

Deliverable #2

Individual Contribution			
CWID	Name	Contribution (description)	Percent Contribution
A20580060	Anshul Dani	Responsible for database creation, data loading, and implementation of indexes.	33.3%
A20576599	Sanjana Waghray	Focused on creating temporary tables and views for data transformation and reporting.	33.3%
A20545641	Snehal Phadatare	Handled the creation of triggers, stored procedures, and functions with business logic.	33.3%

Database used: Expense Manager

1 Here are the Queries used:

-- Deliverable 2

CREATE DATABASE ExpenseManager;

USE ExpenseManager;

-- 1. Creating Tables

```
CREATE TABLE User (  
  UserID INT PRIMARY KEY AUTO_INCREMENT,  
  Name VARCHAR(100),  
  Email VARCHAR(100),  
  Password VARCHAR(100),  
  Age INT,  
  Gender VARCHAR(10),  
  Location VARCHAR(100),  
  TotalExpenses DECIMAL(10, 2) DEFAULT 0  
);
```

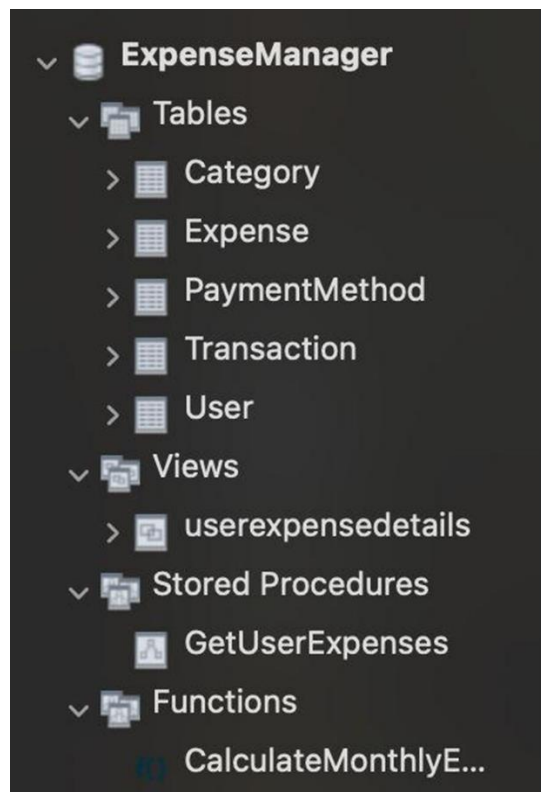
```
CREATE TABLE Category (  
  CategoryID INT PRIMARY KEY AUTO_INCREMENT,  
  CategoryName VARCHAR(50),  
  Description VARCHAR(255)  
);
```

```
CREATE TABLE Expense (  
  ExpenseID INT PRIMARY KEY AUTO_INCREMENT,  
  UserID INT,  
  CategoryID INT,  
  Amount DECIMAL(10, 2),
```

```
ExpenseDate DATETIME,  
Description VARCHAR(255),  
FOREIGN KEY (UserID) REFERENCES User(UserID),  
FOREIGN KEY (CategoryID) REFERENCES Category(CategoryID)  
);
```

```
CREATE TABLE PaymentMethod (  
    PaymentMethodID INT PRIMARY KEY AUTO_INCREMENT,  
    MethodName VARCHAR(50),  
    MethodType VARCHAR(50)  
);
```

```
CREATE TABLE Transaction (  
    TransactionID INT PRIMARY KEY AUTO_INCREMENT,  
    UserID INT,  
    ExpenseID INT,  
    PaymentMethodID INT,  
    TransactionDate DATETIME,  
    FOREIGN KEY (UserID) REFERENCES User(UserID),  
    FOREIGN KEY (ExpenseID) REFERENCES Expense(ExpenseID),  
    FOREIGN KEY (PaymentMethodID) REFERENCES PaymentMethod(PaymentMethodID)  
);
```



1 • SELECT * FROM ExpenseManager.User;

100% 1:1

Result Grid Filter Rows: Search Edit: Export/Import:

	UserID	Name	Email	Password	Age	Gender	Location	TotalExpenses
	1	John Doe	john@example.com	pass123	30	Male	New York	0.00
	2	Jane Smith	jane@example.com	pass456	28	Female	Chicago	0.00
	3	Alice Johnson	alice@example.com	pass789	35	Female	Los Angeles	0.00
	4	Robert Brown	robert@example.com	passabc	40	Male	Miami	0.00
	5	Emily Davis	emily@example.com	passdef	25	Female	Boston	0.00
	6	Michael Lee	michael@example.com	passghi	32	Male	San Francisco	0.00
	7	Jessica Wilson	jessica@example.com	passjkl	29	Female	Seattle	0.00
	8	David Garcia	david@example.com	passmno	27	Male	Houston	0.00
	9	Sarah Martinez	sarah@example.com	passpqr	33	Female	Phoenix	0.00
	10	James Anderson	james@example.com	passstu	31	Male	Denver	0.00
	11	Linda Harris	linda@example.com	passvwx	38	Female	Las Vegas	0.00
	12	Paul Clark	paul@example.com	passyz	36	Male	Atlanta	0.00
	13	Olivia King	olivia@example.com	pass1234	26	Female	Dallas	0.00
	14	Henry Scott	henry@example.com	pass5678	34	Male	Portland	0.00
	15	Mia Moore	mia@example.com	pass91011	29	Female	Philadelphia	0.00
	16	Chris Young	chris@example.com	pass1314	37	Male	San Diego	0.00
	17	Sophia White	sophia@example.com	pass1516	30	Female	Austin	0.00
	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

-- 2. Data

-- Insert Users

INSERT INTO User (Name, Email, Password, Age, Gender, Location)

VALUES ('John Doe', 'john@example.com', 'pass123', 30, 'Male', 'New York'),
 ('Jane Smith', 'jane@example.com', 'pass456', 28, 'Female', 'Chicago'),
 ('Alice Johnson', 'alice@example.com', 'pass789', 35, 'Female', 'Los Angeles'),
 ('Robert Brown', 'robert@example.com', 'passabc', 40, 'Male', 'Miami'),
 ('Emily Davis', 'emily@example.com', 'passdef', 25, 'Female', 'Boston'),
 ('Michael Lee', 'michael@example.com', 'passghi', 32, 'Male', 'San Francisco'),
 ('Jessica Wilson', 'jessica@example.com', 'passjkl', 29, 'Female', 'Seattle'),
 ('David Garcia', 'david@example.com', 'passmno', 27, 'Male', 'Houston'),
 ('Sarah Martinez', 'sarah@example.com', 'passpqr', 33, 'Female', 'Phoenix'),
 ('James Anderson', 'james@example.com', 'passstu', 31, 'Male', 'Denver'),
 ('Linda Harris', 'linda@example.com', 'passvwx', 38, 'Female', 'Las Vegas'),
 ('Paul Clark', 'paul@example.com', 'passyz', 36, 'Male', 'Atlanta'),
 ('Olivia King', 'olivia@example.com', 'pass1234', 26, 'Female', 'Dallas'),
 ('Henry Scott', 'henry@example.com', 'pass5678', 34, 'Male', 'Portland'),
 ('Mia Moore', 'mia@example.com', 'pass91011', 29, 'Female', 'Philadelphia'),
 ('Chris Young', 'chris@example.com', 'pass1314', 37, 'Male', 'San Diego'),
 ('Sophia White', 'sophia@example.com', 'pass1516', 30, 'Female', 'Austin');

-- Insert Categories

```
INSERT INTO Category (CategoryName, Description)
VALUES ('Food', 'Expenses related to food'),
('Transportation', 'Travel expenses'),
('Entertainment', 'Leisure activities'),
('Health', 'Medical and health-related expenses'),
('Education', 'Expenses for learning and education'),
('Housing', 'Costs related to accommodation and rent'),
('Utilities', 'Bills for electricity, water, and gas'),
('Clothing', 'Spending on apparel and accessories'),
('Personal Care', 'Costs for grooming and hygiene'),
('Gifts', 'Expenses for presents and donations'),
('Travel', 'Costs incurred during trips and vacations'),
('Savings', 'Money set aside for future use'),
('Insurance', 'Premiums paid for insurance policies'),
('Pets', 'Expenses for pet care and supplies'),
('Subscriptions', 'Recurring costs for digital services'),
('Technology', 'Spending on gadgets and electronics'),
('Miscellaneous', 'General expenses that do not fit other categories');
```

