“Garments Yarn Inventory System”

A Thesis Report
Entitle

“Garments Yarn Inventory System”

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Declaration

This is to certify that this project is our original work. No part of this work has been submitted elsewhere partially or fully for the award of any other degree or diploma. Any material reproduced in this project has been properly acknowledged.

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Approval

The Thesis titled “Garments Yarn Inventory System“ has been submitted to the following respected members of Board of Examiners of the Faculty of Computer Science and Engineering in partial fulfillment of the requirements for the degree of Bachelor of Science in Computer Science on 2007 by the following students and has been accepted as satisfactory.

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Dr. Sayeed Salam

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BRAC University

Acknowledgements

We are grateful to Dr. Sayeed Salam, our thesis supervisor for giving us the chance to work with Garments Yarn Inventory System and for proper guidelines and necessary supports.

We wish to acknowledge BRAC University for its support in providing the various facilities required for preparing and presenting of this project.

We would like to thank our friends for their advices and encouragements.

Table of Contents

Introduction:

This is a thesis work carried out by a team of Final-year Computer Science students of BRAC University, working under the supervision of ***Dr. Sayeed Salam (Head of the CSE Department of BRAC University).***

In this report we present a Yarn Inventory System for garments. The main goal of our thesis is to make such an inventory system that will keep track of yarn of the garments company in various sections. This is just a part of the whole system. This system will help the company to increase efficiency and cut costs so that they can provide enhanced services to their buyers.

Our system design consists of four parts. The first part saves the buyers information and all the order information that are needed. The second part contains the winding section in which the employees get all the yarn and they are prepared to do the work. The third part contains the works that are done in knitting section where the employees start the knitting process different parts. All information is stored in a database. At last the system will generate the whole report of the works that are done in previous sections.

We used different tools to implement our system. We have designed our Yarn Inventory System's interface with C# DotNet. We also used SQL Server for the database.

The Yarn Inventory System will have database integrated with an interactive front end, which will be user friendly and will allow the users of the software to easily carry out all their business functions. Overall reports, production controls can be generated using this software.

CHAPTER: 1

Project Proposal

1.1 Background of the project
1.2 Aims of the Project
1.3 Company Benefits
1.4 Special Requirements
1.5 Limitations & Scope

1.1 Background of the Project:

Garments Industries are one of most important business industries in Bangladesh. These industries play a vital role in our economic growth. The Garments Industries need an effective inventory system to keep track of their operations. Yarn is the most useful accessory in these garments companies. So they need an efficient Yarn Inventory System so that they can carry on with their work easily. That's why we have chosen to make a Yarn Inventory System.

1.2 Aims of the Project:

We had to build the system so that it shows the following information:

- Buyer Information
- Supplier Information
- Employee Information
- Order Information
- Color Information
- Size Information
- Stock Information

1.3 Benefits:

- Flexible user interface
- Easy to use
- Reduce time and cost
- Previous Records
- Compare with previous condition graphically
- Most of the analytical question can be answered
- Availability of information for buyer, supplier and employees
- Huge data record
- Faster data retrieve
- Easy to find out information

1.4 Special Requirements:

- C# Dot NET
- Microsoft SQL Server 2005

1.5 Limitations & Scope:

We went to different garments industries to observe their system. We observed that it was a huge system. It requires more time to thoroughly study and implement the Yarn Inventory System. For this reason the Yarn Inventory System may not fulfill all the criterions, which general software should have. But we have tried our best to prepare it as neatly as possible in order to complete the project.

We faced lack of availability of necessary books and journals on inventory management system. We also faced some people who were not as co-operative as we expected.

CHAPTER: 2

Initial Study

2.1 Business study
2.2 Planning & Scheduling

2.1 Business Study:

At first the buyer and company representative negotiate for price. After negotiation they fix the shipment date. If both side agree on everything then the buyer send the order sheet. The buyer order sheet contains buyer name, shipment date, address, LC number, order number, style number, color information and packing details.

Then the company accepts the balance sheet. They also check the payment details. Form then the pan for production starts. They start to divide the task foe different sections. This distribution is done date wise so that they can finish their task in proper time.

