

ONLINE RAILWAY RESERVATION BASED ON VOICE

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Abstract: This study has been undertaken to provide railway reservation services with a feasible solution to the end users in an easy way and the users can interact with the system through voice. This paper aims at providing service to the people. This Information is to be integrated into the existing database of the system but the access to it would be restricted to the authorized or register users. According to the user the service will be received and navigate to a particular option which has been selected.

IndexTerms – Voice XML, IVR system, text-to-speech(TTS), HTTP, servlets, speech browser, speech recognition engine, voice, SIP Phone.

1. INTRODUCTION

The main aim of the project is "Voice-based railway reservation" which providing railway reservation services with a feasible solution to the end users in an easy way and the users can interact with the system through voice. To overcome all the difficulties of the existing system we have proposed the whole system automated and the development of the new automated system contains the following activities, which try to automate the entire process keeping in view of the database integration approach. The main objective of our project is to reduce the manual work required by the public complaint systems and replace the troublesome work by smart work by introducing an automated system using voice. The future scope of this project would be to implement more services to the customers. The current system scenario is whenever the users want to know the details of railway reservation the need to go for nearest railway reservation center and reserve the tickets by filling the form and submitting them by stand in the queue. By using the online we can perform the reservation which can be accessed through the internet.

Limitations

- ✓ The increasing complexity
- ✓ It is time-consuming process
- ✓ The illiterate people cannot access the services.

Proposed System

This Voice Based Railway Reservation providing the feasible solution to the end users in an easy way and they can access the services through voice. And this system makes the overall task much easier and flexible. Users can get information about trains and also the availability of tickets. And users can get the alerts on their mobile. They can pay the amount through online and also they can cancel their tickets.

Advantages

- ✓ Time reducing process.
- ✓ 24x7 availability.
- ✓ Easy to access the services.
- ✓ It providing the services in an effective manner.

2 LITERATURE SURVEY

1.XML based Interactive Voice Response System

The paper presents the architecture of a web-based interactive voice response system using Voice XML. The paper includes a discussion on the architecture of the IVR system, its components, and a detailed description of the functionality of VXML Interpreter and its use in IVR systems. It also describes the integration of VXML Interpreter, CCXML. Finally, it presents performance measurement techniques and technical proposal for increasing the performance of such a system.

2.A survey paper on - Online Ticket Substantiation using QR Code based Android Application System.

However, there is no proper efficient system for which we can deal with these problems like lack of communication between onboard staff and control room(emergency conditions) passengers who don't carry ticket along with IDs, waiting list passengers without the ticket and the passengers who buy tickets from Ticket Collector. This paper purposes the new system that integrates all the services provided by Indian railways.they are centralized system for management of databases, android apps for this by which all works of them can be done digitally like authentication seat allocation checking using app which scans Qr code on the ticket and verifies QR code information with the database.

3.A Study on Customer (Passenger) Satisfaction in Transportation

This study mainly aims in understanding(the best zones in the Indian railways) the passengers level of satisfaction in terms of service quality offered by the southern railways.as the southern railways are considered to be one of the best zones In Indian railways.for the purpose, 194 responses were captured by the sampling method.

4.Smart Rail Reservation and Verification System with Unique Identification in IoT using Cloud Database

The Internet of Things is inter-networking of physical devices, buildings, and other items which are embedded with electronics, software, sensors, actuator, and network connectivity that enable these objects to collect and exchange data. The devices which

are connecting to the internet are called IoT Devices. In technical we can say it as the device which has IP Address is called as an IoT Device. Moreover some estimate that it would be 100 billion devices. In general ticket reservation for the Indian railways is quite a complex process. This involves various steps which could be much complicated for illiterates. Moreover Indian railways is using more than 2 tonnes of paper for booking and verification process. To avoid these problems and moreover to move the nation towards digitalization we are proposing this idea. Here in this proposal, we are building a web-based application for reservation and mobile application for the ticket verification process.

5.Unique Identification based Railway Ticket Booking and Authentication System

Railways are the most convenient, affordable means of transport in India. So keeping this in view, the reservation of railway tickets is the most important task and it must be faster and efficient as the number of travelers is very high. In order to meet this demand, manual reservation is completely ruled out as it is time-consuming. Railways require an efficient program to implement the online reservation system. The proposed system is based on Unique Identification (UID) Technology which is applicable for booking rail tickets and managing travel database for convenience and transparency. The system uses the AADHAR database for user verification. The verified user can add money to the system's inbuilt wallet which will automate the ticket booking process. The user then provides a thumb impression at the source and at the destination station after checking out. This activity is recorded in the system and fare calculating algorithm in the system then calculates the fare based on source and destination recorded and the amount is then deducted from the inbuilt wallet. Thus, a transparent and user convenient environment is created that provides security in terms of user and payment details and hassle-free travel This will improve the productivity of the Railways and will boost the "Digital India" campaign.

