**Procedure method 1**

SET SERVEROUTPUT ON

CREATE OR REPLACE PROCEDURE Insert\_glaccount(

Acc\_Num\_In IN NUMBER,

Acc\_Desc\_In IN VARCHAR2

)

AS

BEGIN

INSERT INTO GENERAL\_LEDGER\_ACCOUNTS (ACCOUNT\_NUMBER, ACCOUNT\_DESCRIPTION)

VALUES (Acc\_Num\_In, Acc\_Desc\_In) ;

EXCEPTION

WHEN DUP\_VAL\_ON\_INDEX THEN

Raise\_Application\_Error(-20009, 'You have a duplicate Account Number');

WHEN OTHERS THEN

Raise\_Application\_Error(-20010, 'Error Occoured');

END;

/

Show Errors;

BEGIN

Insert\_glaccount('','sfh');

END;

/

**No\_Acc\_Num EXCEPTION;**

**IF Acc\_Num\_In = '' THEN**

**RAISE No\_Acc\_Num;**

**WHEN No\_Acc\_Num THEN**

**Raise\_Application\_Error(-20007, 'Enter Account Number');**

**No\_Acc\_Des EXCEPTION;**

**ELSE IF Acc\_Desc\_In = '' THEN**

**RAISE No\_Acc\_Des;**

**WHEN No\_Acc\_Des THEN**

**Raise\_Application\_Error(-20008, 'Enter Account Description');**

**Procedure method 2**

SET SERVEROUTPUT ON

CREATE OR REPLACE PROCEDURE Insert\_glaccount(

Acc\_Num\_In IN NUMBER,

Acc\_Desc\_In IN VARCHAR2

)

AS

No\_Acc\_Num EXCEPTION;

No\_Acc\_Des EXCEPTION;

BEGIN

IF Acc\_Num\_In = NULL THEN

RAISE No\_Acc\_Num;

ELSE

BEGIN

IF Acc\_Desc\_In = NULL THEN

RAISE No\_Acc\_Des;

ELSE

INSERT INTO GENERAL\_LEDGER\_ACCOUNTS (ACCOUNT\_NUMBER, ACCOUNT\_DESCRIPTION)

VALUES (Acc\_Num\_In, Acc\_Desc\_In) ;

END IF;

END;

END IF;

EXCEPTION

WHEN No\_Acc\_Num THEN

Raise\_Application\_Error(-20007, 'Enter Account Number');

WHEN No\_Acc\_Des THEN

Raise\_Application\_Error(-20008, 'Enter Account Description');

WHEN DUP\_VAL\_ON\_INDEX THEN

Raise\_Application\_Error(-20009, 'You have a duplicate Account Number');

WHEN OTHERS THEN

Raise\_Application\_Error(-20010, 'Error Occoured');

END;

/

Show Errors;

**Function method 1**

CREATE OR REPLACE FUNCTION Get\_balance\_due (

Invc\_Id NUMBER)

RETURN NUMBER

AS

Balance\_Due NUMBER;

BEGIN

SELECT (INVOICE\_TOTAL - PAYMENT\_TOTAL - CREDIT\_TOTAL) INTO Balance\_Due FROM INVOICES WHERE INVOICE\_ID = Invc\_Id;

RETURN Balance\_Due;

END;

/

SHOW ERRORS;

SELECT INVOICE\_ID,Get\_balance\_due(INVOICE\_ID) FROM INVOICES WHERE INVOICE\_ID = 2;

SELECT Get\_balance\_due(2) FROM DUAL;

**Trigger method 1**

CREATE OR REPLACE TRIGGER Over\_Payment\_Trig

BEFORE UPDATE OF PAYMENT\_TOTAL

ON INVOICES

FOR EACH ROW

BEGIN

IF (:OLD.INVOICE\_TOTAL < (:NEW.PAYMENT\_TOTAL + :NEW.CREDIT\_TOTAL)) THEN

Raise\_Application\_Error(-20008,'Over Payment, update cancelled');

END IF;

END;

/

SHOW ERRORS;

CREATE OR REPLACE PACKAGE My\_P2\_Pkg AS

FUNCTION Get\_balance\_due (Invc\_Id NUMBER)

RETURN NUMBER;

PROCEDURE Insert\_glaccount(Acc\_Num\_In IN NUMBER,

Acc\_Desc\_In IN VARCHAR2);

END My\_P2\_Pkg;

/

SHOW ERRORS;

CREATE OR REPLACE PACKAGE BODY My\_P2\_Pkg AS

Balance\_Due NUMBER;

FUNCTION Get\_balance\_due (

Invc\_Id NUMBER)

RETURN NUMBER AS Balance\_Due NUMBER;

BEGIN

SELECT (INVOICE\_TOTAL - PAYMENT\_TOTAL - CREDIT\_TOTAL) INTO Balance\_Due FROM INVOICES WHERE INVOICE\_ID = Invc\_Id;

RETURN Balance\_Due;

END;

PROCEDURE Insert\_glaccount(

Acc\_Num\_In IN NUMBER,

Acc\_Desc\_In IN VARCHAR2

)

AS

BEGIN

INSERT INTO GENERAL\_LEDGER\_ACCOUNTS (ACCOUNT\_NUMBER, ACCOUNT\_DESCRIPTION)

VALUES (Acc\_Num\_In, Acc\_Desc\_In) ;

EXCEPTION

WHEN DUP\_VAL\_ON\_INDEX THEN

Raise\_Application\_Error(-20009, 'You have a duplicate Account Number');

WHEN OTHERS THEN

Raise\_Application\_Error(-20010, 'Error Occoured');

END;

END My\_P2\_Pkg;

/

SHOW ERRORS;

**Testcases:**

UPDATE INVOICES

SET PAYMENT\_TOTAL = 300

WHERE INVOICE\_ID = 6;

VAR test\_variable NUMBER;

exec :test\_variable := My\_P2\_Pkg.Get\_balance\_due(3);

print test\_variable;

call My\_P2\_Pkg.Insert\_glaccount(899,'testin');