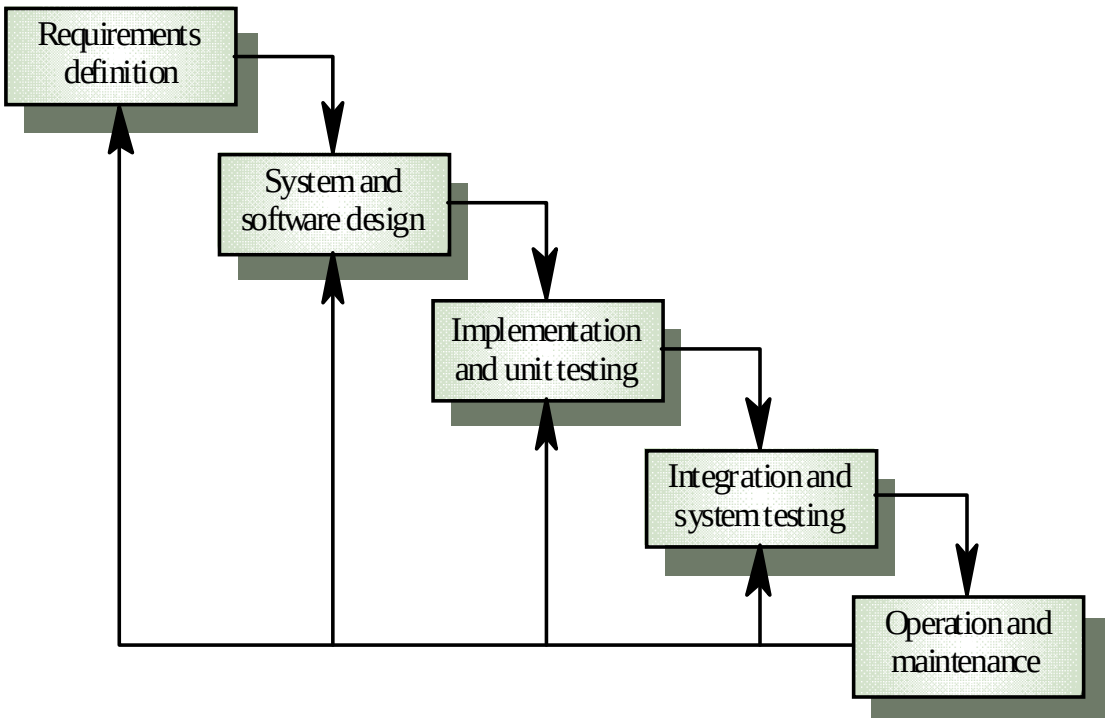
After planning for production the company orders the supplier for yarn. When yarn is supplied it goes to the company stock. The stock keeper sends yarn to Yarn controller account for requisition. Then the yarn controller of Winding section accepts the yarn from the stock.

The yarn controller of Winding section accepts bales and opens it. Each bale has one or more lot. The yarn controller distributes the lots to the employees. The employees start to make cones of yarn. When making of cones are finished the employees returns the cones of yarn to the yarn controllers. Then the yarn controller of Winding section sends the cones to the Knitting section.

After receiving the cones of yarn from the Winding Section, the yarn controller of Knitting Section distributes the cones to the employees. The lot number is attached to the cones. Then the employees start to make different parts with the cones of yarn. After finishing their job they return the parts to the yarn controller. They also return the yarn that is left after the main task.

