

---

TECHNICAL WRITE UP  
OF  
BANKING SOFTWARE



[www.maintec.com](http://www.maintec.com)



[www.bankvisionsoft.com](http://www.bankvisionsoft.com)

---

## Guidelines for Computerization

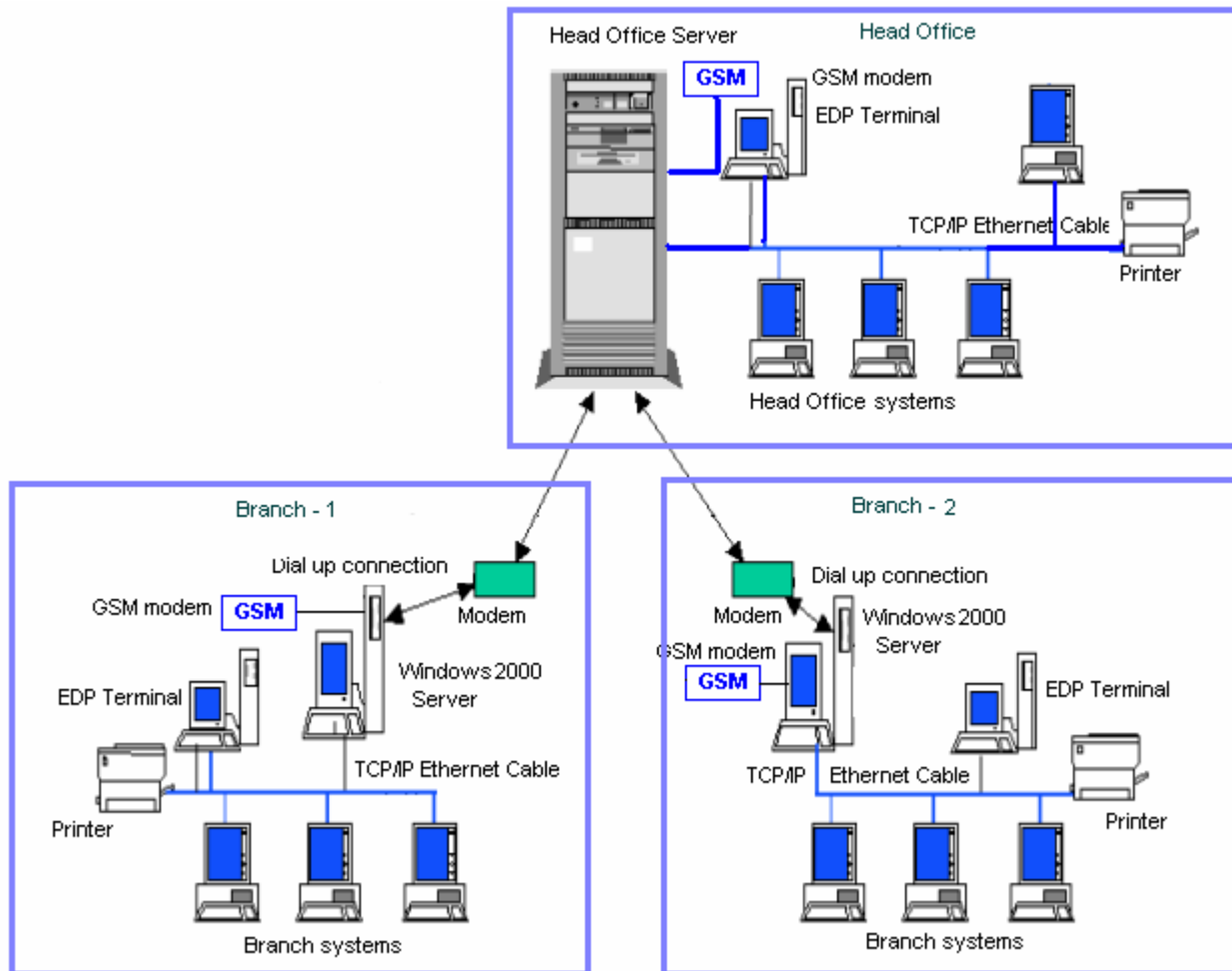
1. Should be fully online, where literally there wont' be any parallel work, manual rechecking of ledgers etc.
2. High level of security at various levels like OS level, Database level and Application Level.
3. All the reports, which have to be submitted by the branches to the HO, shall be generated in the HO by connecting the branches through a dial-up network. So there will not be any physical transfer of documents from branches to HO.
4. There should not be any lengthy day begin and end procedures.
5. User rights to restrict unauthorized use of the system.
6. Avoiding fraud should be monitored at each entry.
7. Should be flexible enough to expand branch operations.
8. Should be highly parameterised there by support activities and customisation can be minimized to the maximum extend possible.
9. Signature and Photo Verification
10. Should be highly cost effective.

