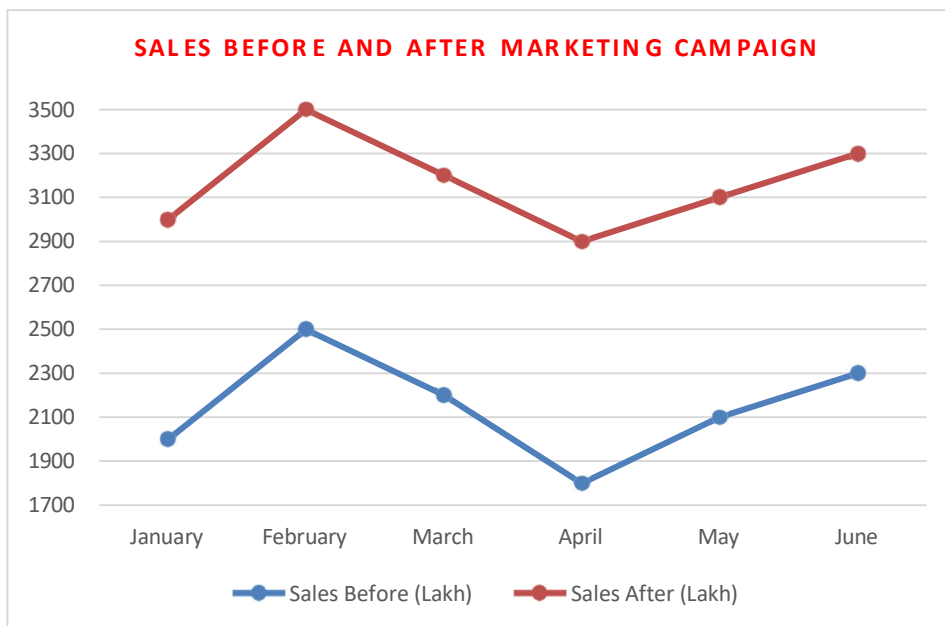


Module-II (Introduction to Data Science)

Problem 1: Marketing Campaign Analysis

Month	Sales Before (Lakh)	Sales After (Lakh)	Percentage Change
January	2000	3000	50%
February	2500	3500	40%
March	2200	3200	45%
April	1800	2900	61.10%
May	2100	3100	47.61%
June	2300	3300	43.47%
Average Sales	2150	3166.666667	
T-test	1.1204E-08		

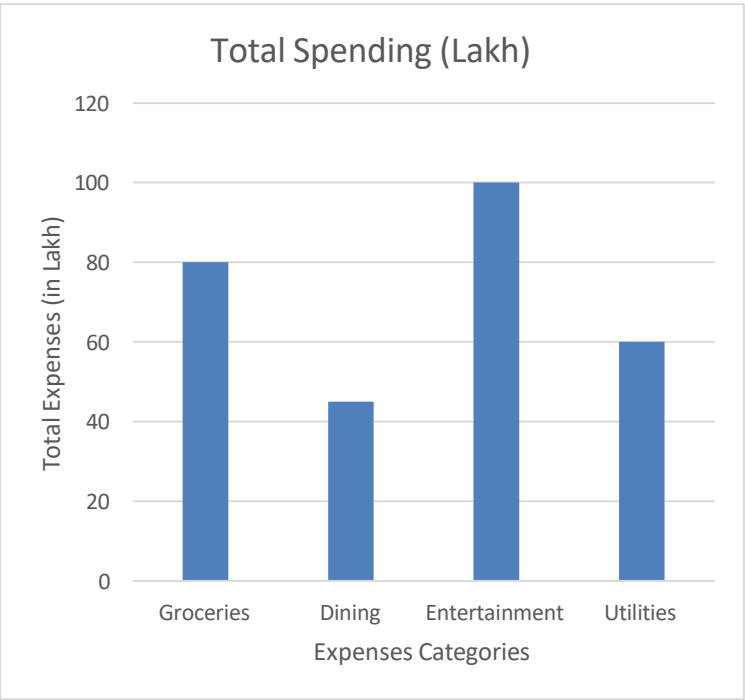


Problem 2: Daily Expenses Tracking

Date	Category	Amount (Lakh)
2024-01-01	Groceries	50
2024-01-02	Dining	20
2024-01-03	Entertainment	100
2024-01-04	Groceries	30
2024-01-05	Utilities	60
2024-01-06	Dining	25

Category	Total Spending (Lakh)
Groceries	80
Dining	45
Entertainment	100
Utilities	60

Entertainment (100 Lakh) has the highest spending.

