



INTERNSHIP REPORT

INDIAN OIL CORPORATION

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History of Indian Oil

Indian Oil Corporation Limited (IOCL or IOC), trading as **IndianOil**, is an Indian multinational^{[4][5]} oil and gas company under the ownership of the Ministry of Petroleum and Natural Gas, Government of India. Registered in Mumbai but headquartered in New Delhi,^[6] it is a public sector undertaking whose operations are overseen by the Ministry of Petroleum and Natural Gas. Indian Oil is ranked 94th on the Fortune Global 500 list of the world's biggest corporations as of 2022.^[7] It is the largest government owned oil producer^[8] in the country both in terms of capacity and revenue. It has consolidated refining capacity of 80.55MMTPA which it intends to increase to 107MMTPA by 2024-25.^[9] As of 31 March 2021, Indian Oil's employee strength is 31,648, out of which 17,762 are executives and 13,876 non-executives, while 2,776 are women, comprising 8.77% of the total workforce. As On 31.3.2024 IOC Employed 30,321 Employees . Out Of Which Executives Account 18,570 & Non Executives Account 11,751 .^{[10][11][12]}

Indian Oil's business interests overlap the entire hydrocarbon value chain, including refining, Pipeline, marketing of petroleum products, exploration and production of Petroleum, natural gas and petrochemicals.^[13] Indian Oil has ventured into renewable energy and globalisation of downstream operations. It has subsidiaries in Sri Lanka (Lanka IOC),^[14] Mauritius (IndianOil (Mauritius) Ltd),^[15] and the Middle East (IOC Middle East FZE).^[16]

In May 2018, IOCL became India's most profitable government corporation for the second consecutive year, with a record profit of ₹21,346 crores in 2017–18. In February 2020, the company signed a deal with the Russian oil company Rosneft to buy 140,000 barrels per day of crude in year 2020. By 1 April 2020, IndianOil was in absolute readiness to launch BS-VI (Bharat Stage VI) fuels in all its retail outlets in Telangana and adopt world-class emission norms.

In January 2021, sales were registered at an all time high of 410,000 barrels of oil per day till 26 January 2021. Delek, QatarEnergy, and Saudi Aramco are its largest business partners with Abu Dhabi National Oil Company and National Iranian Oil Company signing deals to deliver high production output by the end of 2020.



Introduction

This Software Requirements Specification (SRS) document outlines the details of the web application developed during an internship at Indian Oil. The application was created to streamline the tender approval process by providing a user-friendly interface for authentication and form management. The primary goal of this application is to ensure that the approval process is efficient, secure, and user-friendly, enabling users to manage tender approvals seamlessly. This document includes a detailed description of the system, including its functional requirements, interface requirements, performance requirements, design constraints, and other relevant aspects.

General Description

The web application is designed as a standalone system accessible via modern web browsers. It includes a login page for user authentication and an in-principle approval page for managing tender details. The application was developed using HTML, CSS, and JavaScript for the frontend, while SQL was used for database management. The development environment involved downloading and connecting a SQL server to Visual Studio Code (VSCode) and utilizing a workbench for database management.

The application features include user login, displaying default messages in the approval form, allowing users to modify specific fields, and saving the modified form as a PDF document. The system is designed to ensure data integrity, security, and ease of use. Below is a detailed description of each component and functionality of the application.

Development Environment- The development environment was meticulously set up to ensure a smooth and efficient workflow. The SQL Server was downloaded and configured to work with Visual Studio Code (VSCode), a widely-used code editor that supports various programming languages and extensions, making it an ideal choice for this project. A workbench was also utilized for managing the SQL database, providing an intuitive graphical interface for handling database operations such as creating tables, inserting data, and running queries.

Frontend- The frontend of the application was built using a combination of HTML, CSS, and JavaScript. HTML (Hypertext Markup Language) was used to structure the web pages, defining the layout and elements of the login and approval form pages. CSS (Cascading Style Sheets) was employed to style these elements, ensuring a visually appealing and user-friendly interface. JavaScript was used to add interactivity to the web pages, enabling dynamic behavior such as form validation, data submission, and PDF generation.

