

I. Employee Status Updates (2.3.c)

This verifies the Update_Employment_Status procedure uses the Is_On_Leave function correctly to toggle the status between 'active' and 'onleave'

Test ID	Input Employee	Initial State	Action	Expected Outcome	Verification Query
C1	Emp 11 (Dean BI)	employment_status: active . Has approved leave ReqID 4 (10-30-2025 to 11-01-2025).	Execute Update_Employment_Status(11) on 11/23.	No Change. Leave ended 11/01; employee should already be 'active' (or was never 'onleave').	SELECT employment_status FROM Employee WHERE employee_ID = 11;
C2	Emp 12 (Vice Dean BI)	employment_status: onleave . Leave ended 10/30/2025.	Execute Update_Employment_Status(12) on 11/23.	Active. Status changes from 'onleave' to ' active ' because Is_On_Leave returns 0.	SELECT employment_status FROM Employee WHERE employee_ID = 12;

Test ID	Input Employee	Initial State	Action	Expected Outcome	Verification Query
C3	Emp 8 (Magy Zaki)	employment_status: onleave . Has approved leave ReqID 1 (10-26-2025 to 11-01-2025).	Execute Update_Employment_Status(8) on 11/23.	Active . Leave ended 11/01; status changes from 'onleave' to 'active'.	SELECT employment_status FROM Employee WHERE employee_ID = 8;
C4	Emp 18 (Ghada Adel)	employment_status: notice_period .	Execute Update_Employment_Status(18) on 11/23.	No Change . Procedure should only touch 'active' or 'onleave' status.	SELECT employment_status FROM Employee WHERE employee_ID = 18;

I. Attendance Management Tests (2.3.f, g, h, i, j)

These tests confirm the daily automation routines (Initialization and Cleanup).

Test ID	Procedure	Input	Expected Outcome	Verification Query
A1	Intitiate_Attendance (2.3.f)	N/A	Inserts 18 new 'absent' records for 2025-11-23 (Sunday).	SELECT COUNT(*) FROM Attendance WHERE date = '2025-11-23';
A2	Update_Attendance (2.3.g)	Emp 1 (Jack John), Check In/Out	Updates the 11/23 record to ' attended ' and total_duration to 480 minutes (8 hours).	SELECT status, total_duration FROM Attendance WHERE emp_ID = 1 AND date = '2025-11-23';
A3	Remove_Holiday (2.3.h)	N/A (Requires Holiday table to exist)	Deletes 2 records if holiday was added for 11/20-11/21. (Assuming Holiday Table Exists).	SELECT COUNT(*) FROM Attendance WHERE date IN ('2025-11-20', '2025-11-21'); (Should be 0 if test run in the past).

Test ID	Procedure	Input	Expected Outcome	Verification Query
A4	Remove_DayOff (2.3.i)	Emp 1 (Saturday Off)	No Change. Procedure runs on a Sunday (11/23); Emp 1's day off (Saturday) was yesterday.	SELECT COUNT(*) FROM Attendance WHERE emp_ID = 1 AND date = '2025-11-22'; (Should return 0 since a prior execution would have cleared it).
A5	Remove_DayOff (2.3.i)	Emp 19 (Monday Off)	No Change. Procedure runs on a Sunday; it only removes day-off entries for the current month (Nov 23) if that day matches the official day off.	SELECT * FROM Attendance WHERE emp_ID = 19 AND date = '2025-11-23'; (Record should still be present if Sunday is not their day off).
A6	Remove_Approved_Leaves (2.3.j)	Emp 8 (Magy Zaki)	Deletes 7 records. Removes the records corresponding to approved leave ReqID 1 (10-26-2025 to 11-01-2025).	SELECT COUNT(*) FROM Attendance WHERE emp_ID = 8 AND date BETWEEN '2025-10-26' AND '2025-11-

Test ID	Procedure	Input	Expected Outcome	Verification Query
				01'; (Should be 0).

II. Data Cleanup and Utility Tests (2.3.a, b)

Test ID	Procedure	Input	Expected Outcome	Verification Query
L1	Update_Status_Doc (2.3.a)	N/A	Document ID 10 and 11 (Maternity Docs) have expiry dates in 2022/2024.	SELECT document_ID, status FROM Document WHERE document_ID IN (10, 11); (Expected status: 'expired')
L2	Remove_Deductions (2.3.b)	N/A	Emp 17 (Karim Abdelaziz) is 'resigned' (Should delete all deductions for Emp 17).	SELECT COUNT(*) FROM Deduction WHERE emp_ID = 17; (Expected Count: 0)

HR Management: Detailed Test Cases (Requirement 2.4)

I. Deduction and Payroll Finalization Tests

These tests verify Deduction_hours, Deduction_days, and Add_Payroll for accuracy and state changes.

