

Frequent Pattern Mining

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Abstract: *Frequent Pattern Mining is a simple Point Of Sale Application for any Supermarket which has a good amount product and a point of sale billing. The paper is on Frequent Pattern Mining Billing. Frequent Pattern Mining is the place where customers come to purchase their daily using products and pay for that. So there is a need to calculate how many products are sold and to generate the bill for the customer. In my paper I have 3 users. First is the data entry operator who will enter the products in database. Second one is the administrator who can see the report of any product. Third one is the bill calculating operator who will calculate the bill and print.*

Keywords: GUI, waterfall, flowchart, SQL server.

1. Introduction

Work in the Frequent Pattern Mining will be done in the following way:

The product will come in the store. Data entry operator will enter the information of the product in database. The Administrator will enter the taxes and commissions for each product. The customer will come and take the basket with him/her and choose the product and took it to the counter.

The bill calculating operator will check the products with the bar code detecting machine then it will match with product-id then it will show its information and price and the bill will be calculated and total payment will shown. Customer will pay for the products. All the products will be packed and delivered to the customer .

1.1 Objective

To make software fast in processing, with good user interface so that user can change it and it should be used for a long time without error and maintenance.

1.2 Limitations Of Existing System

Every system has pros and cons so existing system also have many advantages and disadvantages. So the bottlenecks of the existing system are as follows:

1. User Interface: User Interface is not so much good that operators feel some problems in working.
2. Graphical User Interface: GUI is not good so the operators get bored by watching screen.
3. Processing speed: Processing speed of the software is not so much good to operate fast.
4. Flexible: Existing system is not so much flexible that can be changed according to the operators and customers.

5. Automatic generation of the Reports: Not able to automatically generate the reports and documents.
6. Workload: Sometimes the system hangs when workload is more.
7. Error Free: Sometimes the system gives error in the calculation in making the bill and in the information of the products due to workload.
8. Man Power: Existing system uses so many people to operate the system.
9. Resources: System does not use the resources properly.

1.3 Advantages Of Proposed System

To reduce the bottlenecks of the existing system there is a need to develop a new system. The new system should concern the requirements of the customer and the sellers. It has the following qualities:

1. Reduction in processing cost.
2. Error reduction.
3. Automatic posting.
4. Improve reporting.
5. Automatic production of the documents and Reports.
6. Faster response time.
7. Ability to meet user requirements.
8. Flexibility.
9. Reduced dependency.
10. Improves resource uses.
11. Reduction in use of the paper.
12. Reduction in Man Power.

2. System Requirements

2.1 Hardware Requirements

Processor: 600MHz processor.
RAM: 192 MB.
Available Hard Disk Space:
Without MSDN:
1 GB of available space required on system drive.
2 GB of available space required on installation drive.
With MSDN:
1 GB of available space required on system drive.
3.8 GB of available space required on installation drive with full installation of MSDN.
2.8 GB of available space required on installation drive with default installation of MSDN.
Operating System: Windows XP Professional or Higher.

2.2 Software Requirements

Visual Studio 2008(VB.net):
Microsoft Visual Studio is an integrated development environment (IDE) from Microsoft. It is used to develop computer programs for Microsoft Windows super family of operating systems, as well as web sites, web applications and web services. Visual Studio uses Microsoft software development platforms such as Windows API, Windows Forms, Windows Presentation Foundation, Windows Store and Microsoft Silverlight. It can produce both native code and managed code.

MS SQL Server:

Microsoft SQL Server is a relational database server, developed by Microsoft; it is a software product whose primary function is to store and retrieve data as requested by other software applications, be it those on the same computer or those running on another computer across a network (including the Internet).

3. Physical Design

A flowchart is a type of diagram that represents an algorithm, workflow or process, showing the steps as boxes of various kinds, and their order by connecting them with arrows. This diagrammatic representation illustrates a solution to a given problem. Flowcharts are used in analyzing, designing, documenting or managing a process or program in various fields.

Flowcharts are used in designing and documenting complex processes or programs. Like other types of diagrams, they help visualize what is going on and thereby help the people to understand a process, and perhaps also find flaws, bottlenecks, and other less-obvious features within it. There are many different types of flowcharts, and each type has its own repertoire of boxes and notational conventions. The two most common types of boxes in a flowchart are:

A processing step, usually called activity, and denoted as a rectangular box a decision, usually denoted as a diamond.

