

Java Project

Test Engine

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Guided By:
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CERTIFICATE

This is to certify that the work embodied in the preliminary entitled “Test Engine” has been satisfactorily completed by YASH BHATNAGAR. It is a bona fide piece of work carried out under guidance at NIIT Indrapuri, Bhopal (Center Code: D95) for the fulfillment of Java Core Project.

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Acknowledgement

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Abstract

This **Test Engine** is designed to target any competitive test on internet or in any intranet. This is able to be fed into new and variety of questions. It is a password protection enabled application in which every user will have to 1st login to enter the test and hence launch it.

Each student registered for a test will be registered and a database will be maintained for each student, along with their password. In the test panes functionalities, it includes a timer, the question display and option selection facility. Along with these functionalities, mark option provides facility to mark a question for reviewing later in the test. A review pane is available which shows the number of attempted, unattempted and marked questions.

Whenever a student finishes his/her test, his/her marks are stored in the database right where his /her rests of the details are stored.

Java

A Short Introduction :

Java is a programming language originally developed by James Gosling at Sun Microsystems (which is now a subsidiary of Oracle Corporation) and released in 1995 as a core component of Sun Microsystems' Java platform. The language derives much of its syntax from C and C++ but has a simpler object model and fewer low-level facilities. Java applications are typically compiled to bytecode (class file) that can run on any Java Virtual Machine (JVM) regardless of computer architecture. Java is a general-purpose, concurrent, class-based, object-oriented language that is specifically designed to have as few implementation dependencies as possible. It is intended to let application developers "write once, run anywhere". Java is currently one of the most popular programming languages in use, and is widely used from application software to web applications.

The original and reference implementation Java compilers, virtual machines, and class libraries were developed by Sun from 1995. As of May 2007, in compliance with the specifications of the Java Community Process, Sun relicensed most of its Java technologies under the GNU General Public License. Others have also developed alternative implementations of these Sun technologies, such as the GNU Compiler for Java, GNU Classpath, and Dalvik.

Java Platform:

One characteristic of Java is portability, which means that computer programs written in the Java language must run similarly on any supported hardware/operating-system platform. This is achieved by compiling the Java language code to an intermediate representation called Java bytecode, instead of directly to platform-specific machine code. Java bytecode instructions are analogous to machine code, but are intended to be interpreted by a virtual machine (VM) written specifically for the host hardware. End-users commonly use a Java Runtime Environment (JRE) installed on their own machine for standalone Java applications, or in a Web browser for Java applets.

Standardized libraries provide a generic way to access host-specific features such as graphics, threading, and networking.

A major benefit of using bytecode is porting. However, the overhead of interpretation means that interpreted programs almost always run more slowly than programs compiled to native executables would. Just-in-Time compilers were introduced from an early stage that compile bytecodes to machine code during runtime. Over the years, this JVM built-in feature has been optimized to a point where the JVM's performance competes with natively compiled C code

SQL Server 2005

SQL Server 2005 (codenamed Yukon), released in October 2005, is the successor to SQL Server 2000. It included native support for managing XML data, in addition to relational data. For this purpose, it defined an xml data type that could be used either as a data type in database columns or as literals in queries. XML columns can be associated with XSD schemas; XML data being stored is verified against the schema. XML is converted to an internal binary data type before being stored in the database. Specialized indexing methods were made available for XML data. XML data is queried using XQuery; Common Language Runtime (CLR) integration was a main features with this edition, enabling one to write SQL code as Managed Code by the CLR. SQL Server 2005 added some extensions to the T-SQL language to allow embedding XQuery queries in T-SQL. In addition, it also defines a new extension to XQuery, called XML DML, that allows query-based modifications to XML data. SQL Server 2005 also allows a database server to be exposed over web services using TDS packets encapsulated within SOAP (protocol) requests. When the data is accessed over web services, results are returned as XML.