6.RAILBOT: A Railway (IRCTC) Chatbot

Chatbots are in high demand in today's industrial world. It presents a new way for individuals to interact with computer systems. It allows a user to simply ask questions in the same manner that they would address a human. The technology at the core of the rise of the chatbot is natural language processing (—NLPI). The platforms where chatbots are deployed include Facebook Messenger, Skype, and Slack, Telegram. This paper successfully explained and implemented a chatbot which can be used to get some basic information related to Indian Railway such as PNR, train status and Seat Availability, etc. It saves the time of the user as they can directly fetch the information while conversing with the Chatbot using text or voice in the above mentioned deployed methods.

7.Speech Recognition System: A Review

To be able to control devices by voice has always intrigued mankind. The accuracy of Speech Recognition Systems remains one of the most important research challenges e.g. noise, speaker variability, language variability, vocabulary size, and domain. The design of the speech recognition system requires careful attention to the challenges such as various types of Speech Classes and Speech Representation, Speech Preprocessing stages, Feature Extraction techniques, Database, and Performance evaluation. This paper presents the advances made as well as highlights the pressing problems for a speech recognition system. The paper also classifies the system into Front End and Back End for better understanding and representation of the speech recognition system in each part.

8.A Comparative Study of Indian and World Wide Railways

In present scenario, Indian Railways has become the prime mover of the Indian Economy. Indian Railways (IR) is one of the largest railway systems in the World. According to Vision 2020 proposed by Indian Railways Ministry, a significant focus would be on Track Enhancement, Environmental Sustainability, Network Expansion of Railway, Capacity Creation, Train Safety, Reducing Carbon Footprint, High-Speed Train Introduction, and Technological Excellence. There are enormous challenges. It aims to develop a world-class rail infrastructure as countries like USA, China etc. This paper presents the recent developments in Railways in developed countries, limitations, and problems that are associated with Railways. Also, an impression of Indian Railways at the global level will be presented. Solutions and visions that are proposed by the Indian Government to meet and to match the technological development with the developed countries will also be discussed in this paper.

Details about Front End

Voice XML

Voice Extensible Markup Language (VXML) is the W3C's standard XML format for specifying interactive voice dialogues between a human and a computer. It allows voice applications to be developed and deployed in an analogous way to HTML for visual applications. Just as HTML documents are interpreted by a visual web browser, VoiceXML documents are interpreted by a voice browser. A Common architecture is to deploy banks of voice browsers attached to the Public Switched Telephone Network (PSTN) so that users can use a telephone to interact with voice applications.

Usage

Many commercial VoiceXML applications have been deployed, processing millions of telephone calls per day. These applications include: Conducting interviews, order inquiry, package tracking, driving directions, emergency notifications, wake-up, flight tracking, voice access to e-mail, customer relationship management, prescription refilling, audio news magazines, voice dialing, real estate information and national directory assistance applications.

VoiceXML uses are somewhat similar to HTML as they both are Markup Language, but while HTML uses a PC with a web browser such as IE or Netscape to display graphical web applications. VoiceXML uses a voice browser running on a telephony server with audio output such as text-to-speech (TTS) or pre-recorded prompts to enable web applications. The real advantage of VoiceXML or HTML is that we can create web sites with an audio interface that can be accessed by an ordinary telephone. Phones can be accessed from everywhere and the availability of them is more than computers, hence they are more portable and accessible than computers.

One example of VoiceXML application can be a voice portal, a telephone service where caller dials a phone number to retrieve the information such as train information, weather report and movie information. As the following figure indicates VoiceXML requires a voice browser that runs on a voice gateway node. This gateway node is connected to both phone and Internet networks. The way VoiceXML works is the application would prompt the user and then the user responses.

A VoiceXML document describes a new number of things including, spoken prompts, the output of audio files, speech recognition, touch-tone recognition, input recording, control of dialogue flow and telephony control. The picture below shows the relationship between a traditional web application and a voice-enabled web application.

