

Dexter

Making search web 2.0 ready!

Submitted as a

Final Year Project

for the partial completion of

B. Tech in Computer Science and Engineering

By

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Feasibility Study

Objective to blend social networking into a search engine and encapsulate it to a Web 2.0 browsing environment.

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Implementation Alternatives

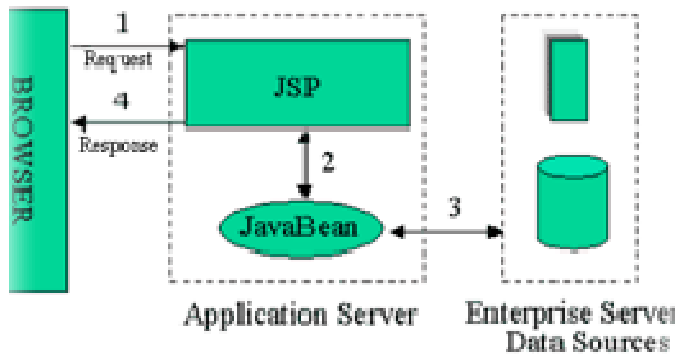


Figure 2: Model 1 architecture

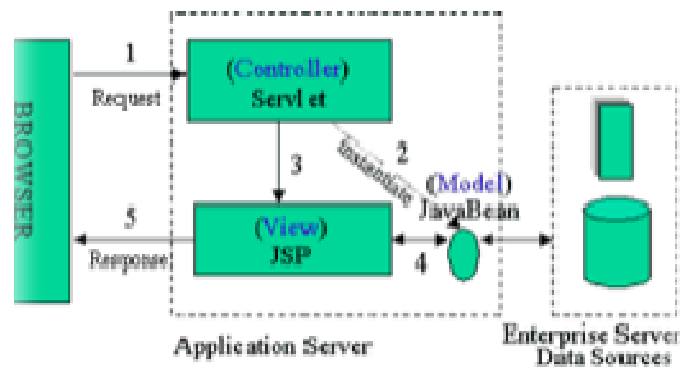


Figure 1: model 2 architecture

Architectural Alternative

The Java EE Framework builds upon one of the two aforementioned web component architectures

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Dexter is proposed to use the MVC Design Pattern (Model 2) with the view of completely isolating the presentation layer from the business logic to ensure higher degree of maintainability, reusability, and security of the product. This would eventually guarantee that the project would be able to overlay its Web 2.0 capabilities over any search engine whatsoever with minimum effort.

Moreover the inculcation of a full fledged ORM framework for back-end processing demands a design pattern as sophisticated as MVC in itself.

Economic Feasibility

The expected economic cost of the project is as follows

- Cost of Software Packages
 - There was a conscious decision to use Free and Libre' Open Source Software (Database, Package, IDE, SDK's, Application Servers), so the economic liability to their usage is ruled out.
- Cost of Hardwares.
 - We would require 4 machines having at least 512MB ram and Pentium IV architecture. to develop this project
- Software Cost Estimation Through COCOMO

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- Dexter is an intermediate (in size and complexity) software projects in which team member have mixed experience levels in the technologies being used we categorize 'Dexter' as an intermediate project.

Intermediate COCOMO computes software development effort as function of program size and a set of "cost drivers" that include subjective assessment of product, hardware, personnel and project attributes. This extension considers a set of four "cost drivers", each with a number of subsidiary attributes. Given next is how Dexter evaluates to these attributes.

Drivers	Ratings	EAF
Product attributes		
Required software reliability	Normal	1.00
Size of application database	High	1.08
Complexity of the product	Very High	1.30
Hardware attributes		
Run-time performance constraints	High	1.11
Memory constraints	Normal	1.00
Volatility of the virtual machine environment	Low	0.87
Required turnaround time	Normal	1.00
Personnel attributes		
Analyst capability	Low	1.19
Applications experience	Normal	1.00
Software engineer capability	Low	1.17
Virtual machine experience	Normal	1.00
Programming language experience	Normal	1.00
Project attributes		
Use of software tools	Very High	0.82
Application of software engineering methods	Very High	0.83
Required development schedule	High	1.04
Total effort adjustment factor		1.34

The Intermediate COCOMO formula is of the form:

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$$E = a_i (KLoC)^{(b_i)} \cdot EAF$$

Where **E** is the effort applied in person-months, **KLoC** is the estimated number of thousands of delivered lines of code for the project, and **EAF** is the factor calculated above. The coefficient $a_i = 3.0$ and exponent $b_i = 1.12$ for a semi detached project.

Dexter is expected to have a delivered line of code of around 10 KLoc

$$E = 3(10)^{(1.12)} \cdot 1.34$$

$$E = 53$$

$$\text{Average staffing} = (53 \text{ Person-Months}) / (11 \text{ Months}) = 4.81$$

people:

Technical Feasibility

Programming Language

A number of languages can be used for developing a web-app today. Most of them are well equipped with web framework that use the MVC architecture. Some of the most prominent languages used in web-application development and their corresponding MVC framework are given below.

- **Java**

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- Struts
 - Java Server Faces
 - Spring
- **Python**
 - Django
 - Pylons
- **Ruby**
 - Ruby on Rails
 - Nitro
- **Perl**
 - Catalyst
- **.Net Languages**
 - ASP .net MVC Framework
 - Monorail

Dexter Team has prior experience of coding in Java using Struts, thus it was chosen as the web framework.

Operational Feasibility

- *Design goals of Dexter include*
- *Consistent look and feel across the web-application*

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- *Simple user interface*
- *Feedback after every action*
- *Information to be displayed in a structured manner by grouping similar information*
- *Tolerance towards user error (ignoring wrong input, providing easy recovery or graceful fall)*

Dexter is a web-application which is being designed keeping in mind the least common denominator in terms of the user's technological capability which amounts a user with only a basic understanding of computers enabling any person who uses internet to become its prospective user.

Political Feasibility

As we use open source or/and free technology we don't expect to face any legal or political difficulty.

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Project Plan

Dexter has been divided into four modules.

<u>MODULE NAME</u>	<u>DESIGNATED TO</u>
<i>Database handling using Hibernate</i>	Rahul Burman
<i>MVC using Struts</i>	Vaibhav Bajpai
<i>Presentation Layer</i>	Nupur Dixit
<i>Accessories</i>	Yadavendra Yadav

Schedule decided for Dexter is as follows

Phase	Date of Completion
<i>Project Plan</i>	12 th September
<i>Feasibility Study</i>	12 th September
<i>Design document</i>	
<i>SRS</i>	25 th September
<i>ERD</i>	30 th September

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<i>UML</i>	15 th October
<i>Class Diagram</i>	22 nd October
<i>Prototype</i>	
<i>HTML Pages</i>	25 th September
<i>Coding</i>	
<i>Database and Access Layer</i>	10 th January
<i>MVC</i>	30 th January
<i>Presentation Layer</i>	20 th February
<i>Accessories</i>	20 th March
<i>Testing</i>	
<i>Test Plan</i>	30 th March

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