**App Tech Foundational course assignments**

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**Q1. Calculator code**

<!DOCTYPE html>

<html>

<head>

<style>

.calculator {

width: 200px;

margin: 0 auto;

border: 1px solid #ccc;

padding: 10px;

text-align: center;

}

</style>

</head>

<body>

<div class="calculator">

<input type="text" id="display" readonly>

<br>

<button onclick="appendToDisplay('1')">1</button>

<button onclick="appendToDisplay('2')">2</button>

<button onclick="appendToDisplay('3')">3</button>

<button onclick="appendOperator('+')">+</button>

<br>

<button onclick="appendToDisplay('4')">4</button>

<button onclick="appendToDisplay('5')">5</button>

<button onclick="appendToDisplay('6')">6</button>

<button onclick="appendOperator('-')">-</button>

<br>

<button onclick="appendToDisplay('7')">7</button>

<button onclick="appendToDisplay('8')">8</button>

<button onclick="appendToDisplay('9')">9</button>

<button onclick="appendOperator('\*')">\*</button>

<br>

<button onclick="appendToDisplay('0')">0</button>

<button onclick="calculate()">=</button>

<button onclick="clearDisplay()">C</button>

<button onclick="appendOperator('/')">/</button>

<br>

<button onclick="backspace()">←</button>

</div>

<script>

let firstNumber = '';

let operator = '';

function appendToDisplay(value) {

document.getElementById('display').value += value;

}

function appendOperator(op) {

firstNumber = document.getElementById('display').value;

operator = op;

clearDisplay();

}

function calculate() {

const secondNumber = document.getElementById('display').value;

let result = 0;

switch (operator) {

case '+':

result = parseFloat(firstNumber) + parseFloat(secondNumber);

break;

case '-':

result = parseFloat(firstNumber) - parseFloat(secondNumber);

break;

case '\*':

result = parseFloat(firstNumber) \* parseFloat(secondNumber);

break;

case '/':

result = parseFloat(firstNumber) / parseFloat(secondNumber);

break;

}

document.getElementById('display').value = result;

firstNumber = '';

operator = '';

}

function clearDisplay() {

document.getElementById('display').value = '';

}

function backspace() {

let currentDisplay = document.getElementById('display').value;

document.getElementById('display').value = currentDisplay.slice(0, -1);

}

</script>

</body>

</html>

**Q. Assignment-2 Employee Management System in Java**

All the files were saved separately and the main file was run to gather inputs and implement the methods as per the question.

**//Main file to run**

public class MainApplication {

public static void main(String[] args) {

// Creating instances of our classes

Permission permission = new Permission();

Role role = new Role();

User user = new User();

Leave leave = new Leave();

Attendance attendance = new Attendance();

Salary salary = new Salary();

Employee employee = new Employee();

Holiday holiday = new Holiday();

// Call methods for each class

permission.addPermission();

role.addRole();

user.addUser();

leave.addLeave();

attendance.addAttendance();

salary.addSalary();

employee.addEmployee();

holiday.addHoliday();

// Call edit, delete, and search methods for different classes

role.editRole();

user.editUser();

leave.editLeave();

attendance.editAttendance();

salary.editSalary();

employee.editEmployee();

holiday.editHoliday();

role.deleteRole();

user.deleteUser();

leave.deleteLeave();

attendance.deleteAttendance();

salary.deleteSalary();

employee.deleteEmployee();

holiday.deleteHoliday();

role.searchRole();

user.searchUser();

leave.searchLeave();

attendance.searchAttendance();

salary.searchSalary();

employee.searchEmployee();

holiday.searchHoliday();

// Assignment method for user class only as per the question

user.assignUserPermission();

}

}

**//Permission class**

import java.util.Scanner;

public class Permission {

private int permissionId;

private int permissionRoleId;

private String permissionTitle;

private String permissionModule;

private String permissionDescription;

private Scanner scanner = new Scanner(System.in);

public void addPermission() {

System.out.println("Enter permission ID:");

permissionId = scanner.nextInt();

System.out.println("Enter permission role ID:");

permissionRoleId = scanner.nextInt();

System.out.println("Enter permission title:");

permissionTitle = scanner.next();

System.out.println("Enter permission module:");

permissionModule = scanner.next();

System.out.println("Enter permission description:");

permissionDescription = scanner.next();

System.out.println("Permission added successfully!");

}

public void editPermission() {

System.out.println("Enter permission ID to edit:");

int idToEdit = scanner.nextInt();

if (idToEdit == permissionId) {

System.out.println("Enter new permission role ID:");

permissionRoleId = scanner.nextInt();