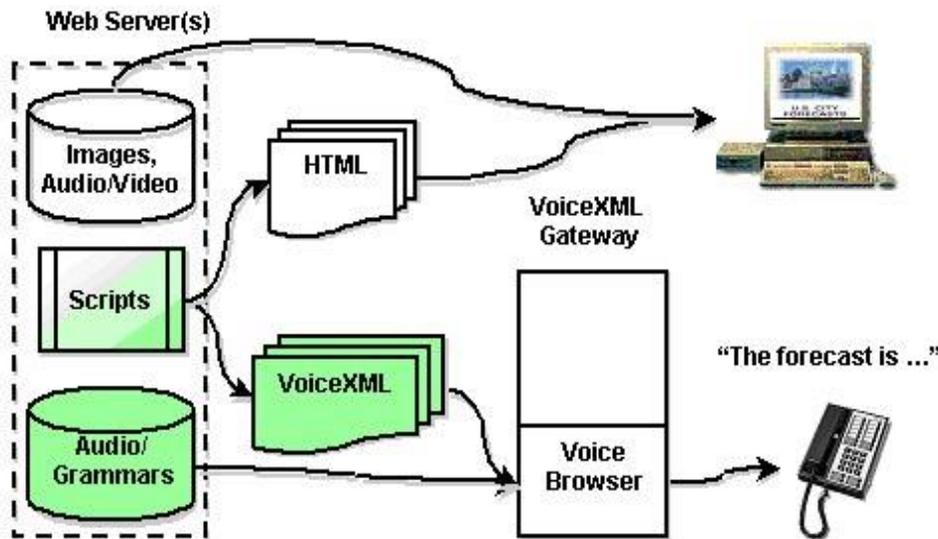


Figure 2.1: Processing of Voice XML

Application Server-Typically a web server, which runs the application logic, and may contain a database or interfaces to an external database or transaction server.
Voice XML Telephony Server-A platform that runs a VoiceXML interpreter that acts as a client to the application server. The interpreter understands the VoiceXML dialogues and controls speech and telephony resources. These resources include ASR, TTS, audio play and record functions, as well as a telephone network interface.
Internet-Style Network-A TCP/IP-based packet network that connects an application server and telephony server via HTTP.
Telephone Network-Typically the Public Switch Telephone Network (PSTN), but could be a private telephone network (e.g. PBX), or VOIP packet network.

Caller: Any telephone that can connect to the telephone network.

Voice XML Architecture

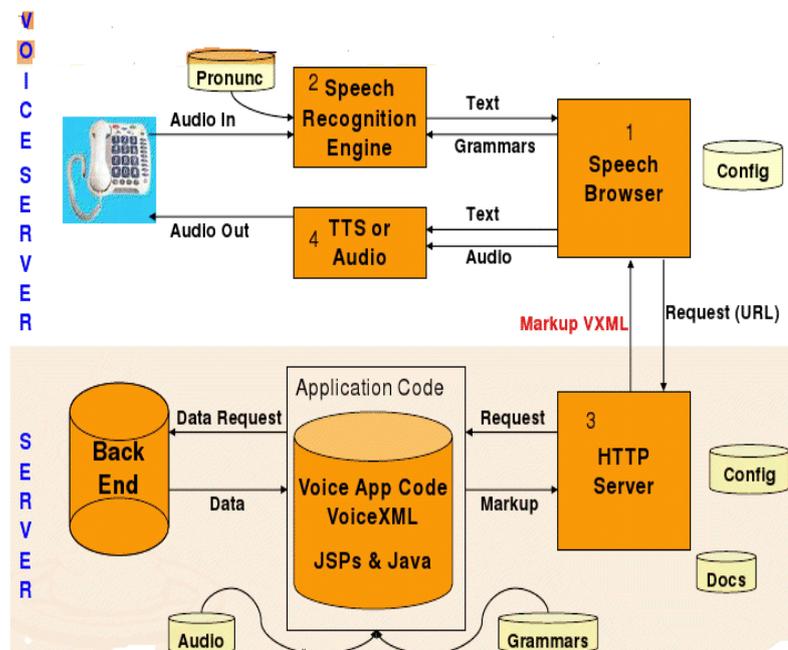


Figure: Architecture of Voice XML

Features

Limitations of IVR system Application Logic is separated from the Voice Interface. This has two main advantages. This enables businesses to use their existing investments in web technologies and infrastructure. Businesses can outsource the Voice Interface Design and host while having full control over the application logic. VoiceXML being an international standard lets you write the application once and run anywhere. VoiceXML is independent of Speech and Telephony platform. This gives the flexibility to choose the platform of choice.

