

Order To Payment (O2P)

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Approval Certificate

This project titled "**O2P**" submitted by H.M. Saiful Islam, Student ID: 012141010, has been accepted as Satisfactory in fulfillment of the requirement for the degree of Master of Science in Computer Science and Engineering on 13-Jan-2018.

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Declaration

This is to certify that the work entitled “**O2P**” is the outcome of the research carried out by me under the supervision of **Dr. Mohammad Nurul Huda**, Professor & Coordinator - MSCSE.

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In my capacity as supervisor of the candidate’s project, I certify that the above statements are true to the best of my knowledge.

Dr. Mohammad Nurul Huda, Professor & Coordinator - MSCSE

Abstract

One of the oldest industries, which fulfill the basic needs of mankind, is Trading Company. It has become very important for a Trading Company to integrate with Information Technology to survive in this era of competition. The application of IT has effectively reduced time of Traders along with constant monitoring & rectifying the faults if any during the production change. One innovation has been the O2P System, which is a tool that brings about effective co-ordination between the departments of an organization to direct the process by providing comparative information & analysis regarding trends and forecasts. It assists in effective management of the supply chain, just-in-time inventory and information as well as enterprise logistics management.

So, nowadays O2P System are largely used for effective monitoring and control, accurate planning and scheduling of orders, better data predictions, quick response to query and on-line detailed information of orders. This paper mainly deals with basic fundamentals of O2P System and role of O2P System in Trading Company along with its benefits and advantages.

Acknowledgement

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Table of Contents

CONTENTS	PAGE
Board of examiners	i
Abstract	ii
Acknowledgements	iii
CHAPTER	
CHAPTER 1 : INTRODUCTION	1-1
1.1 : Objective	1
1.2 : Motivation	1
1.3 : Layout	1
CHAPTER 2: LITERATURE OVERVIEW	2-7
2.1: Introduction to O2P	2
2.2: Existing Problem	4
2.3: Proposed Solution	5
CHAPTER 3: REQUIREMENT SPECIFICATION	8-14
3.1: Use Case Model	8
3.2: Description of Use Case	11
3.3: Data Requirement	13
3.4: Summary	14
CHAPTER 4: DESIGN	15-35
4.1: Design of the Data Model	15
4.2: GUI Design and Reports	26
4.3: Object Model	29
4.4: Database design	30
CHAPTER 5: IMPLEMENTATION	36-45
5.1: Implementation	35
5.2: Software Testing	42
CHAPTER 6: CONCLUTION AND FUTURE SCOPE	46-47
6.1: Conclusion	46
6.2: Future Scope	47
Reference	47

CHAPTER ONE

Introduction

1.1 Objective

The goal of my project is to make the entire system automated, efficient and user friendly to the Trading & Sales Oriented Company where automation might have significant impact in overall performance, which is the largest industry in Bangladesh, has much more significance in this regard.

1.2 Motivation

O2P can be defined as a software solution that addresses the enterprise needs taking the process view of the organization, to meet the organizational goals tightly integrating all functions of an enterprise. It is an industry term for the broad set of activities supported by multi-module application software that help a manufacturer or other business manage the all the parts of its business.

1.3 Layout

The O2P software has two modules, one is admin module and another is client module. Admin module covers system or configuration related tasks like account creation, give privilege. Client module includes operational tasks like Order entry, Order Approval, Inventory transaction, Production Entry, Challan Create, deleting a transaction and generation of reports.

CHAPTER TWO

LITERATURE OVERVIEW

2.1 Introduction to O2P

Order To Payment is the latest high-end solution information technology has lent to business application. The O2P solutions seek to streamline and integrate operation processes and information flows in the company to synergies the resources of an organization namely men, material, money and machine through information.

An Enterprise is a group of people with a common goal, which has some key functions and resources at its disposal to achieve that goal.

Resources included are man, money, material and all the other things that are required to run the enterprise.