---

## Disaster Recovery Management

Bank should have very good disaster recovery management system. Some reasons for disaster are **fire, theft, earthquake or any other natural calamities**. For effective disaster recovery management system, Maintec will suggest taking data backup in CD, which is one of the most reliable backup systems, and keep it in different branches.

## Diagram of Head Office and Branch Networking



# INTRODUCTION TO



---

## Introduction

BankVi\$ion is an integrated online banking application on the leading edge of Financial System Technology. BankVi\$ion users state-of-the-art application technology. BankVi\$ion comprehensively brings every aspect of Bank management and operations into on-line computerization simultaneously. It combines the power of Windows Operating System, RDBMS and the internet-based GUI interface,

BankVi\$ion supports Financial Institutions Processing including:

- § **Co-operative Banking**
- § **Branch Automation**
- § **Relationship Banking**
- § **Inter Branch Linking**
- § **Mobile Interface**
- § **ATM Interface**
- § **Any Branch Banking**

This product eliminates redundancy, duplication, manual re-checking of books ledgers, eliminates data-entry mistakes as well as currency handling mistakes. BankVi\$ion maintains a comprehensive audit-trail and fixes accountability by individual, for each transaction. This generates every report, and maintains every record required to be generated and/or maintained in a Bank.

This product reduces waiting time and enhances every aspect of customer service. It is infinitely expandable and can handle infinite branch expansion.

The data files are linked together and with the workflow, and system intelligence has been so enhanced that all aspects of bank, customer and employee safety and responsiveness are addressed. This product comes with Implementation software, which makes it possible to fully computerize a running branch within a period of three months, in spite of changing balances on day-to-day basis. It releases up to 50 % of the manpower (depending on

size of the Bank) for Branch expansion, Recovery / Mobilization (Marketing - Field) duties.

BankVi\$ion is a comprehensive, fast-to-market, Internet based account management solution. By deploying BankVi\$ion, financial institutions can give their customers instant access to account information and provide the flexibility to carry out financial & non-financial transactions 24 hours a day from anywhere in India in a highly secure environment.

BankVi\$ion provides Internet access & transaction capability to multiple products and services offered by a financial institution - Current & Savings Accounts, Loans, Time Deposits, Mutual Funds and Securities. With BankVi\$ion, the customer gets an integrated Relationship Level view across multiple products and can transact from a single access point. Customers can also monitor their accounts through e-mail and SMS alerts that are triggered by a customer-managed set of events.

---

## Product Highlights

### System Design

---

- § Real integrated approach and not a piecemeal design.
- § Adoption of manual steps not done literally but rationalized to suit computerization.
- § Guidance to employees about working procedures making thereby the book of instructions redundant.
- § Concurrent working on the same customer account on different terminals.
- § Complete coverage of Retail Banking requirements including comprehensive reports.

### Handling of Cash

---

- § Cash can be handled on any number of counters.
- § Receipts and Payments are handled on the same counter.
- § Currency denomination at each counter is accounted.
- § Cash transactions not possible once the cash is closed for the day

### Minimum Data Entry

---

- § Address once captured for some account, can be linked to another account, thereby eliminating the need to enter the same address again.
- § Change of address in one account will affect the same change in other accounts of the same holder.
- § There is no redundancy, in data being entered at different places. For example, details of cheque tendered in clearing, is entered once when it is received. Subsequently, for sending such cheques to clearing, all information about these cheques is made available, without having to re-key them.