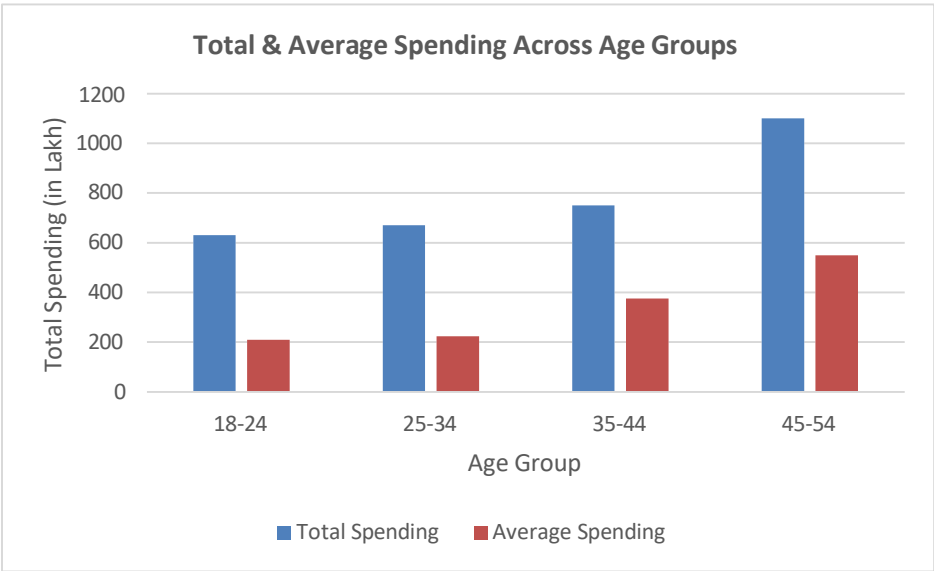


Problem 3: Customer Demographic Analysis

Customer ID	Age Group	Total Spend (Lakh)
001	18-24	200
002	25-34	300
003	35-44	400
004	25-34	150
005	45-54	500
006	18-24	250
007	35-44	350
008	25-34	220
009	45-54	600
010	18-24	180

Age Group	Total Spending	Average Spending
18-24	630	210
25-34	670	223
35-44	750	375
45-54	1100	550

Row Labels	Total Spend (Lakh)
18-24	630
25-34	670
35-44	750
45-54	1100
Grand Total	3150