2.1.1 O2P System

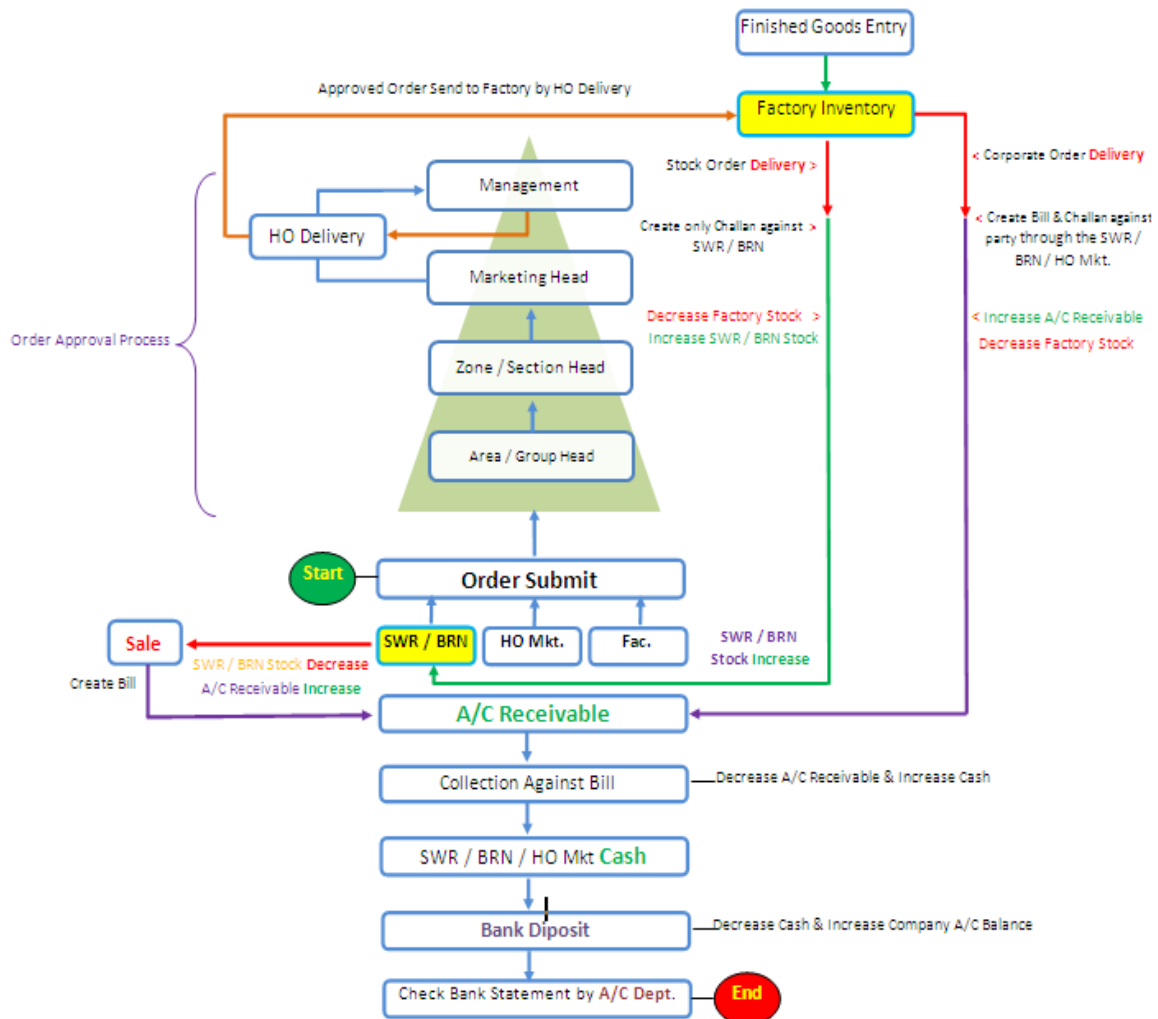


Fig 2.1: O2P System

Order Processing: Price Quotation, Order entry, Order Approval Process.

Finished Goods Inventory: Finished goods inventory increased by entry finished goods from factory end. Barcode are used for increase speed and uniqueness of product. When approved order received by factory Finished goods inventory are decrease.

VAT Challan & Delivery: Auto bill are created (for credit order) when vat challan create for corporate order. Order item prompt to showroom for the stock order.

Showroom Inventory & Retail Sale: Showroom inventory are increase when stock order are received. Showroom inventory are decrease when retail or traders sale (Cash or Credit) are made.

Customer Database: Customer are entry by salesman in showroom or corporate marketing and use this customer at the time of retail sale from showroom or corporate sale from showroom or head office marketing.

Bank Diposit: Showroom or Head office marketing diposit their sale amount to company accounts.

Accounting: Accounts department check diposit amount with the bank statement and finalize the transection. All Customer , Product , Sale and Bank Diposit are intregrated with account module.

BI: Business Analytics, Business Intelligence, Report Builder etc. related to BI.

2.2 Existing Problem

Economy of Bangladesh is largely dependent on the Trading Company. This Industries in our country is facing the challenge of export of their products in the world market. Moreover, this sector is still using aged old traditional system for all its tasks. There are lots of scopes to automate many of its tasks which will not only increase their productivity but also will help them to take decisions in no times. So this sector really demands automated in its own rights. Computerization is a tool to achieve this goal which allows the best use of the information to make future plans. Our intension is to help this industries of our country by using proper use of computer technology.

