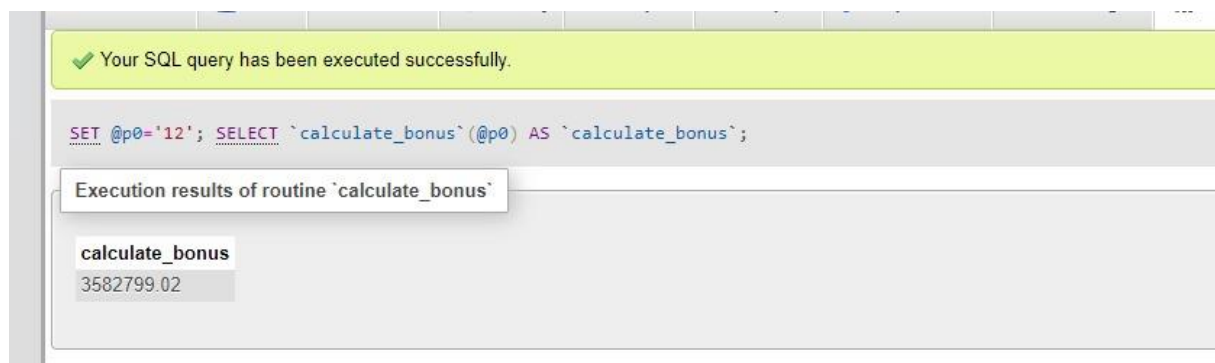פונקציה claculate_bonus

תיאור מילולי : פונקציה זו מחשבת בונוס של 5% בהתבסס על יתרת החשבונות הכוללת של לקוח ומחזירה את הבונוס הזה.

הקוד:

```
--
-- Functions
--
DROP FUNCTION IF EXISTS `calculate_bonus`$$
CREATE DEFINER=`root`@`localhost` FUNCTION `calculate_bonus` (`client_id` INT) RETURNS DECIMAL(15,2) DETERMINISTIC BEGIN
  DECLARE bonus DECIMAL(15, 2);
  DECLARE total_balance DECIMAL(15, 2);

  SELECT Balance INTO total_balance
  FROM Account
  WHERE ClientID = client_id;

  IF total_balance IS NULL THEN
    SET total_balance = 0;
  END IF;

  SET bonus = total_balance * 0.05; -- 5% bonus on total balance

  RETURN bonus;
END$$
```

תוצאות וזמן ריצה:

```
✔ Your SQL query has been executed successfully.

SET @p0='12'; SELECT `calculate_bonus`(@p0) AS `calculate_bonus`;

Execution results of routine `calculate_bonus`

calculate_bonus
3582799.02
```

פרוצדורה 1 - RetrieveEmployeeProjectDetails

תיאור מילולי: מוצאת את הפרויקטים של מחלקה מסוימת ומגדילה את התקציב של כל פרויקט ב-5%. אחרי זה, היא מציגה את הפרויקטים שהיא שינתה.

הקוד:

```sql
DROP PROCEDURE IF EXISTS `RetrieveEmployeeProjectDetails`$$
CREATE DEFINER=`root`@`localhost` PROCEDURE `RetrieveEmployeeProjectDetails` (IN `p_DepartmentID` INT)   BEGIN
    DECLARE done INT DEFAULT FALSE;
    DECLARE v_ProjectID INT;
    DECLARE v_ProjectName VARCHAR(50);
    DECLARE v_StartDate DATE;
    DECLARE v_EndDate DATE;
    DECLARE cur1 CURSOR FOR SELECT ProjectID, ProjectName, StartDate, EndDate FROM Project WHERE DepartmentID = p_DepartmentID;
    DECLARE CONTINUE HANDLER FOR NOT FOUND SET done = TRUE;

    OPEN cur1;

    read_loop: LOOP
        FETCH cur1 INTO v_ProjectID, v_ProjectName, v_StartDate, v_EndDate;
        IF done THEN
            LEAVE read_loop;
        END IF;

        -- Demonstrating a simple DML operation within a loop
        UPDATE Project SET Budget = Budget * 1.05 WHERE ProjectID = v_ProjectID;

        -- Output each project detail
        SELECT v_ProjectID, v_ProjectName, v_StartDate, v_EndDate;
    END LOOP;

    CLOSE cur1;
END$$
```

תוצאות הרצה - בסיס נתונים לפני הרצה:

				ProjectID	ProjectName	StartDate	EndDate	Budget	DepartmentID	
☐	🖉 Edit	⬚ Copy	⊝ Delete	208	Robust logistical help-desk	2020-05-10	NULL	11424568.07	2	190
☐	🖉 Edit	⬚ Copy	⊝ Delete	6	Open-architected fault-tolerant solution	2023-12-06	2021-07-23	77969815.42	2	746
☐	🖉 Edit	⬚ Copy	⊝ Delete	84	Business-focused zero tolerance knowledgebase	2021-11-08	2021-09-09	62285922.36	2	1100
☐	🖉 Edit	⬚ Copy	⊝ Delete	560	Fundamental multimedia toolset	2023-11-25	NULL	52989330.31	2	1135
☐	🖉 Edit	⬚ Copy	⊝ Delete	223	Assimilated exuding forecast	2022-03-17	2023-12-20	22728261.84	2	354
☐	🖉 Edit	⬚ Copy	⊝ Delete	170	Down-sized solution-oriented secured line	2022-09-22	NULL	103383005.18	2	790
☐	🖉 Edit	⬚ Copy	⊝ Delete	155	Networked national productivity	2022-01-07	NULL	24801151.76	2	1071
☐	🖉 Edit	⬚ Copy	⊝ Delete	557	Customizable background initiative	2020-12-20	NULL	105149775.48	2	284
☐	🖉 Edit	⬚ Copy	⊝ Delete	152	Re-contextualized content-based archive	2020-04-24	2023-12-15	11071015.12	2	709
☐	🖉 Edit	⬚ Copy	⊝ Delete	177	Robust non-volatile data-warehouse	2020-09-29	2021-02-28	116395825.73	2	1078
☐	🖉 Edit	⬚ Copy	⊝ Delete	708	Advanced analyzing workforce	2023-10-02	2023-07-01	84605988.79	2	504
☐	🖉 Edit	⬚ Copy	⊝ Delete	1200	Exclusive system-worthy moratorium	2020-01-27	2024-02-16	77349980.49	2	360
☐	🖉 Edit	⬚ Copy	⊝ Delete	772	Reverse-engineered methodical project	2021-11-24	NULL	113275555.39	2	126
☐	🖉 Edit	⬚ Copy	⊝ Delete	201	Secured actuating ability	2022-12-02	2022-07-15	91789898.13	2	776
☐	🖉 Edit	⬚ Copy	⊝ Delete	56	Customer-focused client-driven extranet	2023-02-13	2020-05-24	30967452.18	2	1104
☐	🖉 Edit	⬚ Copy	⊝ Delete	781	Visionary scalable system engine	2021-08-27	NULL	114084020.89	2	784

הרצה:

```
SET @p0='2'; CALL `RetrieveEmployeeProjectDetails`(@p0);
```

Execution results of routine `RetrieveEmployeeProjectDetails`

v_ProjectID	v_ProjectName	v_StartDate	v_EndDate
1	Exclusive fault-tolerant data-warehouse	2023-04-11	2022-12-21

v_ProjectID	v_ProjectName	v_StartDate	v_EndDate
6	Open-architected fault-tolerant solution	2023-12-06	2021-07-23

v_ProjectID	v_ProjectName	v_StartDate	v_EndDate
8	Open-source homogeneous array	2020-05-05	2021-02-23

v_ProjectID	v_ProjectName	v_StartDate	v_EndDate
18	Enterprise-wide client-driven implementation	2021-02-25	2021-10-13

v_ProjectID	v_ProjectName	v_StartDate	v_EndDate
47	Extended executive website	2020-01-03	2022-01-25

v_ProjectID	v_ProjectName	v_StartDate	v_EndDate
56	Customer-focused client-driven extranet	2023-02-13	2020-05-24

v_ProjectID	v_ProjectName	v_StartDate	v_EndDate
69	Phased actuating info-mediaries	2022-04-01	2020-09-15

v_ProjectID	v_ProjectName	v_StartDate	v_EndDate
84	Business-focused zero tolerance knowledgebase	2021-11-08	2021-09-09

v_ProjectID	v_ProjectName	v_StartDate	v_EndDate
152	Re-contextualized content-based archive	2020-04-24	2023-12-15

v_ProjectID	v_ProjectName	v_StartDate	v_EndDate
155	Networked national productivity	2022-01-07	NULL

v_ProjectID	v_ProjectName	v_StartDate	v_EndDate
165	Adaptive high-level paradigm	2023-09-27	2022-06-05

v_ProjectID	v_ProjectName	v_StartDate	v_EndDate
170	Down-sized solution-oriented secured line	2022-09-22	NULL

■ Console

בסיס נתונים לאחר הרצה:

☐	Edit	Copy	Delete	208	Robust logistical help-desk	2020-05-10	*NULL*	11995796.47	2	190
☐	Edit	Copy	Delete	6	Open-architected fault-tolerant solution	2023-12-06	2021-07-23	81868306.19	2	746
☐	Edit	Copy	Delete	84	Business-focused zero tolerance knowledgebase	2021-11-08	2021-09-09	65400218.48	2	1100
☐	Edit	Copy	Delete	560	Fundamental multimedia toolset	2023-11-25	*NULL*	55638796.83	2	1135
☐	Edit	Copy	Delete	223	Assimilated exuding forecast	2022-03-17	2023-12-20	23864674.93	2	354
☐	Edit	Copy	Delete	170	Down-sized solution-oriented secured line	2022-09-22	*NULL*	108552155.44	2	790
☐	Edit	Copy	Delete	155	Networked national productivity	2022-01-07	*NULL*	26041209.35	2	1071
☐	Edit	Copy	Delete	557	Customizable background initiative	2020-12-20	*NULL*	110407264.25	2	284
☐	Edit	Copy	Delete	152	Re-contextualized content-based archive	2020-04-24	2023-12-15	11624565.88	2	709
☐	Edit	Copy	Delete	177	Robust non-volatile data-warehouse	2020-09-29	2021-02-28	122215617.02	2	1078
☐	Edit	Copy	Delete	708	Advanced analyzing workforce	2023-10-02	2023-07-01	88836288.23	2	504
☐	Edit	Copy	Delete	1200	Exclusive system-worthy moratorium	2020-01-27	2024-02-16	81217479.51	2	360
☐	Edit	Copy	Delete	772	Reverse-engineered methodical project	2021-11-24	*NULL*	118939333.16	2	126
☐	Edit	Copy	Delete	201	Secured actuating ability	2022-12-02	2022-07-15	96379393.04	2	776
☐	Edit	Copy	Delete	56	Customer-focused client-driven extranet	2023-02-13	2020-05-24	32515824.79	2	1104
☐	Edit	Copy	Delete	781	Visionary scalable system engine	2021-08-27	*NULL*	119788221.93	2	784

MAIN 1

תיאור:

מפעילה את הפונקציה claculate_bonus מחשבת בונוס עבור לקוח על פי מזהה הלקוח ושומרת את התוצאה ומציגה את ערך הבונוס.

קוראת לפרוצדורה RetrieveEmployeeProjectDetails על מנת לעדכן את תקציבי הפרויקטים של מחלקה מסוימת על פי מזהה המחלקה.

קוד:

```
DROP PROCEDURE IF EXISTS `MainProcedure`$$
CREATE DEFINER=`root`@`localhost` PROCEDURE `MainProcedure` (IN `p_ClientID` INT, IN `p_DepartmentID` INT)   BEGIN
    DECLARE v_Bonus DECIMAL(15,2);

    -- Appel de la fonction pour calculer le bonus
    SET v_Bonus = calculate_bonus(p_ClientID);
    SELECT v_Bonus AS Bonus;

    -- Appel du protocole pour mettre à jour les budgets des projets
    CALL RetrieveEmployeeProjectDetails(p_DepartmentID);

END$$
```

הרצה:

```sql
SET @p0='12'; SET @p1='2'; CALL `MainProcedure`(@p0, @p1);
```

Execution results of routine `MainProcedure`

Bonus
3582799.02

v_ProjectID	v_ProjectName	v_StartDate	v_EndDate
1	Exclusive fault-tolerant data-warehouse	2023-04-11	2022-12-21

v_ProjectID	v_ProjectName	v_StartDate	v_EndDate
6	Open-architected fault-tolerant solution	2023-12-06	2021-07-23

v_ProjectID	v_ProjectName	v_StartDate	v_EndDate
8	Open-source homogeneous array	2020-05-05	2021-02-23

v_ProjectID	v_ProjectName	v_StartDate	v_EndDate
18	Enterprise-wide client-driven implementation	2021-02-25	2021-10-13

v_ProjectID	v_ProjectName	v_StartDate	v_EndDate
47	Extended executive website	2020-01-03	2022-01-25

v_ProjectID	v_ProjectName	v_StartDate	v_EndDate
56	Customer-focused client-driven extranet	2023-02-13	2020-05-24

v_ProjectID	v_ProjectName	v_StartDate	v_EndDate
69	Phased actuating info-mediaries	2022-04-01	2020-09-15

v_ProjectID	v_ProjectName	v_StartDate	v_EndDate
84	Business-focused zero tolerance knowledgebase	2021-11-08	2021-09-09

v_ProjectID	v_ProjectName	v_StartDate	v_EndDate

פונקציה של MAIN השנייה – count_transactions

תיאור מילולי: סופרת את מספר העסקאות של לקוח נתון ומחזירה את הספירה. אם אין עסקאות, היא מחזירה 0.

