

Database Management Systems
SRS (Software Requirements Specification)
for
“Budget Tracker System”
Under the subject
(Database Management Systems)

Submitted By

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1. Category :

Mobile Application

2. Purpose :

The purpose of this document is to present a detailed description of the Budget Tracker System. It will explain the purpose and features of the software , the interfaces of the software, what the software will do, the constraints under which it must operate and how the software will react to external stimuli. This document is intended for both the end users and the developers of the software.

3. Scope :

The Budget Tracker System will enable users to manage and track their expenses, and budgets across various categories and accounts. Users will be able to add, edit, and categorize transactions, set budget limits, and view summary reports to gain insights into their spending patterns. This system will facilitate secure data storage, easy access to financial information, and support for making informed financial decisions.

4. Introduction :

The Budget Tracking System is a mobile application designed to streamline personal finance management by allowing users to track expenses, set budgets, and monitor financial goals in real time. This system provides an accessible, intuitive interface that encourages users to record transactions, view spending summaries, and receive insights into their financial habits on the go. By offering a digital solution, the application reduces the challenges of manual record-keeping, providing users with an organized and efficient way to manage their finances. This project emphasizes secure data storage and user-friendly functionality to empower individuals in achieving better financial discipline and decision-making.

5.General Description

The Budget Tracker System is a personal finance management tool designed to help users organize and monitor their income and expenses across multiple categories, such as groceries, utilities, entertainment, and more. This system allows users to record financial transactions, categorize them, and set budget limits to track spending habits effectively. Users can view detailed reports and summaries that display spending trends over time, helping them make informed budgeting and saving decisions. The system provides a user-friendly interface for managing personal finances, ensuring accuracy, convenience, and control in daily financial planning.

5. Features :

1. User Registration:

- Allows users to register with a unique username and password.

2. User Authentication:

- Authenticates users based on their registered credentials.

3. Expense Management:

- Enables users to add new expenses, specifying the date, amount, category, and description.
- Provides a view of all expenses for a specific user.

4. Budget Management:

- Enables users to view and modify their budget for different expenses

6. Requirements :

1. Performance

Tracking and updating budget records should be efficient and accessible to users. The following outlines both static and dynamic requirements related to the system's performance:

- **Static Requirements:**

- **Number of Terminals:** The system's database is designed to reside on a remote server or cloud-based database, allowing users to access the application from their mobile devices.
- **Number of Users:** The system can support multiple users, each with individual accounts and personalized budget data, to facilitate a user-specific experience in tracking expenses.

- **Dynamic Requirements:**

- The system is expected to provide quick response times for data input and retrieval, with high accuracy in calculations and record keeping. Users should experience minimal delay when logging or viewing expenses.

2. Reliability

- The application should ensure data consistency and integrity. If the database connection is interrupted due to server issues or connectivity loss, the application should notify the user and save any unsynced data locally to sync later.

3. Availability

- The system is designed for availability across multiple devices, allowing users to access their budget data anytime. The mobile app enables users to track expenses on the go, making it convenient and reliable for real-time budgeting needs.

4. Security

- Security measures should include user authentication (username and password) to ensure that only authorized users can access their personal financial data. Users should be able to set up additional security features, such as multi-factor authentication, for added protection of sensitive information.

5. Maintainability

- The system supports regular data backups, either automatically or at user-specified intervals, to prevent data loss. Updates should be easily

deployable to fix bugs, enhance features, or improve security without disrupting user access.

6. Portability

- The Budget Tracking System is designed as a mobile application and is compatible with Android and iOS platforms. The system is platform-independent, allowing seamless access across different devices and operating systems.

7. Software tools :

Software Interfaces involved:

Front End: Java Swing

Back End: MySQL 8.0.39

8. Database Requirements :

- USERS
- ACCOUNTS
- BUDGETS
- RECORDS
- UPDATES

Converting ERD to Tables -

USERS :-

| Attribute | DataType | Constraint |
|-----------|--------------|--------------------------------|
| user_id | Int | Primary Key, Auto-increment |
| user_name | varchar(50) | Unique, Not Null |
| password | varchar(255) | Not Null |
| email | varchar(100) | Not Null |

ACCOUNTS:-

| Attribute | DataType | Constraint |
|----------------|---------------|--------------------------------|
| Account_ID | Int | Primary Key ,Auto-increment |
| User_ID | Int | Foreign Key |
| Account_name | varchar(50) | - |
| initial_amount | Decimal(15,2) | Check (initial_amount>=0) |

CATEGORIES:-

| Attribute | DataType | Constraint |
|---------------|-------------|--------------------------------|
| Category_ID | Int | Primary Key ,Auto-increment |
| User_id | Int | Foreign Key |
| Category_name | Varchar(50) | Not Null |

BUDGETS:-

| Attribute | DataType | Constraint |
|---------------|-----------|-------------------------|
| User_ID | Int | Foreign key |
| Category_ID | Int | Foreign key |
| Budget_Amount | Decimal | Not Null |
| Start_date | Date | Not Null |
| End_date | Date | Not Null |
| Created_at | TimeStamp | Default(CurTimeStamp()) |

RECORDS:-

| Attribute | DataType | Constraint |
|-------------|---------------|--------------------------------|
| Record_ID | Int | Primary Key, Auto-increment |
| Date | Date | Not Null |
| Time | Time | Not Null |
| Category_ID | Int | Foreign Key |
| Account_ID | Int | Foreign Key |
| Amount | Decimal(10,2) | Not null , check(Amount>=0) |
| Notes | Varchar(300) | - |

Normalization :**1NF =****- Table should not contain any multi-valued attributes****USERS TABLE:****USERS(user_id,email,password,created_at)**

| user_id | username | email | password | created_at |
|---------|----------------|----------------------------------|--------------|---------------------|
| 501 | Riya Arora | riyaarora@gmail.com | Riya#22 | 2024-11-04 17:25:45 |
| 502 | Sakshi Patel | sakshi.patel101@gmail.com | Sakship\$101 | 2024-11-05 10:55:20 |
| 503 | Diksha Purohit | diksha.p02@gmail.com | Dpurohit02 | 2024-10-28 14:28:07 |
| 504 | Nikhil Sharma | nikhil.sharma121@gmail.com | Nikhils#21 | 2024-01-31 23:23:23 |
| 505 | Sam Dsouza | sam.d32@gmail.com | samsam#32 | 2023-12-12 12:09:32 |
| 506 | namrata sharma | namrata.sharma@cumminscollege.in | sharmaN#123 | 2024-11-06 22:55:08 |
| 508 | mohini | mohini.jadhav@cumminscollege.in | MohiniJ32 | 2024-11-10 13:02:27 |

BUDGETS TABLE:

BUDGETS(user_id,category_id,budget_amount,start_date,end_date,created_at)

| user_id | category_id | budget_amount | start_date | end_date | created_at |
|---------|-------------|---------------|------------|------------|---------------------|
| 501 | 2001 | 750.00 | 2024-11-06 | 2024-12-06 | 2024-11-06 19:29:09 |
| 502 | 2004 | 1500.00 | 2024-10-06 | 2024-12-06 | 2024-10-06 18:23:09 |
| 503 | 2007 | 0.00 | 2024-09-01 | 2024-12-31 | 2024-09-01 12:00:00 |
| 505 | 2011 | 3500.00 | 2024-11-01 | 2024-12-01 | 2024-11-01 13:31:21 |
| 505 | 2012 | 10000.00 | 2024-06-01 | 2024-12-31 | 2024-06-01 09:00:01 |