VoiceXML is a simple scripting language. Application developers can develop an application with ease without worrying about the complexities of the platform.

Limitations

Assume that you got a call on your IVR system. Answers the call and starts executing your VoiceXML document. Under the document's control, the interpreter may perform actions such as: Sending vocal prompts, messages, or other audio material (such as music or sound effects) to the user. Accepting numeric input that the user enters by DTMF (telephone key tone) signals. Accepting voice input and recognizing the words. Accepting voice input and simply recording it, without trying to recognize any words. Sending the user's information to a web site or other Internet server. Receiving information from the Internet and passing it to the user. In addition, VoiceXML documents can perform programming functions such as arithmetic and text manipulation. This allows a document to check the validity of the user's input. Also, a user's session need not be a simple sequence that runs the same way every time. The document may include "if-then-else" decision making and other complex structures.

Advantage of VoiceXML

The impetus to migrate to standards-based "VoiceXML Architecture" may comprise all or some of the following:

Additional channels for customer care: Businesses have been using different channels like email, chat, web, and phone to interact with their customers. Of these channels, the telephone is the most popular and costly way of communication. 24/7 Self-service Applications. Leverage existing Web Technologies and Networks. In a traditional IVR environment, applications are closely tied to the system using proprietary technologies. This makes it difficult to customize and add new functionalities to the IVR. VoiceXML based IVRs can use existing enterprise applications (EJB, JSP, Java beans) and provide flexibility in application design and content delivery. Improved Customer Satisfaction and Customer Retention Speech recognition systems dramatically reduce customer "on-hold" time and eliminate irritating DTMF menus. Further, a reduction in hold-time leads to lesser Toll Charges.

I. RESEARCH METHODOLOGY**Servlets/JSP:**

A Servlet is a generic server extension, a Java class that can be loaded. Dynamically to expand the functionality of a server. Servlets are commonly used with web servers. Where they can take the place CGI scripts. Unlike CGI and Fast CGI, which use multiple processes to handle separate program or separate requests, separate threads within the web server process handle all servlets. This means that servlets are all efficient and scalable. *Servlets are portable; both across operating systems and also across web servers. Java Servlets offer the best possible platform for web application development.*

Servlets are used as a replacement for CGI scripts on a web server, they can extend any sort of server such as a mail server that allows servlets extend its functionality perhaps by performing a virus scan on all attached documents or handling mail filtering tasks.

Servlets provide a Java-based solution used to address the problems currently associated with doing server-side programming including inextensible scripting solutions platform-specific API and incomplete interface.

Servlets are objects that conform to a specific interface that can be plugged into a Java-based server. Servlets are to the server-side what applets are to the server-side what applets are to the client-side-object byte codes that can be dynamically loaded off the net. They differ from applets in that they are faceless objects (without graphics or a GUI component). They serve as platform independent, dynamically loadable, pluggable helper byte code objects on the server side that can be used to dynamically extend server-side functionality.

For example, an HTTP servlet can be used to generate dynamic HTML content when you use servlets to do dynamic content you get the following advantages:

- ✓ They're faster and cleaner than CGI scripts
- ✓ They use a standard API (the servlet API)
- ✓ They provide all the advantages of Java (run on a variety of servers without needing to be rewritten)

The attractiveness of Servlets:

They are many features of servlets that make them easy and attractive to use these include:

- ✓ Easily configure using the GUI-based Admin tool]
- ✓ Can be Loaded and Invoked from a local disk or remotely across the network.
- ✓ Can be linked together or chained, so that one servlet can call another servlet or several servlets in sequence.
- ✓ Can be called dynamically from within HTML, pages using server-side include-tags.
- ✓ Are secure-even when downloading across the network, the servlet security model and servlet and box protect your system from unfriendly behavior.

Advantages of the Servlet API

One of the great advantages of the servlet API is protocol independent. It assumes nothing about:

- ✓ The protocol is used to transmit on the net
- ✓ How it is loaded
- ✓ The server environment it will be running in
- ✓ These quantities are important because it allows the Servlet API to be embedded in many different kinds of servers. There are other advantages to the servlet API as well These include:
- ✓ It's extensible-you can inherit all your functionality from the base classes made available to you
- ✓ It's simple small, and easy to use.