2.3 Proposed Solution

O2P can be defined as a software solution that addresses the enterprise needs taking the process view of the organization, to meet the organizational goals tightly integrating all functions of an enterprise It is an industry term for the broad set of activities supported by multi-module application software that help a manufacturer or other business manage the all the parts of its business.

Description of the modules in O2P system are given below:

2.3.1 Access Control

- i. User Account Creation: Detail information of User like user name, role, Address, Mobile No etc.
- ii. Password Management.
- iii. Privilege Management
- iv. Login/Log Out

2.3.2 Sales Module Features

- Party Information Entry
- Internal Order Entry
- Delivery Challan Receive
- Sale
- Approval Process
- Order Status
- Finished Goods Entry
- Order Receive
- Challan Create
- Reports
 - Order Regarding Report
 - Sales regarding Reports.
 - Stock Regarding Reports.
 - Delivery Reports
 - Production Reports

2.4 Summary

In this chapter the introduction of O2P systems are discussed. This chapter discusses the problem of paper based work and proposed solution of the problem. It also discusses the detail features of proposed solution.

CHAPTER THREE REQUIREMENT SPECIFICATION

Use case diagram of client module are given bellow:

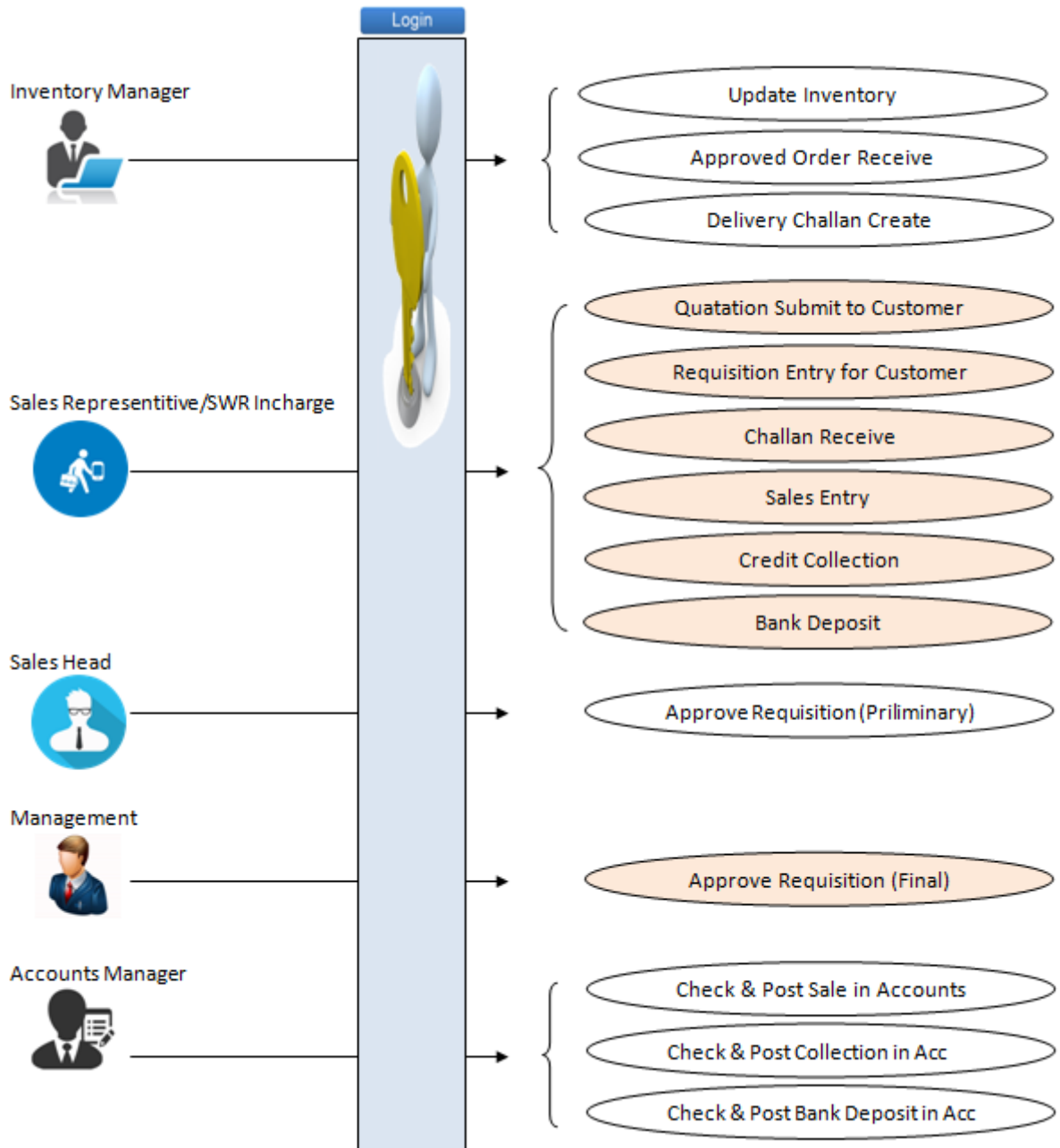


Fig 3.1: Use case diagram (Client Module)

