**SQL> --**

**SQL> -- ---------------------------------------------------------**

**SQL> -- The following comments will also be sent / spooled to the**

**SQL> -- output text file to identify the ownership of the**

**SQL> -- Oracle SQL\*Plus work.**

**SQL> --**

**SQL> -- COMP 2714**

**SQL> -- SET 2D**

**SQL> -- Lab Lab03**

**SQL> --**

**SQL> -- Chang, Chih-Hsi A01017955**

**SQL> -- email: cchang189@my.bcit.ca**

**SQL> --**

**SQL> -- ---------------------------------------------------------**

**SQL> --**

**SQL> --3. Type in the following command to show the structure of the USER\_SOURCE view: (can do this using a script)**

**SQL> DESCRIBE USER\_SOURCE**

**Name Null? Type**

**----------------------------------------- -------- ----------------------------**

**NAME VARCHAR2(30)**

**TYPE VARCHAR2(12)**

**LINE NUMBER**

**TEXT VARCHAR2(4000)**

**SQL> --Use the following statement to list the stored procedures, functions and triggers you have in your hr schema:**

**SQL> SELECT DISTINCT name, type**

**2 FROM user\_source**

**3 ORDER BY name, type;**

**NAME TYPE**

**------------------------------ ------------**

**ADD\_JOB\_HISTORY PROCEDURE**

**AUDIT\_EMPSAL\_VALUES TRIGGER**

**GET\_SAL FUNCTION**

**RAISE\_AMOUNT PROCEDURE**

**SECURE\_DML PROCEDURE**

**SECURE\_EMP TRIGGER**

**SECURE\_EMPLOYEES TRIGGER**

**UPDATE\_JOB\_HISTORY TRIGGER**

**8 rows selected.**

**SQL> --4. Use the following statement to display the trigger code, then copy and paste it into your Word document.**

**SQL> SELECT text**

**2 FROM user\_source**

**3 WHERE type = 'TRIGGER' AND name = 'SECURE\_EMP'**

**4 ORDER BY line;**

**TEXT**

**--------------------------------------------------------------------------------**

**trigger "SECURE\_EMP"**

**BEFORE**

**insert or update or delete on "EMPLOYEES"**

**for each row**

**begin**

**IF (TO\_CHAR(SYSDATE,'DY') IN ('SAT', 'SUN') ) OR**

**(TO\_CHAR(SYSDATE, 'HH24')**

**NOT BETWEEN '08' AND '18') THEN**

**IF DELETING THEN RAISE\_APPLICATION\_ERROR(**

**-20502, 'You may delete from EMPLOYEES table '||**

**TEXT**

**--------------------------------------------------------------------------------**

**'only during business hours.');**

**ELSIF INSERTING THEN RAISE\_APPLICATION\_ERROR(**

**-20500, 'You may insert into EMPLOYEES table '||**

**'only during business hours.');**

**ELSIF UPDATING('SALARY') THEN**

**RAISE\_APPLICATION\_ERROR(-20503, 'You may '||**

**'update SALARY only during business hours.');**

**ELSE RAISE\_APPLICATION\_ERROR(-20504, 'You may '||**

**'update EMPLOYEES table only during '||**

**'normal hours.');**

**END IF;**

**TEXT**

**--------------------------------------------------------------------------------**

**END IF;**

**end;**

**24 rows selected.**

**SQL> SELECT text**

**2 FROM user\_source**

**3 WHERE type = 'TRIGGER' AND name = 'AUDIT\_EMPSAL\_VALUES'**

**4 ORDER BY line;**

**TEXT**

**--------------------------------------------------------------------------------**

**trigger "AUDIT\_EMPSAL\_VALUES"**

**AFTER**

**update of "SALARY" on "EMPLOYEES"**

**for each row**

**begin**

**INSERT INTO audit\_record\_tb1**

**VALUES(sys\_context('userenv', 'current\_user'),**

**sysdate, :old.employee\_id, :old.salary, :new.salary);**

**EXCEPTION**

**WHEN OTHERS THEN**

**RAISE\_APPLICATION\_ERROR(-10001, 'audit trigger failure');**

**TEXT**

**--------------------------------------------------------------------------------**

**end;**

**12 rows selected.**

**SQL> --5. Use the following statement to display the procedure code, then copy and paste it into your Word document:**

**SQL> SELECT text**

**2 FROM user\_source**

**3 WHERE type = 'PROCEDURE' AND name = 'RAISE\_AMOUNT'**

**4 ORDER BY line;**

**TEXT**

**--------------------------------------------------------------------------------**

**procedure "RAISE\_AMOUNT"**

**(p\_id IN NUMBER,**

**p\_raise\_amt IN NUMBER default 0)**

**is**

**begin**

**UPDATE employees**

**SET salary = salary \* (1+p\_raise\_amt)**

**WHERE employee\_id = p\_id;**

**end;**

**9 rows selected.**

**SQL> --6. Use the following statement to display the function code, then copy and paste it into your Word document.**

**SQL> SELECT text**

**2 FROM user\_source**

**3 WHERE type = 'FUNCTION' AND name = 'GET\_SAL'**

**4 ORDER BY line;**

**TEXT**

**--------------------------------------------------------------------------------**

**FUNCTION get\_sal**

**(p\_id IN employees.employee\_id%TYPE,**

**p\_increment IN NUMBER := 1)**

**RETURN NUMBER**

**IS**

**v\_sal employees.salary%TYPE := 0;**

**e\_toomuch EXCEPTION;**

**BEGIN**

**IF p\_increment < 1 or p\_increment > 1.5 THEN**

**RAISE e\_toomuch;**

**END IF;**

**TEXT**

**--------------------------------------------------------------------------------**

**SELECT salary \* p\_increment**

**INTO v\_sal**

**FROM employees**

**WHERE employee\_id = p\_id;**

**RETURN v\_sal;**

**EXCEPTION**

**WHEN e\_toomuch THEN**

**htp.print('Invalid increment amount');**

**WHEN NO\_DATA\_FOUND THEN**

**htp.print('Invalid employee Id');**

**WHEN OTHERS THEN**

**TEXT**

**--------------------------------------------------------------------------------**

**htp.print('Error occured in processing');**

**END get\_sal;**

**24 rows selected.**

**SQL> --**

**SQL> SPOOL OFF**