Printech Zambia is an office supply store located in Lusaka, Zambia. They work in general office services like office furniture and equipment supply, stationery, printing, retail services, packaging solution etc.

The database is to help with the sales and inventory management. The database is not to include any employee information which is irrelevant to sales and products.

Data dictionary for Printech sales database

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute Name** | **Data type** | **Range/length** | **constraints** |
| **Customers** |  |  |  |
| Customer Code (PK) | Varchar |  | PK |
| First name | Varchar | 30 |  |
| Last name | Varchar | 30 |  |
| Phone number | Varchar | 11 |  |
| Email | Varchar | 30 |  |
| Street | Varchar | 30 |  |
| City | Varchar | 30 |  |
|  |  |  |  |
| **Orders** |  |  |  |
| Order number(PK) | Varchar |  | PK |
| Customer Code(FK) | Varchar |  | FK |
| Employee ID(FK) | Varchar |  | FK |
| Order date | date |  |  |
| Required date | date |  |  |
|  |  |  |  |
| **Employees** |  |  |  |
| Employee ID(PK) | Varchar |  | PK |
| First Name | Varchar | 30 |  |
| Last Name | Varchar | 30 |  |
| Phone number | Varchar | 11 |  |
| Email | Varchar | 30 |  |
| Street | Varchar | 30 |  |
| City | Varchar | 30 |  |
|  |  |  |  |
| **Departments?** |  |  |  |
| Department ID(PK) | Varchar |  | PK |
| Employee ID(FK) | Varchar |  | FK |
|  |  |  |  |
| **Order Details** |  |  |  |
| Order Number(PK)(FK) | Varchar |  | PK/FK |
| Product Number(FK) | Varchar |  | FK |
| Description | Varchar | 30 |  |
| Quantity | int | 10 |  |
| Unit price | Varchar |  |  |
| Total price | Varchar |  |  |
|  |  |  |  |
| **products** |  |  |  |
| Product Number(PK) | Varchar |  | PK |
| Product Name | Varchar |  |  |
| Brand code(FK) | Varchar |  | FK |
| Supplier code(FK) | Varchar |  | FK |
| Category Number(FK) | Varchar |  | FK |
| Unit price | Varchar |  |  |
|  |  |  |  |
| **Payment** |  |  |  |
| Payment number(PK) | Varchar |  | PK |
| Customer Number(FK) | Varchar |  | FK |
| Employee ID(FK) | Varchar |  | FK |
| Payment Date | date |  |  |
|  |  |  |  |
| **Category** |  |  |  |
| Category number(PK) | Varchar |  | PK |
| Category Name | Varchar | 30 |  |
|  |  |  |  |
| **Order Delivery** |  |  |  |
| Order number(FK) | Varchar |  | FK |
| Delivery status | Varchar | 15 |  |
|  |  |  |  |
| **Customer Complaints** |  |  |  |
| Complaint ID(PK) | Varchar |  | PK |
| Customer Number(FK) | Varchar |  |  |
| Complaint Description | Varchar | 50 |  |
| Employee ID(FK) | Varchar |  | FK |
| Order number(FK) | Varchar |  | FK |
|  |  |  |  |
| **Suppliers** |  |  |  |
| Supplier code(PK) | Varchar |  | PK |
| Product Number(FK) | Varchar |  | FK |
| Supplier name | Varchar | 30 |  |
|  |  |  |  |
| **brands** |  |  |  |
| Brand code(PK) | Varchar |  | PK |
| Brand name | Varchar | 30 |  |

Factors that may lead Printech to consider implementing a distributed database are as follows:

* **Distributed Nature of Organizational Units** − Printech is a growing organisation and as such will be subdivided into multiple units or branches that will be physically distributed country wide. The need for each branch to have its own local data will encourage distributed database implementation.
* **Need for Sharing of Data** − the multiple organizational units/branches will often need to communicate with each other and share their data and resources. This will demand for common databases or replicated databases that should be used in a synchronized manner.
* **Support for Both OLTP and OLAP** − Online Transaction Processing (OLTP) and Online Analytical Processing (OLAP) work upon diversified systems which may have common data. Distributed database systems aid both these processing by providing synchronized data.
* **Database Recovery** − One of the common techniques used in DDBMS is replication of data across different sites. Replication of data automatically helps in data recovery if database in any site is damaged. Users can access data from other sites while the damaged site is being reconstructed. Thus, database failure may become almost inconspicuous to users.
* **Support for Multiple Application Software** − Most organizations use a variety of application software each with its specific database support. DDBMS provides a uniform functionality for using the same data among different platforms.