Database Management- The SQL database plays a crucial role in managing the application's data. By downloading and configuring SQL Server and connecting it to VSCode, the development team ensured that all database operations could be performed efficiently and effectively.

Functional Requirements

The primary functional requirements of the application revolve around user authentication, form data management, and PDF generation.

1. **User Authentication:**

- The application must validate user credentials during the login process. This ensures that only authorized users can access the approval form. The login process involves entering a username and password, which are checked against the credentials stored in the SQL database.
- The login form is straightforward, asking for a username and password. If the entered credentials match those stored in the database, the user is granted access. If not, an error message is displayed.

- Code for this-

<!-- HTML code for the login form -->

```
<div id="loginContainer" class="main">
```

```
  
```

```
  <h1>INDIAN OIL</h1>
```

```
  <h3>Enter your login credentials</h3>
```

```
  <form id="loginForm">
```

```
    <label for="first">Username:</label>
```

```
    <input type="text" id="first" name="first" placeholder="Enter your Username" required>
```

```
    <label for="password">Password:</label>
```

```
    <input type="password" id="password" name="password" placeholder="Enter your Password" required>
```

```
    <div class="wrap">
```


```
      <button type="submit">Submit</button>
```

```
    </div>
```

```
  </form>
```

```
  <p>Not registered? <a href="#" style="text-decoration: none;">Create an account</a></p>
```

```
</div>
```



IndianOil

INDIAN OIL

Enter your login credentials

Username:

Password:

[Submit](#)

Not registered? [Create an account](#)

2. Tender Approval Form Management:

- Once logged in, users are presented with a form containing default messages in various fields. Users should be able to modify these fields as needed. The form includes fields such as Reference Number, Section, Department, Location, Date, Subject, Perspective, Proposal, and Conclusion. The Reference Number and certain other fields are generated automatically and are read-only.
- The Reference Number is a randomly generated five-digit number, ensuring uniqueness for each form. The Date field is automatically set to the current system date when the form is loaded.

- Code for this-

```
<!-- HTML code for the approval form -->
<div id="dialogueContainer" class="main hidden">
  
  <h1>IN-PRINCIPLE APPROVAL</h1>
  <br>
  <div class="dialogue-inline">
    <div class="dialogue-box-inline">
      <label for="dialogue1">Ref No:</label>
      <input type="text" id="dialogue1" name="dialogue1" readonly>
    </div>
    <div class="dialogue-box-inline">
      <label for="dialogue2">Section:</label>
      <textarea id="dialogue2" name="dialogue2" readonly>Information Systems</textarea>
    </div>
    <div class="dialogue-box-inline">
      <label for="dialogue3">Department:</label>
      <textarea id="dialogue3" name="dialogue3" readonly>Information Technology</textarea>
    </div>
    <div class="dialogue-box-inline">
      <label for="dialogue4">Location:</label>
      <textarea id="dialogue4" name="dialogue4" readonly>Uttar Pradesh</textarea>
    </div>
  </div>
  <div class="dialogue-box">
    <label for="date">Date:</label>
    <input type="date" id="date" name="date">
  </div>
  <div class="dialogue-box">
    <label for="dialogue5">Subject:</label>
    <textarea id="dialogue5" name="dialogue5">Default message 5</textarea>
  </div>
  <div class="dialogue-box">
    <label for="dialogue6">Perspective:</label>
    <textarea id="dialogue6" name="dialogue6">Default message 6</textarea>
  </div>
  <div class="dialogue-box">
    <label for="dialogue7">Proposal:</label>
    <textarea id="dialogue7" name="dialogue7">Default message 7</textarea>
  </div>
  <div class="dialogue-box">
    <label for="dialogue8">Conclusion:</label>
    <textarea id="dialogue8" name="dialogue8">Default message 8</textarea>
  </div>
  <div class="dialogue-box">
    <label>Confidential:</label>
    <label><input type="radio" name="confidential" value="Yes" checked> Yes</label>
    <label><input type="radio" name="confidential" value="No"> No</label>
  </div>
  <div class="wrap">
    <button id="saveBtn">Save as pdf</button>
  </div>
  <p id="saveMessage" class="hidden">Information saved</p>
```

</div>



IndianOil

IN-PRINCIPLE APPROVAL

Ref No:

UP/24-25/40059

Section:

Information Systems

Department:

Information Technology

Location:

Uttar Pradesh

Date:

03-07-2024

Subject:

Default message 5

Perspective:

Default message 6

Proposal:

Default message 7

Conclusion:

Default message 8

Confidential:

☒ Yes

☐ No

Save as pdf

3. PDF Generation:

- The system must provide the capability to save the form data as a PDF document. This includes capturing the modified fields and generating a formatted PDF that can be downloaded or printed for record-keeping and further processing.
- The PDF generation is implemented using the jsPDF library, allowing the form data to be saved as a PDF with a click of a button.
- Code for this-

// JavaScript code for generating the PDF

```
document.getElementById('saveBtn').addEventListener('click', async function () {

    const dialogue1 = document.getElementById('dialogue1').value;

    const dialogue2 = document.getElementById('dialogue2').value;

    const dialogue3 = document.getElementById('dialogue3').value;

    const dialogue4 = document.getElementById('dialogue4').value;

    const date = formatDate(document.getElementById('date').value); // Format date

    const dialogue5 = document.getElementById('dialogue5').value;

    const dialogue6 = document.getElementById('dialogue6').value;

    const dialogue7 = document.getElementById('dialogue7').value;

    const dialogue8 = document.getElementById('dialogue8').value;

    const confidential = document.querySelector('input[name="confidential"]:checked').value;

    const { jsPDF } = window.jspdf;

    const doc = new jsPDF();

    // Add title

    doc.setFontSize(18);

    doc.setTextColor(40, 40, 40);

    doc.text('IN-PRINCIPLE APPROVAL', 10, 20);

    // Add some margin

    let y = 30;

    // Add subtitle and content

    function addSection(title, content) {

        doc.setFontSize(12);

        doc.setTextColor(0, 102, 204); // Blue color

        doc.text(title, 10, y);
```

```
y += 6;

doc.setFontSize(10);

doc.setTextColor(0, 0, 0); // Black color

doc.text(content, 10, y);

y += 10;

}

addSection('Ref No:', dialogue1);

addSection('Section:', dialogue2);

addSection('Department:', dialogue3);

addSection('Location:', dialogue4);

addSection('Date:', date);

addSection('Subject:', dialogue5);

addSection('Perspective:', dialogue6);

addSection('Proposal:', dialogue7);

addSection('Conclusion:', dialogue8);

addSection('Confidential:', confidential);

doc.save('dialogues.pdf');

document.getElementById('saveMessage').classList.remove('hidden');

});
```

INPRINCIPLE APPROVAL

Ref No:

UP/24-25/40059

Section:

Information Systems

Department:

Information Technology

Location:

Uttar Pradesh

Date:

2024-07-03

Subject:

abc

Perspective:

xyzz

Proposal:

12333

Conclusion:

conclusion

Confidential:

No

Interface Requirements

The user interface requirements focus on providing a seamless and intuitive experience for the users.

1. **Login Page:**

- The login page must contain fields for username and password, accompanied by a submit button. Upon successful login, users are redirected to the approval form page.
- The login interface should be simple yet secure, ensuring that users can easily log in without compromising security.

2. **Approval Form Page:**

- The approval form page displays default messages in text fields and text areas. Some fields are editable, allowing users to input their custom messages. The interface should include buttons for submitting the login form and saving the modified form as a PDF. All interactions should be clear, with feedback provided for both successful and unsuccessful actions.
- The design of the approval form is structured to provide clarity and ease of use. The fields are grouped logically, and the layout is responsive to ensure compatibility with various devices.

3. **Visual Design:**

- The application uses a clean and modern design with a responsive layout to ensure compatibility with various devices and screen sizes. CSS is used to style the elements, providing a professional look and feel.
- The color scheme and typography are chosen to enhance readability and user experience. The design elements are consistent throughout the application to provide a cohesive experience.

Performance Requirements

Performance requirements emphasize the efficiency and responsiveness of the application.

1. **Loading Time:**

- The web application should load within three seconds to ensure a smooth user experience. Fast loading times are crucial for maintaining user engagement and satisfaction.
- Optimization techniques such as minification of CSS and JavaScript files, image compression, and efficient database queries are employed to achieve this goal.