System.out.println("Enter new permission title:");

permissionTitle = scanner.next();

System.out.println("Enter new permission module:");

permissionModule = scanner.next();

System.out.println("Enter new permission description:");

permissionDescription = scanner.next();

System.out.println("Permission updated successfully!");

} else {

System.out.println("Permission with ID " + idToEdit + " not found.");

}

}

public void deletePermission() {

System.out.println("Enter permission ID to delete:");

int idToDelete = scanner.nextInt();

if (idToDelete == permissionId) {

System.out.println("Permission deleted successfully!");

} else {

System.out.println("Permission with ID " + idToDelete + " not found.");

}

}

public void searchPermission() {

System.out.println("Enter permission ID to search:");

int idToSearch = scanner.nextInt();

if (idToSearch == permissionId) {

System.out.println("Permission details:");

System.out.println("Role ID: " + permissionRoleId);

System.out.println("Title: " + permissionTitle);

System.out.println("Module: " + permissionModule);

System.out.println("Description: " + permissionDescription);

} else {

System.out.println("Permission with ID " + idToSearch + " not found.");

}

}

public int getPermissionId() {

return permissionId;

}

public void setPermissionId(int permissionId) {

this.permissionId = permissionId;

}

}

**//Role class**

import java.util.Scanner;

public class Role {

private int roleId;

private String roleTitle;

private String roleDescription;

private Scanner scanner = new Scanner(System.in);

public void addRole() {

System.out.println("Enter role ID:");

roleId = scanner.nextInt();

System.out.println("Enter role title:");

roleTitle = scanner.next();

System.out.println("Enter role description:");

roleDescription = scanner.next();

System.out.println("Role added successfully!");

}

public void editRole() {

System.out.println("Enter role ID to edit:");

int idToEdit = scanner.nextInt();

if (idToEdit == roleId) {

System.out.println("Enter new role title:");

roleTitle = scanner.next();

System.out.println("Enter new role description:");

roleDescription = scanner.next();

System.out.println("Role updated successfully!");

} else {

System.out.println("Role with ID " + idToEdit + " not found.");

}

}

public void deleteRole() {

System.out.println("Enter role ID to delete:");

int idToDelete = scanner.nextInt();

if (idToDelete == roleId) {

roleId = 0;

roleTitle = null;

roleDescription = null;

System.out.println("Role deleted successfully!");

} else {

System.out.println("Role with ID " + idToDelete + " not found.");

}

}

public void searchRole() {

System.out.println("Enter role ID to search:");

int idToSearch = scanner.nextInt();

if (idToSearch == roleId) {

System.out.println("Role details:");

System.out.println("Title: " + roleTitle);

System.out.println("Description: " + roleDescription);

} else {

System.out.println("Role with ID " + idToSearch + " not found.");

}

}

public void assignRole() {

System.out.println("Enter user ID to assign role:");

int userId = scanner.nextInt();

System.out.println("Role assigned to user " + userId + " successfully!");

}

}

**// Salary class**

import java.util.Scanner;

public class Salary {

private int salaryId;

private String salaryDescription;

private String salaryType;

private String salaryAmount;

private String salaryTotal;

private int salaryEmployeeId;

private Permission relatedPermission; // Aggregation relationship

private Scanner scanner = new Scanner(System.in);

public void addSalary() {

System.out.println("Enter salary ID:");

salaryId = scanner.nextInt();

System.out.println("Enter salary description:");

salaryDescription = scanner.next();

System.out.println("Enter salary type:");

salaryType = scanner.next();

System.out.println("Enter salary amount:");

salaryAmount = scanner.next();

System.out.println("Enter salary total:");

salaryTotal = scanner.next();

System.out.println("Enter employee ID:");

salaryEmployeeId = scanner.nextInt();

relatedPermission = new Permission();

relatedPermission.setPermissionId(salaryId);

System.out.println("Salary added successfully!");

}

public void editSalary() {

System.out.println("Enter salary ID to edit:");

int idToEdit = scanner.nextInt();

if (idToEdit == salaryId) {

System.out.println("Enter new salary description:");

salaryDescription = scanner.next();

System.out.println("Enter new salary type:");

salaryType = scanner.next();

System.out.println("Enter new salary amount:");

salaryAmount = scanner.next();

System.out.println("Enter new salary total:");

salaryTotal = scanner.next();

System.out.println("Enter new employee ID:");

salaryEmployeeId = scanner.nextInt();

if (relatedPermission != null) {

relatedPermission.setPermissionId(salaryId);

}

System.out.println("Salary updated successfully!");

} else {

System.out.println("Salary with ID " + idToEdit + " not found.");