ACCOUNTS TABLE:

ACCOUNTS(accounts_id,user_id,account_name,initial_amount)

| account_id | user_id | account_name | initial_Amount |
|------------|---------|--------------|----------------|
| 101 | 501 | card | 0.00 |
| 102 | 501 | cash | 400.00 |
| 103 | 503 | card | 2800.00 |
| 104 | 504 | savings | 400.00 |
| 105 | 505 | card | 9980.00 |
| 107 | 502 | savings | 4000.00 |

RECORDS TABLE

RECORDS(record_id,date,time,category_id,account_id,amount,notes)

| | | | | | | | | |
|--|------------|--|------------|--|----------|--|-------------|--|
| | | | | | | | | |
| | record_id | | date | | time | | category_id | |
| | account_id | | Amount | | Notes | | | |
| | 301 | | 2024-11-04 | | 18:21:07 | | 2001 | |
| | 302 | | 2024-10-14 | | 20:12:12 | | 2007 | |
| | 303 | | 2024-07-17 | | 11:10:42 | | 2009 | |
| | 304 | | 2024-09-17 | | 04:19:22 | | 2008 | |
| | 305 | | 2024-01-31 | | 21:03:20 | | 2003 | |
| | 306 | | 2024-11-06 | | 19:55:03 | | 2001 | |
| | 307 | | 2024-11-05 | | 14:30:02 | | 2007 | |
| | 313 | | 2024-11-10 | | 16:11:24 | | 2001 | |
| | | | | | | | | |

CATEGORIES TABLE:

CATEGORIES(category_id,user_id,category_name)

| | | | |
|--|---------------|--|---------|
| | | | |
| | category_id | | user_id |
| | category_name | | |
| | 2001 | | 501 |
| | FOOD | | |
| | 2002 | | 501 |
| | TRAVEL | | |
| | 2003 | | 501 |
| | EDUCATION | | |

| | | | | | | |
|--|------|--|-----|--|----------------|--|
| | 2004 | | 502 | | BEAUTY | |
| | 2005 | | 502 | | CLOTHING | |
| | 2006 | | 502 | | ELECTRONICS | |
| | 2007 | | 503 | | SHOPPING | |
| | 2008 | | 503 | | HEALTH | |
| | 2009 | | 504 | | SPORT | |
| | 2010 | | 505 | | HOME | |
| | 2011 | | 505 | | TRANSPORTATION | |
| | 2012 | | 505 | | BILLS | |
| | 2014 | | 506 | | books | |

+-----+-----+-----+

2NF =

- **Tables must be in 1NF**
- **All the Non-prime attributes should be fully functionally dependent on candidate key.**

USERS :

USERS(user_id,username,email,password,created_at)

+-----+-----+-----+-----+

| user_id | username | email | password | created_at |
|---------|----------------|----------------------------------|--------------|---------------------|
| 501 | Riya Arora | riyaarora.@gmail.com | Riya#22 | 2024-11-04 17:25:45 |
| 502 | Sakshi Patel | sakshi.patel101@gmail.com | Sakship\$101 | 2024-11-05 10:55:20 |
| 503 | Diksha Purohit | diksha.p02@gmail.com | Dpurohit02 | 2024-10-28 14:28:07 |
| 504 | Nikhil Sharma | nikhil.sharma121@gmail.com | Nikhils#21 | 2024-01-31 23:23:23 |
| 505 | Sam Dsouza | sam.d32@gmail.com | samsam#32 | 2023-12-12 12:09:32 |
| 506 | namrata sharma | namrata.sharma@cumminscollege.in | sharmaN#123 | 2024-11-06 22:55:08 |
| 508 | mohini | mohini.jadhav@cumminscollege.in | MohiniJ32 | 2024-11-10 13:02:27 |

BUDGETS:

BUDGETS(user_id,category_id,budget_amount,start_date,end_date,created_at)

| user_id | category_id | budget_amount | start_date | end_date | created_at |
|---------|-------------|---------------|------------|------------|---------------------|
| 501 | 2001 | 750.00 | 2024-11-06 | 2024-12-06 | 2024-11-06 19:29:09 |
| 502 | 2004 | 1500.00 | 2024-10-06 | 2024-12-06 | 2024-10-06 18:23:09 |
| 503 | 2007 | 0.00 | 2024-09-01 | 2024-12-31 | 2024-09-01 12:00:00 |
| 505 | 2011 | 3500.00 | 2024-11-01 | 2024-12-01 | 2024-11-01 13:31:21 |
| 505 | 2012 | 10000.00 | 2024-06-01 | 2024-12-31 | 2024-06-01 09:00:01 |

ACCOUNTS:

INITIAL TABLE:

ACCOUNTS(account_id,user_id,account_name,intial_amount)

| account_id | user_id | account_name | initial_Amount |
|------------|---------|--------------|----------------|
| 101 | 501 | card | 0.00 |
| 102 | 501 | cash | 400.00 |
| 103 | 503 | card | 2800.00 |
| 104 | 504 | savings | 400.00 |
| 105 | 505 | card | 9980.00 |
| 107 | 502 | savings | 4000.00 |

AFTER 2NF:

(account_id,user_id)

| account_ID | user_id |
|------------|---------|
| 101 | 501 |
| 102 | 501 |
| 107 | 502 |
| 103 | 503 |
| 104 | 504 |
| 105 | 505 |

(account_id,account_name,initial_amount)

| account_id | account_name | initial_amount |
|------------|--------------|----------------|
| 101 | card | 0.00 |
| 102 | cash | 400.00 |
| 103 | card | 2800.00 |
| 104 | savings | 400.00 |
| 105 | card | 9980.00 |
| 107 | savings | 4000.00 |

RECORDS:

INITIAL TABLE:

RECORDS(record_id,date,time,category_id,account_id,amount,notes)

| record_id | date | time | category_id | account_id | Amount | Notes |
|-----------|------|------|-------------|------------|--------|-------|
|-----------|------|------|-------------|------------|--------|-------|

| | | | | | | | |
|-----|------------|----------|------|-----|---------|-------------|--|
| 301 | 2024-11-04 | 18:21:07 | 2001 | 102 | 500.00 | brunch | |
| 302 | 2024-10-14 | 20:12:12 | 2007 | 103 | 2000.00 | H&M | |
| 303 | 2024-07-17 | 11:10:42 | 2009 | 104 | 5000.00 | Cricket kit | |
| 304 | 2024-09-17 | 04:19:22 | 2008 | 103 | 700.00 | Cold | |
| 305 | 2024-01-31 | 21:03:20 | 2003 | 102 | 100.00 | Stationary | |
| 306 | 2024-11-06 | 19:55:03 | 2001 | 102 | 100.00 | dominos | |
| 307 | 2024-11-05 | 14:30:02 | 2007 | 103 | 5500.00 | ikea | |
| 313 | 2024-11-10 | 16:11:24 | 2001 | 105 | 50.00 | pattis | |

AFTER 2NF:

(record_id,category_id,account_id)

| record_id | category_id | account_id |
|-----------|-------------|------------|
| 301 | 2001 | 102 |
| 302 | 2007 | 103 |
| 303 | 2009 | 104 |
| 304 | 2008 | 103 |
| 305 | 2003 | 102 |
| 306 | 2001 | 102 |
| 307 | 2007 | 103 |
| 313 | 2001 | 105 |

