**Component and Connector View**

1. **Primary presentation:**

Head Office C&C View



Store C&C View



1. **Element catalog:**
2. **Elements and their properties**

|  |  |  |
| --- | --- | --- |
| Elements | | Properties |
| Database Server | Head Office DB Server | Database server which locates at Head Office is responsible for store data such as sales data, user data, customer data, store data, product data, and category data. This is where Head Office PC gets data to perform statistical analysis. |
| Client DB Server | Database server which locates at POS terminal and responsible for store data of stores such as product cost, user information and bill detail. It also is a reserved database server, store as much as possible data when Head Office server is going down or connect problem happen. |
| User Interface | Customer Interface | This interface use for customer to check their information, it will be set up on touch screen at stores. | |
| Cashier Interface | This interface use for cashier to perform sales activities and allow cashier interact with product and loyal point information. | |
| Administrator Interface | This interface use for administrator to perform system operating action. It allow administrator have authorities at user account and synchronize data. | |
| Staff Interface | This interface use for staff to manages information about customer category, product. It also allows staff gets data from system and performs statistical analysis. | |
| Object | Loyal Point | This function allow user view customer loyal point. | |
| Sale | All function relate to sale activities which perform by cashier | |
| Category | Contain functions such as view, add, update and remove category supports staff performs manage activities. | |
| Product | Contain functions such as view, add, update and remove product supports staff performs manage activities. | |
| Synchronize data | These functions contain set time for auto synchronize activities or manually synchronize | |
| Statistical analysis | Use by staff to collect sales data and generates analysis for demand | |
| User account | Use by administrator, contain add, update information of system users | |
| Customer | Use by administrator, contain add, update information of system customers. | |

1. **Relations and their properties**

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| --- | --- |
| Connector | Properties |
| Pipe | A kind connector in Dataflow Style that conveys data from a filter’s output ports to another filter’s input ports. A pipe has a single data-in and a single data-out role, preserves the sequence of data items, and does not alter the data passing through. |
| Request/ Reply | Connector between client and server style, used by a client to invoke services on a server. |
| Replication | This connector show that the synchronize protocol will be used here to make sure data between database servers was synched |
| Read Data | Present that data was read at the filter/object which connected with this connector. |
| Write Data | Present that data can be write into the filter/object which connected with this connector. |
| Reserve | This connector will be active to replace the “read and write data” connector in case the Head Office server or Store database server going down or the connection between store and Head Office in trouble. |

1. **Element behavior**
2. **Context diagram:**



1. **Architecture background:**

Explain the reason that we designed. It does include:

1. Rationale design

The shared-data style was used because it is useful whenever various data items have multiple accessors and persistence. Use of this style decouples the producer of the data from the consumers of the data; this system has more than one data server. The data is naturally or historically, partitioned into separable stores, so we can replicated over several server to improve availability through redundancy tactic.

1. Analysis of results

**In Pipe-and-Filter Style:** the conveyance of data between filters in the server will be performed by the pipe. A pipe is a connector that conveys streams of data from the output port of one filter to the input port of another filter. Pipes connect filter output ports to filter input ports. A filter transforms data that it receives through one or more pipes and transmits the result through one or more pipes. In this system, the filter “Sales” will receive data from two filter “product” and “loyal point” to support its sale activities, these data will be transfer through pipe.

1. Assumptions reflected in the design

* There will have reserve database server in store, which is responsible for storing product information daily and sales information to sync up to Head Office server and performing the redundancy while Head Office server going down.

1. **Glossary of terms:**

**DB Server:** Database Server is a computer program that provides database services to other computer programs or computers.

**POS Terminal:** A point-of-sale terminal is a computerized replacement for a cash register.