-- Insert Expenses

```
INSERT INTO Expense (UserID, CategoryID, Amount, ExpenseDate, Description)
VALUES (1, 1, 50.00, '2024-09-15 10:00:00', 'Lunch at restaurant'),
(2, 2, 20.00, '2024-09-16 12:00:00', 'Bus fare'),
(3, 1, 100.00, '2024-09-17 14:00:00', 'Grocery shopping'),
(4, 3, 30.00, '2024-09-18 18:00:00', 'Movie tickets'),
(5, 4, 200.00, '2024-09-19 09:00:00', 'Doctor visit'),
(6, 5, 500.00, '2024-09-20 11:00:00', 'Course enrollment fee'),
(7, 6, 1500.00, '2024-09-21 08:00:00', 'Rent payment'),
(8, 7, 100.00, '2024-09-22 07:00:00', 'Electricity bill'),
(9, 8, 75.00, '2024-09-23 15:00:00', 'Clothing purchase'),
(10, 9, 30.00, '2024-09-24 16:00:00', 'Haircut'),
(11, 10, 40.00, '2024-09-25 17:00:00', 'Gift for friend'),
(12, 11, 1200.00, '2024-09-26 06:00:00', 'Airplane tickets'),
(13, 12, 300.00, '2024-09-27 13:00:00', 'Savings deposit'),
(14, 13, 150.00, '2024-09-28 14:30:00', 'Health insurance premium'),
(15, 14, 60.00, '2024-09-29 19:00:00', 'Pet food purchase'),
(16, 15, 10.00, '2024-09-30 09:30:00', 'Music streaming subscription'),
(17, 16, 250.00, '2024-10-01 12:00:00', 'New smartphone purchase');
```

-- Insert Payment Methods

```
INSERT INTO PaymentMethod (MethodName, MethodType)
VALUES ('Credit Card', 'Card'),
('Cash', 'Cash'),
('Bank Transfer', 'Electronic'),
('Debit Card', 'Card'),
('PayPal', 'Electronic'),
('Google Pay', 'Electronic'),
('Apple Pay', 'Electronic'),
('Cheque', 'Paper'),
('Cryptocurrency', 'Digital'),
('Mobile Banking', 'Electronic'),
('Prepaid Card', 'Card'),
('Gift Card', 'Card'),
('Direct Debit', 'Electronic'),
('Wire Transfer', 'Electronic');
```

('Money Order', 'Paper'),
('Venmo', 'Electronic'),
('Amazon Pay', 'Electronic');

-- Insert Transactions


INSERT INTO Transaction (UserID, ExpenseID, PaymentMethodID, TransactionDate)
VALUES (1, 1, 1, '2024-09-15 10:30:00'),
(2, 2, 2, '2024-09-16 12:15:00'),
(3, 3, 3, '2024-09-17 14:20:00'),
(4, 4, 4, '2024-09-18 09:00:00'),
(5, 5, 5, '2024-09-19 11:30:00'),
(6, 6, 6, '2024-09-20 13:45:00'),
(7, 7, 7, '2024-09-21 15:00:00'),
(8, 8, 8, '2024-09-22 17:10:00'),
(9, 9, 9, '2024-09-23 18:30:00'),
(10, 10, 10, '2024-09-24 20:00:00'),
(11, 11, 11, '2024-09-25 21:30:00'),
(12, 12, 12, '2024-09-26 08:00:00'),
(13, 13, 13, '2024-09-27 10:15:00'),
(14, 14, 14, '2024-09-28 12:40:00'),
(15, 15, 15, '2024-09-29 14:00:00'),
(16, 16, 16, '2024-09-30 16:20:00'),
(17, 17, 17, '2024-10-01 18:45:00');