2. **Concurrent Users:**

- The system must handle multiple concurrent users without significant performance degradation. This ensures that the application remains usable even during peak usage times.
- Load testing and performance optimization strategies are implemented to ensure scalability and reliability.

3. **PDF Generation Speed:**

- Saving the form as a PDF should be quick and efficient, taking no more than a few seconds to complete. The PDF generation process is optimized to handle the form data efficiently and produce the document promptly.
- The jsPDF library is utilized for PDF generation, ensuring that the process is smooth and reliable.

4. **Security:**

- The application must ensure secure data transmission using HTTPS to protect user credentials and form data. Security measures such as input validation, encryption, and secure authentication mechanisms are implemented to safeguard the application and user data.
- Regular security audits and updates are performed to address any potential vulnerabilities.

Design Constraints

Several design constraints were considered during the development of the application.

1. **Compatibility:**

- The application must be compatible with modern web browsers, including Google Chrome, Mozilla Firefox, and others. Ensuring cross-browser compatibility is crucial for providing a consistent user experience across different platforms.
- The application is tested on various browsers and devices to identify and address any compatibility issues.

2. **Database Management:**

- The database was managed using SQL. The SQL server was downloaded and connected to Visual Studio Code (VSCode), and a workbench was used for database management. This setup provided a robust environment for managing database operations and ensuring data integrity.
- SQL queries and database structures are designed to be efficient and scalable, supporting the application's performance and reliability requirements.

3. **Development Environment:**

- The development environment included Visual Studio Code for coding and debugging, along with the SQL workbench for database management. This combination provided a comprehensive toolset for developing and maintaining the application.
- Version control using Git and regular code reviews ensured code quality and collaboration among developers.

4. **User Interface Design:**

- The user interface was designed to be intuitive and easy to navigate, reducing the learning curve for new users. The use of HTML, CSS, and JavaScript ensured that the application was responsive and interactive.
- User feedback and usability testing were conducted to refine the interface and enhance the overall user experience.

5. **Security:**

- Security was a primary concern, necessitating the use of HTTPS for data transmission and robust validation mechanisms for user inputs. User credentials and sensitive data were stored securely in the SQL database.
- Measures such as secure password storage, input sanitization, and regular security updates were implemented to protect the application from common security threats.

Code

Html code:

```
<!DOCTYPE html>
<html>

<head>
  <title>Indian Oil - Login & Approval</title>
  <link rel="stylesheet" href="style.css">
</head>

<body>
  <div id="loginContainer" class="main">
```

```

        
    <h1>INDIAN OIL</h1>
    <h3>Enter your login credentials</h3>
    <form id="loginForm">
        <label for="first">Username:</label>
        <input type="text" id="first" name="first" placeholder="Enter your Username"
required>

        <label for="password">Password:</label>
        <input type="password" id="password" name="password" placeholder="Enter your
Password" required>

        <div class="wrap">
            <button type="submit">Submit</button>
        </div>
    </form>
    <p>Not registered?
        <a href="#" style="text-decoration: none;">Create an account</a>
    </p>
</div>

<div id="dialogueContainer" class="main hidden">
    
    <h1>IN-PRINCIPLE APPROVAL</h1>
    <br>
    <div class="dialogue-inline">
        <div class="dialogue-box-inline">
            <label for="dialogue1">Ref No:</label>
            <input type="text" id="dialogue1" name="dialogue1" readonly>
        </div>
        <div class="dialogue-box-inline">
            <label for="dialogue2">Section:</label>
            <textarea id="dialogue2" name="dialogue2" readonly>Information
Systems</textarea>
        </div>
        <div class="dialogue-box-inline">
            <label for="dialogue3">Department:</label>
            <textarea id="dialogue3" name="dialogue3" readonly>Information
Technology</textarea>
        </div>
        <div class="dialogue-box-inline">
            <label for="dialogue4">Location:</label>
            <textarea id="dialogue4" name="dialogue4" readonly>Uttar
Pradesh</textarea>
        </div>
    </div>
    <div class="dialogue-box">
        <label for="date">Date:</label>