(record_id,date,time,amount,notes)

| record_id | date | time | amount | notes |
|-----------|------------|----------|---------|-------------|
| 301 | 2024-11-04 | 18:21:07 | 500.00 | brunch |
| 302 | 2024-10-14 | 20:12:12 | 2000.00 | H&M |
| 303 | 2024-07-17 | 11:10:42 | 5000.00 | Cricket kit |
| 304 | 2024-09-17 | 04:19:22 | 700.00 | Cold |
| 305 | 2024-01-31 | 21:03:20 | 100.00 | Stationary |
| 306 | 2024-11-06 | 19:55:03 | 100.00 | dominos |
| 307 | 2024-11-05 | 14:30:02 | 5500.00 | ikea |
| 313 | 2024-11-10 | 16:11:24 | 50.00 | pattis |

CATEGORIES:

INITIAL TABLE:

CATEGORIES(category_id,user_id,category_name)

+-----+-----+-----+

| category_id | user_id | category_name |

+-----+-----+-----+

| 2001 | 501 | FOOD |

| 2002 | 501 | TRAVEL |

| 2003 | 501 | EDUCATION |

| 2004 | 502 | BEAUTY |

| 2005 | 502 | CLOTHING |

| 2006 | 502 | ELECTRONICS |

| 2007 | 503 | SHOPPING |

| 2008 | 503 | HEALTH |

| 2009 | 504 | SPORT |

| | | | | | | |
|--|------|--|-----|--|------|--|
| | 2010 | | 505 | | HOME | |
|--|------|--|-----|--|------|--|

| | | | | | | |
|--|------|--|-----|--|----------------|--|
| | 2011 | | 505 | | TRANSPORTATION | |
|--|------|--|-----|--|----------------|--|

| | | | | | | |
|--|------|--|-----|--|-------|--|
| | 2012 | | 505 | | BILLS | |
|--|------|--|-----|--|-------|--|

| | | | | | | |
|--|------|--|-----|--|-------|--|
| | 2014 | | 506 | | books | |
|--|------|--|-----|--|-------|--|

+-----+-----+-----+

AFTER 2NF:

(category_id,category_name)

+-----+-----+

| | | | | |
|--|-------------|--|---------------|--|
| | category_id | | category_name | |
|--|-------------|--|---------------|--|

+-----+-----+

| | | | | |
|--|------|--|------|--|
| | 2001 | | FOOD | |
|--|------|--|------|--|

| | | | | |
|--|------|--|--------|--|
| | 2002 | | TRAVEL | |
|--|------|--|--------|--|

| | | | | |
|--|------|--|-----------|--|
| | 2003 | | EDUCATION | |
|--|------|--|-----------|--|

| | | | | |
|--|------|--|--------|--|
| | 2004 | | BEAUTY | |
|--|------|--|--------|--|

| | | | | |
|--|------|--|----------|--|
| | 2005 | | CLOTHING | |
|--|------|--|----------|--|

| | | | | |
|--|------|--|-------------|--|
| | 2006 | | ELECTRONICS | |
|--|------|--|-------------|--|

| | | | |
|--|------|----------|--|
| | 2007 | SHOPPING | |
|--|------|----------|--|

| | | | |
|--|------|--------|--|
| | 2008 | HEALTH | |
|--|------|--------|--|

| | | | |
|--|------|-------|--|
| | 2009 | SPORT | |
|--|------|-------|--|

| | | | |
|--|------|------|--|
| | 2010 | HOME | |
|--|------|------|--|

| | | | |
|--|------|----------------|--|
| | 2011 | TRANSPORTATION | |
|--|------|----------------|--|

| | | | |
|--|------|-------|--|
| | 2012 | BILLS | |
|--|------|-------|--|

| | | | |
|--|------|-------|--|
| | 2014 | books | |
|--|------|-------|--|

| | | | | |
|---|-------|---|-------|---|
| + | ----- | + | ----- | + |
|---|-------|---|-------|---|

(category_id,user_id)

| | | | | |
|---|-------|---|-------|---|
| + | ----- | + | ----- | + |
|---|-------|---|-------|---|

| | | | | |
|--|-------------|--|---------|--|
| | category_id | | user_id | |
|--|-------------|--|---------|--|

| | | | | |
|---|-------|---|-------|---|
| + | ----- | + | ----- | + |
|---|-------|---|-------|---|

| | | | | |
|--|------|--|-----|--|
| | 2001 | | 501 | |
|--|------|--|-----|--|

| | | | | |
|--|------|--|-----|--|
| | 2002 | | 501 | |
|--|------|--|-----|--|

| 2003 | 501 |

| 2004 | 502 |

| 2005 | 502 |

| 2006 | 502 |

| 2007 | 503 |

| 2008 | 503 |

| 2009 | 504 |

| 2010 | 505 |

| 2011 | 505 |

| 2012 | 505 |

| 2014 | 506 |

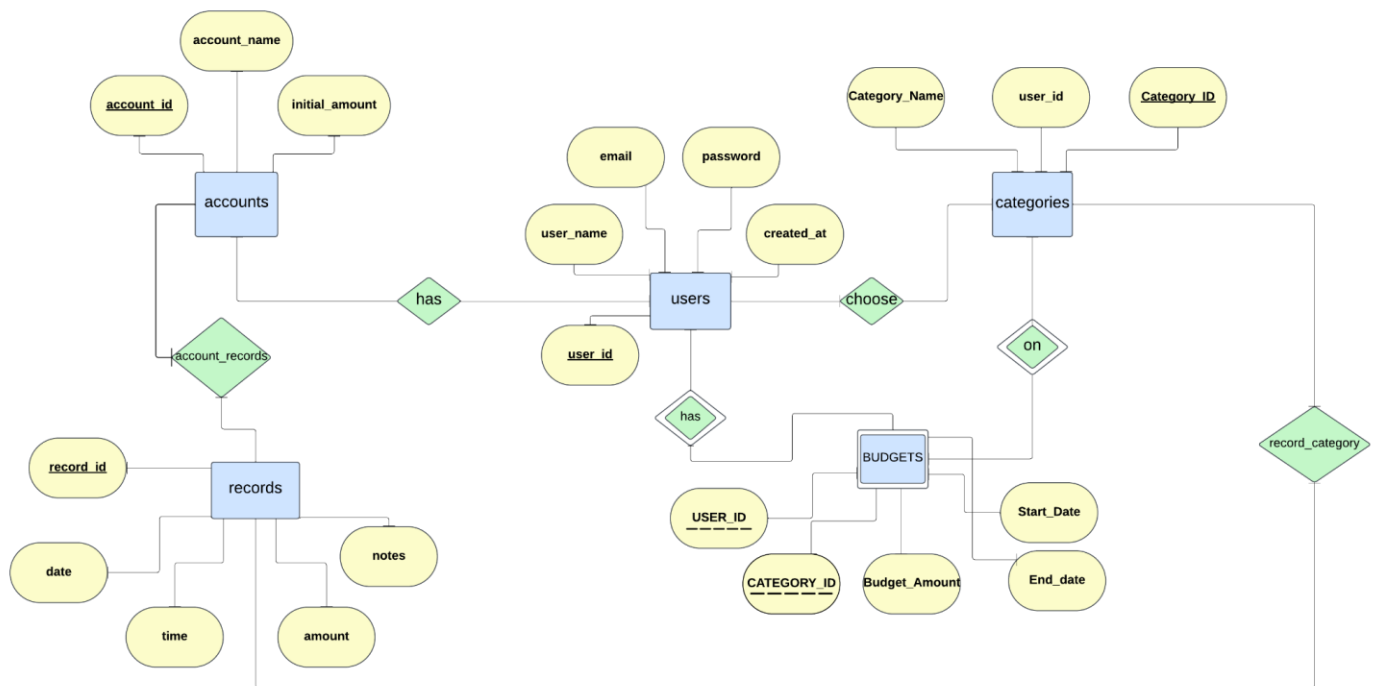
+-----+-----+

3NF =

- **Tables must be in 3NF**
- **There should be no transitive dependency in table.**