3.2 Use Case details

- Use case name** : **Login**
- Precondition : None
- Actor : System
- Primary path :
1. Key in login Id
2. Key in password
3. Click on Login
- Exceptional path : 3.1 Invalid login Id or password, Show “Invalid Login”
- Notes : Created on 10 Sep, 2016
-
- Use case name** : **Requisition Entry**
- Precondition : Login
- Actor : User
- Primary path :
1. Input details of Requisition entry, with item description
2. Press on Save
- Exceptional path : 2.1 Mandatory fields are missing.
- Notes : Created on 10 Sep, 2016
-
- Use case name** : **Requisition Cheking**
- Precondition : Login & Requisition Entry
- Actor : User
- Primary path :
1. Input Parameter and check checkbox.
2. Press on Save.
- Exceptional path : Mandatory fields are required.
- Notes : Created on 10 Sep, 2016
-
- Use case name** : **Requisition Approval**
- Precondition : Login , Requisition Entry and Requisition Cheking
- Actor : User
- Primary path :
3. Input Parameter and check checkbox.
4. Press on Save.
- Exceptional path : Mandatory fields are required.

Use case name : **Requisition Receive**
Precondition : Login , Requisition Entry , Requisition Cheking , Requisition Approval
Actor : User
Primary path : 5. Input Parameter and check checkbox.
6. Press on Save.
Exceptional path : Mandatory fields are required.
Notes : Created on 10 Sep, 2016

Use case name : **Challan Create**
Precondition : Login , Requisition Entry , Requisition Cheking , Requisition Approval, Requisition Receive
Actor : User
Primary path : 1. Input Parameter and check checkbox.
2. Press on Save.
Exceptional path : Mandatory fields are required.
Notes : Created on 10 Sep, 2016

Use case name : **Challan Receive**
Precondition : Login , Requisition Entry , Requisition Cheking , Requisition Approval, Requisition Receive
Actor : User
Primary path : 1. Input Parameter and check checkbox.
2. Press on Save.
Exceptional path : Mandatory fields are required.

Use case name : **Sale Entry**
Precondition : Login
Actor : User
Primary path : 3. Input details of Sale entry, with item description
4. Press on Save
Exceptional path : 2.1 Mandatory fields are missing.
Notes : Created on 10 Sep, 2016

Use case name : **Credit Collection**
Precondition : Login, Sale Entry
Actor : User
Primary path : 1. Input details of Sale entry, with item description
2. Press on Save
Exceptional path : 2.1 Mandatory fields are missing.
Notes : Created on 10 Sep, 2016

1.3 Summary

Use case model and details on use case model are very important for software design life cycle. By use case, external tester can test all features of the software.

In this chapter, introduction of the use case and properties of use case are discussed. The use case diagram of admin module of the software and details of the use case diagram are presented.

CHAPTER FOUR

DESIGN

4.1 Design of Data Model

Data modeling is a process used to define and analyze data requirements needed to support the business processes within the scope of corresponding information systems in organizations. The use of data modeling standards is strongly recommended for all projects requiring a standard means of defining and analyzing data within an organization.

4.1.1 Flow Chart

Flowcharts help to assess the flow of data. Flowcharts are primarily used to help brainstorm ideas in order to build strategies in the planning stage of any new product or company. As visual representations of the flow of data, flowcharts present key points to investors, clients, customers, business partners and employees.

Definition

A flowchart graphically represents the sequence of operations or step-by-step progression of a programming or business model, using connecting lines and conventional symbols.

Function

Flowcharts can be used to determine the key points of a business or program model. It can also be used to connect those key points and establish relationships between processes.

