**Book Information System Detailed Design Document.**

**Main Entities in the system.**

1. **Distributor:** Entity on whose premises the software system will be installed.
2. **Item:** This is the basic entity of the system. In BIS context book/magazine acts as Item. The history of the price changes for items will be maintained. While using the item price currently active entry will be used for logistics purpose. The linkage between the item and the possible vendors is also maintained. Item entity has following details.
   1. Item code – system generated five character codes.
   2. Item name
   3. Item description
   4. Item life (Daily, Weekly, Fortnight, Monthly, Half-yearly, Yearly)
   5. Returnable (indicates the Item can returned to vendor if unsold)
   6. Item – Vendor Linkage: An item can be brought from multiple vendors.
   7. Item Price.
3. **Vendor:** Supplier of items to the distributor. Each vendor can supply multiple items. Vendor has following attributes.
   1. Vendor id – system generated five character codes.
   2. Name
   3. Address
   4. Phone number
   5. Billing cycle (This indicates preferred billing cycle for the vendor)
   6. Vendor discount (This indicates default discount configured for the vendor)
   7. Alternate Phone number.
4. **Hawker:** This entity consumes items supplied by Vendor through the Distributor. A Hawker can also return unsold items back to Distributor. Hawker has following attributes.
   1. Hawker id – system generated five character codes.
   2. Name
   3. Address
   4. Phone number
   5. Billing cycle (This indicates preferred billing cycle for the hawker)
   6. Hawker discount (Indicates the default discount configured by the Distributor to each Hawker)
   7. Alternate Phone number.
5. **Stock:** This entity holds the details of all the items that are present in distributor’s inventory. It holds information about both the current items as well as the expired items. Stock entity has following attributes.
   1. Item code
   2. Date of publishing
   3. Quantity

**Modules of the System**

**Procurement Module:**

There are two sections in the procurement module – the first section will deal with the movement of goods (items) from the vendors to the distributor and vice versa for returns transactions. The second module is the monetary settlement section and will deal with the bill and payment related activities.

**Goods Movement Section:**

1. **Responsibility :**

* Handling transactions between distributor and vendors.
* Handling any retrieval queries related to item transaction made between vendors and the distributor.

1. **Details:** When a distributor receives goods (books, magazines, newspapers in total) from a vendor at a time, he will be able to add a procurement transaction and its details to the system. For example if distributor gets Item1 (X Copies), Item2 (Y Copies) and Item3 (Z Copies) - all these will be recorded as part of single procurement transaction from the vendor. The procurement details of the transaction will have information described as procurement transaction details below. Similarly when a distributor decides to return set of unsold goods back to vendor, this can be recorded as returns procurement transaction with all the items as one transaction. This module will accordingly update the Stock section. The transactions thus recorded will facilitate the billing cycle for procurement.

**Entities Involved**

1. **Procurement Transaction:** This contains the header details of a transaction. You can add a new transaction, view it later or edit the transaction. Details are as follows
   1. Transaction id – system generated
   2. Vendor id
   3. Transaction date – can be system date and time or user can edit it.
   4. Transaction time.
   5. Total amount – summation of all the items cost in this transaction.
   6. Transaction type (Incoming, Returns, Scrap)
2. **Procurement Transaction Item Details:** Each procurement transaction will have a section wherein the user needs to enter all the items purchased as part of this transaction. The item details section has information about particulars of items brought. Procurement transaction details have following attributes.
   1. Item code
   2. Item publish date
   3. Quantity
   4. Default discount – proposed to the user from the vendor master details, user can adjust.
   5. Price per item – calculated at run time, user can adjust to convenience.
   6. Total Price – specific to this line item.

**Monetary Settlement Section @Procurement:**

1. **Responsibility:**
   * Billing all the transactions since the last billing date thus creating bills.
   * Recording all the payments made.
2. **Details:** The Procurement billing always happens with respect to a particular vendor. Each vendor will have his billing cycle configured in the master data. The system runs a background job at specific times and then creates bills. It groups all the incoming and returns transactions in this billing cycle and collates the bill amount. It will also consider the payments made during this cycle to calculate the final amount to be paid to a particular vendor.

