

Introduction :

An Integrated Shell-Based Cafe Management System.

The Cafe Management System is a Shell script-based project designed to manage various aspects of a cafe's operations. This system provides functionalities for managing orders, categories, food items, and generating bills. It utilizes a MySQL database for data storage and retrieval, making it a robust solution for small to medium-sized cafes.

Prerequisites :

To run this project, the following components are required:

- Bash shell
- MySQL database
- XAMPP (for MySQL and Apache)
- wkhtmltopdf (for PDF generation)
- All Shell Script files should be made executable using “*dos2unix*”

Installation :

1. Install **XAMPP** on your system.
2. Install **wkhtmltopdf** and ensure it's added to system's PATH.
3. Clone or download the project files to local machine.
4. Import the **os_project.sql** file into MySQL database using phpMyAdmin or MySQL command line.

Project Structure:

The project consists of the following main components:

- [Main_Menu.sh](#): The main script that provides the user interface.
- [Set An Order.sh](#): Handles the process of creating new orders.
- [Set_A_Category.sh](#): Allows adding new food categories.
- [Set_A_Food_Item.sh](#): Enables adding new food items to the menu.
- [create Current Month bill.sh](#): Generates a bill for the current month.
- [create Total bill.sh](#): Generates a bill for the current day.
- [delete_pdf.sh](#): Manages storage by deleting old PDF files.
- [os_project.sql](#): SQL file containing the database structure.

Database Setup:

The project uses a MySQL database named "os project" with the following tables:

- **category**: Stores food categories
- **food items**: Stores individual food items
- **included in**: Links orders with food items
- **order**: Stores order information

To set up the database:

1. Open phpMyAdmin through **XAMPP**.
2. Create a new database named "**os project**".
3. Import the **os_project.sql** file into this database.

Usage Guide:

1. Main Menu (Main_Menu.sh)

This script presents the user with the following options:

- Set an order
- Set a new category
- Set a new food item
- Calculate total bill for today
- Calculate total bill for current month
- Delete Order PDF
- Exit

To use: Run [./Main_Menu.sh](#) and follow the on-screen prompts.

2. Set an Order (Set An Order.sh)

This script handles the process of creating a new order:

- Prompts for customer name
- Displays available food items
- Allows selection of items and quantities
- Calculates the total bill
- Generates a PDF bill

To use: Select option 1 from the main menu or run [./Set\An\ Order.sh](#) directly.

3. Set a New Category (Set_A_Category.sh)

This script allows adding a new food category to the database:

- Prompts for the category name
- Adds the category to the database

To use: Select option 2 from the main menu or run [./Set_A_Category.sh](#) directly.

4. Set a New Food Item (Set_A_Food_Item.sh)

This script enables adding a new food item to the menu:

- Displays existing categories
- Prompts for selection of a category
- Asks for the new food item's name and price
- Adds the item to the database

To use: Select option 3 from the main menu or run [./Set_A_Food_Item.sh](#) directly.

5. Create Current Month Bill (create Current Month bill.sh)

This script generates a bill for the current month:

- Calculates the total bill for the current month
- Retrieves all order details for the current month

- Generates a formatted bill in TXT format
- Converts the TXT file to PDF
- Stores the PDF in the "**Monthly_Bills**" directory

To use: Select option 5 from the main menu or run `./create\ Current\ Month\ bill.sh` directly.

6. Create Total Bill (create Total bill.sh)

This script generates a bill for the current day:

- Calculates the total bill for the current day
- Retrieves all order details for the current day
- Generates a formatted bill in TXT format
- Converts the TXT file to PDF
- Stores the PDF in the "**Daily_Bills**" directory

To use: Select option 4 from the main menu or run `./create\ Total\ bill.sh` directly.

7. Delete PDF Files (delete_pdf.sh)

This script manages the storage of PDF bills:

- Deletes PDF files older than 7 days from the Orders, Daily_Bills, and Monthly_Bills directories

To use: Select option 6 from the main menu or run `./delete_pdf.sh` directly.

Features and Functionality:

The Cafe Management System offers a comprehensive and user-friendly experience, designed to streamline cafe operations from the moment the user launches the main script. As the system springs to life, it stands ready to assist with a wide array of management tasks, ensuring efficient handling of everything from customer orders to financial reporting.

Upon startup, users are welcomed by a clear and intuitive main menu, serving as the central command center for all cafe management activities. This carefully crafted interface presents seven distinct options, each representing a crucial aspect of cafe operations. The menu's design prioritizes clarity and ease of use, allowing even novice users to navigate the system with confidence and efficiency.