O2P Data Flow 1 – Enquiry to Quote

Flow charts are used to depict the flow of process. While creating a Quotation entry, user give input the Quotation through enquiry comes from customer

Roles:

- *Sales Representative*

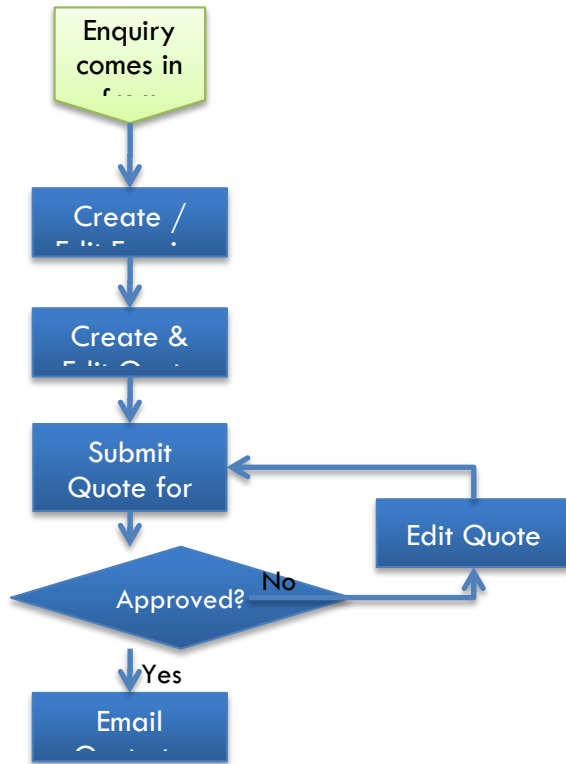


Fig 4.1: Enquiry to Quote

4.2.1 Processes

There are several phases and processes in the user interface design, some of which are more demanded upon than others, depending on the project.

4.3 Object Model

The object model represents the static and most stable phenomena in the modeled domain.

Build an Object Model:

1. Identify object classes.
2. Develop a data dictionary for classes, attributes, and associations.
3. Add associations between classes.
4. Add attributes for objects and links.
5. Organize and simplify object classes using inheritance.
6. Test access paths using scenarios and iterate the above steps as necessary.
7. Group classes into modules, based on close coupling and related function.

4.4 Database Design

Database design is the most important factor for a software design. We have used Oracle Database. Database is used to store the actual data. The diagram of a physical database is given below. This includes table diagram for both admin module and client module.

4.4.1 Database Details for Client Module

Client module related tables are:

Requisition/Order Master: It includes all operational data. Creating any transaction, deleting transaction, deposit transaction printing cheque is stored in this table.

The fields are given below:

Field	Constraint	Index	Null?	Data Type	Default Value	Remarks
ORDER_NO	PK	Y	N	NUMBER		Auto
ORDER_ID	UK	Y	Y	VARCHAR2 (20 Byte)		User Define
ORDER_DT			N	DATE	sysdate	
ORDER_MODE			Y	VARCHAR2 (10 Byte)		
ORDER_FOR			Y	VARCHAR2 (10 Byte)		
OFFER_ID			Y	NUMBER		

UNIT			Y	NUMBER		Syster Concern
LOC			N	NUMBER		Multi Location
CUST_ID			Y	NUMBER		
PINSTRUCTION_ID			Y	NUMBER		Payment Instruction
REMARKS			Y	VARCHAR2 (400 Byte)		
TOT_AMT			Y	NUMBER		
DIS_TYPE			Y	NUMBER		
DIS_VALUE			Y	NUMBER		
DIS_AMT			Y	NUMBER		
NET_AMT			Y	NUMBER		
PAID_AMT			Y	NUMBER (12,2)		
DUE_AMT			Y	NUMBER		
ADVANCE_PMT			Y	NUMBER		
ADVANCED_AMT			Y	NUMBER		
APPROX_DELIV_DT			Y	DATE		
APPROX_PMT_DT			Y	DATE		
DELIV_SITE			Y	VARCHAR2 (255 Byte)		
DELIV_SITE_CONT_PERSON			Y	VARCHAR2 (100 Byte)		
DELIV_SITE_CONT_NO			Y	VARCHAR2 (20 Byte)		
ORDER_TYPE			Y	VARCHAR2 (100 Byte)		
PRODUCT_TYPE			Y	VARCHAR2 (100 Byte)		
IS_AREAHEAD_APPROVED			Y	CHAR (1 Byte)	'Y'	
AREAHEAD_APPROVED_BY			Y	VARCHAR2 (20 Byte)		
AREAHEAD_APPROVED_TIME			Y	DATE		
AREAHEAD_COMMENTS			Y	VARCHAR2 (255 Byte)		
IS_ZONEHEAD_APPROVED			Y	CHAR (1 Byte)	'Y'	
ZONEHEAD_APPROVED_BY			Y	VARCHAR2 (20 Byte)		
ZONEHEAD_APPROVED_TIME			Y	DATE		
ZONEHEAD_COMMENTS			Y	VARCHAR2 (255 Byte)		
IS_MKTHEAD_APPROVED			Y	VARCHAR2 (1 Byte)	'Y'	
MKTHEAD_APPROVED_BY			Y	VARCHAR2 (100 Byte)		
MKTHEAD_APPROVED_TIME			Y	DATE		
MKTHEAD_COMMENTS			Y	VARCHAR2 (255 Byte)		
IS_CHECKED			Y	VARCHAR2 (1 Byte)	'N'	
CHECKED_BY			Y	VARCHAR2 (100 Byte)		
CHECKED_TIME			Y	DATE		
HODELIV_COMMENTS			Y	VARCHAR2 (255 Byte)		
IS_APPROVED			Y	VARCHAR2 (1 Byte)	'N'	
APPROVED_BY			Y	VARCHAR2 (100 Byte)		
APPROVED_TIME			Y	DATE		
MGT_COMMENTS			Y	VARCHAR2 (255 Byte)		
IS_CANCELED			Y	VARCHAR2 (1 Byte)	'N'	
CANCELED_BY			Y	VARCHAR2 (100 Byte)		