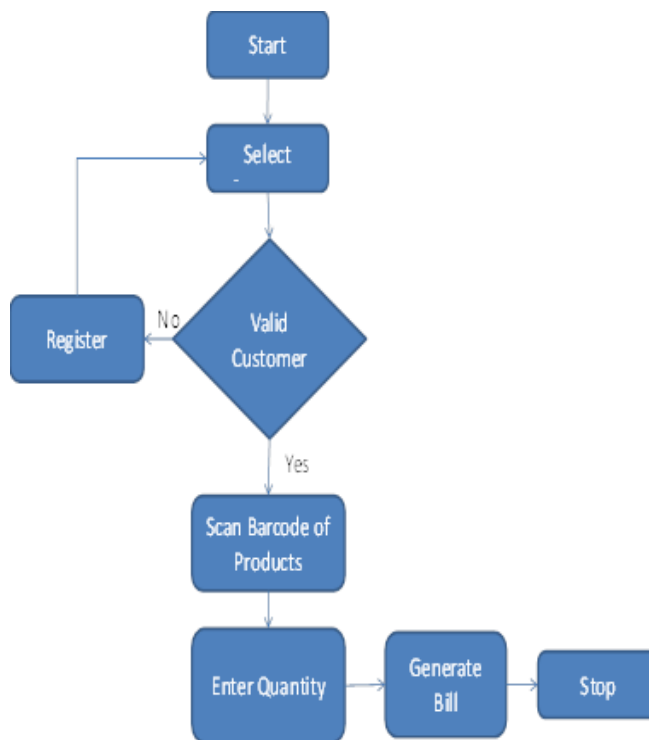


Fig -1: Flowchart

A flowchart is described as "cross-functional" when the page is divided into different swimlanes describing the control of different organizational units. A symbol appearing in a particular "lane" is within the control of that organizational unit. This technique allows the author to locate the responsibility for performing an action or making a decision correctly, showing the responsibility of each organizational unit for different parts of a single process.

3. System Implementation

Implementation is the process of bringing a developed system into operational use and turning it over to the user. Implementation activities extend from planning through conversion from the old system to the new.

At the beginning of the development phase a preliminary implementation plan is created to schedule and manage the many different activities that must be integrated into the plan. The implementation plan is updated throughout the development phase, culminating in a changeover plan for the operation phase. The major elements of the implementation plan are test plan, training plan, an equipment installation plan, and a conversion plan.

3.1 Code

```
Imports System.Data.SqlClient 'Header File
Public Class Form1
```

```
Dim cn As New SqlConnection 'Connect DOTNET with SQL
SERVER
```

```
Dim cmd As New SqlCommand 'Execute Query
```

```
Dim rs As SqlDataReader 'Fetch Result
```

```

Private Sub Form1_Load(ByVal sender As System.Object,
ByVal e As System.EventArgs) Handles MyBase.Load
    cn.ConnectionString = "Data source=.;Initial
Catalog=SuperMarket;integrated security=true"
End Sub

```

```

Private Sub Button1_Click(ByVal sender As System.Object,
ByVal e As System.EventArgs) Handles Button1.Click
    If (TextBox1.Text <> "" And TextBox2.Text <> "") Then
        Dim cnt As Integer
        cnt = 0
        cn.Open()
        cmd.Connection = cn
        cmd.CommandText = "select count(*) from Login where
Username=" + TextBox1.Text + " and Password=" +
TextBox2.Text + ""
        rs = cmd.ExecuteReader()
        While (rs.Read())
            cnt = CInt(rs.GetValue(0).ToString())
        End While
        rs.Close()
        cmd.Dispose()
        cn.Close()
        If (cnt > 0) Then
            Me.Hide()
            frmMain.Show()
        Else
            MsgBox("Invalid Username / Password",
MsgBoxStyle.Critical, "Error")
            TextBox1.Text = ""
            TextBox2.Text = ""
            TextBox1.Focus()
        End If
    Else
        MsgBox("Please Enter Complete Details",
MsgBoxStyle.Critical, "Error")
        TextBox1.Focus()
    End If
End Sub
End Class