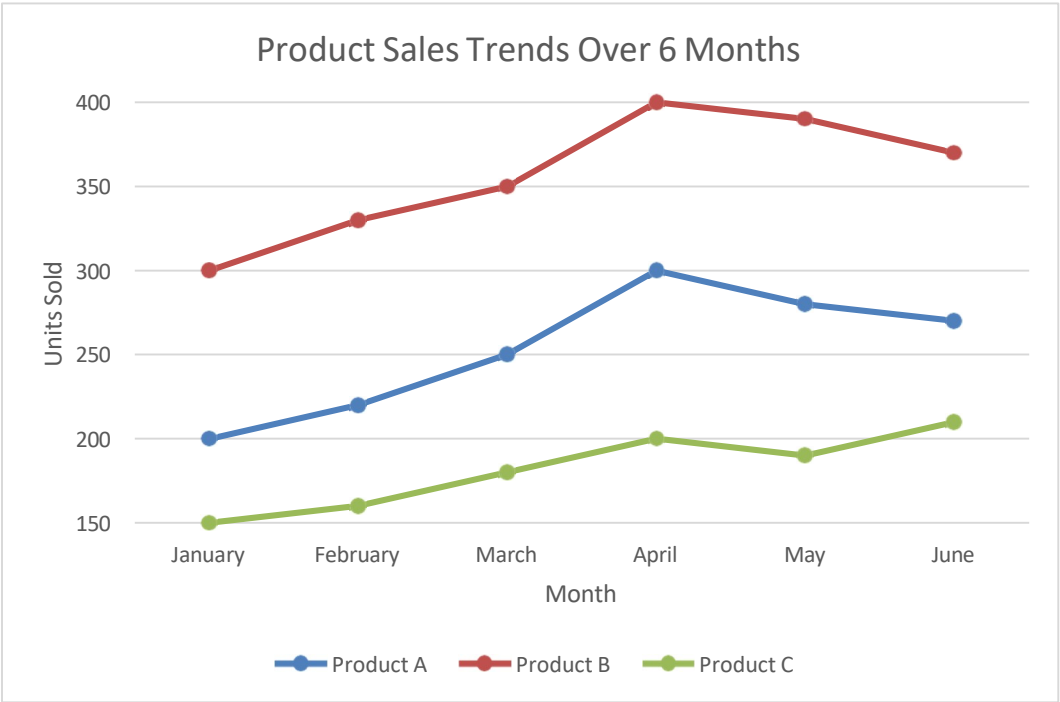


Problem 4: Exam Scores Analysis

Student ID	Subject 1	Subject 2	Subject 3	Subject 4	Average Score
001	85	78	92	88	85.75
002	90	80	85	91	86.5
003	75	85	90	78	82
004	80	82	88	84	83.5
005	88	90	93	86	89.25
Overall Class Average	83.6	83	89.6	85.4	
Highest	90	90	93	91	
Lowest	75	78	85	78	

Problem 5: Product Sales Analysis

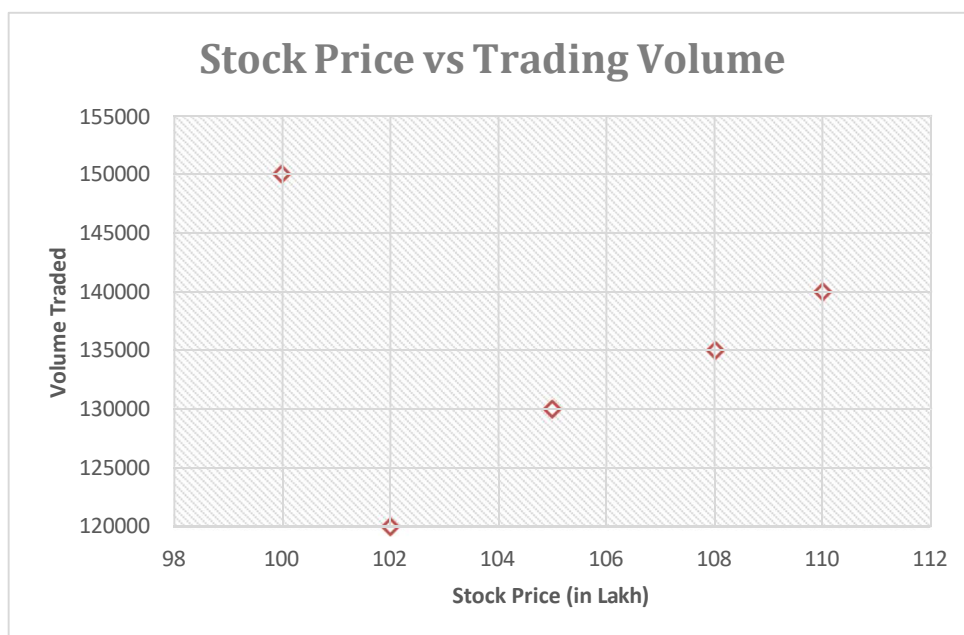
Month	Product A	Product B	Product C
January	200	300	150
February	220	330	160
March	250	350	180
April	300	400	200
May	280	390	190
June	270	370	210
Total units sold	1520	2140	1090
Average units sold	253	357	182
Percentage Change	35%	23.33%	40%