## **Operational Safety**

---

- § All critical activities have to be confirmed by an Officer.
- § Only the person who keyed it in can alter data. If a transaction has been verified by the supervisor/officer, it cannot be altered.

## **Effective Monitoring of Loan Recoveries**

---

- § Keeps a magic eye on all default loan accounts. When a loanee, in his SB account, deposits some money a recovery is affected automatically in the loan account. The amount outstanding in his account is adjusted to the extent of his balance in his SB/Current account.
- § On maturity of a Deposit, if any loan is pending against the deposit, the loan will be recovered automatically.
- § Detailed monitoring of various stages of action taken on loan defaulters.
- § Information about defaulters available locality-wise for personal follow-up.

## **Faster and Superior Service**

---

- § A customer can go to any counter for any type of service.
- § No handwriting of Books and Ledgers.
- § Speedy queries for loan outstanding.
- § The computer prints documents like the Pass Book given to customers, neatly and legibly.
- § Cheque discounting facilities.

## **Built-in intelligence**

---

- § After the Pass Book entries are printed and given to a customer once, when next requested by the customer, transactions are not repeated. The computer will print only the subsequent entries.
- § Issues of Cheque Books are properly maintained for each account. When a cheque is presented for withdrawal of clearance, the cheque number and the account number of the issuer is accordingly validated.
- § Availability of insufficient amount for recovery of a loan can be adjusted towards various components with appropriate priority.

- § Provides tools for reconciliation of various accounts, which is otherwise a very tedious job.
- § Automatic handling of Mailing Charges and fine for bounced cheques.
- § Facility to know incomplete transactions at the end of the day.
- § Automatic crediting of commission payable to Pigmy agents.
- § Keeps track of members standing surety for too many loans.

### **Ease of Operation**

---

- § Context-sensitive on-line help by using Function keys, available where ever necessary.
- § No need to remember codes.
- § The menu is so user-friendly that training can be imparted in a few sessions.
- § There is no lengthy day-begin or day-end procedure.

### **Standing Instructions**

---

- § Automatic renewal of Fixed Deposits possible.
- § Automatic crediting of FD interest in respective SB accounts.
- § Automatic recovery of loan.
- § Automatic subscription towards Recurring Deposits.
- § Facility for Stop Payment instructions.
- § Facility to know Standing Instructions carried out on a day.
- § Variety of other Standing Instructions.

### **System Security**

---

#### **Application software security**

- § Facility of unique user number and Password in such a way that unauthorized user cannot log in.
- § Operational rights for each user/terminal can be defined. Thus, a user can have access to specific terminals and specific options only.
- § For each transaction, the system keeps track of both the Clerk and the Officer who were involved in it. This helps in identification of who initiated each entry, eliminating thereby the possibility of errors and deliberate fraud.

- § Facility to print User log to know the history
- § The software is developed using 3-tier architecture. So the application will communicate to the database through the database layer, which will be a DLL. So there will not be direct access to the database to any body.
- § For each user, administrator can define the functionalities in the dlls through COM+

### **Database Level Security**

- § RDBMS will have its own security level, which will be defined by the system administrator.

### **Operating system level Security**

- § Windows operating system will have user level access with unique login and password.
- § Access rights for each user can be defined. Thus, a user can have access to specific files only.

---

## Technical Features of BANKVI\$ION

### Multiple Branch Handling

---

The branches can be interred linked through dial up and datas can be transferred across the branches. So the management can effectively monitor all the branch activities.

---

### Features

- ❖ Consolidated reports like NPA, P & L, Balance sheet etc can be generated at the HO
- ❖ Monitor the branch activities
- ❖ Facility for centralized as well as decentralized Shareholding.
- ❖ Multi-branch Clearing Operation.
- ❖ Inter-branch instructions possible.
- ❖ Consolidation of Accounts at HO without re-entering of data.

