1. **[5 marks]** Use a correlated subquery to determine which criminals have had at least one probation period assigned.

SELECT \*

FROM criminals

WHERE EXISTS (

SELECT 1

FROM crimes

WHERE crimes.criminal\_id = criminals.criminal\_id AND criminals.p\_Status = 'Y'

)

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2. **[5 marks]** Brewbean's application page was modified so that an employee can enter a customer number that would cause an error. An exception handler needs to be added to the block that displays the message "Invalid Shopper Id" onscreen. Use an initialized variable named lv\_shopper\_name to provide a shopper id. Test the block with shopper id 99.

DECLARE

rec\_shopper NUMBER;

lv\_shopper\_num NUMBER := 12;

ex\_invalid\_id EXCEPTION;

BEGIN

SELECT count(\*)

INTO rec\_shopper

FROM bb\_shopper

WHERE idShopper = lv\_shopper\_num;

IF rec\_shopper = 0 THEN

RAISE ex\_invalid\_id;

END IF;

EXCEPTION

WHEN ex\_invalid\_id THEN

dbms\_output.put\_line('Invalid Shopper ID');

WHEN OTHERS THEN

dbms\_output.put\_line('Other possible error!');

END;

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1. **[5 marks]**Brewbean's wants to send a promotion via email to shoppers. A shopper who has purchased more than $50 at the site receives a $5 coupon for his or her next purchase over $25.  A shopper who has spent more than $100 receives a free shopping coupon.

DECLARE

CURSOR cur\_shopper IS

SELECT a.idShopper, a.promo, b.total

FROM bb\_shopper a

JOIN (

SELECT b.idShopper, SUM(bi.quantity \* bi.price) total

FROM bb\_basketitem bi

JOIN bb\_basket b ON bi.idBasket = b.idBasket

GROUP BY b.idShopper

) b ON a.idShopper = b.idShopper

FOR UPDATE OF a.promo NOWAIT;

lv\_promo\_txt CHAR(1);

BEGIN

FOR rec\_shopper IN cur\_shopper LOOP

lv\_promo\_txt := 'X';

IF rec\_shopper.total > 100 THEN

lv\_promo\_txt := 'A';

ELSIF rec\_shopper.total BETWEEN 50 AND 99 THEN

lv\_promo\_txt := 'B';

END IF;

IF lv\_promo\_txt <> 'X' THEN

UPDATE bb\_shopper

SET promo = lv\_promo\_txt

WHERE CURRENT OF cur\_shopper;

END IF;

END LOOP;

COMMIT;

END;

/

SELECT s.idShopper, s.promo, SUM(bi.quantity \* bi.price)

FROM bb\_shopper s

JOIN bb\_basket b ON s.idShopper = b.idShopper

JOIN bb\_basketitem bi ON b.idBasket = bi.idBasket

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Description automatically generatedGROUP BY s.idShopper, s.promo;