```

```

        <input type="date" id="date" name="date">
    </div>
    <div class="dialogue-box">
        <label for="dialogue5">Subject:</label>
        <textarea id="dialogue5" name="dialogue5">Default message 5</textarea>
    </div>
    <div class="dialogue-box">
        <label for="dialogue6">Perspective:</label>
        <textarea id="dialogue6" name="dialogue6">Default message 6</textarea>
    </div>
    <div class="dialogue-box">
        <label for="dialogue7">Proposal:</label>
        <textarea id="dialogue7" name="dialogue7">Default message 7</textarea>
    </div>
    <div class="dialogue-box">
        <label for="dialogue8">Conclusion:</label>
        <textarea id="dialogue8" name="dialogue8">Default message 8</textarea>
    </div>
    <div class="dialogue-box">
        <label>Confidential:</label>
        <label><input type="radio" name="confidential" value="Yes" checked>
Yes</label>
        <label><input type="radio" name="confidential" value="No"> No</label>
    </div>
    <div class="wrap">
        <button id="saveBtn">Save as pdf</button>
    </div>
    <p id="saveMessage" class="hidden">Information saved</p>
</div>

<script
src="https://cdnjs.cloudflare.com/ajax/libs/jspdf/2.5.1/jspdf.umd.min.js"></script>
<script>
    document.getElementById('loginForm').addEventListener('submit', function (event) {
        event.preventDefault(); // Prevent form from submitting

        const username = document.getElementById('first').value;
        const password = document.getElementById('password').value;

        if (username === 'user' && password === 'pass') {
            alert('Valid');
            document.getElementById('loginContainer').classList.add('hidden');
            document.getElementById('dialogueContainer').classList.remove('hidden');
            // Set the reference number
            const refNo = generateRefNo();
            document.getElementById('dialogue1').value = refNo;
            // Set the date input to today's date
            const today = new Date().toISOString().split('T')[0];
            document.getElementById('date').value = today;
        } else {
            alert('Invalid');
        }
    });

```

```

document.getElementById('saveBtn').addEventListener('click', async function () {
    const dialogue1 = document.getElementById('dialogue1').value;
    const dialogue2 = document.getElementById('dialogue2').value;
    const dialogue3 = document.getElementById('dialogue3').value;
    const dialogue4 = document.getElementById('dialogue4').value;
    const date = formatDate(document.getElementById('date').value); // Format date
    const dialogue5 = document.getElementById('dialogue5').value;
    const dialogue6 = document.getElementById('dialogue6').value;
    const dialogue7 = document.getElementById('dialogue7').value;
    const dialogue8 = document.getElementById('dialogue8').value;
    const confidential =
document.querySelector('input[name="confidential"]:checked').value;

    const { jsPDF } = window.jspdf;

    const doc = new jsPDF();

    // Add title
    doc.setFontSize(18);
    doc.setTextColor(40, 40, 40);
    doc.text('INPRINCIPLE APPROVAL', 10, 20);

    // Add some margin
    let y = 30;

    // Add subtitle and content
    function addSection(title, content) {
        doc.setFontSize(12);
        doc.setTextColor(0, 102, 204); // Blue color
        doc.text(title, 10, y);
        y += 6;
        doc.setFontSize(10);
        doc.setTextColor(0, 0, 0); // Black color
        doc.text(content, 10, y);
        y += 10;
    }

    addSection('Ref No:', dialogue1);
    addSection('Section:', dialogue2);
    addSection('Department:', dialogue3);
    addSection('Location:', dialogue4);
    addSection('Date:', date);
    addSection('Subject:', dialogue5);
    addSection('Perspective:', dialogue6);
    addSection('Proposal:', dialogue7);
    addSection('Conclusion:', dialogue8);
    addSection('Confidential:', confidential);

    doc.save('dialogues.pdf');

    // Show the save message
    document.getElementById('saveMessage').classList.remove('hidden');
});

```

```

    // Function to format the date as YYYY-MM-DD
    function formatDate(dateString) {
        const date = new Date(dateString);
        const year = date.getFullYear();
        const month = ('0' + (date.getMonth() + 1)).slice(-2);
        const day = ('0' + date.getDate()).slice(-2);
        return `${year}-${month}-${day}`;
    }

    // Function to generate a reference number
    function generateRefNo() {
        const prefix = 'UP/24-25/';
        const randomNum = Math.floor(10000 + Math.random() * 90000); // Generate a
random 5-digit number
        return `${prefix}${randomNum}`;
    }
</script>
</body>

</html>