### Mobile Interface

---

This feature allows secure sending and retrieval of data, and information from the application to the customer's mobile phone there by not restricting the usage to only WAP phones. Bank can keep in touch with their customers through mobile phones or by e-mail. There will be a seamless interface between the wireless infrastructure (networks, handsets, and operators) and the banking application. Data can be sent to any type of mobile wireless devices using either GSM or WAP.

Customers can check their account balances through their mobile phone using SMS. Bank can send email as an alert to customer's mobile phones or to their POP servers.

## System Security

---

BankVi\$ion incorporates an array of security procedures and devices to make certain that your confidential transactions remain private. *BankVi\$ion use a combination of technologies to keep your account secure.*

---

### ***Encryption technology***

This technology scrambles the data relating to your account to ensure that your information cannot be read by anyone else. Encryption is a process that involves changing a string of letters and numbers into a code that is unrecognizable to anybody else who should try to gain access to your personal details. Our decoding program is the only one that can decipher the code.

---

### ***Personal security data***

When you sign on to Internet Banking you will be asked to type in:

- ❖ Your customer number. This is the number we give you when you register (you cannot choose this number)
- ❖ Your memorable data. This can be any one of the three items (date, place or name) that you provide us with when you register
- ❖ Your id-number, give this to you when customer will register

---

## Benefits

### Benefits to Customers

---

- § Can avail any service from any counter
- § Faster service available
- § Customers' queries answered instantly
- § Timely crediting of interest on deposits/share dividend, etc.
- § Availability of reminders for term deposits renewal
- § Accurate calculation of interest on loans and deposits
- § Legible and detailed statement of accounts to loanees/account holders
- § Impartial service to customers
- § No failure in carrying out of Standing Instructions
- § Change Address and other personal information
- § Link Accounts under a relationship
- § Change their internet password or phone-banking TPIN
- § Request for new TPIN
- § Check balance through the mobile phone using SMS

### Benefits to Staff

---

- § Cash reconciliation including denominations
- § Up-to-date maintenance of books/ledgers
- § Accurate interest calculation on SB/FD etc.
- § Exact break-up of loan outstanding
- § Automatic loan recovery based on Standing Instructions
- § Perfect reconciliation of accounts
- § Regular follow-up of loan recoveries
- § Practically no working after cash hours
- § Bank's Book of Instructions made redundant
- § Mistakes by staff minimized
- § Humdrum activities eliminated, making the job thereby more interesting to staff
- § Eliminates redundancy, duplication, manual rechecking of books and ledgers
- § Increased safety to the staff

- § Improved working environment due to avoidance of handling of bulky ledgers
- § Speeds up the processes of the bank's accounts department.
- § Email can be send to customer's mobile phone as alerts or to their POP servers there by bank can keep in touch with the customer more effectively

### **Benefits to the Management**

---

- § All statutory requirements met on time
- § Compulsory verification to eliminate fraud
- § Higher interchange ability of staff
- § Reduction in manpower requirement up to 50 %
- § Timely action on loan defaulters
- § Timely debiting of interest on loans
- § Accountability fixed for each transaction
- § Better management control through periodic reports and on-line information.
- § Perfect audit trail and reconciliation of figures
- § Quick finalization of accounts
- § Set language and other preferences
- § Choose QPIN (Query only PIN)
- § Enhances productivity.
- § Better operational control and reduced human errors.
- § Timely availability of accurate MIS reports.
- § Easy to use, implement and administer.
- § Highly cost-effective.

---

## **TECHNOLOGY**

Developed using 3-tier architecture on robust Microsoft Technologies with SQL server RDBMS as the back end, VB as the front end and VB COM as the middle tire, running on Microsoft Windows2000 Operating system.