For relational data, T-SQL has been augmented with error handling features (try/catch) and support for recursive queries with CTEs (Common Table Expressions). SQL Server 2005 has also been enhanced with new indexing algorithms, syntax and better error recovery systems. Data pages are checked for better error resiliency, and optimistic concurrency support has been added for better performance. Permissions and access control have been made more granular and the query processor handles

concurrent execution of queries in a more efficient way. Partitions on tables and indexes are supported natively, so scaling out a database onto a cluster is easier. SQL CLR was introduced with SQL Server 2005 to let it integrate with the .NET Framework.

SQL Server 2005 introduced "MARS" (Multiple Active Results Sets), a method of allowing usage of database connections for multiple purposes.

SQL Server 2005 introduced DMVs (Dynamic Management Views), which are specialized views and functions that return server state information that can be used to monitor the health of a server instance, diagnose problems, and tune performance.

SQL Server 2005 introduced Database Mirroring, but it was not fully supported until the first Service Pack release (SP1). In the initial release (RTM) of SQL Server 2005, database mirroring was available, but unsupported. In order to implement database mirroring in the RTM version, you had to apply trace flag 1400 at startup. Database mirroring is a high availability option that provides redundancy and failover capabilities at the database level. Failover can be performed manually or can be configured for automatic failover. Automatic failover requires a witness partner and an operating mode of synchronous (also known as high-safety or full safety).

System Requirements

Hardware Requirements:

- **Processor:- Pentium IV**
- **Hard-Disk:- 10 GB**
- **RAM:- 256 Mb**

Software Requirements:

- **Operating System:- Windows 2003/XP**
- **Type 4 JDBC Driver**
- **Development Tool:-JDK 1.6**
- **Application:- JDBC**
- **Database:- SQL Server 2005**

Features of Technology Related To Project

Features of Java related to project

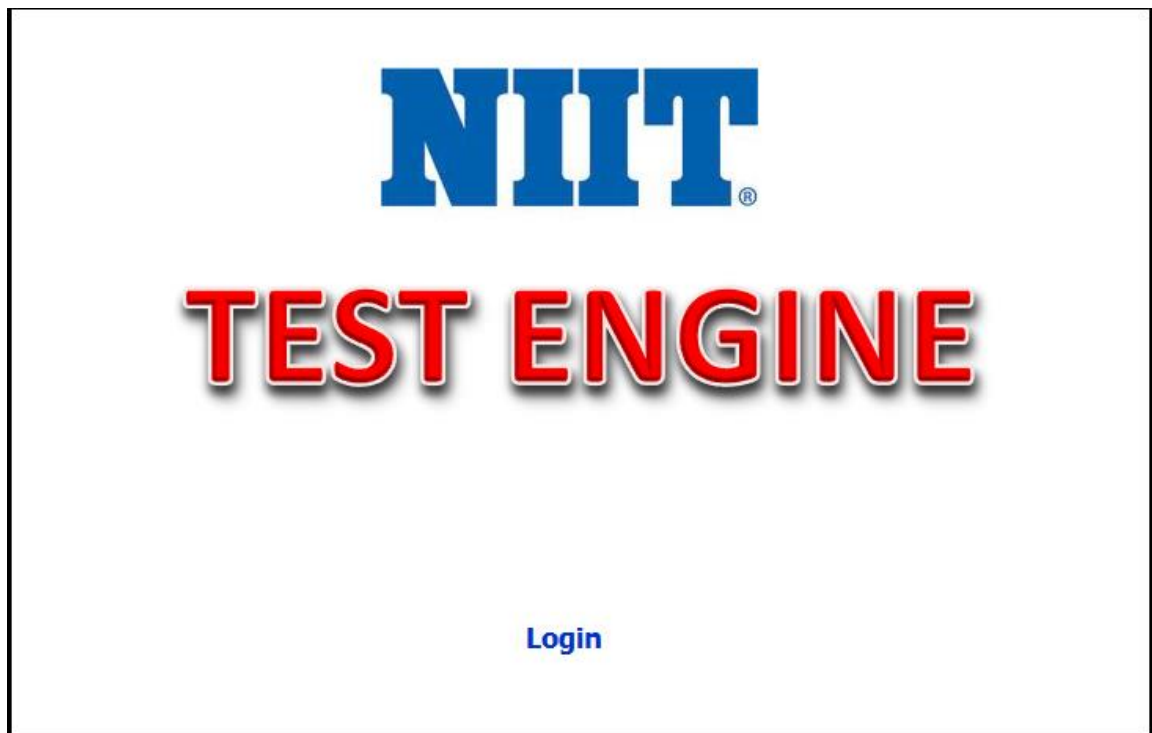
- Pure Object Oriented Programming
- Data Binding
- Polymorphism
- Data Abstraction
- Java Database connectivity