Problem 6: Stock Price and Volume Analysis

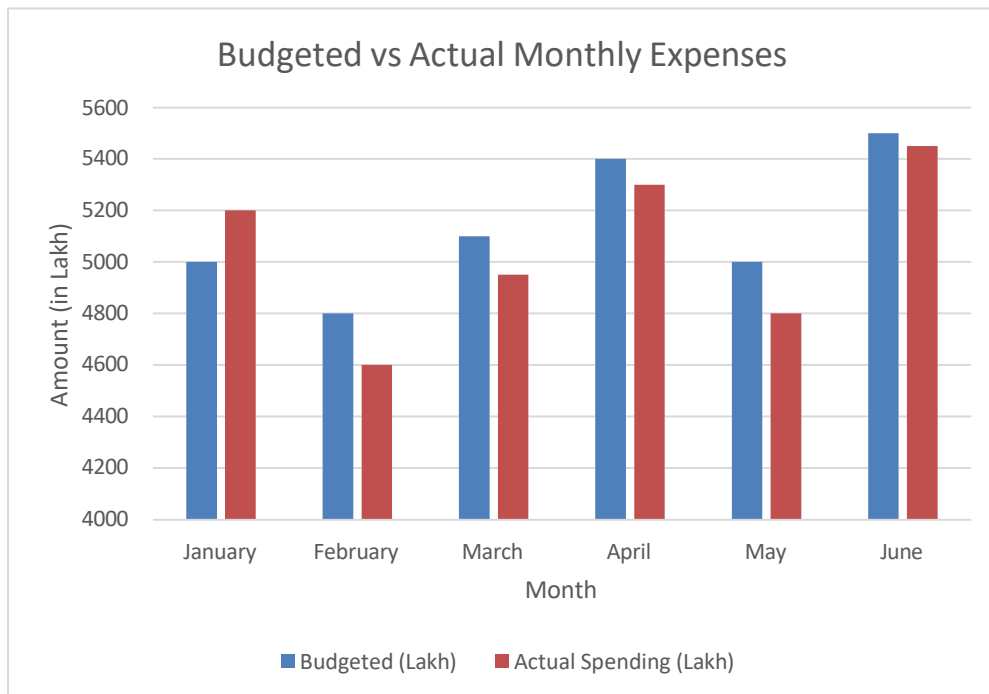
Date	Stock Price (Lakh)	Volume Traded
2024-01-01	100	150000
2024-01-02	102	120000
2024-01-03	105	130000
2024-01-04	110	140000
2024-01-05	108	135000
Average	105	135000
Percentage Change	8	-10
Correlation		-0.027116307

The correlation coefficient $r = -0.0271$ indicates a **very weak** negative correlation between stock price and trading volume.



Problem 7: Budget vs. Actual Expense Analysis

Month	Budgeted (Lakh)	Actual Spending	Variance	Percentage Variance
January	5000	5200	↑ 200	4.00%
February	4800	4600	↓ -200	-4.17%
March	5100	4950	-150	-2.94%
April	5400	5300	-100	-1.85%
May	5000	4800	↓ -200	-4.00%
June	5500	5450	-50	-0.91%
Total Variance			-500	



Module-I (Computerised Accounting)

- i) **What are the applications of computer in accounting? Write the advantages and disadvantages of computerized accounting systems. Differentiate between manual and computerised accounting systems.**

Ans. Applications of Computers in Accounting

Computers have revolutionized the accounting profession by automating processes, increasing efficiency, and reducing the likelihood of errors. Some common applications of computers in accounting include:

1. **Bookkeeping:** Computers simplify the recording of financial transactions through automated processes. Software like QuickBooks or Xero helps manage and record daily transactions, such as sales, purchases, and payments.
2. **Financial Reporting:** Accounting software generates financial statements (balance sheets, income statements, cash flow statements) automatically. These can be customized and are often updated in real-time.
3. **Tax Calculation:** Computers help with calculating taxes by applying tax rates and ensuring compliance with tax laws, reducing the risk of human error.
4. **Payroll Management:** Computerized systems streamline payroll management by calculating salaries, tax withholdings, and benefits, ensuring accuracy and timely payments.
5. **Budgeting and Forecasting:** Accounting software helps businesses set budgets, track spending, and forecast financial performance, providing valuable insights for decision-making.
6. **Inventory Management:** Computerized accounting systems integrate with inventory management, helping businesses track stock levels, orders, and sales, and generating reports on inventory value and movement.
7. **Audit and Compliance:** Computers help with data storage and organization, making it easier for auditors to access financial records, track changes, and ensure compliance with regulations.