### **SQL Server RDBMS**

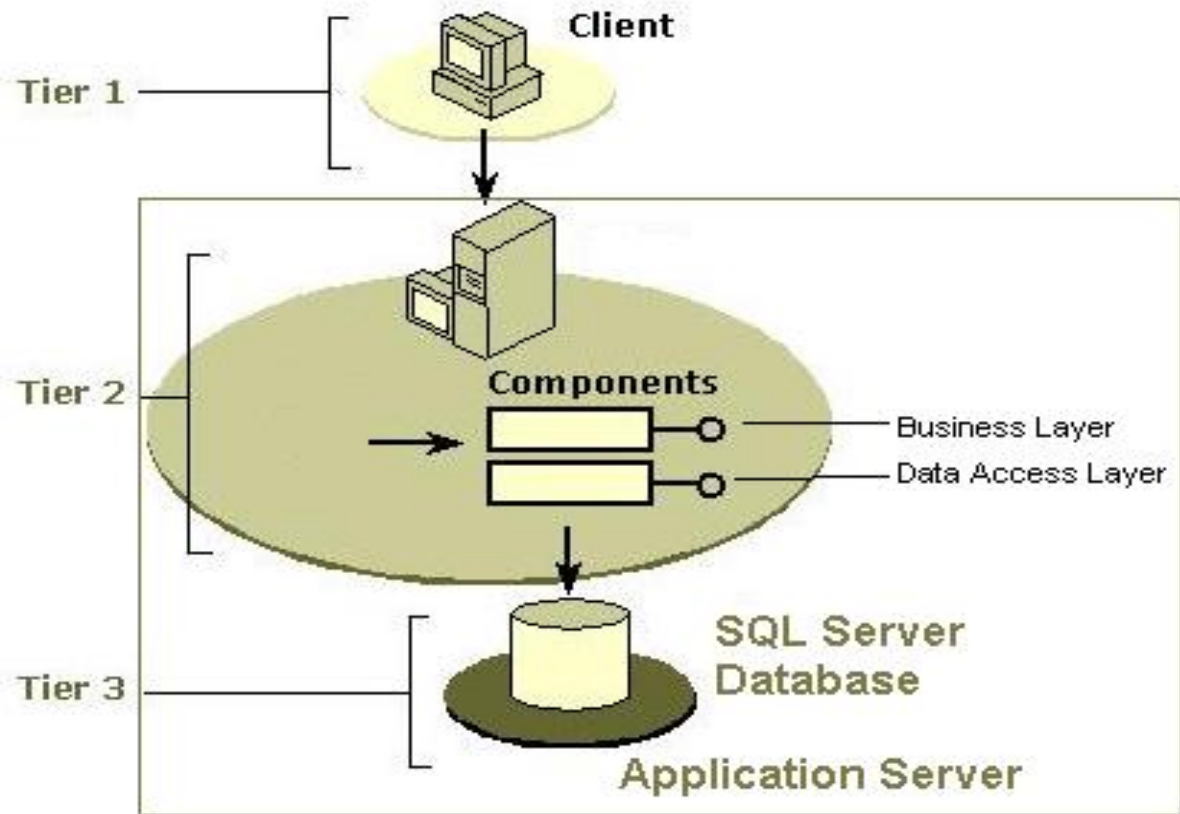
---

The SQL Server RDBMS server is a high-performance, fault-tolerant relational database management system especially designed for online transaction processing and large database applications.

### **Visual Basic**

---

Visual Basic is a GUI tool to develop front-end screens and COM technology, which renders the applications developed on it easier to maintain.



**Diagram of Software Architecture**

---

## Modules and Functions

### Cash Operation

---

- ₹ Receipts
- ₹ Payments
- ₹ Denomination exchange
- ₹ Scroll preparation
- ₹ Inter-counter transfers

---

### Documents

- ₹ Cash Voucher

---

### Reports

- ₹ Terminal wise Cash Scroll
- ₹ Terminal Wise Scroll with Currency Denominations
- ₹ Consolidated Cash Scroll
- ₹ Consolidated Scroll with Currency Denominations
- ₹ Daily Cash Summary

### SB/Current/OD/CC Accounts

---

- ₹ Account Opening/Closing
- ₹ Issue of Cheque Books
- ₹ Deposit of Cash/Cheque
- ₹ Withdrawal by slip/cheque
- ₹ Pass Books Printing
- ₹ Accounts Ledger
- ₹ Interest Calculation
- ₹ Standing Instructions