Features of SQL Server 2005 related to project

- Create Database
- Create Tables
- Insert Tables
- Update Tables
- Read required data from a Table
- Deleting rows from a Table
- Dropping a Table

Screen Shots

Start page:



- This is the Start page.

Login Page:



The login form is enclosed in a rectangular box with a thin black border. It contains two text labels, two input fields, a login button, and a link.

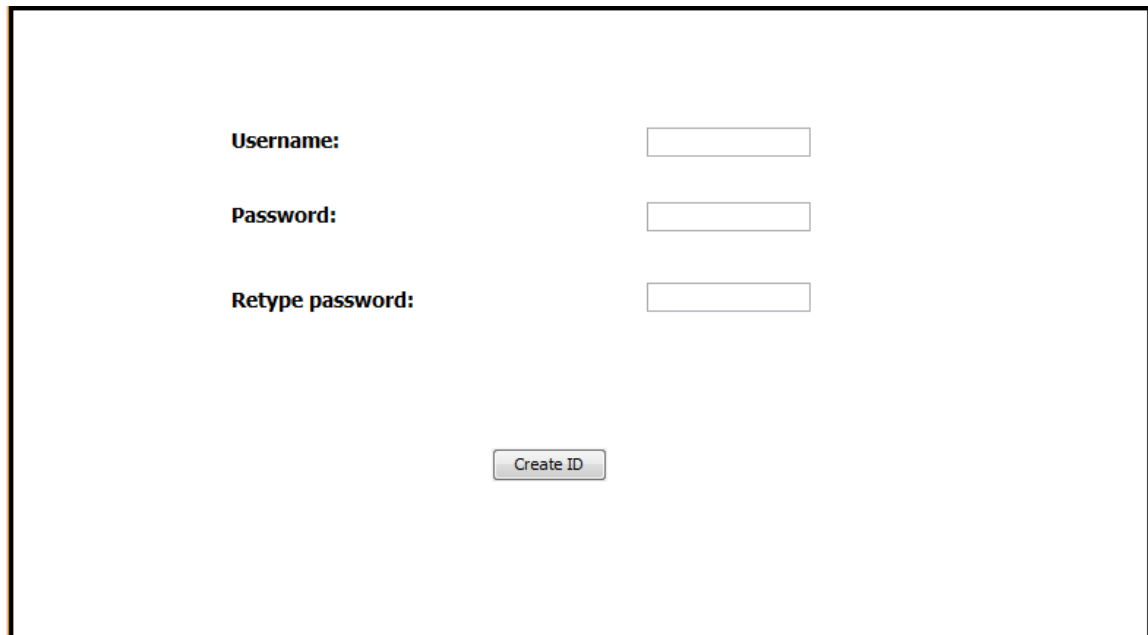
Enter your name:

Enter Password:

[If not a user click here to create ID](#)

- This the login form for the user.
- If the administrator has entered the correct login-id and password the next form will be open.
- Else he/she will not be allowed to enter.