}

}

public void deleteSalary() {

System.out.println("Enter salary ID to delete:");

int idToDelete = scanner.nextInt();

if (idToDelete == salaryId) {

salaryId = 0;

salaryDescription = null;

salaryType = null;

salaryAmount = null;

salaryTotal = null;

salaryEmployeeId = 0;

if (relatedPermission != null) {

relatedPermission.setPermissionId(0);

}

System.out.println("Salary deleted successfully!");

} else {

System.out.println("Salary with ID " + idToDelete + " not found.");

}

}

public void searchSalary() {

System.out.println("Enter salary ID to search:");

int idToSearch = scanner.nextInt();

if (idToSearch == salaryId) {

System.out.println("Salary details:");

System.out.println("Description: " + salaryDescription);

System.out.println("Type: " + salaryType);

System.out.println("Amount: " + salaryAmount);

System.out.println("Total: " + salaryTotal);

System.out.println("Employee ID: " + salaryEmployeeId);

} else {

System.out.println("Salary with ID " + idToSearch + " not found.");

}

}

public void assignPermission(Permission permission) {

relatedPermission = permission;

System.out.println("Permission assigned to salary successfully!");

}

}

**//User class**

import java.util.Scanner;

public class User extends Permission {

private int userId;

private int userRoleId;

private String userName;

private String userEmail;

private String userAddress;

private Scanner scanner = new Scanner(System.in);

public void addUser() {

System.out.println("Enter user ID:");

userId = scanner.nextInt();

System.out.println("Enter user role ID:");

userRoleId = scanner.nextInt();

System.out.println("Enter user name:");

userName = scanner.next();

System.out.println("Enter user email:");

userEmail = scanner.next();

System.out.println("Enter user address:");

userAddress = scanner.next();

System.out.println("User added successfully!");

}

public void editUser() {

System.out.println("Enter user ID to edit:");

int idToEdit = scanner.nextInt();

if (idToEdit == userId) {

System.out.println("Enter new user role ID:");

userRoleId = scanner.nextInt();

System.out.println("Enter new user name:");

userName = scanner.next();

System.out.println("Enter new user email:");

userEmail = scanner.next();

System.out.println("Enter new user address:");

userAddress = scanner.next();

System.out.println("User updated successfully!");

} else {

System.out.println("User with ID " + idToEdit + " not found.");

}

}

public void deleteUser() {

System.out.println("Enter user ID to delete:");

int idToDelete = scanner.nextInt();

if (idToDelete == userId) {

System.out.println("User deleted successfully!");

} else {

System.out.println("User with ID " + idToDelete + " not found.");

}

}

public void searchUser() {

System.out.println("Enter user ID to search:");

int idToSearch = scanner.nextInt();

if (idToSearch == userId) {

System.out.println("User details:");

System.out.println("Role ID: " + userRoleId);

System.out.println("Name: " + userName);

System.out.println("Email: " + userEmail);

System.out.println("Address: " + userAddress);

} else {

System.out.println("User with ID " + idToSearch + " not found.");

}

}

public void assignUserPermission() {

System.out.println("Enter permission ID to assign to user:");

int permissionId = scanner.nextInt();

System.out.println("Permission assigned to user successfully!");

}

}

**// Attendance class**

import java.util.Scanner;

public class Attendance {

private int attendanceId;

private int attendanceEmployeeId;

private String attendanceType;

private String attendanceDescription;

private Permission relatedPermission; // Aggregation relationship

private Scanner scanner = new Scanner(System.in);

public void addAttendance() {

System.out.println("Enter attendance ID:");

attendanceId = scanner.nextInt();

System.out.println("Enter employee ID:");

attendanceEmployeeId = scanner.nextInt();

System.out.println("Enter attendance type:");

attendanceType = scanner.next();

System.out.println("Enter attendance description:");

attendanceDescription = scanner.next();

relatedPermission = new Permission();

relatedPermission.setPermissionId(attendanceId);

System.out.println("Attendance added successfully!");

}

public void editAttendance() {

System.out.println("Enter attendance ID to edit:");

int idToEdit = scanner.nextInt();

if (idToEdit == attendanceId) {

System.out.println("Enter new employee ID:");

attendanceEmployeeId = scanner.nextInt();

System.out.println("Enter new attendance type:");

attendanceType = scanner.next();

System.out.println("Enter new attendance description:");

attendanceDescription = scanner.next();

System.out.println("Attendance updated successfully!");

} else {

System.out.println("Attendance with ID " + idToEdit + " not found.");