ALL THE TABLES ALREADY EXISTS IN 3NF FORM AS THERE IS NO TRANSITIVITY BETWEEN THEM

11. E-R Diagram :



BUDGET TRACKER SYSTEM

MYSQL QUERIES

Table 1: USERS

```
mysql> CREATE TABLE Users (
```

```
    ->     user_id INT PRIMARY KEY AUTO_INCREMENT,  
    ->     username VARCHAR(50) UNIQUE NOT NULL,  
    ->     email VARCHAR(100) UNIQUE NOT NULL,  
    ->     password VARCHAR(255) NOT NULL,  
    ->     created_at TIMESTAMP DEFAULT CURRENT_TIMESTAMP  
    -> );
```

Query OK, 0 rows affected (0.16 sec)

```
mysql> insert into users values(501,'Riya Arora','riyaarora.@gmail.com','Riya#22',default);
```

Query OK, 1 row affected (0.05 sec)

```
mysql> insert into users(username,email,password,created_at) values('Sakshi  
Patel','sakshi.patel101@gmail.com','Sakship$101','2024-11-05 10:55:20');
```

Query OK, 1 row affected (0.01 sec)

```
mysql> insert into users(username,email,password,created_at) values('Diksha  
Purohit','diksha.p02@gmail.com','Dpurohit02','2024-10-28 14:28:07'),('Nikhil  
Sharma','nikhil.sharma121@gmail.com','Nikhils#21','2024-01-31 23:23:23'),('Sam  
Dsouza','sam.d32@gmail.com','samsam#32','2023-12-12 12:09:32');
```

Query OK, 3 rows affected (0.02 sec)

Records: 3 Duplicates: 0 Warnings: 0

```
mysql> select * from users;
```

| user_id | username | email | password | created_at |
|---------|----------------|----------------------------|--------------|---------------------|
| 501 | Riya Arora | riyaarora@gmail.com | Riya#22 | 2024-11-04 17:25:45 |
| 502 | Sakshi Patel | sakshi.patel101@gmail.com | Sakship\$101 | 2024-11-05 10:55:20 |
| 503 | Diksha Purohit | diksha.p02@gmail.com | Dpurohit02 | 2024-10-28 14:28:07 |
| 504 | Nikhil Sharma | nikhil.sharma121@gmail.com | Nikhils#21 | 2024-01-31 23:23:23 |
| 505 | Sam Dsouza | sam.d32@gmail.com | samsam#32 | 2023-12-12 12:09:32 |

Table 2: ACCOUNTS

```
mysql> CREATE TABLE Accounts (
```

```
->     account_id INT PRIMARY KEY AUTO_INCREMENT,  
->     user_id INT,  
->     account_name VARCHAR(50),  
->     initial_Amount DECIMAL(15, 2) DEFAULT 0 ,  
->     check(initial_Amount >= 0),  
->     FOREIGN KEY (user_id) REFERENCES Users(user_id)  
-> );
```

Query OK, 0 rows affected (0.07 sec)

```
mysql> insert into accounts values(101,501,'card',default);
```

Query OK, 1 row affected (0.04 sec)

```
mysql> insert into accounts(user_id,account_name,initial_Amount)  
values(501,'cash',1000),(503,'card',11000),(504,'savings',5000),(505,'card',default);
```

Query OK, 4 rows affected (0.01 sec)

Records: 4 Duplicates: 0 Warnings: 0

```
mysql> select * from accounts;
```

| account_id | user_id | account_name | initial_Amount |
|------------|---------|--------------|----------------|
| 101 | 501 | card | 0.00 |
| 102 | 501 | cash | 1000.00 |
| 103 | 503 | card | 11000.00 |
| 104 | 504 | savings | 5000.00 |
| 105 | 505 | card | 0.00 |

5 rows in set (0.00 sec)

Table 3: CATEGORIES

```
mysql> CREATE TABLE Categories (
```

```
->     category_id INT PRIMARY KEY AUTO_INCREMENT,  
->     user_id INT,  
->     category_name VARCHAR(50) NOT NULL,  
->     FOREIGN KEY (user_id) REFERENCES Users(user_id)  
-> );
```

Query OK, 0 rows affected (0.05 sec)

```
mysql> insert into categories values(2001,501,'FOOD');
```

Query OK, 1 row affected (0.02 sec)

```
mysql> insert into categories(user_id,category_name)
values(501,'TRAVEL'),(501,'EDUCATION'),(502,'BEAUTY'),(502,'CLOTHING'),(502,'ELECTRONICS'),(503,'SH
OPPING'),(503,'HEALTH'),(504,'SPORT'),(505,'HOME'),(505,'TRANSPORTATION'),(505,'BILLS');
```

Query OK, 11 rows affected (0.01 sec)

Records: 11 Duplicates: 0 Warnings: 0

```
mysql> select * from categories;
```

| category_id | user_id | category_name |
|-------------|---------|----------------|
| 2001 | 501 | FOOD |
| 2002 | 501 | TRAVEL |
| 2003 | 501 | EDUCATION |
| 2004 | 502 | BEAUTY |
| 2005 | 502 | CLOTHING |
| 2006 | 502 | ELECTRONICS |
| 2007 | 503 | SHOPPING |
| 2008 | 503 | HEALTH |
| 2009 | 504 | SPORT |
| 2010 | 505 | HOME |
| 2011 | 505 | TRANSPORTATION |
| 2012 | 505 | BILLS |

+-----+-----+-----+

12 rows in set (0.00 sec)

Table 4: BUDGETS

```
mysql> CREATE TABLE Budgets (  
    ->     user_id INT,  
    ->     category_id INT,  
    ->     budget_amount DECIMAL(15, 2) NOT NULL,  
    ->     start_date DATE NOT NULL,  
    ->     end_date DATE NOT NULL,  
    ->     created_at TIMESTAMP DEFAULT CURRENT_TIMESTAMP,  
    ->     FOREIGN KEY (user_id) REFERENCES Users(user_id),  
    ->     FOREIGN KEY (category_id) REFERENCES Categories(category_id)  
    -> );
```

Query OK, 0 rows affected (0.08 sec)

```
mysql> ALTER TABLE budgets DROP COLUMN budget_id;
```

Query OK, 0 rows affected (0.29 sec)

Records: 0 Duplicates: 0 Warnings: 0

```
mysql> ALTER TABLE budgets
```

```
    -> ADD PRIMARY KEY (user_id, category_id);
```

Query OK, 0 rows affected (0.14 sec)

Records: 0 Duplicates: 0 Warnings: 0

```
mysql> desc budgets;
```

| Field | Type | Null | Key | Default | Extra |
|---------------|---------------|------|-----|-------------------|-------------------|
| user_id | int | NO | PRI | NULL | |
| category_id | int | NO | PRI | NULL | |
| budget_amount | decimal(15,2) | NO | | NULL | |
| start_date | date | NO | | NULL | |
| end_date | date | NO | | NULL | |
| created_at | timestamp | YES | | CURRENT_TIMESTAMP | DEFAULT_GENERATED |