Features of Servlets

- ✓ Servlets are persistent. Servlet is loaded only by the web server and can maintain services between requests.
- ✓ Servlets are fast. Since servlets only need to be loaded once, they offer much better performance over their CGI counterparts.
- ✓ Servlets are platform independent.
- ✓ Servlets are extensible Java is a robust, object-oriented programming language, which easily can be extended to suit your needs.
- ✓ Servlets are secure
- ✓ Servlets are used with a variety of client

Servlets are classes and interfaces from two packages, `javax.servlet` and `javax.servlet.http`. The `javax.servlet` package contains classes to support generic, protocol-independent servlets. The classes in the `javax.servlet.http` package to and HTTP specific functionality extend these classes. Every servlet must implement the `javax.servlet.Servlet` interface. Most servlets implement it by extending one of two classes, `javax.servlet.GenericServlet` or by extending classes `javax.servlet.http.HttpServlet`. A protocol-independent servlet should subclass `GenericServlet`, while an HTTP servlet should subclass `HttpServlet`, which is itself a subclass of `GenericServlet` with added HTTP-specific functionality. Unlike a Java program, a servlet does not have a `main()` method. Instead, the server in the process of handling requests invoke certain methods of a servlet. Each time the server dispatches a request to a servlet, it invokes the `Servlet.service()` method. A generic servlet should override its `service()` method to handle requests as appropriate for the servlet. The `service()` accepts two parameters a request object and a response object. The request object tells the servlet about the request, while the response object is used to return a response. In contrast, an HTTP servlet usually does not override the `service()` method. Instead it overrides `doGet()` to handle GET requests and `doPost()` to handle POST requests. An HTTP servlet can override either or both of these methods the `service()` method of `HttpServlet` handles the setup and dispatching to all the `doXXX()` methods, which is why it usually should not be overridden. The remainders in the `javax.servlet` and `javax.servlet.http` package are largely support classes. The `ServletRequest` and `ServletResponse` classes in `javax.servlet` provide access to generic server requests and responses while `HttpServletRequest` and `HttpServletResponse` classes in `javax.servlet` provide access to generic server requests and responses while `HttpServletRequest` and `HttpServletResponse` in `javax.servlet.http` provides access to HTTP requests and responses. The `javax.servlet.http` package contains an `HttpSession` class that provides built-in session tracking functionality and `Cookie` class that allows quick setup and processing of `HttpCookies`.

Loading Servlets

Servlets can be loaded from their places. From a directory that is on the CLASSPATH. The CLASSPATH of the JavaWebServer includes `service root/classes/`, which is where the system classes reside. From the `<SERVICE_ROOT/servlets/directory`. This is not in the server's classpath. A class loader is used to create servlets from this directory. New servlets can be added-existing servlets can be recompiled and the server will notice these changes. From a remote location. For this, a code base like <http://nine.eng/classes/foo/> is required in addition to the servlet's class name. Refer to the admin GUI docs on servlet section to see how to set this up.

Loading Remote Servlets

Remote servlets can be loaded by:

- ✓ Configuring the Admin Tool to set up automatic loading of remote servlets.
- ✓ Selecting up server-side include tags in .html files
- ✓ Defining a filter chain Configuration

The SERVLET Life Cycle

The Servlet life cycle is one of the most exciting features of Servlets. This life cycle is a powerful hybrid of the life cycles used in CGI programming and lower-level NSAPI and ISAPI programming. The servlet life cycle allows servlet engines to address both the performance and resource problems of CGI and the security concerns of low-level server API programming. Servlet life cycle is highly flexible Servers have significant leeway in how they choose to support servlets. The only hard and fast rule is that a servlet engine must conform to the following life cycle contract:

- ✓ Create and initialize the servlets
- ✓ Handle zero or more service from clients
- ✓ Destroy the servlet and then garbage Collects it.

It's perfectly legal for a servlet to be loaded, created and initialized in its own JVM, only to be destroyed and garbage collected without handling any client-request or after handling just one request. The most common and most sensible life cycle implementation for HTTP servlets are Single Java virtual machine and stateless persistence.

INIT() AND DESTROY()

Just like Applets servlets can define `init()` and `destroy()` methods, A servlets `init(ServiceConfig)` method is called by the server immediately after the server constructs the servlet's instance. Depending on the server and its configuration, this can be at any of these times

- ✓ When the server starts
- ✓ When the servlet is first requested, just before the `service()` method is invoked
- ✓ At the request of the server administrator

In any case, `init()` is guaranteed to be called before the servlet handles its first request.