2.2 Planning & Scheduling:

- **Software Development Life Cycle Model**
  - **Waterfall model**

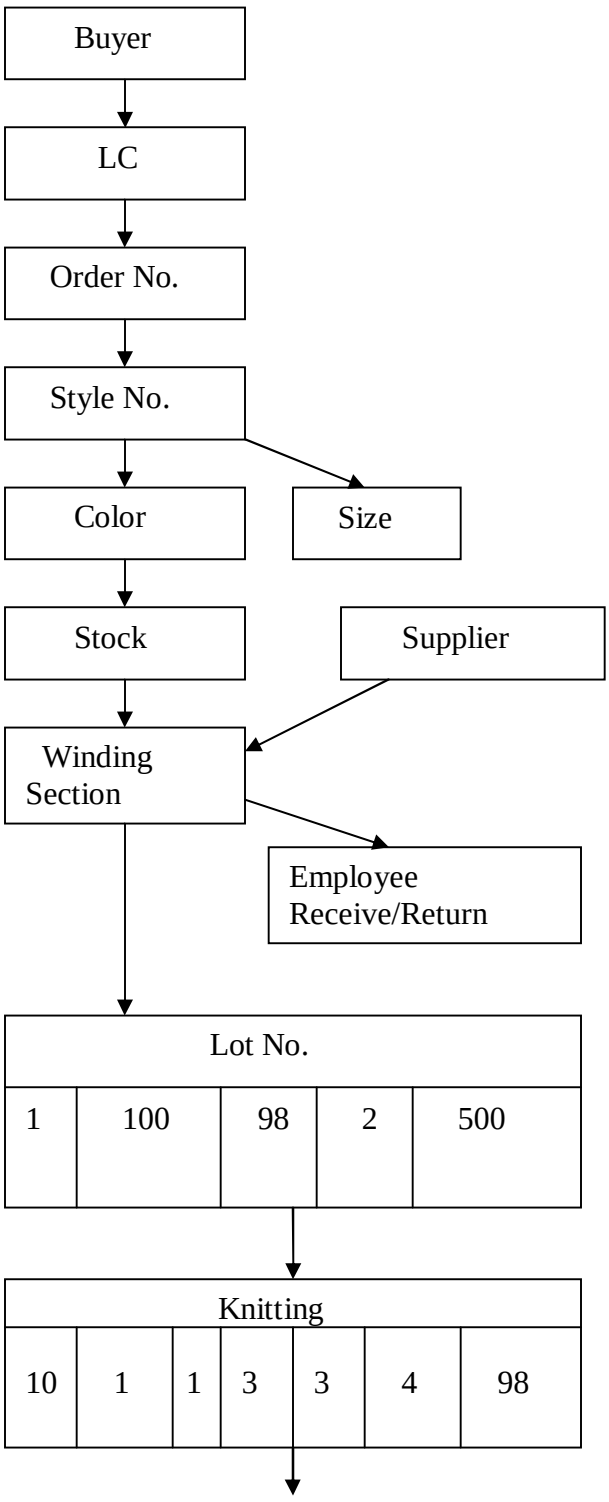


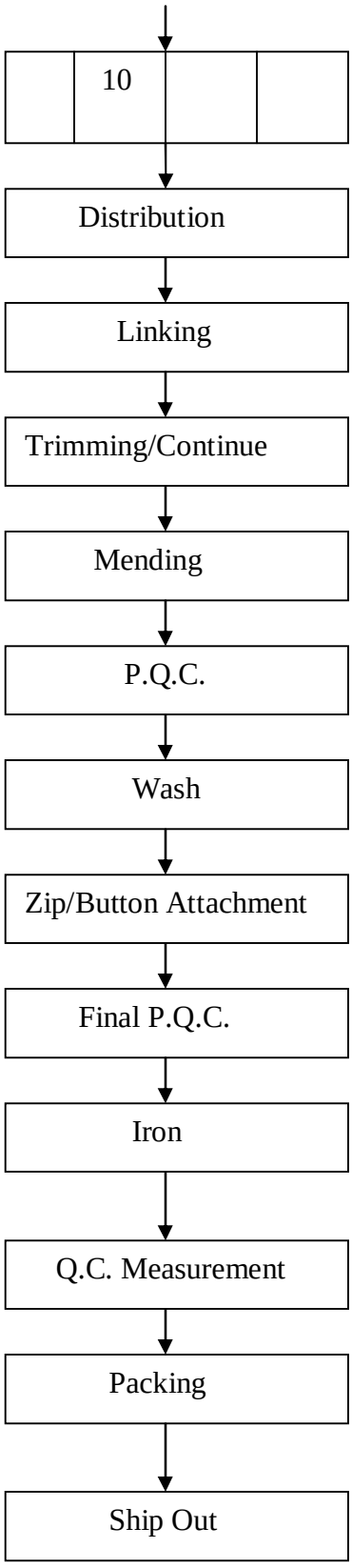
CHAPTER: 3

System Analysis

3.1 Work Flow Diagram (WFD)
3.2 WFD Details
3.3 Requirement Analysis
3.4 Requirement Specification
3.5 System Proposal
3.6 Feasibility Study