6 rows in set (0.00 sec)

```
mysql> insert into budgets values(501,2001,1000,'2024-11-06','2024-12-06',NOW());
```

Query OK, 1 row affected (0.02 sec)

```
mysql> insert into budgets values(502,2004,1500,'2024-10-06','2024-12-06','2024-10-06 18:23:09');
```

Query OK, 1 row affected (0.01 sec)

```
mysql> insert into budgets values(503,2007,5000,'2024-09-01','2024-12-31','2024-09-01 12:00:00');
```

Query OK, 1 row affected (0.02 sec)

```
mysql> insert into budgets values(505,2011,3500,'2024-11-01','2024-12-01','2024-11-01 13:31:21');
```

Query OK, 1 row affected (0.02 sec)

```
mysql> insert into budgets values(505,2012,10000,'2024-06-01','2024-12-31','2024-06-01 09:00:01');
```

Query OK, 1 row affected (0.01 sec)

```
mysql> select * from budgets;
```


| user_id | category_id | budget_amount | start_date | end_date | created_at |
|---------|-------------|---------------|------------|------------|---------------------|
| 501 | 2001 | 1000.00 | 2024-11-06 | 2024-12-06 | 2024-11-06 19:29:09 |
| 502 | 2004 | 1500.00 | 2024-10-06 | 2024-12-06 | 2024-10-06 18:23:09 |
| 503 | 2007 | 5000.00 | 2024-09-01 | 2024-12-31 | 2024-09-01 12:00:00 |
| 505 | 2011 | 3500.00 | 2024-11-01 | 2024-12-01 | 2024-11-01 13:31:21 |
| 505 | 2012 | 10000.00 | 2024-06-01 | 2024-12-31 | 2024-06-01 09:00:01 |

5 rows in set (0.00 sec)

Table 5: RECORDS

```
mysql> CREATE TABLE Records (
    ->     record_id INT AUTO_INCREMENT PRIMARY KEY,
    ->     Date DATE NOT NULL,
    ->     Time TIME NOT NULL,
    ->     category_id INT ,
    ->     account_id INT ,
    ->     Amount DECIMAL(10, 2) NOT NULL CHECK (Amount >= 0),
    ->     Notes VARCHAR(300),
    ->     FOREIGN KEY (category_id) REFERENCES Categories(category_id) ON DELETE SET NULL
ON UPDATE CASCADE,
    ->     FOREIGN KEY (account_id) REFERENCES Accounts(account_id) ON DELETE SET NULL ON
UPDATE CASCADE
    -> );

Query OK, 0 rows affected (0.08 sec)
```

```
mysql> desc Records;
```

| Field | Type | Null | Key | Default | Extra |
|-------------|---------------|------|-----|---------|----------------|
| record_id | int | NO | PRI | NULL | auto_increment |
| Date | date | NO | | NULL | |
| Time | time | NO | | NULL | |
| category_id | int | YES | MUL | NULL | |
| account_id | int | YES | MUL | NULL | |
| Amount | decimal(10,2) | NO | | NULL | |
| Notes | varchar(300) | YES | | NULL | |

```
7 rows in set (0.01 sec)
```

```
mysql> DELIMITER ;
```

```
mysql> insert into records values(301,curdate(),curtime(),2001,102,500,'brunch');
```

```
Query OK, 1 row affected (0.01 sec)
```

```
mysql> insert into records values(302,'2024-10-14','20:12:12',2007,103,2000,'H&M');
```

```
Query OK, 1 row affected (0.01 sec)
```

```
mysql> insert into records values(303,'2024-07-17','11:10:42',2009,104,5000,'Cricket kit');
```

```
Query OK, 1 row affected (0.01 sec)
```

```
mysql> insert into records values(304,'2024-09-17','04:19:22',2008,103,700,'Cold');
```

```
Query OK, 1 row affected (0.02 sec)
```

```
mysql> insert into records values(305,'2024-01-31','21:03:20',2003,102,100,'Stationary');
```

Query OK, 1 row affected (0.02 sec)

```
mysql> select * from accounts;
```

```
+-----+-----+-----+-----+
| account_id | user_id | account_name | initial_Amount |
+-----+-----+-----+-----+
|      101 |    501 | card        |      0.00 |
|      102 |    501 | cash        |     400.00 |
|      103 |    503 | card        |     8300.00 |
|      104 |    504 | savings     |      0.00 |
|      105 |    505 | card        |      0.00 |
+-----+-----+-----+-----+
```

5 rows in set (0.00 sec)

```
mysql> select * from records;
```

```
+-----+-----+-----+-----+-----+-----+-----+
| record_id | Date   | Time   | category_id | account_id | Amount | Notes |
+-----+-----+-----+-----+-----+-----+-----+
|      301 | 2024-11-04 | 18:21:07 |      2001 |      102 | 500.00 | brunch |
|      302 | 2024-10-14 | 20:12:12 |      2007 |      103 | 2000.00 | H&M |
|      303 | 2024-07-17 | 11:10:42 |      2009 |      104 | 5000.00 | Cricket kit |
|      304 | 2024-09-17 | 04:19:22 |      2008 |      103 | 700.00 | Cold |
|      305 | 2024-01-31 | 21:03:20 |      2003 |      102 | 100.00 | Stationary |
+-----+-----+-----+-----+-----+-----+-----+
```

5 rows in set (0.00 sec)

```
mysql> DELIMITER //
```

```
mysql> CREATE TRIGGER check_budget
```

```
-> AFTER INSERT ON records
```

```
-> FOR EACH ROW
```

```
-> BEGIN
```

```
->     DECLARE remaining_budget DECIMAL(15, 2);
```

```
->
```

```
->     SELECT budget_amount INTO remaining_budget
```

```
->     FROM budgets
```

```
->     WHERE category_id = NEW.category_id ;
```

```
->
```

```
->     IF remaining_budget >= NEW.amount THEN
```

```
->         UPDATE budgets
```

```
->         SET budget_amount = budget_amount - NEW.amount
```

```
->         WHERE category_id = NEW.category_id ;
```

```
->     ELSE
```

```
->         UPDATE budgets
```

```
->         SET budget_amount = 0
```

```
->         WHERE category_id = NEW.category_id ;
```

```
->
```

```
->
```

```
->     END IF;
```

```
-> END //
```

```
Query OK, 0 rows affected (0.03 sec)
```

```
mysql> DELIMITER ;
```

```
mysql> insert into records values(307,'2024-11-05','14:30:02',2007,103,5500,'ikea');
```

```
Query OK, 1 row affected (0.01 sec)
```

```
mysql> select * from budgets;
```

| user_id | category_id | budget_amount | start_date | end_date | created_at |
|---------|-------------|---------------|------------|------------|---------------------|
| 501 | 2001 | 800.00 | 2024-11-06 | 2024-12-06 | 2024-11-06 19:29:09 |
| 502 | 2004 | 1500.00 | 2024-10-06 | 2024-12-06 | 2024-10-06 18:23:09 |
| 503 | 2007 | 0.00 | 2024-09-01 | 2024-12-31 | 2024-09-01 12:00:00 |
| 505 | 2011 | 3500.00 | 2024-11-01 | 2024-12-01 | 2024-11-01 13:31:21 |
| 505 | 2012 | 10000.00 | 2024-06-01 | 2024-12-31 | 2024-06-01 09:00:01 |