1 SELECT * FROM ExpenseManager.userexpensedetails;








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
















Result Grid Filter Rows: Search Export:


	Name	Amount	CategoryName	ExpenseDate	Description	
	John Doe	50.00	Food	2024-09-15 10:00:00	Lunch at restaurant	
	Jane Smith	20.00	Transportation	2024-09-16 12:00:00	Bus fare	
	Alice Johnson	100.00	Food	2024-09-17 14:00:00	Grocery shopping	
	Robert Brown	30.00	Entertainment	2024-09-18 18:00:00	Movie tickets	
	Emily Davis	200.00	Health	2024-09-19 09:00:00	Doctor visit	
	Michael Lee	500.00	Education	2024-09-20 11:00:00	Course enrollment fee	
	Jessica Wilson	1500.00	Housing	2024-09-21 08:00:00	Rent payment	
	David Garcia	100.00	Utilities	2024-09-22 07:00:00	Electricity bill	
	Sarah Martinez	75.00	Clothing	2024-09-23 15:00:00	Clothing purchase	
	James Anderson	30.00	Personal Care	2024-09-24 16:00:00	Haircut	
	Linda Harris	40.00	Gifts	2024-09-25 17:00:00	Gift for friend	
	Paul Clark	1200.00	Travel	2024-09-26 06:00:00	Airplane tickets	
	Olivia King	300.00	Savings	2024-09-27 13:00:00	Savings deposit	
	Henry Scott	150.00	Insurance	2024-09-28 14:30:00	Health insurance pre...	
	Mia Moore	60.00	Pets	2024-09-29 19:00:00	Pet food purchase	
	Chris Young	10.00	Subscriptions	2024-09-30 09:30:00	Music streaming sub...	
	Sophia White	250.00	Technology	2024-10-01 12:00:00	New smartphone pur...	


1  SELECT * FROM ExpenseManager.Transaction;






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

















Result Grid   Filter Rows: Edit:    Export/Import:  

	TransactionID	UserID	ExpenseID	PaymentMethodID	TransactionDate	
	1	1	1	1	2024-09-15 10:30:00	
	2	2	2	2	2024-09-16 12:15:00	
	3	3	3	3	2024-09-17 14:20:00	
	4	4	4	4	2024-09-18 09:00:00	
	5	5	5	5	2024-09-19 11:30:00	
	6	6	6	6	2024-09-20 13:45:00	
	7	7	7	7	2024-09-21 15:00:00	
	8	8	8	8	2024-09-22 17:10:00	
	9	9	9	9	2024-09-23 18:30:00	
	10	10	10	10	2024-09-24 20:00:00	
	11	11	11	11	2024-09-25 21:30:00	
	12	12	12	12	2024-09-26 08:00:00	
	13	13	13	13	2024-09-27 10:15:00	
	14	14	14	14	2024-09-28 12:40:00	
	15	15	15	15	2024-09-29 14:00:00	
	16	16	16	16	2024-09-30 16:20:00	
	17	17	17	17	2024-10-01 18:45:00	
	NULL	NULL	NULL	NULL	NULL	

1  SELECT * FROM ExpenseManager.PaymentMethod;

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Result Grid   Filter Rows: Edit:   

	PaymentMethodID	MethodName	MethodType	
	1	Credit Card	Card	
	2	Cash	Cash	
	3	Bank Transfer	Electronic	
	4	Debit Card	Card	
	5	PayPal	Electronic	
	6	Google Pay	Electronic	
	7	Apple Pay	Electronic	
	8	Cheque	Paper	
	9	Cryptocurrency	Digital	
	10	Mobile Banking	Electronic	
	11	Prepaid Card	Card	
	12	Gift Card	Card	
	13	Direct Debit	Electronic	
	14	Wire Transfer	Electronic	
	15	Money Order	Paper	
	16	Venmo	Electronic	
	17	Amazon Pay	Electronic	
	NULL	NULL	NULL	

-- Indexes

```
CREATE INDEX idx_user_id ON Expense(UserID);
CREATE INDEX idx_category_id ON Expense(CategoryID);
```