New user form:



A screenshot of a new user registration form. The form is enclosed in a black rectangular border. It contains three input fields: 'Username:', 'Password:', and 'Retype password:'. Each label is followed by a white rectangular input box. Below these fields is a 'Create ID' button with a light gray gradient and a thin black border.

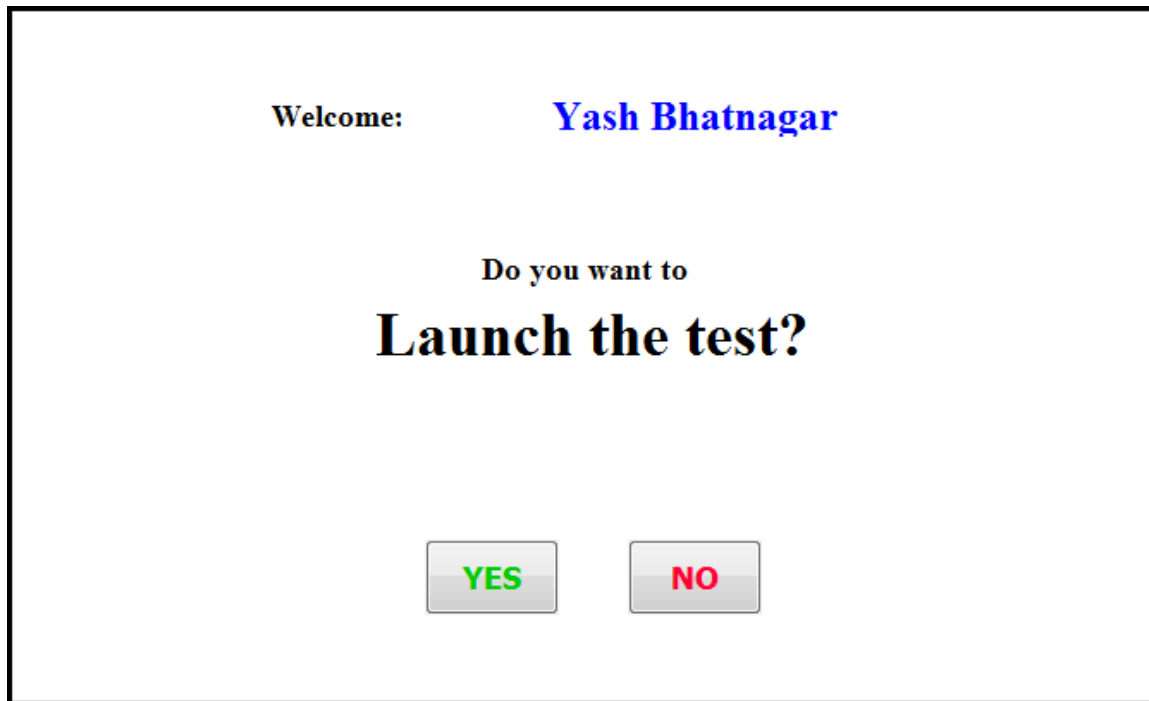
Username:

Password:

Retype password:

- This is the pane for new user registration.

Test launcher pane:

A screenshot of a web application's test launcher pane. It features a white background with a black border. At the top, it says "Welcome:" followed by the name "Yash Bhatnagar" in blue. Below this, it asks "Do you want to Launch the test?" in bold black text. At the bottom, there are two buttons: "YES" in green and "NO" in red, both with a light gray gradient background.

Welcome: **Yash Bhatnagar**

Do you want to
Launch the test?