5 rows in set (0.00 sec)

```
mysql> select * from accounts;
```

| account_id | user_id | account_name | initial_Amount |
|------------|---------|--------------|----------------|
| 101 | 501 | card | 0.00 |
| 102 | 501 | cash | 200.00 |
| 103 | 503 | card | 2800.00 |
| 104 | 504 | savings | 500.00 |
| 105 | 505 | card | 10000.00 |

5 rows in set (0.00 sec)

```
mysql> select * from records;
```

| record_id | Date | Time | category_id | account_id | Amount | Notes |
|-----------|------|------|-------------|------------|--------|-------|
|-----------|------|------|-------------|------------|--------|-------|

```

+-----+-----+-----+-----+-----+
|      301 | 2024-11-04 | 18:21:07 |      2001 |      102 | 500.00 | brunch |      |
|      302 | 2024-10-14 | 20:12:12 |      2007 |      103 | 2000.00 | H&M    |      |
|      303 | 2024-07-17 | 11:10:42 |      2009 |      104 | 5000.00 | Cricket kit |      |
|      304 | 2024-09-17 | 04:19:22 |      2008 |      103 | 700.00 | Cold    |      |
|      305 | 2024-01-31 | 21:03:20 |      2003 |      102 | 100.00 | Stationary |      |
|      306 | 2024-11-06 | 19:55:03 |      2001 |      102 | 200.00 | dominos |      |
|      307 | 2024-11-05 | 14:30:02 |      2007 |      103 | 5500.00 | ikea    |      |
+-----+-----+-----+-----+-----+

```

7 rows in set (0.00 sec)

QUERIES:

#

```
mysql> DELIMITER //
```

```
mysql> CREATE TRIGGER update_budget
```

```
    -> AFTER UPDATE
```

```
    -> ON records
```

```
    -> FOR EACH ROW
```

```
    -> BEGIN
```

```
    ->   UPDATE budgets
```

```
    ->   SET budget_amount = budget_amount + OLD.amount - NEW.amount
```

```
    ->   WHERE category_id = OLD.category_id;
```

```
    -> END //
```

Query OK, 0 rows affected (0.02 sec)

#

```
delimiter //
```

```
create trigger update_acc
```

after update

on records

for each row

begin

update accounts set initial_amount=initial_amount+old.amount-new.amount where
accounts.account_id=new.account_id;

end //

delimiter ;

#

mysql> DELIMITER //

mysql>

mysql> CREATE TRIGGER final_amount

-> AFTER INSERT ON records

-> FOR EACH ROW

-> BEGIN

-> -- Update the initial_amount in the accounts table

-> UPDATE accounts

-> SET initial_amount = initial_amount - NEW.amount

-> WHERE account_id = NEW.account_id;

-> END; //

Query OK, 0 rows affected (0.01 sec)

#

mysql> DELIMITER //

mysql>

mysql> CREATE TRIGGER check_amount

-> BEFORE INSERT ON records

-> FOR EACH ROW

-> BEGIN

-> DECLARE amount DECIMAL(15,2);

```
->
-> -- Assuming you want to check the balance from a specific account
-> SELECT initial_Amount INTO amount FROM accounts WHERE account_id = NEW.account_id;
->
-> IF amount < NEW.amount THEN
->     SIGNAL SQLSTATE '45000'
->     SET MESSAGE_TEXT = 'Error: Insufficient balance.';
-> END IF;
-> END; //
```

Query OK, 0 rows affected (0.04 sec)

mysql>

mysql> DELIMITER ;

#

mysql> SELECT * FROM records

-> WHERE Date BETWEEN '2024-10-01' AND '2024-11-05';

```
+-----+-----+-----+-----+-----+-----+
| record_id | Date       | Time   | category_id | account_id | Amount | Notes |
+-----+-----+-----+-----+-----+-----+
|      301 | 2024-11-04 | 18:21:07 |      2001 |      102 | 500.00 | brunch |
|      302 | 2024-10-14 | 20:12:12 |      2007 |      103 | 2000.00 | H&M    |
|      307 | 2024-11-05 | 14:30:02 |      2007 |      103 | 5500.00 | ikea   |
+-----+-----+-----+-----+-----+-----+
```

3 rows in set (0.13 sec)

#

```
mysql> SELECT * FROM budgets
```

```
-> WHERE budget_amount BETWEEN 1000 AND 5000;
```

```
+-----+-----+-----+-----+-----+-----+
| user_id | category_id | budget_amount | start_date | end_date | created_at |
+-----+-----+-----+-----+-----+-----+
|      502 |      2004 |      1500.00 | 2024-10-06 | 2024-12-06 | 2024-10-06 18:23:09 |
|      505 |      2011 |      3500.00 | 2024-11-01 | 2024-12-01 | 2024-11-01 13:31:21 |
+-----+-----+-----+-----+-----+-----+
```

2 rows in set (0.01 sec)

#

```
mysql> insert into users values(506,'namrata
sharma','namrata.sharma@cumminscollege.in','sharmaN#123',NOW());
```

Query OK, 1 row affected (0.08 sec)

```
mysql> SELECT * FROM users
```

```
-> WHERE email LIKE '%cumminscollege.in';
```

```
+-----+-----+-----+-----+-----+-----+
| user_id | username | email | password | created_at |
+-----+-----+-----+-----+-----+-----+
| 506 | namrata sharma | namrata.sharma@cumminscollege.in | sharmaN#123 | 2024-11-06 22:55:08 |
+-----+-----+-----+-----+-----+-----+
```

1 row in set (0.00 sec)

#

```
mysql> SELECT * FROM records
```

```
-> WHERE Notes LIKE '%kit%';
```

```
+-----+-----+-----+-----+-----+-----+-----+
| record_id | Date       | Time   | category_id | account_id | Amount | Notes  |
+-----+-----+-----+-----+-----+-----+-----+
|      303 | 2024-07-17 | 11:10:42 |      2009 |          104 | 5000.00 | Cricket kit |
+-----+-----+-----+-----+-----+-----+-----+
```

```
1 row in set (0.00 sec)
```

```
#
```

```
mysql> SELECT * FROM budgets
```

```
-> WHERE start_date >= '2024-11-01' AND start_date < '2024-12-01';
```

```
+-----+-----+-----+-----+-----+-----+-----+
| user_id | category_id | budget_amount | start_date | end_date | created_at |
+-----+-----+-----+-----+-----+-----+-----+
|      501 |      2001 |          800.00 | 2024-11-06 | 2024-12-06 | 2024-11-06 19:29:09 |
|      505 |      2011 |          3500.00 | 2024-11-01 | 2024-12-01 | 2024-11-01 13:31:21 |
+-----+-----+-----+-----+-----+-----+-----+
```

```
2 rows in set (0.01 sec)
```

```
#
```

```
mysql> SELECT * FROM users
```

```
-> ORDER BY created_at ASC;
```

```
+-----+-----+-----+-----+-----+-----+-----+
| user_id | username   | email                  | password   | created_at |
+-----+-----+-----+-----+-----+-----+-----+
|      505 | Sam Dsouza | sam.d32@gmail.com      | samsam#32 | 2023-12-12 12:09:32 |
|      504 | Nikhil Sharma | nikhil.sharma121@gmail.com | Nikhils#21 | 2024-01-31 23:23:23 |
+-----+-----+-----+-----+-----+-----+-----+
```

| | | | | |
|-----|----------------|----------------------------------|--------------|---------------------|
| 503 | Diksha Purohit | diksha.p02@gmail.com | Dpurohit02 | 2024-10-28 14:28:07 |
| 501 | Riya Arora | riyaarora.@gmail.com | Riya#22 | 2024-11-04 17:25:45 |
| 502 | Sakshi Patel | sakshi.patel101@gmail.com | Sakship\$101 | 2024-11-05 10:55:20 |
| 506 | namrata sharma | namrata.sharma@cumminscollege.in | sharmaN#123 | 2024-11-06 22:55:08 |

