

EXPLANATION OF TRANSACTION BILLING SYSTEM (C PROGRAM)

1. WHAT IS A TRANSACTION BILLING SYSTEM?

A Transaction Billing System is a simple program that:

- Takes product details from the user
- Calculates the price based on quantity
- Applies discount
- Applies tax (like GST)
- Displays a final bill

It simulates how billing happens in shops, supermarkets, and online stores.

2. PURPOSE OF THE PROGRAM

The program aims to:

- **Automate billing**
- **Reduce manual errors**
- **Get quick totals**
- **Improve accuracy** in calculations
- Provide practice for **basic C concepts** (arrays, loops, structures)

3. HOW THE PROGRAM WORKS (STEP-BY-STEP)

Step 1: User enters number of items

The program asks:

Enter number of items:

This determines how many products will be billed.

Step 2: Input item details

For each item, the user enters:

Item name

Item price

Quantity

These details are stored in a structure array, defined as:

```
struct Item {  
    char name[50];  
    float price;  
    int qty;  
};
```

Step 3: Calculate subtotal

The program calculates the subtotal by multiplying the price by the quantity for each item and summing these values:

`subtotal = sum of all item totals`

Step 4: Apply discount

The user provides a discount percentage (e.g., 10%).

The discount amount is calculated as:

`discount = subtotal × (discount% / 100)`

Step 5: Apply tax (GST)

The user provides the tax percentage (e.g., 5%, 12%, 18%).

The tax amount is calculated on the discounted subtotal:

`tax = (subtotal - discount) × (tax% / 100)`

Step 6: Calculate final amount

The final amount to be paid is calculated as:

`total = subtotal - discount + tax`

Step 7: Print the Final Bill

The program displays the following details:

Item details

Subtotal

Discount

Tax

Final payable amount

This output resembles a typical supermarket bill.

4. CONCEPTS USED IN THE PROGRAM

- **Structure:** Used to store item details (name, price, quantity).
- **Array of Structures:** Stores multiple items efficiently.
- **Loops:** Used to input multiple items and calculate totals.
- **Arithmetic Operations:** Used to calculate discount, tax, and total.
- **Formatted Output:** Used to display a clean bill using `printf`.

5. ADVANTAGES OF THE SYSTEM

- Fast calculation
- Error-free billing
- Easy to use
- Works for any number of items
- Scalable for large shops

6. REAL-LIFE APPLICATIONS

- Supermarket billing
- Online checkout systems
- Small business billing
- Restaurant billing
- Pharmacy billing