3.1 Work Flow Diagram (WFD):




10
Distribution
Linking
Trimming/Continue
Mending
P.Q.C.
Wash
Zip/Button Attachment
Final P.Q.C.
Iron
Q.C. Measurement
Packing
Ship Out

3.2 WFD Details:

Outdoor Process:

When the buyer comes to the company then buyer and company representative negotiate for price. After negotiation they fix the shipment date. If both side agree on everything then the buyer send the order sheet. The buyer order sheet contains buyer name, shipment date, address, LC number, order number, style number, color information and packing details.

Indoor Process:

Then the company accepts the balance sheet. They also check the payment details. Form then the pan for production starts. They start to divide the task foe different sections. This distribution is done date wise so that they can finish their task in proper time.

After planning for production the company orders the supplier for yarn. When yarn is supplied it goes to the company stock. The stock keeper sends yarn to Yarn controller account for requisition. Then the yarn controller of Winding section accepts the yarn from the stock.

The yarn controller of Winding section accepts bales and opens it. Each bale has one or more lot. The yarn controller distributes the lots to the employees. The employees start to make cones of yarn. When making of cones are finished the employees returns the cones of yarn to the yarn controllers. Then the yarn controller of Winding section sends the cones to the Knitting section.

After receiving the cones of yarn from the Winding Section, the yarn controller of Knitting Section distributes the cones to the employees. The lot number is attached to the cones. Then the employees start to make different parts with the cones of yarn. After finishing their job they return the parts to the yarn controller. They also return the yarn that is left after the main task.

After receiving different parts from the Kitting Section all the parts are linked together. Then they are sent to Trimming Section. If there are any faults then necessary steps are taken to mend them. Then the clothes are washed and ironed. After this they are packed. Finally the packs are made ready for the ship out.

3.3 Requirement Analysis:

These following portions of the organization system are required to be automated:

- **Buyer Order Information:**
  - Buyer name, address, e-mail etc
  - Size Information
  - Color Information
  - Accessories Information
- **Supplier Information**
- **Employee Information**
- **Machine Information**
- **Stock Information**
- **Activity Information**

3.4 Requirement Specification:

These following portions of the organization are specified to be automated:

Buyer information:

Add new buyer and his address, country, phone no. and e-mail. Also check if others are active.

Size information:

Add new size for the clothes.

Color Information:

Add new color.

Accessories information:

Add new accessories. But currently Yarn is the only accessory since this is a Yarn Inventory system.

Employee information:

Add new employee and assign him to a specific section. Also check other employee status.

Section information:

Add new section. But currently there is only Winding and Knitting section in the system.

Machine information:

Add new machine. Also check other machines status.

Stock information:

Show all the raw materials that are available. Also show the bales number and lot number.

3.5 System Proposal:

Required Hardware:
Pentium III or higher
256 MB of RAM or Higher

Required Software:
Operating System: Windows 2000, Windows NT, Windows XP
Microsoft SQL Server 2005
Microsoft Visual Studio 2005

3.6 Feasibility Study:

3.6.1 Cost & Benefit Analysis:

This software is standard software for test reporting system. For any software it is very important to analysis cost and benefit. Without analysis cost & benefit never possible a comparison between existing system and proposed software.

3.6.2 Feasibility Study:

When approved, the proposal initiates a feasible study that evaluates alternative systems and recommends the system that meets performance requirements. The system, which we are proposing, will be feasible to implement for the company. We have to find out the specific information needs of the organization and whether our system meets its goal. We also have to find out the basic resource requirements, costs, and benefits. There are five phases of feasibility study. They are as follows:

3.6.3 Economical Feasibility:

Also known as cost/benefit analysis, which determines to what a new system, is cost effective. Implementation of our proposed system will ensure the best possible performance from the part of resources. This increase in performance will optimize the overall productivity and

throughput of the mentioned resources. Our system is in economically feasible in this concern.