}

}

public void deleteAttendance() {

System.out.println("Enter attendance ID to delete:");

int idToDelete = scanner.nextInt();

if (idToDelete == attendanceId) {

attendanceId = 0;

attendanceEmployeeId = 0;

attendanceType = null;

attendanceDescription = null;

System.out.println("Attendance deleted successfully!");

} else {

System.out.println("Attendance with ID " + idToDelete + " not found.");

}

}

public void searchAttendance() {

System.out.println("Enter attendance ID to search:");

int idToSearch = scanner.nextInt();

if (idToSearch == attendanceId) {

System.out.println("Attendance details:");

System.out.println("Employee ID: " + attendanceEmployeeId);

System.out.println("Type: " + attendanceType);

System.out.println("Description: " + attendanceDescription);

} else {

System.out.println("Attendance with ID " + idToSearch + " not found.");

}

}

}

**// Employee class**

import java.util.Scanner;

public class Employee {

private int employeeId;

private String employeeName;

private String employeeMobile;

private String employeeEmail;

private String employeeAddress;

private String employeeUsername;

private String employeePassword;

private Permission relatedPermission; // Aggregation relationship

private Scanner scanner = new Scanner(System.in);

public void addEmployee() {

System.out.println("Enter employee ID:");

employeeId = scanner.nextInt();

System.out.println("Enter employee name:");

employeeName = scanner.next();

System.out.println("Enter employee mobile:");

employeeMobile = scanner.next();

System.out.println("Enter employee email:");

employeeEmail = scanner.next();

System.out.println("Enter employee address:");

employeeAddress = scanner.next();

System.out.println("Enter employee username:");

employeeUsername = scanner.next();

System.out.println("Enter employee password:");

employeePassword = scanner.next();

relatedPermission = new Permission();

relatedPermission.setPermissionId(employeeId);

System.out.println("Employee added successfully!");

}

public void editEmployee() {

System.out.println("Enter employee ID to edit:");

int idToEdit = scanner.nextInt();

// Checking if the entered ID matches the current employee's ID

if (idToEdit == employeeId) {

// Prompt the user to update employee details

System.out.println("Enter new employee name:");

employeeName = scanner.next();

System.out.println("Enter new employee mobile:");

employeeMobile = scanner.next();

System.out.println("Enter new employee email:");

employeeEmail = scanner.next();

System.out.println("Enter new employee address:");

employeeAddress = scanner.next();

System.out.println("Enter new employee username:");

employeeUsername = scanner.next();

System.out.println("Enter new employee password:");

employeePassword = scanner.next();

System.out.println("Employee updated successfully!");

} else {

System.out.println("Employee with ID " + idToEdit + " not found.");

}

}

public void deleteEmployee() {

System.out.println("Enter employee ID to delete:");

int idToDelete = scanner.nextInt();

// Checking if the entered ID matches the current employee's ID

if (idToDelete == employeeId) {

// Delete logic (not implemented in this example)

employeeId = 0;

employeeName = null;

employeeMobile = null;

employeeEmail = null;

employeeAddress = null;

employeeUsername = null;

employeePassword = null;

System.out.println("Employee deleted successfully!");

} else {

System.out.println("Employee with ID " + idToDelete + " not found.");

}

}

public void searchEmployee() {

System.out.println("Enter employee ID to search:");

int idToSearch = scanner.nextInt();

// Check if the entered ID matches the current employee's ID

if (idToSearch == employeeId) {

// Display employee details

System.out.println("Employee details:");

System.out.println("Name: " + employeeName);

System.out.println("Mobile: " + employeeMobile);

System.out.println("Email: " + employeeEmail);

System.out.println("Address: " + employeeAddress);

System.out.println("Username: " + employeeUsername);

System.out.println("Password: " + employeePassword);

} else {

System.out.println("Employee with ID " + idToSearch + " not found.");

}

}

}

**// Holiday class**

import java.util.Scanner;

public class Holiday {

private int holidayId;

private int holidayEmployeeId;

private String holidayDuration;

private String holidayDescription;

private String holidayDate;

private Permission relatedPermission; // Aggregation relationship

private Scanner scanner = new Scanner(System.in);

public void addHoliday() {

System.out.println("Enter holiday ID:");

holidayId = scanner.nextInt();

System.out.println("Enter employee ID:");

holidayEmployeeId = scanner.nextInt();

System.out.println("Enter holiday duration:");

holidayDuration = scanner.next();

System.out.println("Enter holiday description:");

holidayDescription = scanner.next();

System.out.println("Enter holiday date:");

holidayDate = scanner.next();

relatedPermission = new Permission();

relatedPermission.setPermissionId(holidayId);

System.out.println("Holiday added successfully!");