CANCELED_TIME			Y	DATE		
CANCELED_BY_COMMENTS			Y	VARCHAR2 (255 Byte)		
SEND_FAC_YN			Y	CHAR (1 Byte)	'Y'	
SEND_FAC_BY			Y	VARCHAR2 (100 Byte)		
SEND_FAC_TIME			Y	DATE		
RCV_FAC_YN			Y	VARCHAR2 (1 Byte)	'N'	
RCV_FAC_BY			Y	VARCHAR2 (20 Byte)		
RCV_FAC_TIME			Y	DATE		
IS_PARTIALLY_RCV			Y	VARCHAR2 (1 Byte)	'N'	
IS_VATCHALLAN_DONE			Y	VARCHAR2 (1 Byte)	'N'	
VATCHALLAN_DONE_BY			Y	VARCHAR2 (20 Byte)		
VATCHALLAN_DONE_DT			Y	DATE		
IS_COMPLETE			Y	VARCHAR2 (1 Byte)	'N'	
BILL_CREATE_YN			Y	CHAR (1 Byte)	'N'	
LASTUPD_BY			Y	VARCHAR2 (20 Byte)		
LASTUPD_TIME			Y	DATE		
LVL1_USERID			Y	NUMBER		
LVL2_USERID			Y	NUMBER		
LVL3_USERID			Y	NUMBER		
FAC_RCV_STATUS			Y	CHAR (2 Byte)	'NO'	
CHAL_STATUS			Y	CHAR (2 Byte)	'NO'	
SB_RCV_STATUS			Y	CHAR (2 Byte)	'NO'	
LAST_CHAL_OFTHE_ORD_BY			Y	VARCHAR2 (20 Byte)		
LAST_CHAL_OFTHE_ORD_TIME			Y	DATE		
LAST_CHALOFTHEORD_SB_RCV_BY			Y	VARCHAR2 (20 Byte)		
LAST_CHALOFTHEORD_SB_RCV_TIME			Y	DATE		
RCV_COMPLETE_YN			Y	CHAR (1 Byte)	'N'	
SALESMAN			Y	VARCHAR2 (100 Byte)		
DELIVERY_FROM_LOC			Y	NUMBER		
ENTRY_BY			Y	VARCHAR2 (20 Byte)		
PMT_INST			Y	VARCHAR2 (255 Byte)		
LAST_UPD_TIME			Y	DATE		
LAST_UPD_BY			Y	VARCHAR2 (20 Byte)		
ENTRY_TIME			Y	DATE	sysdate	

Requisition/Order Detail: It includes all operational data. Creating any transaction, deleting transaction, deposit transaction printing cheque is stored in this table.

The fields are given below:

Field	Constraint	Null?	Datatype	Default Value
ORDER_NO	FK	N	NUMBER	
ITEM_NO	FK	N	NUMBER	
ORDER_QTY		N	NUMBER	
APPROVED_QTY		N	NUMBER	
CHALLAN_QTY		N	NUMBER	
IS_CANCELED		Y	VARCHAR2 (1 Byte)	'N'
CANCELED_BY		Y	VARCHAR2 (20 Byte)	
UOM		Y	NUMBER	
UP		Y	NUMBER	
TOT_AMT		Y	NUMBER	
LOC		Y	NUMBER	
UNIT		Y	NUMBER	
RCV_QTY		Y	NUMBER	0
RCV_COMPLETE_YN		Y	CHAR (1 Byte)	'N'
LASTUPD_TIME		Y	DATE	
LASTUPD_BY		Y	VARCHAR2 (20 Byte)	
ENTRY_BY		Y	VARCHAR2 (20 Byte)	

4.5 Summary

This chapter describes detail design of the application. The design of the data model, flowcharts of different procedure, GUI design of the system with reports and database design are described in this chapter. The physical schema required for the system and description of the tables with field details are given in this chapter.