YES **NO**

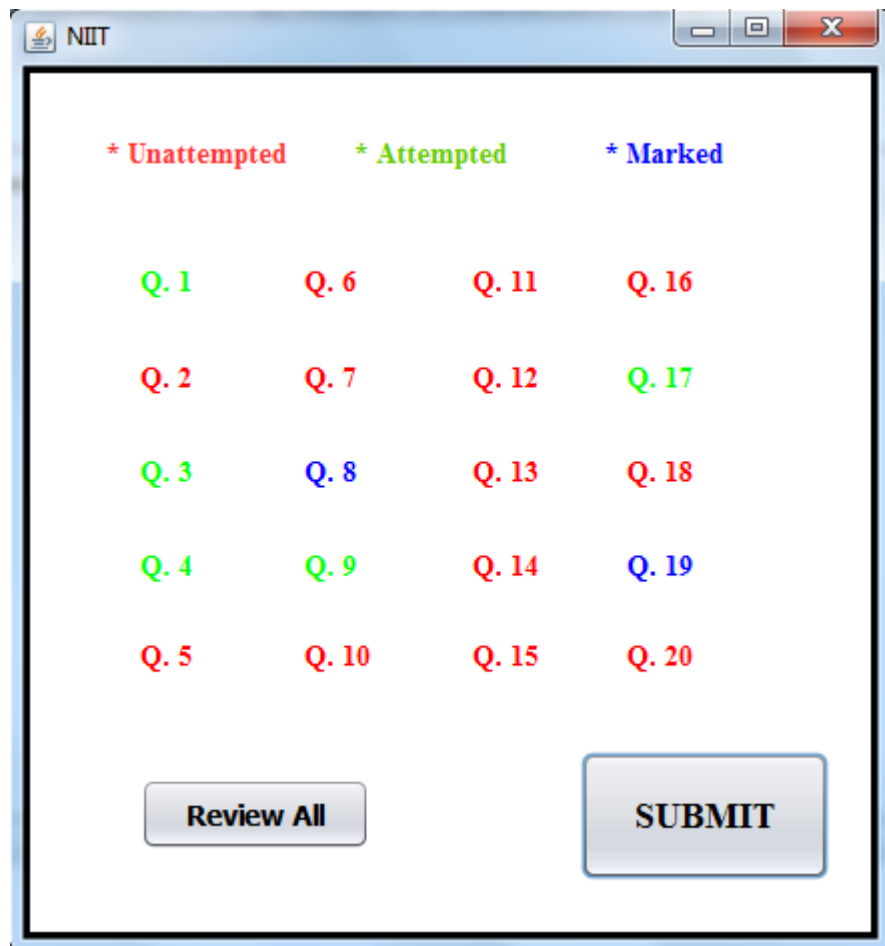
- This is the pane for launching the test for the logged in user.
- Clicking a no will take the user to the start page, and you'll be logged out.

Test pane:

The screenshot shows a web-based test interface. At the top, a blue header bar contains the text "Q no : 2", "Total Questions: 20", and "TIME : 0 : 29 : 23". Below the header, the question "Who is the creator of JAVA :" is displayed in a text box. To the right of the question, there are four buttons: "<< BACK", "REVIEW", "MARK", and "NEXT >>". Below the question, there are four radio button options: A: Mark Zuckerberg, B: James Gosling, C: Larry Ellison, and D: Ren N Martin. At the bottom right, there is a large "SUBMIT" button. At the bottom center, it says "Created By: Yash Bhatnagar".

- This is the test pane.
- Here you can mark, unmark, and move to next or the previous question.
- Clicking on review leads to review pane.
- Clicking on submit leads to Result pane after confirmation.

Review Pane:



- This is the review pane.
- Here you can view the marked, attempted and unattempted questions separated through different colors.

Result Pane:

Name	Marks out of 20
Yash Bhatnagar	12
Unattempted:	Attempted:
4	16

EXIT

- Here a short summary of the test attempted by the user will be displayed.

Conclusion

This **Test Engine** is designed to target any competitive test. This is able to be fed into with new and variety of questions. Whenever a student finishes his/her test, his/her marks are stored in the database right where his /her rests of the details are stored.

Hence this is a utility element in conduction of various different MCQ examinations across the domains.

References

URL Links:

www.java2s.com

www.netbeans.org

www.java.sun.com

<http://en.wikipedia.org>

Tutorials:

www.google.com