3.6.4 Technical Feasibility:

It is determined by evaluating the Hardware and supportive Software. The level of access of the technology has a significant impact on how the system is eventually designed. We have used C# .NET and SQL Server which are very much strong and give high security. We are using that kind of hardware elements, which will be very feasible for any organization because they are able to run that software with minimum hardware requirements.

3.6.5 Behavioral feasibility:

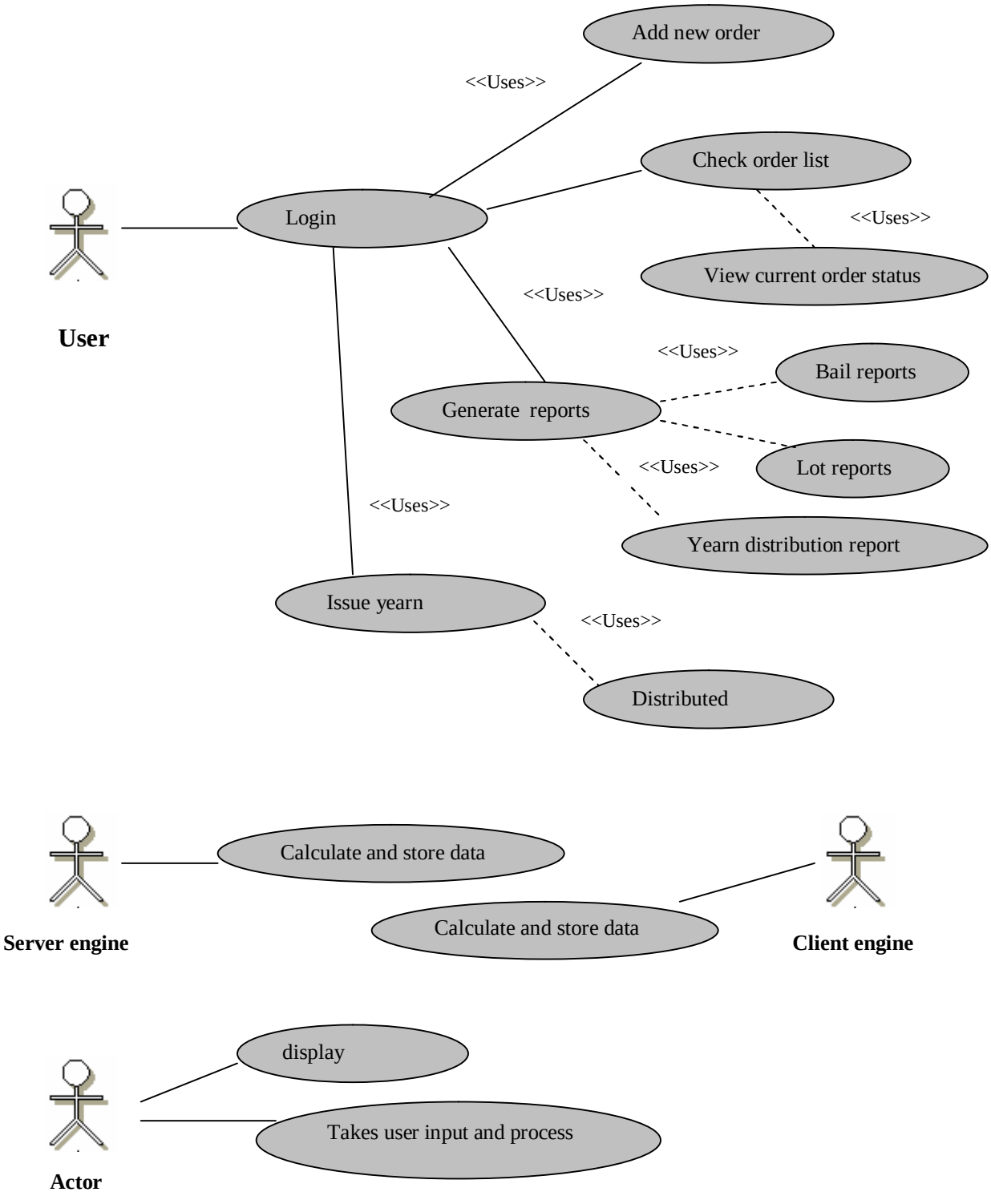
It includes the training the user staff on a candidate system. The data entry screen design is similar to other forms being used by the user staff.