הקוד:

```
BEGIN
  DECLARE transaction_count INT;

  SELECT COUNT(*) INTO transaction_count
  FROM Transaction
  WHERE ClientID = client_id;

  RETURN IFNULL(transaction_count, 0);
END
```

תוצאות וזמן ריצה:

```
SET @p0='1'; SELECT `count_transactions`(@p0) AS `count_transactions`;
```

Execution results of routine `count_transactions`

count_transactions
2

פרוצדורה של MAIN השניה –

תיאור מילולי:

מחליף תעודת זהות של מנהל מסוים בכל הפרויקטים במזהה של מנהל אחר שהמשתמש מכניס

הקוד:

```
DROP PROCEDURE IF EXISTS `ReplaceManager` $$
CREATE DEFINER=`root`@`localhost` PROCEDURE `ReplaceManager` (IN `p_ManagerID` INT, IN `p_ManagerID_Replacement` INT)   BEGIN
    DECLARE done INT DEFAULT 0;
    DECLARE v_ProjectID INT;
    DECLARE v_ProjectName VARCHAR(50);
    DECLARE v_StartDate DATE;
    DECLARE v_EndDate DATE;
    DECLARE v_Budget DECIMAL(15, 2);
    DECLARE v_DepartmentID INT;

    DECLARE cur1 CURSOR FOR
        SELECT ProjectID, ProjectName, StartDate, EndDate, Budget, DepartmentID
        FROM project
        WHERE ManagerID = p_ManagerID;

    DECLARE CONTINUE HANDLER FOR NOT FOUND SET done = 1;

    OPEN cur1;

    read_loop: LOOP
        FETCH cur1 INTO v_ProjectID, v_ProjectName, v_StartDate, v_EndDate, v_Budget, v_DepartmentID;
        IF done THEN
            LEAVE read_loop;
        END IF;

        -- Update the ManagerID to the replacement ManagerID
        UPDATE project
        SET ManagerID = p_ManagerID_Replacement
        WHERE ProjectID = v_ProjectID;

        -- Output the updated project details
        SELECT v_ProjectID AS ProjectID, v_ProjectName AS ProjectName, v_StartDate AS StartDate, v_EndDate AS EndDate, v_Budget AS Budget, v_DepartmentID AS DepartmentID, p_ManagerID_Replacement AS NewManagerID;
    END LOOP;

    CLOSE cur1;
END$$
```

תוצאות וזמן הריצה - הבסיס נתונים לפני הרצה:

תוצאה של ההרצה של הפרוצדורה

בסיס הנתונים לאחר ההרצה

MAIN2

תיאור:

הפרוצדורה הראשית הזו קוראת לפונקציה count_transactions כדי לקבל את מספר העסקאות של
לקוח, ולפרוטוקול ReplaceManager כדי להחליף את ה-ManagerID של הפרויקטים הרלוונטיים.

קוד:

```
DROP PROCEDURE IF EXISTS `MainProcedure2`$$
CREATE DEFINER=`root`@`localhost` PROCEDURE `MainProcedure2` (IN `p_ClientID` INT, IN `p_ManagerID` INT, IN `p_ManagerID_Replacement` INT)  BEGIN
    DECLARE v_TransactionCount INT;

    -- Appel de la fonction pour obtenir le nombre de transactions
    SET v_TransactionCount = count_transactions(p_ClientID);
    SELECT v_TransactionCount AS TransactionCount;

    -- Appel du protocole pour mettre à jour les projets
    CALL ReplaceManager(p_ManagerID, p_ManagerID_Replacement);
END$$
```

הרצה:

```
SET @p0='637'; SET @p1='74'; SET @p2='73'; CALL `MainProcedure2`(@p0, @p1, @p2);
```

Execution results of routine `MainProcedure2`

TransactionCount
4

ProjectID	ProjectName	StartDate	EndDate	Budget	DepartmentID	NewManagerID
1	Exclusive fault-tolerant data-warehouse	2023-04-11	2022-12-21	97773566.96	2	73

ProjectID	ProjectName	StartDate	EndDate	Budget	DepartmentID	NewManagerID
341	Multi-lateral systematic success	2022-07-03	NULL	67512246.15	20	73

ProjectID	ProjectName	StartDate	EndDate	Budget	DepartmentID	NewManagerID
537	Optional context-sensitive frame	2020-02-01	NULL	65609554.53	6	73

ProjectID	ProjectName	StartDate	EndDate	Budget	DepartmentID	NewManagerID
657	Visionary discrete interface	2022-12-06	NULL	60893978.23	6	73

ProjectID	ProjectName	StartDate	EndDate	Budget	DepartmentID	NewManagerID
895	Centralized transitional extranet	2020-10-22	2023-04-28	87153392.80	5	73

ProjectID	ProjectName	StartDate	EndDate	Budget	DepartmentID	NewManagerID
1000	Enhanced multi-tasking hardware	2020-05-13	2020-02-26	26483325.29	3	73

Routines ⓘ

☐ Check all　　📄 Export　　⛔ Drop