Advantages of Computerized Accounting Systems

1. **Accuracy:** Automated systems reduce the risk of human error in calculations, ensuring more accurate financial data.

2. **Speed and Efficiency:** Tasks such as data entry, report generation, and financial analysis are completed faster, improving overall efficiency.
3. **Real-Time Data:** Computerized systems provide access to real-time financial information, helping businesses make informed decisions quickly.
4. **Easy Data Storage and Retrieval:** Digital records can be stored, backed up, and retrieved easily, unlike paper-based records, which can be lost or damaged.
5. **Cost-Effective:** Although the initial setup may be costly, computerized accounting systems reduce the need for extensive manual labor and paperwork, leading to long-term savings.
6. **Security:** Computers offer better data protection through encryption, password protection, and access control, reducing the risk of unauthorized access or theft.
7. **Scalability:** As businesses grow, computerized accounting systems can be scaled easily to accommodate increased transaction volumes or more complex operations.

Disadvantages of Computerized Accounting Systems

1. **High Initial Cost:** Setting up a computerized accounting system requires a significant initial investment in software, hardware, and training.
2. **Technical Issues:** Software glitches, system crashes, or data corruption can disrupt accounting processes, leading to potential financial losses or data recovery challenges.
3. **Security Risks:** While computerized systems offer security, they can still be vulnerable to cyber-attacks, hacking, or data breaches if not properly protected.
4. **Dependence on Technology:** Computerized systems require regular maintenance, updates, and technical support, and businesses may struggle if systems fail or become outdated.
5. **Training Requirements:** Staff must be trained to use the system, and there may be a learning curve for those who are not familiar with digital tools.
6. **Data Entry Errors:** While computers minimize human error, improper data entry or system malfunctions can still lead to errors.

Differences Between Manual and Computerized Accounting Systems

Feature	Manual Accounting Systems	Computerized Accounting Systems
Data Entry	Handwritten entries or typed on paper forms	Data entered using accounting software

Speed	Slow; requires manual calculations and updates	Fast; automatic calculations and updates
Accuracy	Prone to human error in calculations and recording	More accurate due to automation and validation checks
Cost	Lower initial cost (paper, pens, and basic tools)	Higher initial cost (software, hardware, and training)
Record Keeping	Paper-based records; prone to damage or loss	Digital records; easy to store and retrieve
Reporting	Manual report preparation (time-consuming)	Instant generation of financial reports
Security	Vulnerable to theft or damage	Better security through encryption and access control
Audit	Difficult and time-consuming to audit	Easier to audit with well-organized, digital data
Scalability	Difficult to scale as business grows	Easily scalable to accommodate growth
Human Involvement	Requires more manual labor	Less manual labor; more automated tasks

Conclusion

Computerized accounting systems offer numerous advantages over manual systems, including increased accuracy, speed, and efficiency. However, they also come with challenges such as high initial costs and the need for technical support. While manual systems may still be viable for small businesses or those with fewer transactions, computerized systems have become essential for larger or more complex operations due to their scalability and ability to handle large volumes of data efficiently.

ii) Voucher (in Tally):

- a. Define the various types of accounting vouchers: Sales Voucher, Purchase Voucher, Payment Voucher, Receipt Voucher, Contra Voucher, Journal Voucher, Credit Note Voucher, Debit Note Voucher
- b. How do you create, edit and delete of a voucher?

Ans.

a. Types of Accounting Vouchers in Tally

In Tally, vouchers are used to record business transactions. They represent a record of financial data entered into the system. Different types of vouchers serve different purposes in accounting. Here are the key types of accounting vouchers in Tally:

1. **Sales Voucher:**
 - **Purpose:** Used to record sales transactions where goods or services are sold to customers.
 - **Example:** Recording a sale of goods on credit or for cash.
 - **Accounting Effect:** Increases revenue and decreases inventory.
2. **Purchase Voucher:**
 - **Purpose:** Used to record purchases of goods or services from suppliers.
 - **Example:** Recording a purchase of inventory on credit or cash.
 - **Accounting Effect:** Increases inventory and accounts payable.
3. **Payment Voucher:**
 - **Purpose:** Used to record payments made by the business, either in cash or through a bank account.
 - **Example:** Paying a supplier or employee.
 - **Accounting Effect:** Decreases cash or bank balance and decreases liability or expense.
4. **Receipt Voucher:**
 - **Purpose:** Used to record receipts of cash or bank transactions.
 - **Example:** Receiving payments from customers.
 - **Accounting Effect:** Increases cash or bank balance and decreases accounts receivable.
5. **Contra Voucher:**
 - **Purpose:** Used for internal transfers of funds between cash and bank accounts or vice versa.
 - **Example:** Transferring money from a cash account to a bank account.
 - **Accounting Effect:** No impact on overall financials, just changes between cash and bank balances.
6. **Journal Voucher:**
 - **Purpose:** Used to record non-cash transactions or adjustments that don't involve a direct exchange of goods or money.
 - **Example:** Adjustments for depreciation, provisions, or accruals.
 - **Accounting Effect:** Affects specific accounts as per the transaction type (e.g., an expense or liability account).
7. **Credit Note Voucher:**
 - **Purpose:** Used to record a reduction in the value of a sale, typically due to returns or overcharging.
 - **Example:** A customer returns goods, and the company issues a credit note.
 - **Accounting Effect:** Decreases revenue and accounts receivable.
8. **Debit Note Voucher:**
 - **Purpose:** Used to record a reduction in the value of a purchase, typically due to returns or undercharging by a supplier.

- **Example:** Returning goods to a supplier and recording the debit note.
 - **Accounting Effect:** Decreases the accounts payable and increases inventory or purchases.
-

b. How to Create, Edit, and Delete a Voucher in Tally

1. Creating a Voucher in Tally

To create a voucher in Tally, follow these steps:

1. **Open Tally** and log in to your company.
2. **Go to the Gateway of Tally.**
3. **Click on "Accounting Vouchers"** under the "Transactions" section, or press **F7** to open the voucher menu.
4. **Select the Voucher Type** (e.g., Sales, Purchase, Payment, Receipt, etc.) based on the transaction.
5. **Enter the Date** of the transaction.
6. **Enter the Accounts** involved in the transaction:
 - For a **Sales Voucher**, select the customer account and the sales account.
 - For a **Payment Voucher**, select the bank or cash account and the account to which the payment is made (like creditors or expenses).
7. **Enter the Amount** for each account.
8. If needed, you can also add additional details like inventory items, tax details, and narration.
9. **Press Enter** to confirm and save the voucher.

2. Editing a Voucher in Tally

To edit an already created voucher in Tally, follow these steps:

1. **Open Tally** and go to the **Gateway of Tally**.
2. **Click on "Accounting Vouchers"** or press **F7** to open the voucher menu.
3. **Click on "Alter"** or press **F4** to open the voucher alteration screen.
4. **Select the Voucher** you want to edit. You can search by date or voucher number.
5. **Make the necessary changes** (e.g., amount, account, or date).
6. Once you're done with the changes, **press Enter** to save the updated voucher.

3. Deleting a Voucher in Tally

To delete a voucher in Tally, follow these steps:

1. **Open Tally** and go to the **Gateway of Tally**.
2. **Click on "Accounting Vouchers"** or press **F7** to open the voucher menu.
3. **Click on "Alter"** or press **F4**.
4. **Select the Voucher** you want to delete by searching for the voucher number or date.
5. **Press Ctrl + D** to delete the voucher. A confirmation prompt will appear.
6. **Press "Yes"** to confirm deletion.

Additional Notes:

- **Voucher Numbering:** Tally automatically assigns a number to each voucher, but you can manually change this if needed in the voucher creation screen.
- **Audit Trail:** Tally maintains an audit trail of all voucher entries, so even if a voucher is deleted or altered, the system logs this for accountability.