The `init()` method is typically used to perform servlet initialization creating or loading objects that are used by the servlet in the handling of its request. In order to provide a new servlet any information about itself and its environment, a server has to call a servlet to `init()` method and pass an object that implements the `ServletConfig` interface.

The server calls a servlet's `destroy()` method when the servlet is about to be unloaded. In the `destroy()` method, a servlet should free any resources it has acquired that will not be garbage collected. The `destroy()` method also gives a servlet a chance to write out its unsaved, cached information or any persistent information that should be read during the next call to `init()`.

Session Tracking

HTTP is a stateless protocol, it provides no way for a server to recognize that a sequence of requests is all from the same client. This causes a problem for application such as shopping cart applications. Even in chat application server can't know exactly who's making a request of several clients. The solution for this is for the client to introduce itself as it makes each request, Each client needs to provide a unique identifier that lets the server identify it, or it needs to give some information that the server can use to properly handle the request, There are several ways to send this introductory information with each request Such as:

User Authorization

One way to perform session tracking is to leverage the information that comes with user authorization. When a web server restricts access to some of its resources to only those clients that log in using a recognized username and password. After the client logs in, the username is available to a servlet through `getRemoteUser()`. We can use the username to track the session. Once a user has logged in, the browser remembers her username and resends the name and password as the user views new pages on the site. A servlet can identify the user through her username and they're by Track her session.

Hidden Form Fields

One way to support anonymous session tracking is to use hidden form fields. As the name implies, these are fields added to an HTML, form that is not displayed in the client's browser, They are sent back to the server when the form that contains them is submitted. In a sense, hidden form fields define constant variables for a form. To a servlet receiving a submitted form, there is no difference between a hidden field and a visible field. That session ID can be associated with complete information about its session that is stored on the server.

URL Rewriting

URL rewriting is another way to support anonymous session tracking, With URL rewriting every local URL the user might click on is dynamically modified. or rewritten, to include extra, information. The extra information can be in the form of extra path information, added parameters, or some custom, server-specific URL change. Due to the limited space available in rewriting a URL, the extra information is usually limited to a unique session.

Persistent Cookies

A fourth technique to perform session tracking involves persistent cookies. A cookie is a bit of information. sent by a web server to a browser that can later be read back from that browser. When a browser receives a cookie, it saves the cookie and thereafter sends the cookie back to the server each time it accesses a page on that server, subject to certain rules. Because a cookie's value can uniquely identify a client, cookies are often used for session tracking. Persistent cookies offer an elegant, efficient easy way to implement session tracking. Cookies provide as automatic an introduction for each request as we could hope for. For each request, a cookie can automatically provide a client's session ID or perhaps a list of clients performance. The ability to customize cookies gives them extra power and versatility.

The power of serves: The power of servlets is nothing but the advantages of servlets over other approaches, which include portability, power, efficiency, endurance, safety elegance, integration, extensibility, and flexibility.

Portability

As servlets are written in Java and conform to a well defined and widely accepted API. They are highly portable across operating systems and across server implementation can develop a servlet on a Windows NT machine running the java web server and later deploy it effortlessly on a high-end Unix server running apache. With servlets, we can really "write once, serve everywhere"Servlet portability is not the stumbling block it so often is with applets, for two reasons.

Power

Servlets can harness the full power of the core java. API's: such as Networking and Url access, multithreading, image manipulation, data compression, database connectivity, internationalization, remote method invocation(RMI) CORBA connectivity, and object serialization, among others,

Efficiency And Endurance

Servlet invocation is highly efficient, Once a servlet is loaded it generally remains in the server's memory as a single object instance, Thereafter the server invokes the servlet to handle a request using a simple, light weighted method invocation. Unlike the CGI, there's no process to spawn or the interpreter to invoke, so the servlet can begin handling the request almost immediately, Multiple, concurrent requests have handled the request almost immediately. Multiple, concurrent requests are handled by separate threads, so servlets are highly scalable.

Safety

Servlets support safe programming practices on a number of levels. As they are written in Java, servlets inherit the strong type safety of the Java language. In addition, the servlet API is implemented to be type safe. Java's automatic garbage collection and lack of pointers mean that servlets are generally safe from memory management problems like dangling pointers invalid pointer references and memory leaks. Servlets can handle errors safely, due to Java's exception. A server can further protect itself from servlets through the use of a Java security manager. A server can execute its servlets under the watch of a strict security manager.