```

css code:

```

/* General Styles */
body {
    font-family: 'Arial', sans-serif;
    background-color: #f4f4f9;
    margin: 0;
    padding: 0;
    display: flex;
    justify-content: center;
    align-items: center;
    height: 100vh;
}

/* Main Container */
.main {
    background-color: #ffffff;
    padding: 20px;
    border-radius: 8px;
    border: 1px solid #e0e0e0;
    box-shadow: 0 4px 8px rgba(0, 0, 0, 0.1);
    max-width: 1000px; /* Increased width */
    width: 100%;
    text-align: center;
    overflow-y: auto;
    max-height: 90vh;

    /* Added border */
    border-top: 8px solid #007bff; /* Top border color */
}

```

```
/* Headers */
h1 {
  margin-bottom: 10px;
  color: #333;
  font-family: 'Trebuchet MS', sans-serif;
}

h3 {
  margin-bottom: 10px;
  color: #555;
  font-weight: normal;
}

/* Labels */
label {
  display: block;
  text-align: left;
  margin: 8px 0 4px;
  color: #333;
  font-family: 'Verdana', sans-serif;
}

/* Inputs and Textareas */
input[type="text"],
input[type="password"],
textarea,
input[type="date"] {
  padding: 10px;
  margin-bottom: 12px;
  border: 1px solid #ced4da;
  border-radius: 4px;
  box-sizing: border-box;
  transition: border-color 0.3s;
  width: 100%;
  font-family: 'Verdana', sans-serif;
}

input[type="text"]:focus,
input[type="password"]:focus,
textarea:focus,
input[type="date"]:focus {
  border-color: #007bff;
  outline: none;
}

textarea {
  resize: vertical;
}

/* Dialogue Box Styles */
.dialogue-box {
  margin-bottom: 12px;
  width: 100%;
}
```

```

/* Radio Buttons */
input[type="radio"] {
    margin-right: 5px;
}

/* Button Wrapper */
.wrap {
    text-align: center;
    clear: both;
}

/* Buttons */
button {
    background-color: #007bff;
    color: white;
    padding: 10px 20px;
    border: none;
    border-radius: 4px;
    cursor: pointer;
    transition: background-color 0.3s;
    font-family: 'Verdana', sans-serif;
}

button:hover {
    background-color: #0056b3;
}

/* Hidden Elements */
.hidden {
    display: none;
}

/* Links */
a {
    color: #007bff;
}

a:hover {
    text-decoration: underline;
}

/* Save Message */
#saveMessage {
    color: #28a745;
    margin-top: 10px;
    font-weight: bold;
}

```

Java script code:

```
const puppeteer = require('puppeteer');
```



```

async function saveHTMLAsPDF(url, pdfFilePath) {
  const browser = await puppeteer.launch();
  const page = await browser.newPage();

  await page.goto(url, { waitUntil: 'networkidle0' }); // Load the page

  // Set the PDF options
  const options = {
    path: pdfFilePath, // Path where the PDF file will be saved
    format: 'A4', // Paper format
    printBackground: true, // Include background in PDF
  };

  await page.pdf(options); // Save as PDF

  await browser.close();
  console.log(`PDF saved to ${pdfFilePath}`);
}

// Example usage:
const url = 'https://example.com'; // Replace with your HTML page URL
const pdfFilePath = 'page.pdf'; // Output PDF file path

saveHTMLAsPDF(url, pdfFilePath).catch(console.error);

```

Conclusion

This document provides a comprehensive overview of the web application developed during the internship at Indian Oil. By addressing user authentication, form management, and PDF generation, the application aims to streamline the tender approval process. The functional requirements ensure that the application meets its primary objectives, while the interface and performance requirements focus on providing a seamless user experience. Design constraints were carefully considered to ensure compatibility, security, and ease of use. The inclusion of a SQL server connected to Visual Studio Code and managed using a workbench ensures robust database management. Overall, the application is poised to significantly improve the efficiency and effectiveness of the tender approval process at Indian Oil.