At this pivotal moment, users are empowered to make decisions that best suit their immediate needs and the cafe's current requirements. Whether the task at hand involves processing a new customer order, updating the menu with seasonal offerings, or generating a financial report for the day's sales, the system stands ready to accommodate. The user's selection at this juncture sets in motion a series of tailored processes, each designed to address specific aspects of cafe management with precision and ease.

The system's flexibility shines through in its ability to seamlessly transition between tasks. After completing one operation, users are gracefully returned to the main menu, allowing for a fluid workflow that can encompass multiple management tasks in a single session. This cyclical design not only enhances productivity but also ensures that users can respond swiftly to the dynamic needs of a busy cafe environment.

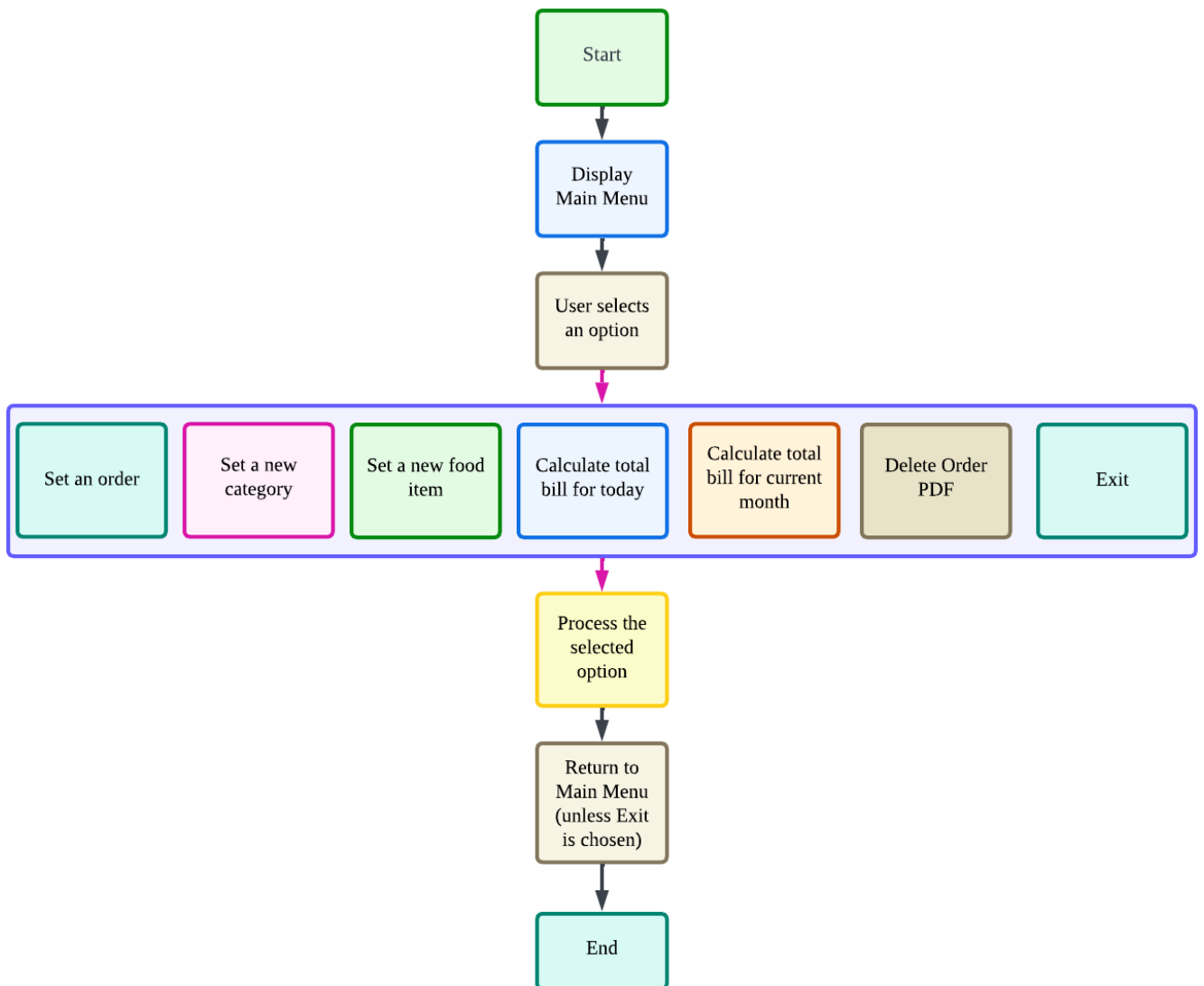


Figure 1 : Overview of the Cafe Management System's Main Menu

Main Menu:

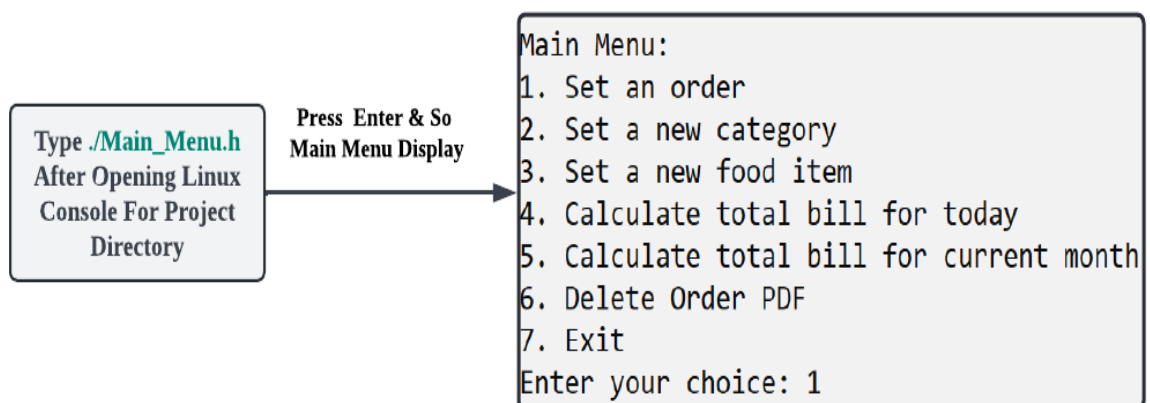


Figure 2: Program Executed

Based on user's choice:

Create New Order:

The process of creating a new order is designed to be intuitive and efficient. The user begins by entering the customer's name, personalizing the experience from the start. They're then presented with a comprehensive list of available food items. With this information at their fingertips, the user selects items and specifies quantities, building the order to the customer's preferences. Before finalizing, a summary is presented for review, ensuring accuracy. Once confirmed, the system generates a bill, which can be viewed and printed for the customer, completing the ordering process.