**Entities Involved**

1. **Procurement Billing:** This entity represents a procurement bill that will be generated based on billing cycle configured against a vendor in master details. User will have the option to bypass this and generate the bill. Billing will also consider the returns transactions made with respect to the vendor and create the final bill. Once the bill has been generated for a set of transactions between a given start and end date – then those are termed as billed transactions. Procurement billing has following attributes.
   * Bill id – system generated.
   * Vendor id.
   * State date – system will calculate this based on the billing cycle of the vendor.
   * End date
   * Total Bill amount
   * Previous balance – balance amount of the previous bill.
2. **Procurement Payment History**: This entity holds all the details pertaining to a payment transaction between distributor and vendor. Procurement payment history has following attributes.
   * Payment id – system generated.
   * Vendor id
   * Date of payment
   * Amount
   * Payment mode (e.g. Cheque, DD, Cash)
   * Receipt Number
   * Remarks – User can enter Cheque/ DD number depending on mode of payment and other details.

**Sales Module**

Similar to the procurement module there are two sections namely the goods movement and monetary settlement.

**Goods Movement Section @Sales**

1. **Responsibility:**

* Handling transactions between distributor and hawker
* Handling any retrieval queries related to item transaction made between hawker and distributor.

1. **Details:** When a distributor is selling goods (books, magazines, newspapers in total) to a Hawker, he will be able to add a sales transaction and its details to the system. The procurement details of the transaction will have information described as Hawker transaction details above. Similarly when a distributor receives the return set of goods, this would be recorded as returns at sales transaction with all the items. This module will accordingly update the Stock section. The transactions thus recorded will facilitate the billing cycle for sales. At users convenience even scrap material can be sold this way using the transaction type as Scrap.

**Entities involved**

1. **Hawker Transaction:** Hawker/Sales transaction is similar to procurement transaction except for the fact that it records interactions between distributor and hawker. Sales Transaction has following attributes.
   * Transaction id – system generated.
   * Hawker id
   * Transaction date – can be system date and time or user can edit it.
   * Transaction time.
   * Total amount – summation of all the items cost in this transaction.
   * Transaction type(Incoming, Returns, Scrap)
2. **Hawker Transaction Item Details:** Similar to procurement transaction detail, but has details of sales transaction items. Sales transaction details have following attributes.
   * Item code
   * Item publish date
   * Quantity
   * Default discount – proposed to the user from the Hawker master details, user can adjust.
   * Price per item – calculated at run time, user can adjust to convenience.
   * Total Price – specific to this line item.

**Monetary Settlement Section @Sales:**

1. **Responsibility:**
   * Billing all the transactions since the last billing date thus creating bills.
   * Recording all the payments made.
2. **Details:** The Sales billing always happens with respect to a particular Hawker. Each Hawker will have his billing cycle configured in the master data. As with procurement the system runs a background job which will run at specific times and then creates bills. It groups all the incoming and returns transactions in this billing cycle and collates the bill amount. It will also consider the payments made during this cycle to calculate the final amount to be paid to a particular Hawker.

**Entities involved**

1. **Sales Billing:** Same as Procurement billing but sales process. Procurement billing has following attributes.
   * Bill id – system generated.
   * Hawker id
   * State date – system will calculate this based on the billing cycle of the Hawker.
   * End date
   * Total Bill amount
   * Previous balance – balance amount of the previous bill.
2. **Sales Payment History**: Same as procurement payment but holds payment details of hawker. Sales payment history has following attributes.
   * Payment id – system generated
   * Hawker id
   * Date of payment
   * Payment mode (ex Cheque, DD, Cash)
   * Amount
   * Receipt Number
   * Remarks – User can enter Cheque/ DD number depending on mode of payment and other details.

**Database Design Attached:**