-- Temporary Table

```
CREATE TEMPORARY TABLE TempMonthlyExpenses AS
SELECT UserID, SUM(Amount) AS TotalExpenses, MONTH(ExpenseDate) AS ExpenseMonth
FROM Expense
GROUP BY UserID, ExpenseMonth;
```

-- Views

```
CREATE VIEW UserExpenseDetails AS
SELECT User.Name, Expense.Amount, Category.CategoryName, Expense.ExpenseDate, Expense.Description
FROM Expense
JOIN User ON Expense.UserID = User.UserID
JOIN Category ON Expense.CategoryID = Category.CategoryID;
```

-- 3. Triggers, Stored Procedures and Functions

DELIMITER \$\$

```
CREATE TRIGGER after_expense_insert
AFTER INSERT ON Expense
FOR EACH ROW
BEGIN
    UPDATE User
    SET TotalExpenses = TotalExpenses + NEW.Amount
    WHERE UserID = NEW.UserID;
END $$
```

DELIMITER ;

DELIMITER \$\$

```
CREATE PROCEDURE GetUserExpenses(IN in_UserID INT)
BEGIN
    SELECT * FROM Expense WHERE UserID = in_UserID;
END $$
```

DELIMITER ;

DELIMITER \$\$

```
CREATE FUNCTION CalculateMonthlyExpenses(in_UserID INT, in_Month INT)
RETURNS DECIMAL(10, 2)
DETERMINISTIC
BEGIN
    DECLARE Total DECIMAL(10, 2) DEFAULT 0;

    SELECT SUM(Amount) INTO Total
    FROM Expense
    WHERE UserID = in_UserID AND MONTH(Date) = in_Month;
```



RETURN Total;
END\$\$

DELIMITER ;


Outputs Screenshots :

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1



 SELECT * FROM ExpenseManager.Category;




100%





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Result Grid

  Filter Rows:

Edit:   

Export/Import:  

	CategoryID	CategoryName	Description	
	1	Food	Expenses related to food	
	2	Transportation	Travel expenses	
	3	Entertainment	Leisure activities	
	4	Health	Medical and health-related expenses	
	5	Education	Expenses for learning and education	
	6	Housing	Costs related to accommodation and rent	
	7	Utilities	Bills for electricity, water, and gas	
	8	Clothing	Spending on apparel and accessories	
	9	Personal Care	Costs for grooming and hygiene	
	10	Gifts	Expenses for presents and donations	
	11	Travel	Costs incurred during trips and vacations	
	12	Savings	Money set aside for future use	
	13	Insurance	Premiums paid for insurance policies	
	14	Pets	Expenses for pet care and supplies	
	15	Subscriptions	Recurring costs for digital services	
	16	Technology	Spending on gadgets and electronics	
	17	Miscellaneous	General expenses that do not fit other c...	
	NULL	NULL	NULL	

All Actions:

Action Output					
		Time	Action	Response	Duration / Fetch Time
✓	1	20:26:23	DROP DATABASE `ExpenseManager`	6 row(s) affected	0.032 sec
✓	2	20:26:32	DROP DATABASE `ExpenseManager1`	0 row(s) affected	0.0024 sec
✗	3	20:26:43	USE ExpenseManager	Error Code: 1049. Unknown database 'expensemanag...	0.0017 sec
✓	4	20:26:59	CREATE DATABASE ExpenseManager	1 row(s) affected	0.0027 sec
✓	5	20:27:03	USE ExpenseManager	0 row(s) affected	0.00070 sec
✓	6	20:27:11	CREATE TABLE User (`UserID` INT PRIMARY KEY AUTO_INCREMENT, `Name` VARCHAR(100), `Email` VARCHAR(10...	0 row(s) affected	0.010 sec
✓	7	20:27:15	CREATE TABLE Category (`CategoryId` INT PRIMARY KEY AUTO_INCREMENT, `CategoryName` VARCHAR(50), `D...	0 row(s) affected	0.0095 sec
✓	8	20:27:22	CREATE TABLE Expense (`ExpenseID` INT PRIMARY KEY AUTO_INCREMENT, `UserID` INT, `CategoryId` INT, `Am...	0 row(s) affected	0.013 sec
✓	9	20:27:29	CREATE TABLE PaymentMethod (`PaymentMethodID` INT PRIMARY KEY AUTO_INCREMENT, `MethodName` VARCH...	0 row(s) affected	0.0065 sec
✓	10	20:27:35	CREATE TABLE Transaction (`TransactionID` INT PRIMARY KEY AUTO_INCREMENT, `UserID` INT, `ExpenseID` INT,...	0 row(s) affected	0.016 sec
✓	11	20:28:52	INSERT INTO User (Name, Email, Password, Age, Gender, Location) VALUES ('John Doe', 'john@example.com', 'pass12...	17 row(s) affected Records: 17 Duplicates: 0 Warnin...	0.0051 sec
✓	12	20:29:09	INSERT INTO Category (CategoryName, Description) VALUES ('Food', 'Expenses related to food'), ('Transportatio...	17 row(s) affected Records: 17 Duplicates: 0 Warnin...	0.0020 sec
✗	13	20:29:19	INSERT INTO Expense (UserID, CategoryID, Amount, Date, Description) VALUES (1, 1, 50.00, '2024-09-15 10:00:00', 'L...	Error Code: 1054. Unknown column 'Date' in 'field list'	0.0019 sec
✓	14	20:31:06	INSERT INTO Expense (UserID, CategoryID, Amount, ExpenseDate, Description) VALUES (1, 1, 50.00, '2024-09-15 10:...	17 row(s) affected Records: 17 Duplicates: 0 Warnin...	0.0023 sec
✓	15	20:31:18	INSERT INTO PaymentMethod (MethodName, MethodType) VALUES ('Credit Card', 'Card'), ('Cash', 'Cash'), ('Ban...	17 row(s) affected Records: 17 Duplicates: 0 Warnin...	0.0021 sec
✓	16	20:31:27	INSERT INTO Transaction (UserID, ExpenseID, PaymentMethodID, TransactionDate) VALUES (1, 1, 1, '2024-09-15 10:3...	17 row(s) affected Records: 17 Duplicates: 0 Warnin...	0.0021 sec
✓	17	20:31:33	CREATE INDEX idx_category_id ON Expense(CategoryID)	0 row(s) affected Records: 0 Duplicates: 0 Warnings...	0.021 sec
✗	18	20:31:39	CREATE TEMPORARY TABLE TempMonthlyExpenses AS SELECT UserID, SUM(Amount) AS TotalExpenses, MONTH(Da...	Error Code: 1054. Unknown column 'Date' in 'field list'	0.00078 sec
✓	19	20:31:55	CREATE TEMPORARY TABLE TempMonthlyExpenses AS SELECT UserID, SUM(Amount) AS TotalExpenses, MONTH(Ex...	17 row(s) affected Records: 17 Duplicates: 0 Warnin...	0.0015 sec
✓	20	20:32:16	CREATE VIEW UserExpenseDetails AS SELECT User.Name, Expense.Amount, Category.CategoryName, Expense.Expen...	0 row(s) affected	0.0034 sec
✗	21	20:32:20	CREATE VIEW UserExpenseDetails AS SELECT User.Name, Expense.Amount, Category.CategoryName, Expense.Expen...	Error Code: 1050. Table 'UserExpenseDetails' already...	0.0013 sec
✓	22	20:32:33	CREATE TRIGGER after_expense_insert AFTER INSERT ON Expense FOR EACH ROW BEGIN UPDATE User SET Tota...	0 row(s) affected	0.0050 sec
✓	23	20:32:38	CREATE PROCEDURE GetUserExpenses(IN in_UserID INT) BEGIN SELECT * FROM Expense WHERE UserID = in_Use...	0 row(s) affected	0.0012 sec
✓	24	20:32:44	CREATE FUNCTION CalculateMonthlyExpenses(in_UserID INT, in_Month INT) RETURNS DECIMAL(10, 2) DETERMINIST...	0 row(s) affected	0.0014 sec