---

### Documents

- ₹ Identity Card to Account holder
- ₹ Pass Book

---

## **Reports**

- § List of new Accounts Opened
- § Register of Cheque Books issued
- § Daily Transaction Summary
- § Statement of Closing Balances
- § List of Cheques not presented
- § List of accounts not debited for want of Balance
- § Statement of Accounts closed
- § List of OD/CC Debit balances
- § Register of Quarterly Interest charged on OD/CC accounts
- § Register of Half-yearly Interest paid on SB/Current
- § Accounts
- § Accounts Ledger
- § GL versus SB/CA/OD/CC/OD Individual Ledger
- § Reconciliation Report

## **Clearing Operations**

---

- § Tendering Cheques
- § Receiving of Cheques
- § Handling of Returned Cheques
- § Posting of Accounts
- § Cheque Discounting
- § Consolidated Salary Cheques
- § Multiple Credit Cheques

---

## **Documents**

- § Pay Order
- § Letter to Depositor of Bounced Cheque

---

## **Reports**

- § List of other Banks participating in Clearing
- § List of reasons used for returning of Cheques
- § List of Companies paying Salary through Bank
- § List of Cheques/DDs tendering in Clearing
- § Bank wise list of Outgoing Instruments
- § Bank wise summary for Inward Clearing

- § Register of Cheques bounced by Bank
- § Register of Cheques returned by other banks
- § Statement of Mailing Charges and Fine for Bounced cheques

## **Term Deposits**

---

- § Fixed Deposits
- § Cumulative Deposits
- § Recurring Deposits
- § Interest Calculation
- § Periodic Interest Payments
- § Interest Register
- § Pre-matured closure
- § Renewal Notice printing
- § Renewal of deposits

---

## ***Documents***

- § Deposit Receipt
- § Renewal Notices
- § Recurring Deposit Pass Book

---

## ***Reports***

- § List of new Fixed Deposits
- § Periodic Interest Register
- § List of Deposits transferred to Demand Liability
- § Daily Deposit transaction Summary
- § List of automatic renewals made
- § Maturity Ledger - FD, CD, RD
- § List of Fixed Deposits closed and repaid
- § List of new Cumulative Deposits opened
- § Register of Interest accrued on Cumulative Deposits
- § Management Information Report on Recurring Deposits
- § Ledger of matured Recurring Deposits
- § List of Cumulative Deposits closed
- § Statement of Deposit Closing Balances
- § GL. Versus Deposit Individual Ledgers Reconciliation Report
- § List of Interest rates for different deposit schemes

## **Safe Deposit Vaults**

---

- § Allotment/Withdrawal of a locker
- § Monitoring of Rent Collection
- § Operation of locker

---

## ***Documents***

- § Reminders to Owners

---

## ***Reports***

- § Register of Locker Owners
- § Operation Register
- § List of Issues/Surrenders
- § List of Locker Rent Due
- § List of Rent Collection
- § List of Expired Lockers

## **Loans (Secured, Unsecured and against Deposits)**

---

- § Sanction of Loans
- § Disbursement of Loans
- § Interest/Penalty Calculation
- § Recovery of Loans
- § Defaulters follow-up
- § Pass Book to loanee
- § Weaker Section/Priority Sector Report
- § Comprehensive DCB Report

---

## ***Documents***

- § Letter to Loanee intimating sanction & repayment schedule
- § Pass Book
- § Reminder notice to Loan defaulters
- § Paying-in slips for loan repayment

---

## **Reports**

- § List of new Unsecured/Secured loans sanctioned
- § List of new loans sanctioned against Deposit
- § Register of Standing Instructions
- § Statement of Interest collected on Loans
- § List of Defaulters
- § Daily Transaction Summary
- § Locality wise report for recovery follow-up
- § Demand, collection and Balance Report
- § Statement of closing Balances
- § List of Loans closed
- § Statement of Interest accrued on General Loans
- § Statement of Interest accrued on Advances against Deposits
- § Loans against Deposits due for closure
- § List of Loans against Deposits closed
- § Transfer Scroll for automatic recoveries made
- § GL versus Loan individual Ledgers Reconciliation Report
- § List of applicable Interest rates
- § List of Loan Purposes
- § Priority Sector Summary Report
- § Priority Sector Detailed Report
- § Weaker Section Summary Report
- § Weaker Section Detailed Report