By following these steps, you can effectively manage vouchers in Tally and ensure that your accounting records remain accurate and up-to-date.

iii) Define the 'short-cut keys' in Tally-ERP-9 of the followings:

- a. Settings related to Inventory masters
- b. Debit note and Credit Note Voucher
- c. Calculator in Tally
- d. To repeat the narration in the voucher
- e. To save the changes in the alteration mode
- f. Transactions related to deposits and withdrawals
- g. To view report in detail
- h. To toggle between the invoice and voucher screens
- i. To delete a voucher type
- j. For vertical balance sheet

Ans. Here are the shortcut keys for the mentioned tasks in **Tally-ERP 9**:

a. Settings related to Inventory Masters

- **Alt + F11**: This key combination opens the **Inventory Features** for configuring inventory settings in Tally.

b. Debit Note and Credit Note Voucher

- **Alt + F7**: This is used for creating **Debit Note** or **Credit Note** vouchers in Tally.

c. Calculator in Tally

- **Ctrl + Alt + C**: Opens the **Calculator** within Tally for quick calculations.

d. To repeat the narration in the voucher

- **Ctrl + R**: This shortcut repeats the narration from the previous voucher.

e. To save the changes in the alteration mode

- **Ctrl + A**: After altering a master or voucher, use this key combination to save the changes made.

f. Transactions related to deposits and withdrawals

- **Alt + D**: This is used for recording **Deposits** or **Withdrawals** under the **Banking** menu in Tally.

g. To view report in detail

- **Alt + F1**: This shortcut displays the report in **Detailed** format.

h. To toggle between the invoice and voucher screens

- **Ctrl + F8**: This toggles between **Invoice** and **Voucher** screens, depending on the mode you are in.

i. To delete a voucher type

- **Alt + D**: Use this key combination to delete a **voucher type** in Tally.

j. For vertical balance sheet

- **Alt + F1** (in Balance Sheet Report): It can be used to display the **Vertical Balance Sheet** view in Tally.

These are the standard shortcut keys for the mentioned functions in Tally-ERP 9. Let me know if you need further clarification!

- iv) Explain the procedure in Tally: to create balance sheet, profit and loss account, trial balance and ratio analysis.

Ans. In Tally, creating financial statements like the Balance Sheet, Profit and Loss Account, Trial Balance, and Ratio Analysis involves using various tools within the software. Here's how each of them can be generated:

1. Trial Balance in Tally

The Trial Balance is the first step in generating your financial statements. It checks the accuracy of your accounts by ensuring that the total debits equal total credits.

Procedure:

1. Go to Gateway of Tally.
2. Select Display from the menu.
3. From the options, choose Statement of Accounts.
4. Select Trial Balance.
5. Choose the required period for which you want to generate the Trial Balance (e.g., Monthly, Quarterly, Yearly).
6. You will now see the list of ledgers with their respective debit and credit balances.

The Trial Balance will display all accounts and show their balances, ensuring the books are in balance

2. Profit and Loss Account in Tally

The Profit and Loss Account (also known as Income Statement) shows the company's revenues, expenses, and profits for a specific period.

Procedure:

1. Go to Gateway of Tally.
2. Select Display from the menu.
3. Choose Profit & Loss A/c under Statement of Accounts.
4. Select the Period for which you want the report (e.g., for the financial year, monthly).
5. Tally will display the Profit and Loss statement, which shows:
 - Revenue: Sales, income, etc.
 - Expenses: Operating and non-operating expenses.
 - Profit or Loss: This is the difference between income and expenses.

3. Balance Sheet in Tally

The Balance Sheet provides a snapshot of a company's financial position, showing its assets, liabilities, and equity as of a certain date.

Procedure:

1. Go to Gateway of Tally.
2. Select Display.
3. Then, select Balance Sheet under Statement of Accounts.
4. Choose the period for the Balance Sheet (e.g., for a specific date).
5. The Balance Sheet will be displayed with two main sections:
 - Assets (both Current and Fixed Assets).
 - Liabilities (both Current and Long-term Liabilities).
 - Equity (Owner's capital, Reserves & Surplus, etc.).

The total of assets will always match the total of liabilities and equity, ensuring that the books are balanced.

4. Ratio Analysis in Tally

Ratio Analysis helps evaluate the financial health of a company by calculating and analyzing various financial ratios like profitability, liquidity, solvency, and efficiency ratios.