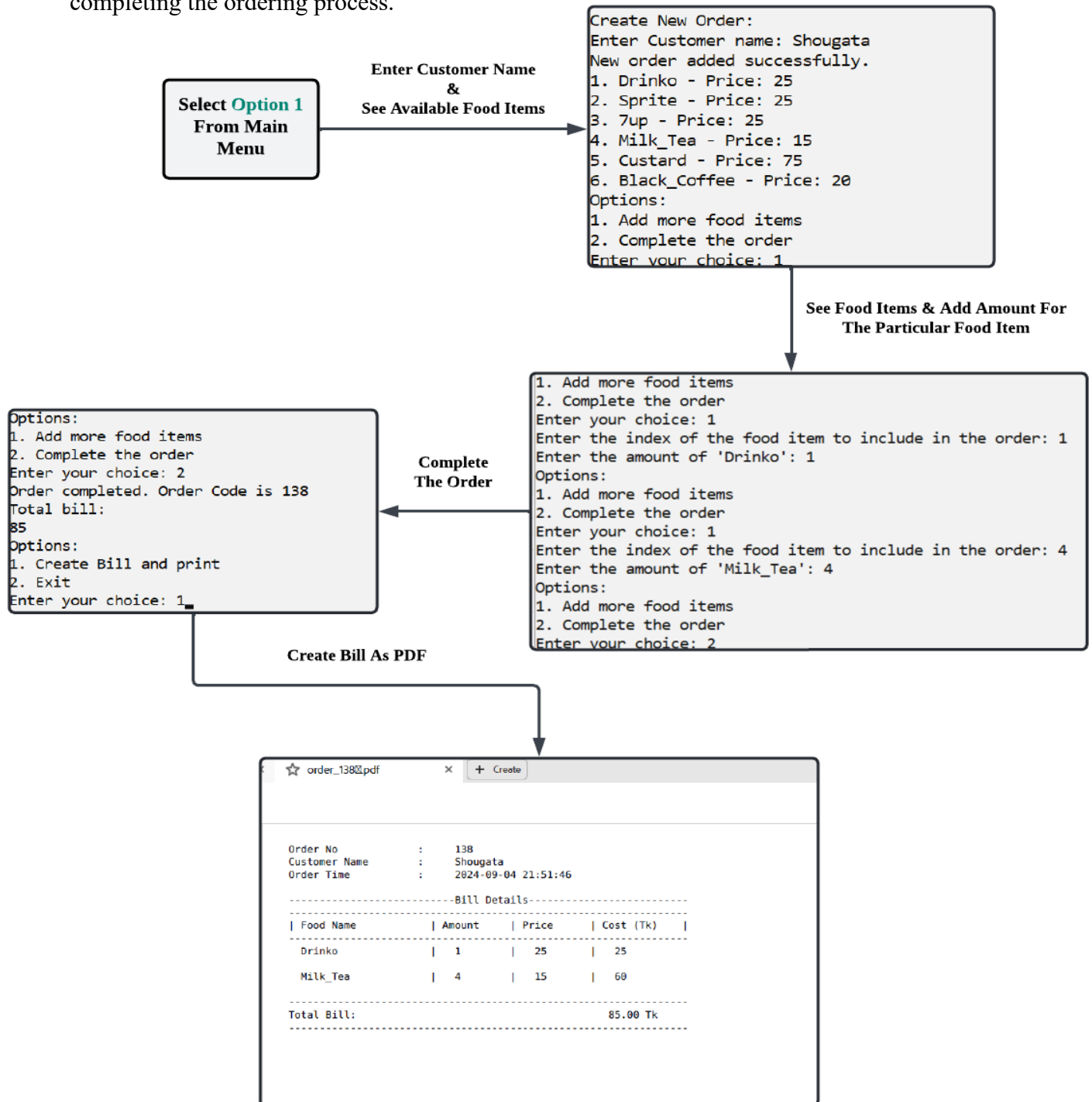


Figure 3 :New Order Creation Process

Add New Category

Expanding the menu is made simple with the 'Add New Category' function. The user only needs to input the name for the new category and confirm its addition. This straightforward process allows for quick menu updates, ensuring the cafe can adapt to new trends or seasonal changes with minimal effort.

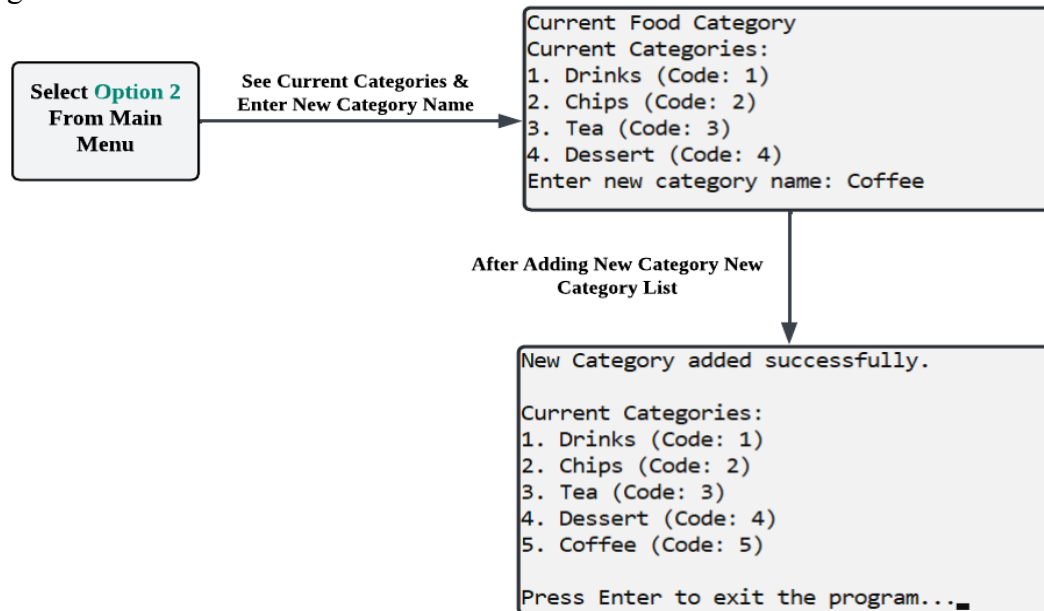


Figure 4 : Category Addition Workflow

Add New Food Item

Adding a new dish to the menu is a streamlined process. The user starts by viewing existing categories, then selects the appropriate one for the new item. They enter the name of the dish, followed by its price. With a final confirmation, the new item is added to the menu, ready to be ordered by customers.

