**JAVA**

**package New;**

**import java.util.ArrayList;**

**import java.util.List;**

**import java.util.Scanner;**

**public class SimpleSearchEngine {**

**public static void main(String[] args) {**

**// Create a list of documents**

**List<String> documents = new ArrayList<>();**

**documents.add("Java is a programming language.");**

**documents.add("Python is known for its simplicity.");**

**documents.add("JavaScript is used for web development.");**

**// Create a Scanner Object to read user input**

**Scanner s=new Scanner(System.*in*);**

**System.*out*.println("Enter a search query:");**

**// Read the user's search query**

**String query = s.nextLine();**

**// Perform the search and store the results in list**

**List<String> searchResults= *search*(documents, query);**

**// Display search results or a message if no results were found**

**if(searchResults.isEmpty()) {**

**System.*out*.println("No documents match the query.");**

**}**

**else**

**{**

**System.*out*.println("Search results:");**

**for(String result : searchResults) {**

**System.*out*.println(result);**

**}**

**}**

**}**

**// Function to perform a simple search**

**public static List<String> search(List<String> documents, String query){**

**List<String>searchResults =new ArrayList<>();**

**query = query.toLowerCase(); // Convert query to Lower case for insensitive**

**// Iterate through each document and check if it is contains the query**

**for(String document : documents) {**

**if(document.toLowerCase().contains(query)) {**

**searchResults.add(document); // Add matching documents to the results list**

**}**

**}**

**return searchResults; // Return the list of search results**

**}**

**}**

**JAVA SERVLET**

**import** java.util.ArrayList;

**import** java.io.IOException;

**import** java.util.List;

**import** javax.servlet.ServletException;

**import** javax.servlet.annotation.WebServlet;

**import** javax.servlet.http.HttpServlet;

**import** javax.servlet.http.HttpServletRequest;

**import** javax.servlet.http.HttpServletResponse;

// This is a class servlet and map it to a URL

@WebServlet("/SearchEngine")

**public** **class** SearchEngine **extends** HttpServlet {

**private** **static** **final** **long** ***serialVersionUID*** = 1L;

// Method that handles HTTP post requests

**protected** **void** doGet(HttpServletRequest request, HttpServletResponse response) **throws** ServletException, IOException {

// Get the value of the parameter query from request

String query = request.getParameter("query");

// Perform the search using the query

List<String> searchResults = performSearch(query);

// Set the search results as an attribute in the request

request.setAttribute("searchResults", searchResults);

// Forward the request to Java Server Pages for rendering

request.getRequestDispatcher("searchResults.jsp").forward(request, response);

}

// Method to perform simple search engine using query and documents

**public** List<String>performSearch(String query){

// Create a list of documents

List<String> documents= **new** ArrayList<>();

documents.add("Java is Programming language.");

documents.add("JavaScript is used for Web Development.");

documents.add("Python is known for its simplicity.");

// Create a list to store search results

List<String> results=**new** ArrayList<>();

// Loop each document in the list

**for**(String document: documents) {

// Check the document contains query of case-sensitive

**if**(document.toLowerCase().contains(query.toLowerCase())) {

// add the document to the results list

results.add(document);

}

}

// return the list of search results

**return** results;

}

}

**SEARCH\_FORM.JSP**

<%@ page language=*"java"* contentType=*"text/html; charset=UTF-8"*

pageEncoding=*"UTF-8"*%>

<!DOCTYPE html>

<html>

<head>

<meta charset=*"UTF-8"*>

<!-- Title of the HTML Document -->

<title>Simple Search Engine</title>

</head>

<body>

<!-- Heading with the Text -->

<h1>Simple Search Engine</h1>

<!-- Create a form for user input-->

<form action=*"SearchEngine"* method=*"get"*>

<!-- Label for the input field -->

<label for=*"query"*>Enter your search query:</label>

<!-- Input the field for user to type the search query -->

<input type=*"text"* id=*"query"* name=*"query"*>

<!-- Submit the button to initiate the search -->

<input type=*"submit"* value=*"Search"*>

</form>

</body>

</html>

**SEARCH\_RESULTS.JSP**

<%@ taglib prefix=*"c"* uri=*"http://java.sun.com/jsp/jstl/core"* %>

<%@ page language=*"java"* contentType=*"text/html; charset=UTF-8"*

pageEncoding=*"UTF-8"*%>

<!DOCTYPE html>

<html>

<head>

<meta charset=*"UTF-8"*>

<!-- Title of the HTML Document -->

<title>Search Results</title>

</head>

<body>

<!-- Heading with the Text -->

<h1>Search Results</h1>

<!-- Unordered List to display search results -->

<ul>

<!-- Java Server Pages Standard tag library-->

<c:forEach var=*"result"* items=*"*${searchResults}*"*>

<!-- Loop contains each item in the search results-->

<!-- Display each result as a list item -->

<li>${result}</li>

<!-- The ${result} expression evaluates to the current result in the loop -->

</c:forEach>

</ul>

</body>

</html>

**JAVA DATABASE CONNECTIVITY**

// Imported the packages for JDBC and SQL Handling

**import** java.sql.PreparedStatement;

**import** java.sql.SQLException;

**import** java.util.List;

**import** java.util.Scanner;

**import** java.sql.Connection;

**import** java.sql.DriverManager;

**import** java.sql.ResultSet;

**import** java.util.ArrayList;

// Creating a Class named as SearchEnigneJDBC

**public** **class** SearchEngineJDBC {

// Database connection details

**public** **static** **final** String ***URL***="jdbc:mysql://localhost:3306/simplesearchengine";

**public** **static** **final** String ***username***="root";

**public** **static** **final** String ***password***="ganeshkumar#04021999";

// This is the Main Method to Execute the program

**public** **static** **void** main(String[] args) {

// Create a Scanner Object to read user input

Scanner s=**new** Scanner(System.***in***);

System.***out***.println("Enter your search query:");

String query = s.nextLine();

// Perform the search using the query

List<String>searchResults=*performSearch*(query);

// Display the search results

**if**(searchResults.isEmpty()) {

System.***out***.println("No search results found");

}

**else**

{

System.***out***.println("Search results:");

**for**(String result: searchResults) {

System.***out***.println("-"+result);

}

}

// After use close the Scanner

s.close();

}

// Method that performs to search and return list search results

**private** **static** List<String>performSearch(String query){

// Create new ArrayList to store the search results

List<String>results=**new** ArrayList<>();

**try** {

// It is a Driver connecting to MySQL Database

Class.*forName*("com.mysql.cj.jdbc.Driver");

**try** {

// Establish a connection to the Database

Connection con=DriverManager.*getConnection*(***URL***,***username***,***password***);

// SQL query to retreive documents and matching the search query

String sql= "SELECT \* FROM searchenginedocuments WHERE text LIKE?";

// Prepare a statement with SQL query

PreparedStatement stmt= con.prepareStatement(sql);

// Set the search query in the Prepared Statement

stmt.setString(1, "%" +query+ "%");

// This is the ResultSet to execute the query

ResultSet rs= stmt.executeQuery();{

// Loop through the result set and extract the document\_content

**while**(rs.next()) {

String document =rs.getString("text");

results.add(document);

}

}

}

// If there is Exception then this block will catch exception and handle it

**catch** (Exception e) {

}

}

// e is the variable

**catch**(Exception e) {

// Print any Database errors

e.printStackTrace();

}

// Retrun the list of search results

**return** results;

}

}