```

3.2 Snapshots

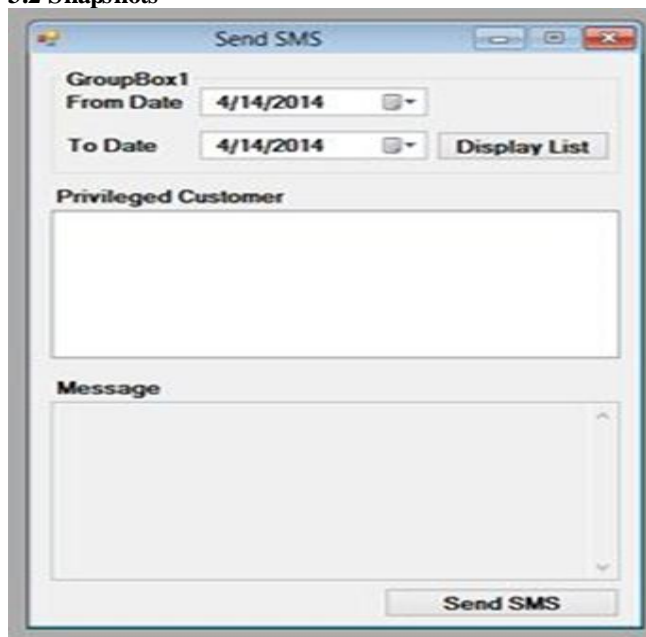


Fig -2: SMS Screen

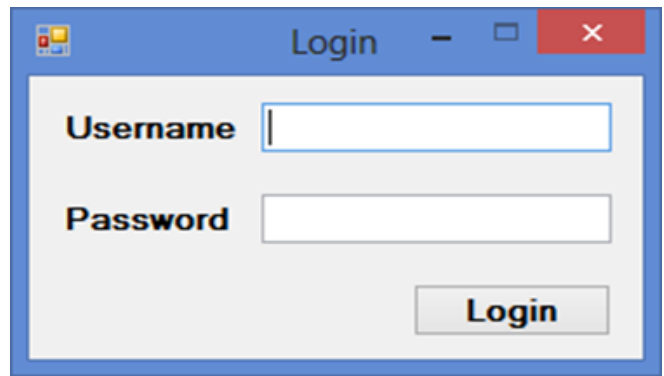


Fig -3: login screen

4. Methodology

There are different types of models used by a software team to do their work systematic i.e. step by step. The original process models have certainly given a guideline or roadmap for the whole software development process or software engineering. These process models are properly structured so that at least structure of the process can be understood. The different models are:

1. Water fall
2. Incremental
3. RAD
4. Prototype
5. Spiral

I have chosen the Water fall model for the development of our project.

WATER FALL MODEL:

Initially there was a time when software development started, the problems is mainly useful where the process models are fixed or may be in some were well understood and the linear approach to develop the software was used. Now days there are situations when the software comes with new versions and fulfills the current requirement and tries to manage the change management.

The water fall model is also called the 'classic life cycle', suggests a systematic sequential approach to software development. This process begins with customer specification of requirements and progress through different activities like planning, modelling, construction, and deployment and ends in completed software.

The waterfall model is a sequential model and even called a linear model which is not suitable for changing nature work. This model situation where work is done in a linear manner. In communication phase the major task done is requirement gathering, which helps to find out the exact need of customer. Once the initial communication is done the next step is planning which includes some major activities like planning for schedule, keeping different tracks on the process and the estimations related to the project. In modeling phase important phase is to analyze the data and as per the analysis the data is designed. Based on the designing of the project the coding i.e. programming and testing is done.

In the last phase deployment the product is actually delivered i.e. is installed at the customer's end and support is given if

required. As well as feedback is taken from the customer to ensure the quality of the product.