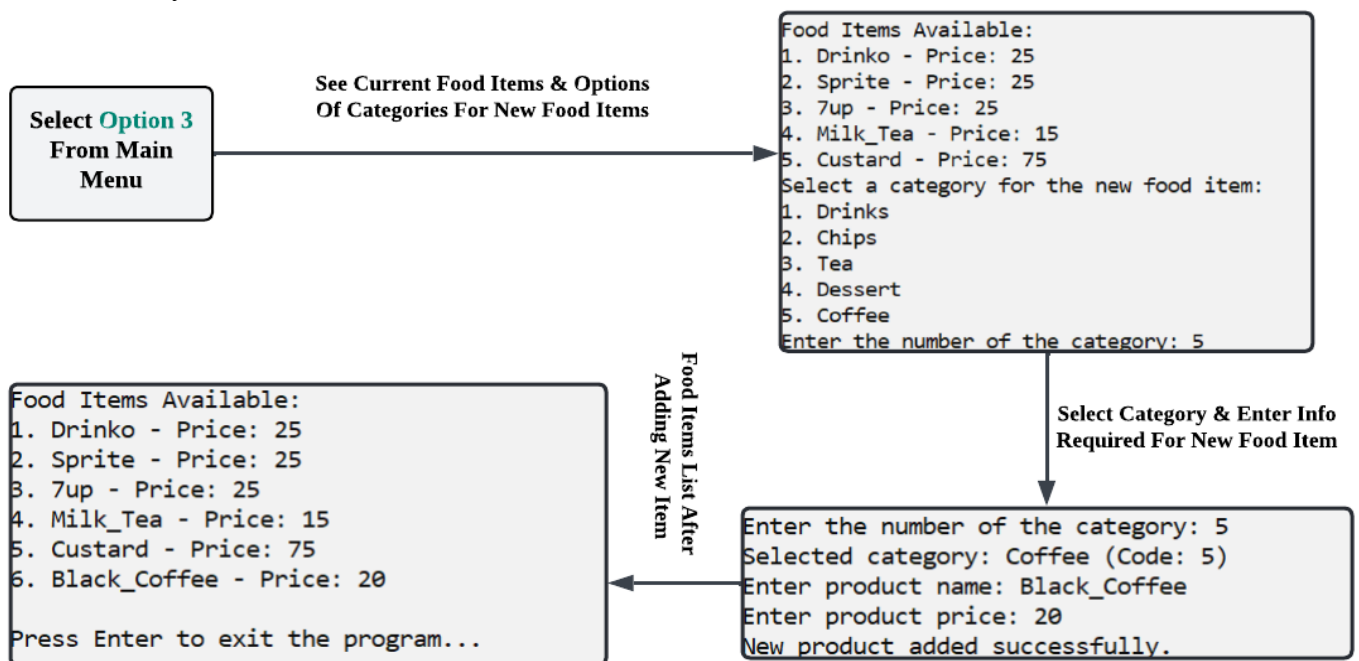


Figure 5 : Food Item Addition Procedure

Calculate total bill for today:

For daily financial oversight, the 'View Today's Total Sales' option is invaluable. It provides the user with a comprehensive summary of the day's orders and calculates the total sales amount. For record-keeping or reporting purposes, there's an option to generate a PDF report, encapsulating the day's business in a professional, easily shareable format.