Elegance

The elegance of the servlet code is striking. Servlet code is clean, object-oriented modular and amazingly simple one reason for this simplicity is the served API itself. Which includes methods and classes to handle many of the routine chores of servlet development. Even advanced to operations like cookie handling and session tracking are abstracted into convenient classes.

Integration

Servlets are tightly integrated with the server. This integration allows a servlet to cooperate with the server in two ways . for e.g.: a servlet can use the server to translate file paths, perform logging, check authorization, perform MIME type mapping and in some cases even add users to the server's user database.

Extensibility And Flexibility

The servlet API is designed to be easily extensible. As it stands today the API includes classes that are optimized for HTTP servlets. But later it can be extended and optimized for another type of servlets. It is also possible that its support for HTTP servlets could be further enhanced. Servlets are also quite flexible, Sun also introduced java server pages. which offer a way to write snippets of servlet code directly within a static HTML page using syntax similar to Microsoft's Active server pages(ASP)

JDBC

Any relational database. One can write a single program using the JDBC API, and the JDBC is a Java API for executing SQL, Statements(As a point of interest JDBC is trademarked name and is not an acronym; nevertheless, JDBC is often thought of as standing for Java Database Connectivity. It consists of a set of classes and interfaces written in the Java Programming language.JDBC provides a standard API for tool/database developers and makes it possible to write database applications using a pure Java API. Using JDBC, it is easy to send SQL statements to virtually program will be able to send SQL .statements to the appropriate database. The Combination of Java and JDBC lets a programmer writes it once and runs it anywhere.

Simply PUT, JDBC Makes it Possible to do Three Things

- ✓ Establish a connection with a database
- ✓ Send SQL statements
- ✓ Process the results
- ✓ JDBC Driver Types
- ✓ The JDBC drivers that we are aware of this time fit into one of four categories
- ✓ JDBC-ODBC Bridge plus ODBC driver
- ✓ Native-API party-java driver
- ✓ JDBC-Net pure Java driver
- ✓ Native-protocol pure Java driver

An individual database system is accessed via a specific JDBC driver that implements the `java.sql.Driver` interface. Drivers exist for nearly all-popular RDBMS systems, though few are available for free. Sun bundles a free JDBC-ODBC bridge driver with the JDK to allow access to a standard ODBC, data sources, such as a Microsoft Access database, Sun advises against using the bridge driver for anything other than development and very limited development.JDBC drivers are available for most database platforms, from a number of vendors and in a number of different flavors. There are four driver categories

TYPE 01-JDBC-ODBC BRIDGE DRIVER Type 01 drivers use a bridge technology to connect a java client to an ODBC database service. Sun's JDBC-ODBC bridge is the most common type, 01 drivers. These drivers implemented using native code.

TYPE 02-NATIVE-API PARTY-JAVA DRIVERTType 02 drivers wrap a thin layer of java around database-specific native code libraries for Oracle databases, the native code libraries might be based on the OCI(Oracle Call Interface) libraries, which were originally designed for `c/c++` programmers, Because type-02 drivers are implemented using native code. in some cases, they have better performance than their all-java counterparts. They add an element of risk, however, because a defect in a driver's native code section can crash the entire server

TYPE 03-NET-PROTOCOL ALL-JAVA DRIVER Type 03 drivers communicate via a generic network protocol to a piece of custom middleware. The middleware component might use any type of driver to provide the actual database access. These drivers are all java, which makes them useful for applet deployment and safe for servlet deployment

TYPE-04-NATIVE-PROTOCOL ALL-JAVA DRIVER Type o4 drivers are the most direct of the lot. Written entirely in Java, Type 04 drivers understand database-specific networking. protocols and can access the database directly without any additional software

JDBC-ODBC Bridge If possible use a Pure Java JDBC driver instead of the Bridge and an ODBC driver. This completely eliminates the client configuration required by ODBC. It also eliminates the potential that the Java VM could be corrupted by an error in the native code brought in by the Bridge(that is, the Bridge native library, the ODBC driver manager library, library, the ODBC driver library, and the database client library). The JDBC-ODBC Bridge is a JDBC driver, which implements JDBC operations by translating them into ODBC operations. To ODBC it appears as a normal application program. The Bridge is implemented as the `sun.jdbc.JDBC` Java package and contains a native library used to access ODBC.The Bridge is joint development of Intervolve and Java Soft

Oracle

Oracle is a relational database management system, which organizes data in the form of tables. Oracle is one of many database servers based on RDBMS model, which manages a seer of data that attends three specific things-data structures, data integrity, and data manipulation. With Oracle cooperative server technology we can realize the benefits of open, relational systems for all the applications. Oracle makes efficient use of all systems resources, on all hardware architecture; to deliver unmatched performance, price performance, and scalability. Any DBMS to be called as RDBMS has to satisfy Dr.E.F.Codd's rules.