## **General Ledger and Financial Accounts**

---

- § Miscellaneous Receipts
- § Miscellaneous Payments
- § Day Book
- § Transfer Vouchers
- § Printing daily/monthly schedules
- § General Ledger
- § Trial Balance, P&L Statement and Balance Sheet

---

### ***Documents***

- § Miscellaneous Receipt Voucher
- § Miscellaneous Payment Voucher

---

### ***Reports***

- § List of codes allotted to GL. Account heads
- § Schedule of Miscellaneous receipts
- § Schedule of Miscellaneous Payments
- § Statement of Transfer/Journal Voucher raised
- § Day Book
- § GL account wise Report for on-line business transaction
- § GL account wise Report for Miscellaneous transactions
- § Monthly general Ledger
- § Trial Balance
- § Statement of Receipts and Payments
- § Profit & Loss report
- § Balance Sheet

---

### **Miscellaneous Activities**

- § Issue of Pay Order
- § Handling of Stop Payment Instructions
- § Inter-branch Instructions
- § Consolidation of Branch Accounts
- § NPA Statement
- § RBI Reports
- § Special facility to handle salary cheques received from different organization.
- § Handles advanced communications received in respect of clearing cheques returned late.
- § It is possible to monitor the activities of all terminals on remote terminal, by the Manager or the person in-charge.

- § Any number of joint holders can be permitted in opening of an account.
- § Disbursement of loans can be handled with multiple payments. Also, the scheduling of the loan amount sanctioned, over the entire period of repayment, is done automatically by the system.
- § Facility to search for the accounts held by a person by giving his/her name or even part of the name.
- § Facility to know all types of accounts held in the same branch by a customer.
- § Facility to issue a consolidated Pay Order for more than one purpose.
- § Large number of otherwise complex RBI returns and reports are easily available.
- § Handles special instructions given by customers for operating their accounts.

---

### ***Documents***

- § Mailing Slips

---

### ***Reports***

- § Statement of incomplete transactions
- § List of Users with access rights given
- § List of terminals with authorized modules
- § Activity Log Book of each day
- § List of Pay Orders issued
- § List of Un-cashed Pay orders
- § Standing Instruction Register
- § Standing Instructions Carried Out
- § Voters List
- § Daily Cash position to RBI
- § Statement of Percentages
- § Weekly RBI returns
- § Fortnightly returns to RBI
- § Monthly statement to RBI

## **Back Office**

---

- § Handling Mailing Charges
- § Half Yearly Routines
- § Quarterly Routines
- § Year Closing

---

## ***Documents***

- § Transfer Vouchers – Cheques, Credit Cards and Foreign Currency to Bank
- § Daily Sales Summary
- § Statement of Accounts Payable
- § Reminders to Debtors

---

## ***Reports***

- § Daily Cash Statement
- § Journal Register
- § Register of Transfer Vouchers
- § Register of Travel Agents Credit Notes
- § Register of Laundry dues Credit Notes
- § Schedule of Receipts
- § Schedule of Payments
- § Register of Inter-counter Cash transactions
- § Credit Note Register
- § Debit Note Register
- § Schedule of purchases
- § Cash Book
- § Purchase Ledger
- § Sales Register
- § Ledger Extract of a given account
- § Sundry Debtors Ledgers
- § Sundry Creditors Ledger
- § Other Parties' Sub-ledgers
- § Schedule of Party Balances
- § General ledger
- § Receipt & Payment Statement
- § Trial Balance
- § Profit & Loss Statement
- § Bills outstanding for a party

- § Statement of bills receivable
- § Statement of bills payable
- § Aging of Bills receivable
- § Aging of Bills payable
- § FA Code Directory
- § Budget figures for Account heads
- § List of Addresses of Parties
- § Taxes applicable
- § Annual Purchase Statement
- § Items due for re-order
- § List of codes allotted to GL. Account heads
- § Schedule of Miscellaneous receipts
- § Schedule of Miscellaneous Payments
- § Statement of Transfer/Journal Voucher raised