CHAPTER FIVE IMPLEMENTATION AND TESTING

5.1 Implementation Overview:

To make fast, secure and robust, latest and modern methodology and technology is used to implement the “Smart Cheque Writer”. The technology which is used to implement, makes this project user friendly, reliable and standard centralized web based system.

5.1.1 Methodology

Persistent Database Connection: To ensure, maximum database connection performance for load balancing and increasing performance, oracle persistent database connection is used in this project.

5.1.2 Technology

Oracle Database : To make the application Secure, we have used Oracle database.

Oracle Form: I have used Oracle Form to develop the software faster and platform independent.

PLSQL : I have used PLSQL to develop the software faster, platform independent and powerfull.

Oracle **Application Server** : I have use Oracle Application Server to deploy application.

This software’s GUI is designed according to the Constantine and Lockwood described collection of principles for improving the quality of user interface design. These principles are

- **The structure principle.**
- **The simplicity principle.**
- **The visibility principle.**
- **The feedback principle.**
- **The tolerance principle**
- **The reuse principle.**

After completing all the above activities, the coding and implementation started.

Client Module

Client module consists of Order Management, Inventory management, Sale, Credit collection and Accounts.

Order Management

Order Entry, Order Cheking, Order Approval, Order Receive etc. will be happened.

SL	Item Code	Item Name	Rate	Qty/Sft	Total
1	YF-1963	Mixer Faucet: IDS Wallmounted Basin Mixer	40000	3	120000
2	YF-0422	Mixer Faucet: Concept Square Concealed Shower Mixer	40000	5	200000

Fig 5.1: Order/Requisition Entry Screen

Order / Requisition edit, Cheking etc. entry will be happened.

Order No.	Order Date	From Desk	Order Mode	Party Name	Total AMT	Disc %	Net Pay	Comments
Report RE1101705002	18-MAY-17 01:22:15	Gulshan Showroom	CREDIT	Jasim Traders	320000	320000		

Fig 5.2: Order Cheking Screen

➤ Order / Requisition edit, Approval etc. entry will be happened.

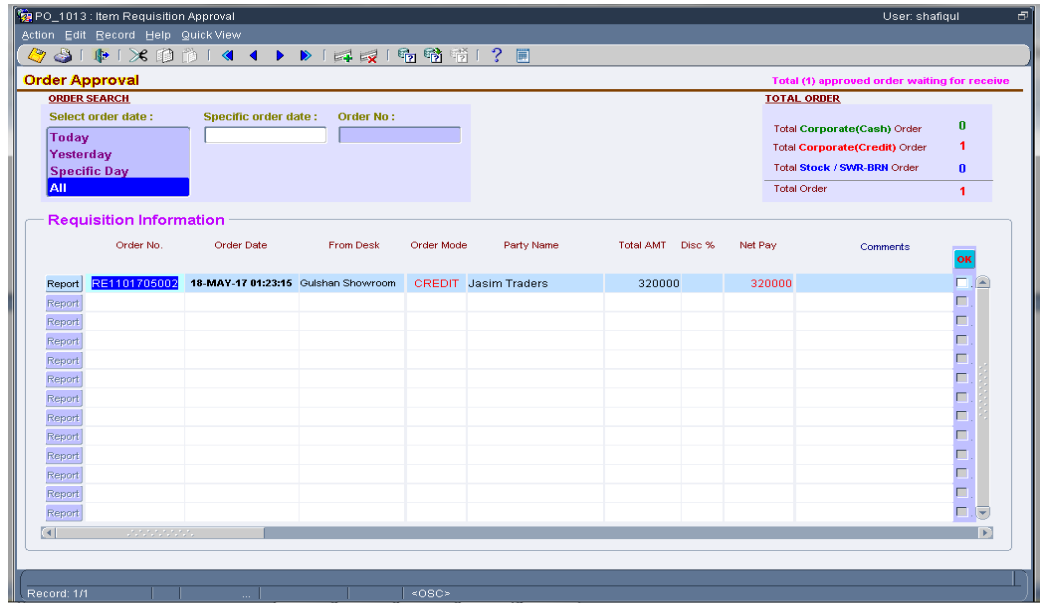


Fig 5.3: Order / Requisition Approval Screen

➤ Order / Requisition full/Partial Receive etc. entry will be happened.