Test ID	Procedure/Action	Input/Context	Expected Output	Verification Point
D1 (Valid Hours)	EXEC Deduction_hours 1;	Emp 1 (Jack John). Missing 30 mins on 10-15-2025 (Attn ID 7).	Success. Inserts 1 row for missing hours.	SELECT amount, status FROM Deduction WHERE emp_ID = 1 AND attendance_ID = 7; (Amount \$\approx **83.33**\$, status: 'pending')
D2 (Invalid Hours)	EXEC Deduction_hours 8;	Emp 8 (Magy Zaki). Worked exactly 8 hrs on 10-02-2025 (Attn ID 2).	No Change. Total missing minutes = 0.	SELECT COUNT(*) FROM Deduction WHERE emp_ID = 8 AND type='missing_hours' AND status='pending'; (Expected: 0)
D3 (Valid Days)	EXEC Deduction_days 1;	Emp 1. Absent on 10-27-2025 (Attn ID 5). Not a day off.	Success. Inserts 1 row for missing day.	SELECT amount, status FROM Deduction WHERE emp_ID = 1 AND attendance_ID = 5; (Amount \$\approx

Test ID	Procedure/Action	Input/Context	Expected Output	Verification Point
				1818.18\$, status: 'pending')
D4 (Invalid Days)	EXEC Deduction_days 17;	Emp 17 (Karim). Status is 'resigned'. No attendance records for current month.	No Change. No eligible 'Absent' records found.	SELECT COUNT(*) FROM Deduction WHERE emp_ID = 17 AND type='missing_days' ; (Expected: 0)
D5 (Add Payroll)	EXEC Add_Payroll 1, '2025-10-01', '2025-10-31';	Emp 1. Finalizes all PENDING deductions (D1 & D3) in October.	Payroll Inserted. Deductions status updated.	SELECT final_salary_amount, deductions_amount FROM Payroll WHERE emp_ID = 1 AND from_date='2025- 10-01'; (Deductions: \$\approx **1901.51**\$)
D6 (Post-Finalization)	EXEC Deduction_hours 1;	Emp 1. Deductions for 10-15 are now 'finalized'.	No Change. Should not insert duplicates for	SELECT COUNT(*) FROM Deduction WHERE emp_ID = 1 AND status='pending';

Test ID	Procedure/Action	Input/Context	Expected Output	Verification Point
			October 2025.	(Expected: 0 (for October))

II. Leave Approval and Validation Tests

These tests validate the decision-making procedures. The current date is assumed to be 2025-11-23.

Test ID	Procedure/Action	Input/Context	Expected Output	Logic Verified
L1 (Comp : Success)	EXEC HR_approval_comp 17, 4;	ReqID 17 (Emp 8). Worked 480 mins on day-off (10-02). Replacement Emp 18 available.	Approved. Sets Emp_Approve_Leave.status to 'approved'.	SELECT final_approval_status FROM Leave WHERE request_ID = 17; (Expected: 'approved')
L2 (Comp : Fail Hours)	EXEC HR_approval_comp 18, 5;	ReqID 18 (Emp 1). Worked only 360 mins (6 hrs) on 10-04.	Rejected. Fails the "worked \$ge 480\$ minutes" rule.	SELECT final_approval_status FROM Leave WHERE request_ID = 18; (Expected: 'rejected')

Test ID	Procedure/Action	Input/Context	Expected Output	Logic Verified
L3 (Annual: Fail Balance)	EXEC HR_approval_an_acc 3, 5;	ReqID 3 (Emp 3). Annual balance is 0. Other approvals are pending/done.	Rejected. Fails the "Balance \geq days requested" rule.	SELECT final_approval_status FROM Leave WHERE request_ID = 3; (Expected: 'rejected')
L4 (Acc: Fail Time)	EXEC HR_approval_an_acc 8, 5;	ReqID 8 (Emp 3). Requested 10-22, requested on 10-26. 4 days late.	Rejected. Fails the "Submitted within 2 days" rule (Accidental rule).	SELECT final_approval_status FROM Leave WHERE request_ID = 8; (Expected: 'rejected')
L5 (Acc: Success)	EXEC HR_approval_an_acc 6, 5;	ReqID 6 (Emp 1). Balance 6. Duration 1 day. Submitted 10-27 (Valid time window).	Approved. Decrements accidental balance.	SELECT accidental_balance FROM Employee WHERE employee_ID = 1; (Expected: 5)
L6 (Unpaid: Fail)	EXEC HR_approval_unpaid 14, 5;	ReqID 14 (Emp 1). Duration is 42 days	Rejected. Fails the "Duration \leq 30 days" rule.	SELECT final_approval_status FROM Leave WHERE

Test ID	Procedure/Action	Input/Context	Expected Output	Logic Verified
Max Days)		(Nov 2 to Dec 13).		request_ID = 14; (Expected: 'rejected')

Employee Self-Service: Detailed Test Cases (Requirement 2.5)

Context: All tests are run on Sunday, November 23, 2025. We will use Employee 9 (Amr Diab, MET), who has 10 annual days and 10 accidental days, as our primary test subject.