+-----+-----+-----+-----+-----+

6 rows in set (0.03 sec)

#

mysql> SELECT * FROM records

-> ORDER BY Amount DESC;

+-----+-----+-----+-----+-----+-----+

| record_id | Date | Time | category_id | account_id | Amount | Notes |
|-----------|------|------|-------------|------------|--------|-------|
|-----------|------|------|-------------|------------|--------|-------|

+-----+-----+-----+-----+-----+-----+

| | | | | | | |
|-----|------------|----------|------|-----|---------|-------------|
| 307 | 2024-11-05 | 14:30:02 | 2007 | 103 | 5500.00 | ikea |
| 303 | 2024-07-17 | 11:10:42 | 2009 | 104 | 5000.00 | Cricket kit |
| 302 | 2024-10-14 | 20:12:12 | 2007 | 103 | 2000.00 | H&M |
| 304 | 2024-09-17 | 04:19:22 | 2008 | 103 | 700.00 | Cold |
| 301 | 2024-11-04 | 18:21:07 | 2001 | 102 | 500.00 | brunch |
| 306 | 2024-11-06 | 19:55:03 | 2001 | 102 | 200.00 | dominos |
| 305 | 2024-01-31 | 21:03:20 | 2003 | 102 | 100.00 | Stationary |

+-----+-----+-----+-----+-----+-----+

7 rows in set (0.00 sec)

#

mysql> SELECT user_id, COUNT(account_id) AS total_accounts

-> FROM accounts

-> GROUP BY user_id;

```
+-----+-----+
| user_id | total_accounts |
+-----+-----+
|      501 |           2 |
|      503 |           1 |
|      504 |           1 |
|      505 |           1 |
+-----+-----+
```

4 rows in set (0.02 sec)

#

mysql> SELECT category_id, SUM(Amount) AS total_amount_spent

-> FROM records

-> GROUP BY category_id;

```
+-----+-----+
| category_id | total_amount_spent |
+-----+-----+
|      2001 |         700.00 |
|      2003 |         100.00 |
|      2007 |        7500.00 |
|      2008 |         700.00 |
|      2009 |        5000.00 |
+-----+-----+
```

5 rows in set (0.01 sec)

#

```
mysql> SELECT user_id, SUM(budget_amount) AS total_budget
```

```
-> FROM budgets
```

```
-> GROUP BY user_id
```

```
-> ORDER BY total_budget DESC;
```

```
+-----+-----+
```

```
| user_id | total_budget |
```

```
+-----+-----+
```

```
|      505 | 13500.00 |
```

```
|      502 | 1500.00 |
```

```
|      501 | 800.00 |
```

```
|      503 |      0.00 |
```

```
+-----+-----+
```

```
4 rows in set (0.01 sec)
```

```
#
```

```
mysql> SELECT user_id, MAX(Date) AS latest_date, MAX(Time) AS latest_time
```

```
-> FROM records
```

```
-> JOIN accounts ON records.account_id = accounts.account_id
```

```
-> GROUP BY user_id
```

```
-> ORDER BY latest_date DESC, latest_time DESC;
```

```
+-----+-----+-----+
```

```
| user_id | latest_date | latest_time |
```

```
+-----+-----+-----+
```

```
|      501 | 2024-11-06 | 21:03:20    |
```

```
|      503 | 2024-11-05 | 20:12:12    |
```

```
|      504 | 2024-07-17 | 11:10:42    |
```

```
+-----+-----+-----+
```

```
3 rows in set (0.04 sec)
```

#

```
mysql> SELECT users.username, categories.category_name
```

```
      -> FROM users, categories;
```

```
+-----+-----+
| username   | category_name |
+-----+-----+
| Sam Dsouza  | FOOD          |
| Sakshi Patel | FOOD          |
| Riya Arora  | FOOD          |
| Nikhil Sharma | FOOD          |
| namrata sharma | FOOD          |
| Diksha Purohit | FOOD          |
| Sam Dsouza  | TRAVEL        |
| Sakshi Patel | TRAVEL        |
| Riya Arora  | TRAVEL        |
| Nikhil Sharma | TRAVEL        |
| namrata sharma | TRAVEL        |
| Diksha Purohit | TRAVEL        |
| Sam Dsouza  | EDUCATION      |
| Sakshi Patel | EDUCATION      |
| Riya Arora  | EDUCATION      |
| Nikhil Sharma | EDUCATION      |
| namrata sharma | EDUCATION      |
| Diksha Purohit | EDUCATION      |
| Sam Dsouza  | BEAUTY         |
| Sakshi Patel | BEAUTY         |
| Riya Arora  | BEAUTY         |
```

| | | |
|----------------|-------------|--|
| Nikhil Sharma | BEAUTY | |
| namrata sharma | BEAUTY | |
| Diksha Purohit | BEAUTY | |
| Sam Dsouza | CLOTHING | |
| Sakshi Patel | CLOTHING | |
| Riya Arora | CLOTHING | |
| Nikhil Sharma | CLOTHING | |
| namrata sharma | CLOTHING | |
| Diksha Purohit | CLOTHING | |
| Sam Dsouza | ELECTRONICS | |
| Sakshi Patel | ELECTRONICS | |
| Riya Arora | ELECTRONICS | |
| Nikhil Sharma | ELECTRONICS | |
| namrata sharma | ELECTRONICS | |
| Diksha Purohit | ELECTRONICS | |
| Sam Dsouza | SHOPPING | |
| Sakshi Patel | SHOPPING | |
| Riya Arora | SHOPPING | |
| Nikhil Sharma | SHOPPING | |
| namrata sharma | SHOPPING | |
| Diksha Purohit | SHOPPING | |
| Sam Dsouza | HEALTH | |
| Sakshi Patel | HEALTH | |
| Riya Arora | HEALTH | |
| Nikhil Sharma | HEALTH | |
| namrata sharma | HEALTH | |
| Diksha Purohit | HEALTH | |
| Sam Dsouza | SPORT | |

| | | |
|----------------|----------------|--|
| Sakshi Patel | SPORT | |
| Riya Arora | SPORT | |
| Nikhil Sharma | SPORT | |
| namrata sharma | SPORT | |
| Diksha Purohit | SPORT | |
| Sam Dsouza | HOME | |
| Sakshi Patel | HOME | |
| Riya Arora | HOME | |
| Nikhil Sharma | HOME | |
| namrata sharma | HOME | |
| Diksha Purohit | HOME | |
| Sam Dsouza | TRANSPORTATION | |
| Sakshi Patel | TRANSPORTATION | |
| Riya Arora | TRANSPORTATION | |
| Nikhil Sharma | TRANSPORTATION | |
| namrata sharma | TRANSPORTATION | |
| Diksha Purohit | TRANSPORTATION | |
| Sam Dsouza | BILLS | |
| Sakshi Patel | BILLS | |
| Riya Arora | BILLS | |
| Nikhil Sharma | BILLS | |
| namrata sharma | BILLS | |
| Diksha Purohit | BILLS | |