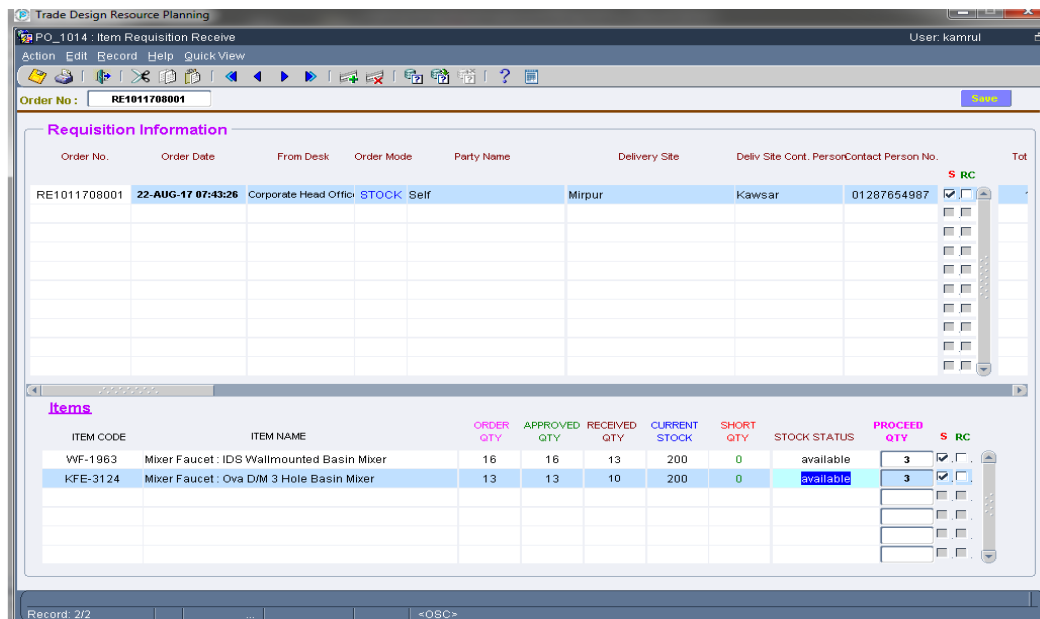


Fig 5.4: Order / Requisition Approval Screen

➤ Delivery Challan entry will be happened.

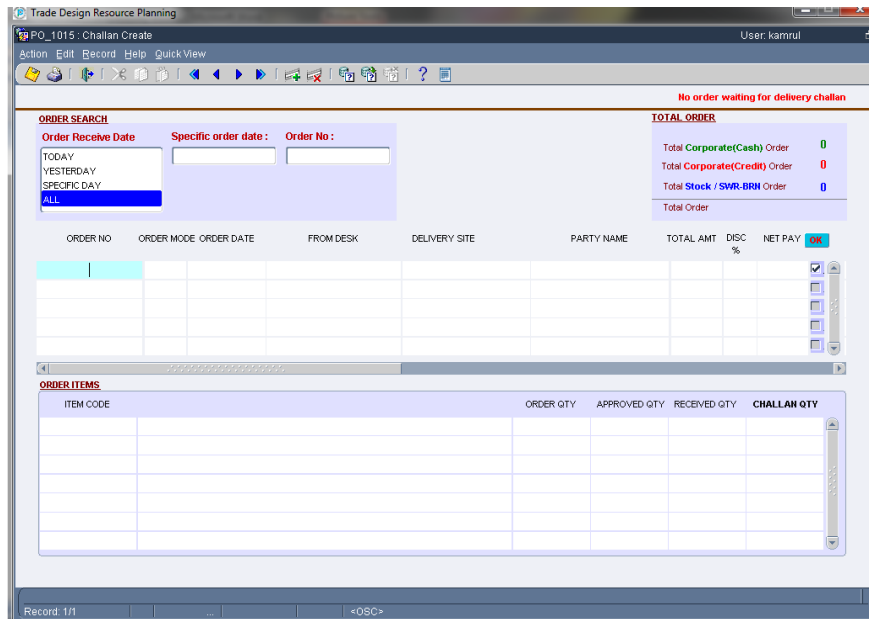


Fig 5.4: Delivery Challan Screen

4.2 Software Testing

I applied various type of software testing methodology such as White-Box testing, Black-box testing , Grey-box testing, Visual testing and some other testing.

CHAPTER SIX

CONCLUSION AND FUTURE WORK

6.1 Conclusion

Science has brought the world at our door. Internet has made our life easier. With the development of civilization, our life has become comfortable and luxuries. Today every people all around the world want to do something in an organized way. This need is met by the addition of database technologies that retain key information and allow for an easy way to manipulate that information. If anybody wants to maintain his/ her system by a organize way, web database can serve for this purpose. My "O2P System" Provides the facility to maintain all of the sections of Trading Comapany and keep track of all the product information.

6.2 Future Work

Following may be added to **O2P** in future:

- Integrate HRM
- Integrate Accounting
- Integrate BI (Business Intelligence)
- Integrate Apex for mobile user