}

public void editHoliday() {

System.out.println("Enter holiday ID to edit:");

int idToEdit = scanner.nextInt();

if (idToEdit == holidayId) {

System.out.println("Enter new employee ID:");

holidayEmployeeId = scanner.nextInt();

System.out.println("Enter new holiday duration:");

holidayDuration = scanner.next();

System.out.println("Enter new holiday description:");

holidayDescription = scanner.next();

System.out.println("Enter new holiday date:");

holidayDate = scanner.next();

System.out.println("Holiday updated successfully!");

} else {

System.out.println("Holiday with ID " + idToEdit + " not found.");

}

}

public void deleteHoliday() {

System.out.println("Enter holiday ID to delete:");

int idToDelete = scanner.nextInt();

if (idToDelete == holidayId) {

System.out.println("Enter new employee ID:");

holidayEmployeeId = scanner.nextInt();

System.out.println("Enter new holiday duration:");

holidayDuration = scanner.next();

System.out.println("Enter new holiday description:");

holidayDescription = scanner.next();

System.out.println("Enter new holiday date:");

holidayDate = scanner.next();

System.out.println("Holiday updated successfully!");

System.out.println("Holiday deleted successfully!");

} else {

System.out.println("Holiday with ID " + idToDelete + " not found.");

}

}

public void searchHoliday() {

System.out.println("Enter holiday ID to search:");

int idToSearch = scanner.nextInt();

if (idToSearch == holidayId) {

System.out.println("Holiday details:");

System.out.println("Employee ID: " + holidayEmployeeId);

System.out.println("Duration: " + holidayDuration);

System.out.println("Description: " + holidayDescription);

System.out.println("Date: " + holidayDate);

} else {

System.out.println("Holiday with ID " + idToSearch + " not found.");

}

}

}

**// Leave class**

import java.util.Scanner;

public class Leave {

private int leaveId;

private String leaveType;

private String leaveDescription;

private String leaveStatus;

private String leaveTo;

private String leaveFrom;

private String leaveEmployee;

private Permission relatedPermission; // Aggregation relationship

private Scanner scanner = new Scanner(System.in);

public void addLeave() {

System.out.println("Enter leave ID:");

leaveId = scanner.nextInt();

System.out.println("Enter leave type:");

leaveType = scanner.next();

System.out.println("Enter leave description:");

leaveDescription = scanner.next();

System.out.println("Enter leave status:");

leaveStatus = scanner.next();

System.out.println("Enter leave to date:");

leaveTo = scanner.next();

System.out.println("Enter leave from date:");

leaveFrom = scanner.next();

System.out.println("Enter employee ID:");

leaveEmployee = scanner.next();

relatedPermission = new Permission();

relatedPermission.setPermissionId(leaveId);

System.out.println("Leave added successfully!");

}

public void editLeave() {

System.out.println("Enter leave ID to edit:");

int idToEdit = scanner.nextInt();

if (idToEdit == leaveId) {

System.out.println("Enter new leave type:");

leaveType = scanner.next();

System.out.println("Enter new leave description:");

leaveDescription = scanner.next();

System.out.println("Enter new leave status:");

leaveStatus = scanner.next();

System.out.println("Enter new leave to date:");

leaveTo = scanner.next();

System.out.println("Enter new leave from date:");

leaveFrom = scanner.next();

System.out.println("Enter new employee ID:");

leaveEmployee = scanner.next();

if (relatedPermission != null) {

relatedPermission.setPermissionId(leaveId);

}

System.out.println("Leave updated successfully!");

} else {

System.out.println("Leave with ID " + idToEdit + " not found.");

}

}

public void deleteLeave() {

System.out.println("Enter leave ID to delete:");

int idToDelete = scanner.nextInt();

if (idToDelete == leaveId) {

leaveId = 0;

leaveType = null;

leaveDescription = null;

leaveStatus = null;

leaveTo = null;

leaveFrom = null;

leaveEmployee = null;

System.out.println("Leave deleted successfully!");

} else {

System.out.println("Leave with ID " + idToDelete + " not found.");

}

}

public void searchLeave() {

System.out.println("Enter leave ID to search:");

int idToSearch = scanner.nextInt();

if (idToSearch == leaveId) {

System.out.println("Leave details:");

System.out.println("Type: " + leaveType);

System.out.println("Description: " + leaveDescription);

System.out.println("Status: " + leaveStatus);

System.out.println("To Date: " + leaveTo);

System.out.println("From Date: " + leaveFrom);

System.out.println("Employee ID: " + leaveEmployee);

} else {

System.out.println("Leave with ID " + idToSearch + " not found.");

}

}

}