I. Leave Submission Procedures (2.5.g, j, k, l, n)

These tests check if the correct routing is established based on the employee's role and input validity.

Test ID	Procedure/Action	Input Employee	Expected Action/Routing	Verification Check
S1 (Annual Success)	EXEC Submit_annual @employee_ID = 9, @replacement_employee = 1, @start_date = '2025-12-15', @end_date = '2025-12-18';	Emp 9 (TA, MET)	Success. Routing must include Dean (Emp 13, Hazem Ali) and HR Rep (Emp 5).	SELECT Emp1_ID FROM Employee_Approve_Leave WHERE Leave_ID = (New ID) ORDER BY Emp1_ID; (Expected IDs: 5, 13)
S2 (Annual Fail)	EXEC Submit_annual @employee_ID = 6,	Emp 6 (Moham	Failure. Must exit immediately due to Part-	SELECT COUNT(*) FROM Leave WHERE start_date = '2025-12-

Test ID	Procedure/Action	Input Employee	Expected Action/Routing	Verification Check
	@replacement_employee = 1, @start_date = '2025-12-15', @end_date = '2025-12-18';	ed Ahmed)	Time contract type.	15'; (Expected No new leave created.)
S3 (Accidental Success)	EXEC Submit_accidental @employee_ID = 9, @start_date = '2025-11-25', @end_date = '2025-11-25';	Emp 9 (Full-Time)	Success. Routing must include HR Rep only (Emp 5).	SELECT Emp1_ID FROM Employee_Approve_Leave WHERE Leave_ID = (New ID); (Expected IDs: 5)
S4 (Medical Maternity)	EXEC Submit_medical @employee_ID = 3, @start_date = '2026-03-01', @end_date = '2026-06-01', @type = 'maternity', ...;	Emp 3 (Sarah Sabry)	Success. Routing must include HR Rep (Emp 5) and Medical Doctor (Emp 7).	SELECT Emp1_ID FROM Employee_Approve_Leave WHERE Leave_ID = (New ID); (Expected IDs: 5, 7)
S5 (Unpaid Dean)	EXEC Submit_unpaid @employee_ID = 13, @start_date = '2026-01-01',	Emp 13 (Dean)	Success. Routing must include President (Emp 15)	SELECT Emp1_ID FROM Employee_Approve_Leave WHERE Leave_ID

Test ID	Procedure/Action	Input Employee	Expected Action/Routing	Verification Check
	@end_date = '2026-01-10', ...;		and HR Rep (Emp 5).	= (New ID); (Expected IDs: 5, 15)

II. Annual Leave Approval (2.5.i)

These tests validate the split approval logic using the simplified assumption that President/VP and Dean/V-Dean MUST check department equality.

Test ID	Procedure/Action	Approver Role	Context	Expected Final Action
A1	EXEC Upperboard_approve_annual @request_ID = 5, @Upperboard_ID = 15, @replacement_ID = 4;	President (15)	ReqID 5 (Emp 5, HR). Rep: Emp 4 (HR). Same Dept. Rep available.	Approved. (Meets strict same-department rule and availability)
A2	EXEC Upperboard_approve_annual @request_ID = 4, @Upperboard_ID = 13, @replacement_ID = 12;	Dean (13)	ReqID 4 (Emp 11, BI). Rep: Emp 12 (BI). Same Dept. Rep is onleave (10-19 to 10-30).	Rejected. (Fails replacement availability check)
A3	EXEC Upperboard_approve_annual @request_ID = 2,	Dean (13)	ReqID 2 (Emp 12, BI). Rep:	Rejected. (Fails departmental

Test ID	Procedure/Action	Approver Role	Context	Expected Final Action
	@Upperboard_ID = 13, @replacement_ID = 11;		Emp 11 (BI). Different Dept. (Dean MET approving BI)	authority check)

III. Data Retrieval and Validation Functions (2.5.a, b, c, d, h)

These tests check function outputs directly.

Test ID	Function/Action	Input/Context	Expected Output	Rationale
F1	dbo.EmployeeLoginValidation(1, '123')	Emp 1, Correct password.	1 (Success)	Valid credentials.
F2	dbo.MyPerformance(2, 'W24')	Emp 2, Semester W24.	Table (1 row)	Emp 2 has one performance entry for W24 (rating 4).
F3	dbo.Last_month_payroll(1)	Emp 1 (Today: Nov).	Table (1 row)	Should return the payroll record for October (Pay period

Test ID	Function/Action	Input/Context	Expected Output	Rationale
				10-01 to 10-31).
F4	dbo.Status_leaves(8)	Emp 8 (Magy Zaki).	Table (2 rows)	Should show status for approved ReqIDs 1 and 21 (sick leave) if submitted in Oct/Nov.