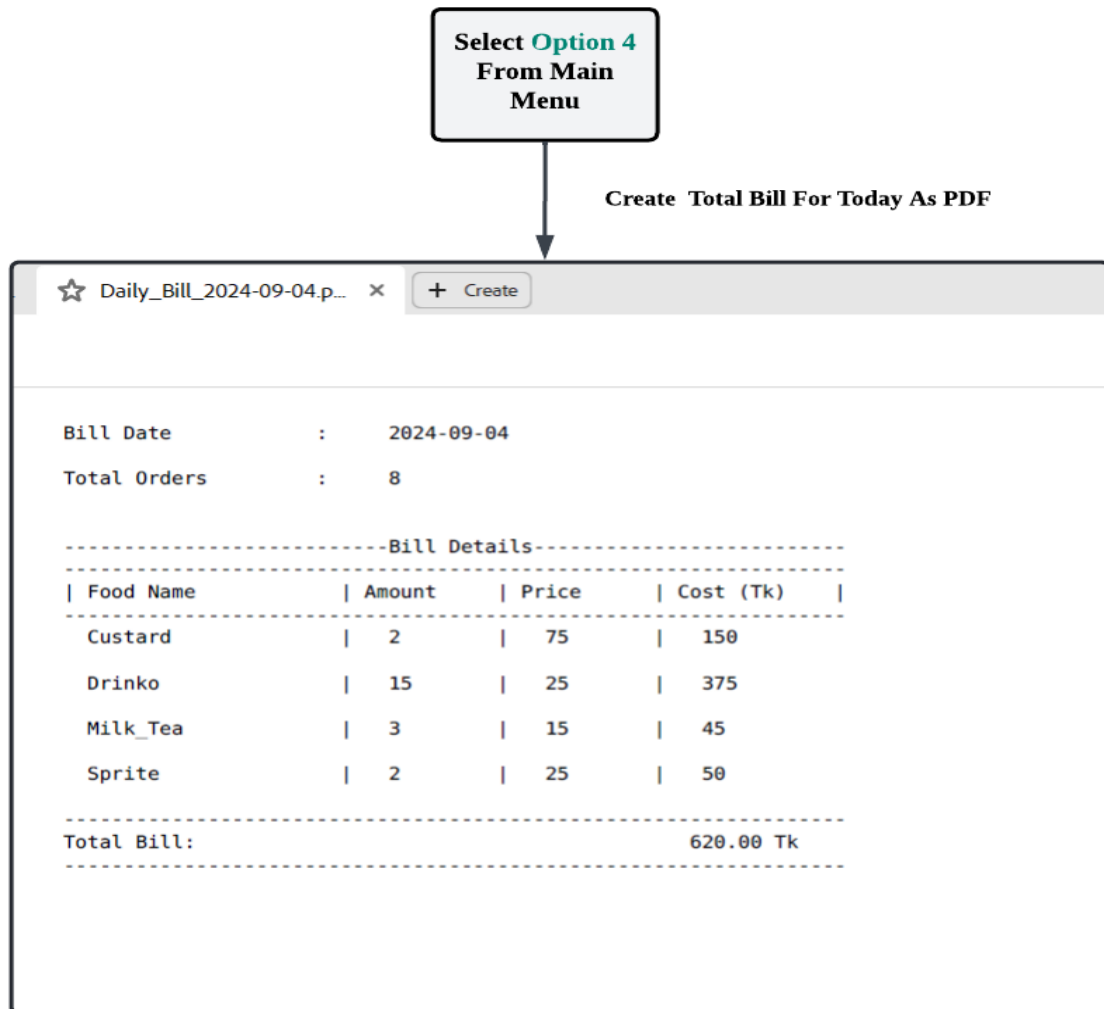


Figure 6 : Daily Sales Review Process

Calculate total bill for current month:

Similar to the daily view but with a broader scope, this option allows the user to review the entire month's performance. It summarizes all orders placed within the month and presents the total sales figure. The ability to generate a monthly PDF report facilitates long-term business analysis and planning.