Procedure:

1. **Go to Gateway of Tally.**
2. Choose **Display**.
3. Select **Ratios** under **Analysis of Accounts**.
4. Tally will show a list of financial ratios for the period chosen. Some common ratios displayed are:
 - **Current Ratio** (Liquidity Ratios)
 - **Quick Ratio** (Liquidity Ratios)
 - **Debt-Equity Ratio** (Solvency Ratios)
 - **Gross Profit Margin** (Profitability Ratios)
 - **Net Profit Margin** (Profitability Ratios)
 - **Return on Equity** (Profitability Ratios)

Tally automatically calculates these ratios based on the data already entered in your accounting entries and reports. You can customize or add new ratios as required.

Summary

1. **Trial Balance:** Displays all ledger balances to check if books are balanced.
2. **Profit and Loss Account:** Displays income, expenses, and calculates profit/loss.
3. **Balance Sheet:** Shows assets, liabilities, and equity, ensuring the balance between them.
4. **Ratio Analysis:** Provides key financial ratios for performance evaluation.

These steps provide you with the essential tools to generate and analyze financial reports using Tally, which is an integral part of accounting and business management.

- v) Answer the followings (w.r.t. Tally):
- How to create, alter and delete of ledger account in Tally?
 - How to create, alter & deleting company?
 - How to create, alter & deleting of group?
 - How to show or display the Balance sheet, Profit & loss A/c, Ratio, Cash & Fund flow statements?

Ans.

a. How to Create, Alter, and Delete a Ledger Account in Tally:

Creating a Ledger Account:

- Go to the **Gateway of Tally**.
- Select **Accounts Info** and then **Ledgers**.
- Choose **Create**.
- Select the **Group** under which the ledger will be created (e.g., Indirect Expenses, Bank Accounts).
- Enter the **Ledger Name** (for example, "Cash Account").
- Fill in additional information like the opening balance, tax settings (if applicable), etc.
- Press **Enter** to save.

Altering a Ledger Account:

- Go to **Gateway of Tally**.
- Choose **Accounts Info** and then **Ledgers**.
- Select **Alter**.
- Choose the ledger you want to modify.
- Change the required details (name, group, opening balance, etc.).
- Press **Enter** to save the changes.

Deleting a Ledger Account:

- Go to **Gateway of Tally**.

2. Choose **Accounts Info** and then **Ledgers**.
3. Select **Delete**.
4. Choose the ledger you want to delete.
5. Press **Yes** to confirm.

b. How to Create, Alter, and Delete a Company in Tally:

Creating a Company:

1. Open Tally and go to the **Gateway of Tally**.
2. Select **Create Company** under the **Company Info** option.
3. Fill in all the required details such as **Company Name, Address, Financial Year Beginning, Currency Symbol, Books of Accounts**, and other settings.
4. Press **Enter** to save the company.

Altering a Company:

1. Go to **Gateway of Tally**.
2. Select **Company Info** and then **Alter**.
3. Choose the company you wish to alter.
4. Modify the company details (address, email, phone number, etc.).
5. Press **Enter** to save changes.

Deleting a Company:

1. Go to **Gateway of Tally**.
2. Select **Company Info** and then **Delete**.
3. Choose the company to be deleted.
4. Confirm by pressing **Yes**

c. Creating, Altering & Deleting a Group in Tally

Creating a Group:

1. Open **Gateway of Tally → Accounts Info → Groups → Create**.

2. Enter the **Group Name** and select **Primary Group or Subgroup**.
3. Press **Ctrl + A** to save.

Altering a Group:

1. Open **Gateway of Tally → Accounts Info → Groups → Alter**.
2. Select the group and modify details.
3. Press **Ctrl + A** to save.

Deleting a Group:

1. Open **Gateway of Tally → Accounts Info → Groups → Alter**.
2. Select the group and press **Alt + D**, then confirm with **Yes**.

d. Displaying Financial Statements in Tally

Balance Sheet:

1. Go to **Gateway of Tally → Balance Sheet**.
2. Press **F12** for configuration options.
3. Press **Ctrl + P** to print if needed.

Profit & Loss Account:

1. Open **Gateway of Tally → Profit & Loss A/c**.
2. Configure as needed using **F12**.

Ratio Analysis:

1. Open **Gateway of Tally → Ratio Analysis**.
2. It displays key financial ratios.

Cash Flow & Fund Flow Statement:

1. Go to **Gateway of Tally → Cash Flow / Fund Flow Statement (Under Reports)**.
2. View details and customize using **F12**.