Online E-Science Labs

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Abstract- **E-science and the web will provide the data collection of different experiments by different scientists. This advocates the methodology, data, and results of experiments be freely available, encourages massively distributed collaboration.**

We get all the information about the experiments online with the latest News/Experiment along with their workflows. We get the detailed information of the individual product with the history of the scientists and their experiments.

Researchers can easily and as fast as possible collect data for their required research. Workflows are also one of the important resource for these people while doing research projects as these workflow depict diagrammatically the flow of the experiments.

I. INTRODUCTION

The project is mainly used to provide the data collection of different experiments by different scientists used for research purpose by the researchers.

This advocates the methodology, data, and results of experiments be freely available, encourages massively dis-tribute collaboration.

Need for the project:

The need for the project is to provide a help for the researchers or scientists in collecting data about different experiments.

II. EXISTING SYSTEM

- Information about the products will be stored in the books.
- Have to search for a particular experiment through news papers and direct communication to persons or reading through books.
- Users are not aware of the updated experiments.
- Feedback through letter's.

III. PROPOSED SYSTEM

- All the information about the experiments through online.
- Latest News/Experiment with their workflows will be posted.
- Detailed information of the individual product.
- History of the Scientists and their experiments
- Feedback can be given to the administrator for further improvement.

IV. STUDY OF THE SYSTEM

To provide flexibility to the users, the interfaces have been developed that are accessible through a browser. The GUI'S at the top level have been categorized as
1. Administrative user interface
2. The operational or generic user interface
The 'administrative user interface' concentrates on the consistent information that is practically, part of the organizational activities and which needs proper authentication for the data collection. These interfaces help the administrators with all the transactional states like Data insertion, Data deletion and Date updating along with the extensive data search capabilities.
The 'operational or generic user interface' helps the end users of the system in transactions through the existing data and required services. The operational user interface also helps the ordinary users in managing their own information in a customized manner as per the included flexibilities

V. PROCESS MODEL

SDLC (Spiral Model):

SDLC is nothing but Software Development Life Cycle. It is a standard which is used by software industry to develop good software.
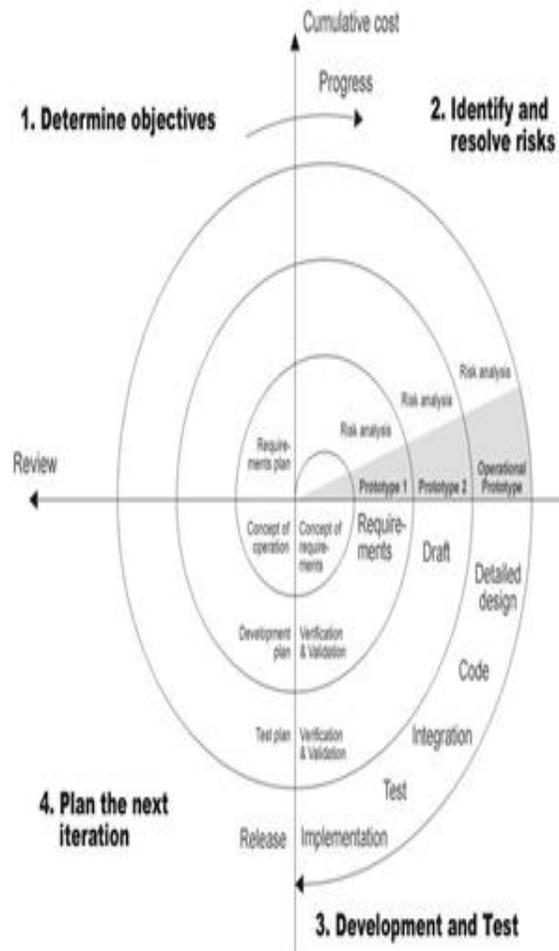

Stages in SDLC:
- Requirement Gathering
- Analysis
- Designing
- Coding
- Testing
- Maintenance

VI. SYSTEM ARCHITECTURE

Architecture Flow:
Below architecture diagram represents mainly flow of requests from users to database through servers. In this scenario overall system is designed in three tires separately using three layers called presentation layer, business logic layer and data link layer. This project was developed using 3-Tire architecture.
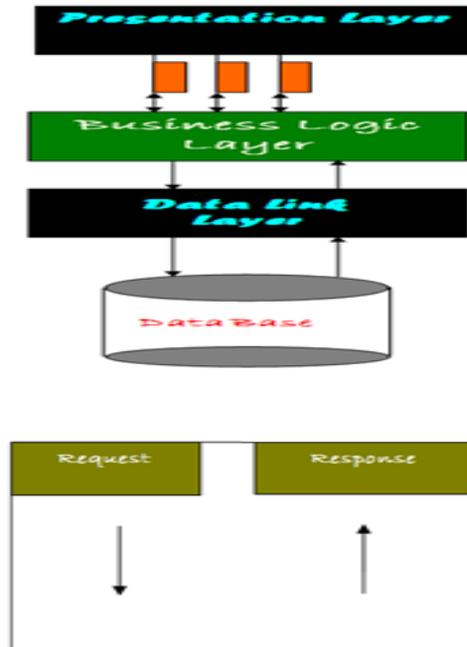
1.   Presentation Layer:
Also called as client layer, comprises of components that are dedicated to presenting the data to the user. For example: Windows/Web Forms and buttons, edit boxes, Text boxes, labels, grids, etc.

2.   Business Logic Layer:
This layer encapsulates the Business rules or the business logic of the encapsulations. To have a separate layer for business logic is of a great advantage. This is because any changes in Business Rules can be easily handled in this layer. As long as the interface between the layers remains the same, any changes to the functionality/processing logic in this layer can be made without impacting the others. A lot of client-server apps failed to implement successfully as changing the business logic was a painful process.

3. Data Link Layer:
This layer comprises of components that help in accessing the Database. If used in the right way, this layer provides a level of abstraction for the database structures. Simply put changes made to the database, tables, etc do not affect the rest of the application because of the Data Access layer. The different

application layers send the data requests to this layer and receive the response from this layer.

4. Database Layer:

This layer comprises of the Database Components such as DB Files, Tables, Views, etc. The Actual database could be created using SQL Server, Oracle, Flat files, etc. In an n-tier application, the entire application can be implemented in such a way that it is independent of the actual Database. For instance, you could change the Database Location with minimal changes to Data Access Layer. The rest of the Application should remain unaffected.

SOFTWARE REQUIREMENTS

Operating System: Windows

Technology   : Java and J2EE
Web Technologies   : Html, JavaScript, CSS
IDE   : My Eclipse
Web Server   : Tomcat
Database   : Oracle
Java Version   : J2SDK1.5

HARDWARE REQUIREMENTS

Processor   : Pentium
RAM   : 2GB

Modules Description

- Authentication: In this module, user/scientists account information are validated and then only allowed to do further transactions.
- Administrator: This module is responsible for the complete site maintenance. He will view/update the complete details of the users,who are registered or accessing the site.
- User: In this module , once the user gets registered they can get the details of experiments information. They also can get the contact information of the scientists.
- Scientist: In this module , the scientist gets registered first and can view the already done experiments, workflows etc for his research work.
- Work Flow Module: In this module , the user can see the different workflows drawn for different experiments.

- News: In this module ,it contains the news regarding the experiments performed and also results and work flow of the experiments.

VII.   OUTPUT SCREENS

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