Features of Oracle

Portable

The Oracle RDBMS is available on wide range of platforms ranging from PCs to supercomputers and as a multi-user loadable module for Novel NetWare, if you develop an application on a system you can run the same application on other systems without any modifications.

Compatible

Oracle commands can be used for communicating with IBM DB2 mainframe RDBMS that is different from Oracle, which is Oracle compatible with DB2. Oracle RDBMS is a high-performance fault-tolerant DBMS, which is specially designed for online transaction processing and for handling large database applications.

Multithreaded Server Architecture

Oracle adaptable multithreaded server architecture delivers scalable high performance for very large number of users on all hardware architecture including symmetric multiprocessors (sumps) and loosely coupled multiprocessors. Performance is achieved by eliminating CPU, I/O, memory and operating system bottlenecks and by optimizing the Oracle DBMS server code to eliminate all internal bottlenecks.

Oracle has become the most popular RDBMS in the market because of its ease of use

- ✓ Client/server architecture.
- ✓ Data independence.
- ✓ Ensuring data integrity and data security.
- ✓ Managing data concurrency.
- ✓ Parallel processing support for speed up data entry and online transaction processing used for applications.
- ✓ DB procedures, functions, and packages.

RESULTS

Created a reservation table in Oracle database for registration in the registration form

Column Name	Data Type	Nullable	Default	Primary Key
USERID	VARCHAR2(40)	No	-	1
USERNAME	VARCHAR2(40)	Yes	-	-
PASSWORD	VARCHAR2(40)	Yes	-	-
MOBILE NUMBER	VARCHAR2(40)	Yes	-	-
GENDER	VARCHAR2(40)	Yes	-	-
DOB	VARCHAR2(40)	Yes	-	-
ADDRESS	VARCHAR2(40)	Yes	-	-
CITYID	VARCHAR2(40)	Yes	-	-
EMAIL_ID	VARCHAR2(40)	Yes	-	-

The user interface for registration in Railwayregistraion.html file

REGISTRATION FORM

USERNAME

PASSWORD

MOBILE NUMBER

GENDER male female

DATE OF BIRTH

ADDRESS

COUNTRY STATE CITY

EMAIL ID

Voxeo Prophecy

Voxeo Prophecy Version 8.0.98.2

- Quick Start Guide**
Use this guide to learn how to use Prophecy and create your first application.
- Administration**
The Prophecy Commander lets you configure and adjust Prophecy settings. When first used, the default username and password are **admin** and **admin**.
- Prophecy Designer**
Use Prophecy Designer to build voice applications with a web-based visual design tool. That's right, you don't need to write a single line of code! Click [here](#) for a tour of Designer's features.
- Documentation**
Extensive documentation on [Prophecy](#) and its [VoiceXML](#), [CCXML](#), and [CallXML](#) platforms.
- Updates and Add-ons**
Check for updated Prophecy software and additional downloads.
- Registration**
Register your Prophecy software, get a free license key, or purchase an upgrade key.
- Token Tester**
Test a token initiated call.
- Help and Support**

Live chat NOW with Voxeo Support
Have a question? Need help with anything at all? Then please - chat online now with Voxeo tech support. Just click on the button below.

Sorry, Voxeo Live Chat is not available at the moment.
Please [open an account ticket](#) for assistance.

It displays page of starting of Voxeo prophecy. Using SIP phone through voice, the user can interact with the Voxeo prophecy server to

Query: Can I have a tatkal ticket on Sunday?

Response: Yes, sir.

CONCLUSION

The main objective is to automate the "reservation System" by using ORACLE as back-end and Java as front-end under Windows environment with Voice XML. This Voice Based Railway Reservation provides faster access and the user gets the services through voice by accessing the mobile. The future enhancements are: We can update/delete the train information and this application can be used in any region sectors.

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