+-----+-----+

72 rows in set (0.03 sec)

#

mysql> SELECT users.username, records.Amount, records.Date, categories.category_name

-> FROM records

-> INNER JOIN accounts ON records.account_id = accounts.account_id

-> INNER JOIN users ON accounts.user_id = users.user_id

-> INNER JOIN categories ON records.category_id = categories.category_id;

```
+-----+-----+-----+-----+
| username | Amount | Date      | category_name |
+-----+-----+-----+-----+
| Riya Arora | 500.00 | 2024-11-04 | FOOD          |
| Diksha Purohit | 2000.00 | 2024-10-14 | SHOPPING      |
| Nikhil Sharma | 5000.00 | 2024-07-17 | SPORT         |
| Diksha Purohit | 700.00 | 2024-09-17 | HEALTH        |
| Riya Arora | 100.00 | 2024-01-31 | EDUCATION     |
| Riya Arora | 200.00 | 2024-11-06 | FOOD          |
| Diksha Purohit | 5500.00 | 2024-11-05 | SHOPPING      |
+-----+-----+-----+-----+
```

7 rows in set (0.01 sec)

#

mysql> SELECT users.username, accounts.account_name, accounts.initial_Amount

-> FROM users

-> LEFT JOIN accounts ON users.user_id = accounts.user_id;

```
+-----+-----+-----+
| username | account_name | initial_Amount |
+-----+-----+-----+
| Diksha Purohit | card          | 2800.00 |
| namrata sharma | NULL         | NULL    |
| Nikhil Sharma | savings      | 500.00 |
| Riya Arora | card         | 0.00 |
```

| | | | |
|--------------|------|----------|--|
| Riya Arora | cash | 200.00 | |
| Sakshi Patel | NULL | NULL | |
| Sam Dsouza | card | 10000.00 | |

+-----+-----+-----+

7 rows in set (0.02 sec)

#

mysql> SELECT categories.category_name, budgets.budget_amount

-> FROM categories

-> RIGHT JOIN budgets ON categories.category_id = budgets.category_id;

+-----+-----+

| | | |
|---------------|---------------|--|
| category_name | budget_amount | |
|---------------|---------------|--|

+-----+-----+

| | | |
|----------------|----------|--|
| FOOD | 800.00 | |
| BEAUTY | 1500.00 | |
| SHOPPING | 0.00 | |
| TRANSPORTATION | 3500.00 | |
| BILLS | 10000.00 | |

+-----+-----+

5 rows in set (0.00 sec)

#

mysql> SELECT username

-> FROM users

-> WHERE user_id IN (

-> SELECT user_id

-> FROM budgets

-> WHERE budget_amount > 5000

->);

+-----+

| username |

+-----+

| Sam Dsouza |

+-----+

1 row in set (0.03 sec)

#

mysql> SELECT account_name, initial_Amount

-> FROM accounts

-> WHERE initial_Amount = (

-> SELECT MAX(initial_Amount)

-> FROM accounts

->);

+-----+-----+

| account_name | initial_Amount |

+-----+-----+

| card | 10000.00 |

+-----+-----+

1 row in set (0.02 sec)

#

mysql> CREATE VIEW user_spending AS

-> SELECT users.username, categories.category_name, records.Amount, records.Date,
records.Notes

-> FROM records

-> INNER JOIN accounts ON records.account_id = accounts.account_id

-> INNER JOIN users ON accounts.user_id = users.user_id

-> INNER JOIN categories ON records.category_id = categories.category_id;

Query OK, 0 rows affected (0.07 sec)

mysql> select * from user_spending;

| username | category_name | Amount | Date | Notes |
|----------------|---------------|---------|------------|-------------|
| Riya Arora | FOOD | 500.00 | 2024-11-04 | brunch |
| Diksha Purohit | SHOPPING | 2000.00 | 2024-10-14 | H&M |
| Nikhil Sharma | SPORT | 5000.00 | 2024-07-17 | Cricket kit |
| Diksha Purohit | HEALTH | 700.00 | 2024-09-17 | Cold |
| Riya Arora | EDUCATION | 100.00 | 2024-01-31 | Stationary |
| Riya Arora | FOOD | 200.00 | 2024-11-06 | dominos |
| Diksha Purohit | SHOPPING | 5500.00 | 2024-11-05 | ikea |

7 rows in set (0.03 sec)

#

mysql> SELECT * FROM user_spending

-> WHERE username = 'Riya Arora';

| username | category_name | Amount | Date | Notes |
|------------|---------------|--------|------------|------------|
| Riya Arora | FOOD | 500.00 | 2024-11-04 | brunch |
| Riya Arora | EDUCATION | 100.00 | 2024-01-31 | Stationary |
| Riya Arora | FOOD | 200.00 | 2024-11-06 | dominos |

3 rows in set (0.02 sec)

#

mysql> set profiling =1;

Query OK, 0 rows affected, 1 warning (0.00 sec)

mysql> select record_id,amount,notes from records where record_id=305;

| | | | |
|-----------|--------|--------|------------|
| | | | |
| record_id | amount | notes | |
| | | | |
| | 305 | 100.00 | Stationary |
| | | | |

1 row in set (0.02 sec)

mysql> CREATE INDEX idx_record ON records(Date);

Query OK, 0 rows affected, 1 warning (0.07 sec)

Records: 0 Duplicates: 0 Warnings: 1

mysql> select record_id,amount,notes from records where record_id=305;

| | | | |
|-----------|--------|--------|------------|
| | | | |
| record_id | amount | notes | |
| | | | |
| | 305 | 100.00 | Stationary |
| | | | |

1 row in set (0.00 sec)

mysql> show profiles;

| | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

| Query_ID | Duration | Query |
|----------|------------|--|
| 1 | 0.01526225 | select record_id,amount,notes from records where record_id=305 |
| 2 | 0.06591650 | CREATE INDEX idx_record ON records(Date) |
| 3 | 0.00078200 | select record_id,amount,notes from records where record_id=305 |

3 rows in set, 1 warning (0.00 sec)

#

mysql> DELIMITER //

mysql> CREATE FUNCTION cal_days(u_ID INT, c_ID INT)

-> RETURNS INT

-> READS SQL DATA

-> BEGIN

-> DECLARE ID1, ID2 INT;

-> DECLARE no_of_days INT;

-> DECLARE date DATE;

->

-> -- Get user_id, category_id

-> SELECT user_id, category_id INTO ID1, ID2

-> FROM budgets

-> WHERE user_id = u_ID AND category_id = c_ID;

->

-> -- Get the end_date for the category

-> SELECT end_date INTO date

-> FROM budgets

-> WHERE user_id = u_ID AND category_id = c_ID;

->

```

->      -- Calculate the number of days
->      SET no_of_days = DATEDIFF( date,CURDATE());
->
->      -- Return the number of days
->      RETURN no_of_days;
-> END //

```

Query OK, 0 rows affected (0.02 sec)

```
mysql> select user_id,category_id,budget_amount,cal_days(505,2012) as remaining_days from budgets
where user_id=505 and category_id=2012 ;
```

```

+-----+-----+-----+-----+
| user_id | category_id | budget_amount | remaining_days |
+-----+-----+-----+-----+
|      505 |      2012 | 10000.00 |      55 |
+-----+-----+-----+-----+

```

1 row in set (0.00 sec)