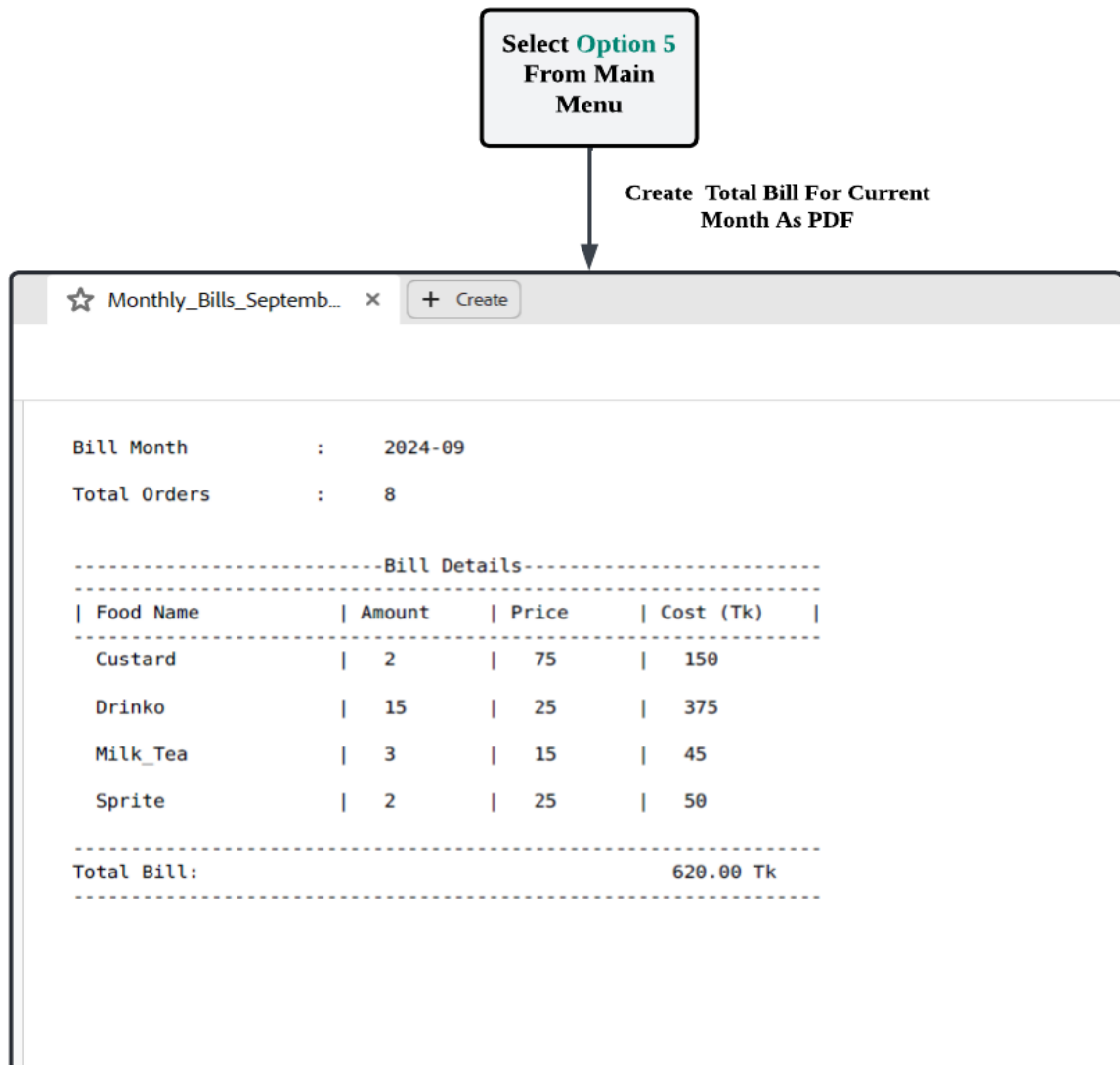


Figure 7 : Monthly Sales Analysis Workflow

Delete Order PDF:

To keep the system running smoothly and manage storage effectively, the 'Manage Old Bills' option is provided. Users can view a list of existing bill files and choose to remove those older than seven days. This feature helps in maintaining an organized system without manual file management.