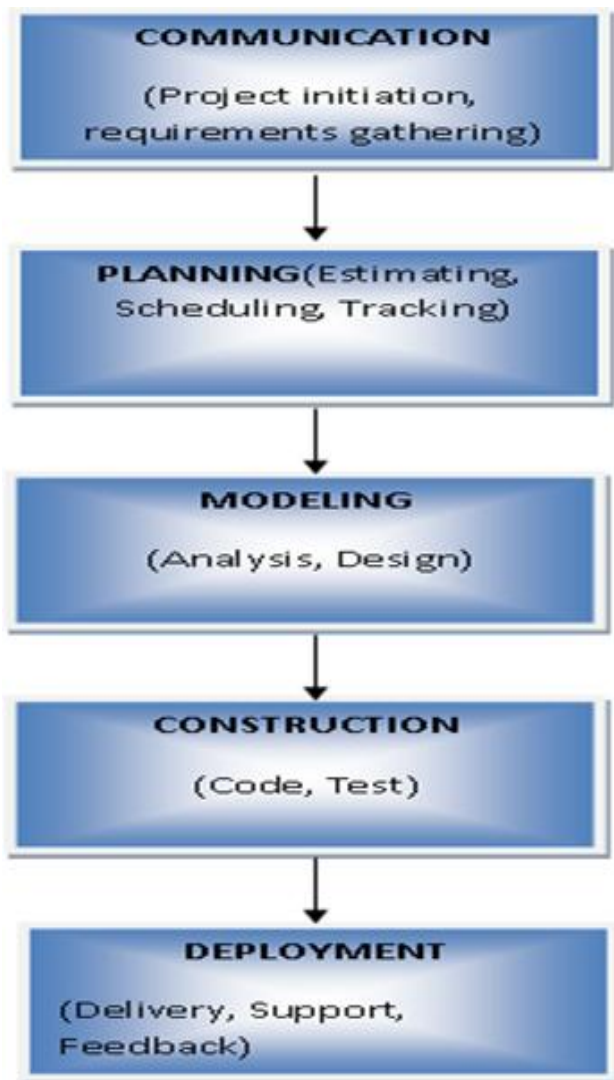


Fig -4: Flowchart

6. ER Diagram

An entity-relationship model (ER model for short) is an abstract and conceptual representation of data. Entity-relationship modeling is a database modeling method, used to produce a type of conceptual schema or semantic data model of a system, often a relational database, and its requirements in a top-down fashion. Diagrams created by this process are called entity-relationship diagrams or ER diagrams.

An entity may be defined as a thing which is recognized as being capable of an independent existence and which can be uniquely identified. An entity is an abstraction from the complexities of some domain. When we speak of an entity we normally speak of some aspect of the real world which can be distinguished from other aspects of the real world.

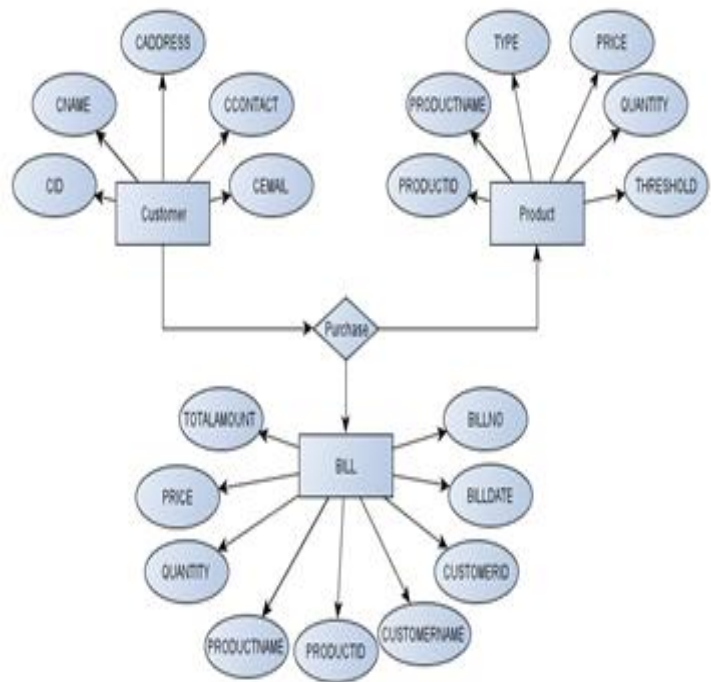


Fig -5: E.R Diagram

A relationship expressed with a single verb implying direction, makes it impossible to discuss the model using the following proper English. A relationship captures how entities are related to one another.

Entities and relationships can both have attributes.

7. Conclusion and Future Scope

My paper is on frequent pattern mining billing system. Calculate the bill. Give the bill to the customer. Store how many products are sold. Store products and their prices and with other information. Can see the report of the product at any period of time. Can see the report of the customer at any period of time.

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I have completed my computer engineering in the year 2014. This paper is based on a research work that I have done since my final year.

Author Profile