)	October 12, 2015 October 25, 2015	No
M5	Creating Databases	November 1, 2015	No
M6	Generating the portal by linking both the Features and assigning databases	November 12, 2011	Prototype
M7	Creating User Interface for the application (login, design examples…)		
M8	Addressing Security Concerns		

VII Technical Process