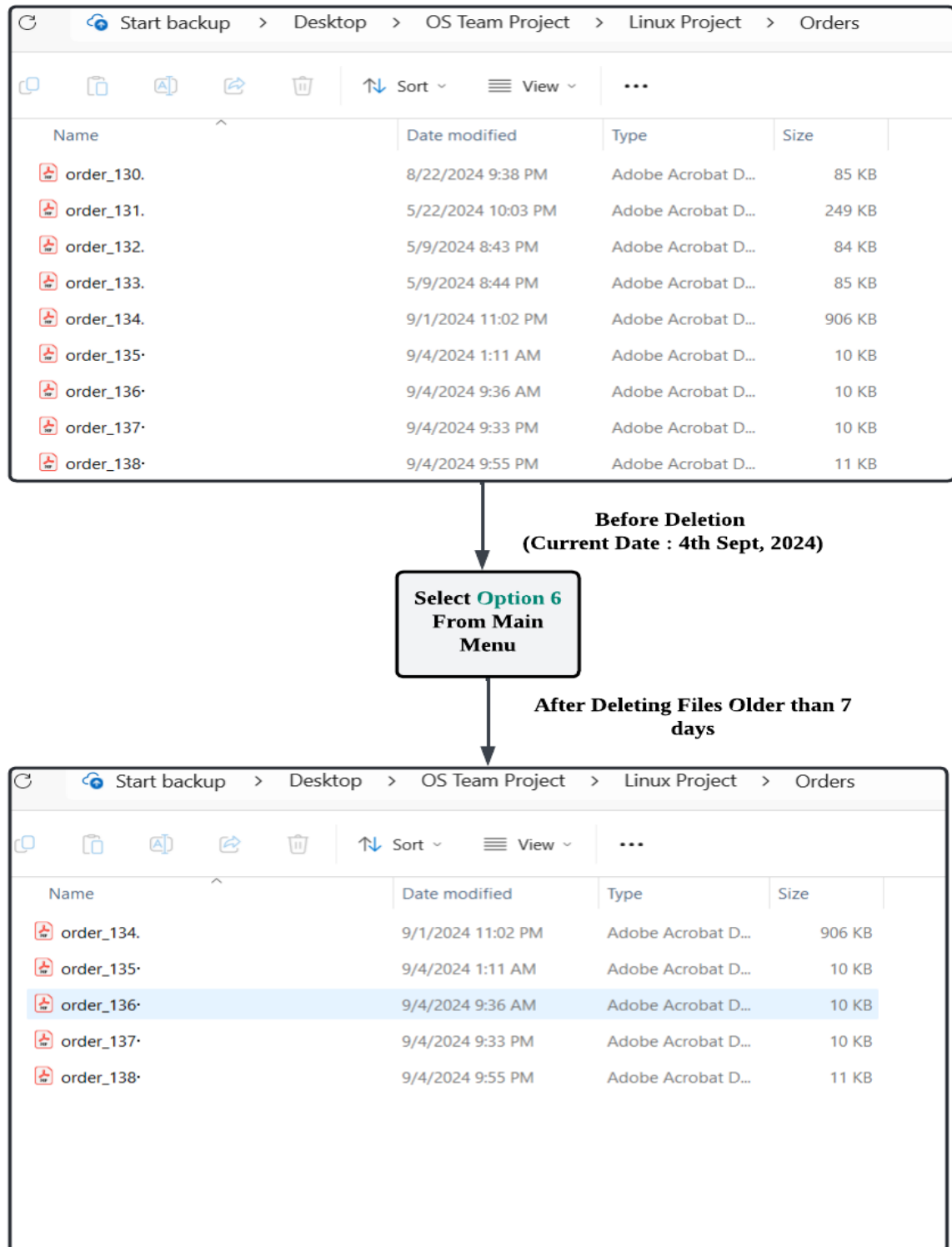


Figure 8 : Old Bill Management Procedure

When the user has completed their tasks, they can easily exit the system. A confirmation step ensures that the exit is intentional, preventing accidental closure and potential loss of unsaved changes.

After completing any task, unless the user has chosen to exit, they are returned to the main menu. This cyclical design allows for multiple tasks to be completed in a single session, enhancing productivity and user experience.

Upon choosing to exit and confirming this choice, the system closes, ending the user's session with the Cafe Management System. This clear endpoint ensures that all processes are properly terminated, maintaining data integrity.

Troubleshooting:

a) XAMPP MySQL Executable Path :

One of the most critical steps for this project to function correctly is ensuring the proper path to the MySQL executable is set. In all scripts that interact with the database, you'll find a line similar to:

```
DB_USER="root"
DB_PASS=""
DB_NAME="os project"

# Full path to the MySQL client executable in XAMPP
MYSQL_EXECUTABLE="/mnt/d/xampp/mysql/bin/mysql.exe"
```

Figure 9 : XAMPP MYSQL Execution path

This path must be adjusted according to your specific XAMPP installation. Common issues and solutions include:

- Incorrect path: Verify the exact location of mysql.exe on your system.
- Different operating systems: The path format may differ between Windows, macOS, and Linux.

To fix:

- Locate the mysql.exe file in your XAMPP installation directory.
- Update the MYSQL_EXECUTABLE variable in all relevant scripts with the correct path.
- Use forward slashes (/) even on Windows systems for consistency.

b) XAMPP Services

Before running any scripts, ensure that both **Apache** and **MySQL** services are started in the **XAMPP Control Panel**. Common issues include:

- Scripts failing to connect to the database
- "Connection refused" errors

To fix:

- Open **XAMPP** Control Panel
- Start both **Apache** and **MySQL** services
- Ensure both services show a green status indicator before running any scripts

c) PDF Generation Issues:

- Verify **wkhtmltopdf** is properly installed on your system
- Check if the **wkhtmltopdf** executable is in your system's PATH
- Ensure you have write permissions in the directories where PDFs are being saved

d) Database-related Issues:

- Verify the database name, user, and password are correctly set in all scripts
- Ensure the "os project" database exists and contains the necessary tables
- Check for any SQL syntax errors if you've modified any database queries

Conclusion:

The Cafe Management System provides a comprehensive solution for managing cafe operations. It offers an intuitive interface for order management, menu customization, and financial reporting. The system's ability to generate PDF bills and manage storage automatically enhances its utility for day-to-day cafe management.

This project demonstrates the practical application of shell scripting, database management, and system integration in creating a functional business solution. It serves as an excellent example of how command-line tools can be leveraged to create a user-friendly management system.

Future enhancements could include a graphical user interface, integration with point-of-sale systems, and advanced reporting features. The modular nature of the project allows for easy expansion and customization to meet specific cafe needs.