CHAPTER: 4

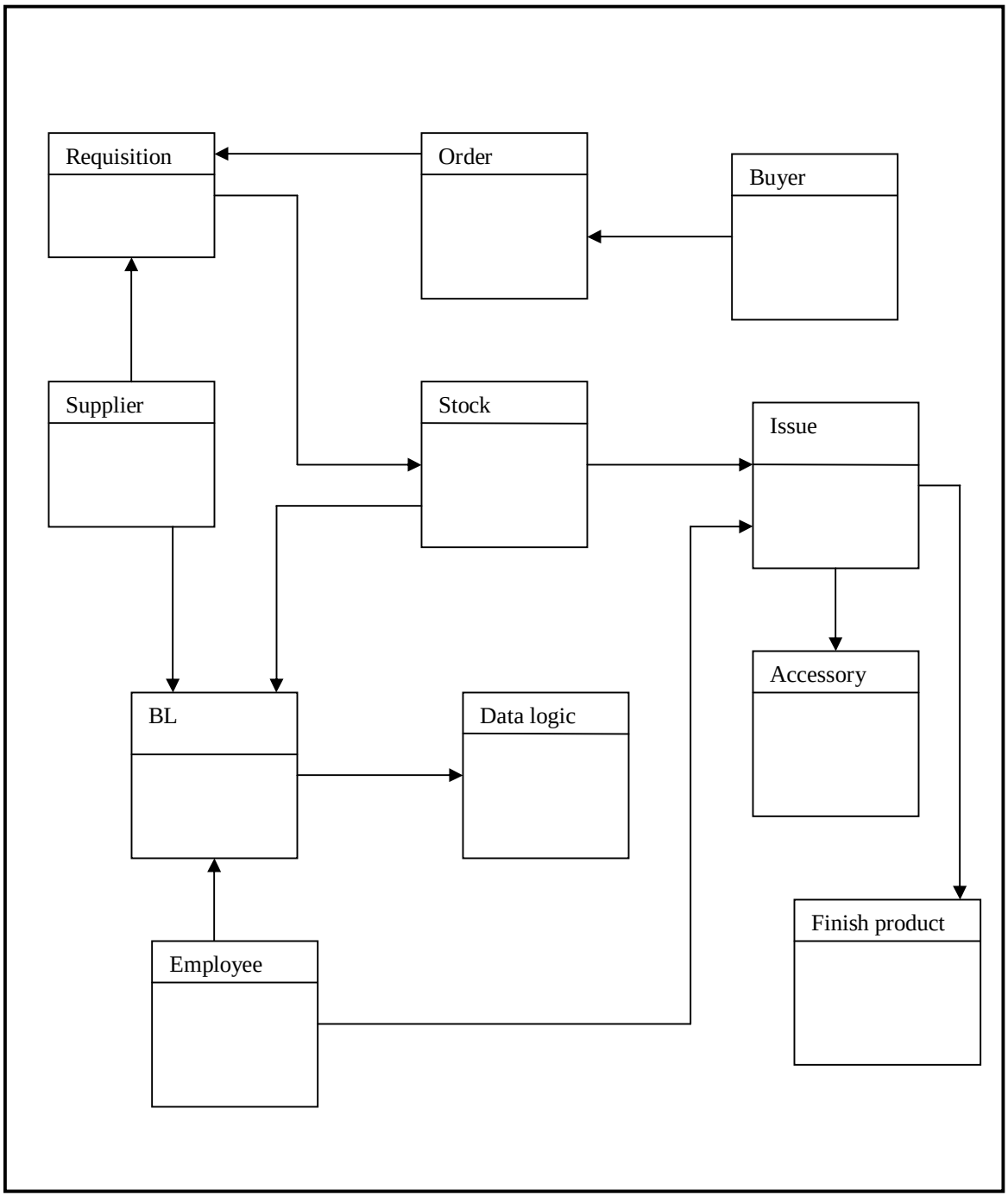
System Design

4.1 Use Case Diagram
4.2 Class Diagram
4.3 Database Diagram
4.4 Database Table

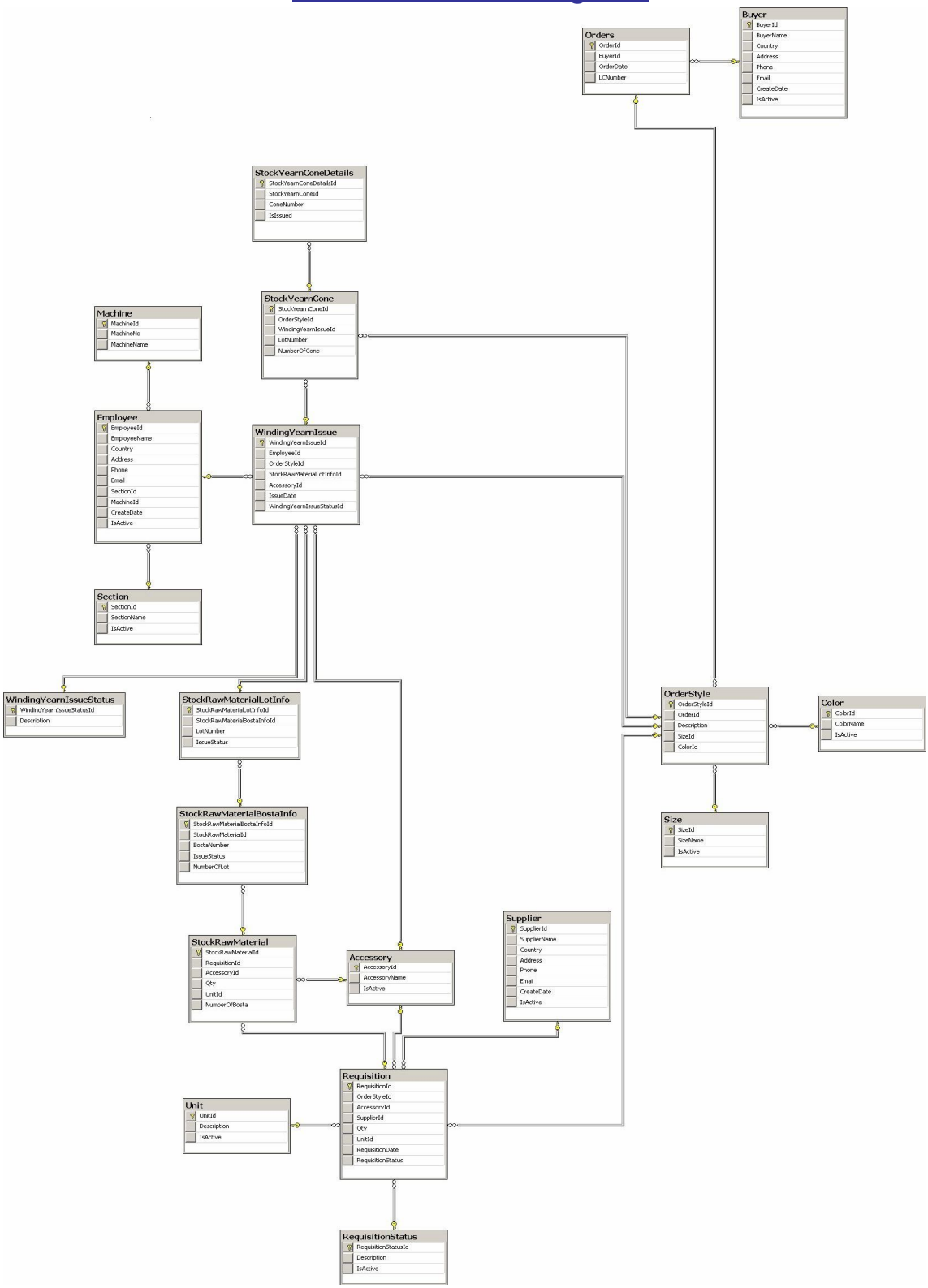
4.1 Use Case Diagram



4.2 Class Diagram



4.3 Data Base Diagram



4.4 Data Base Table

Table 01 : Buyer			
Key	**Name**	**Data Type**	**Size**
primary	BuyerId	bigint	
	Buyername	varchar	100
	Country	varchar	50
	Address	varchar	250
	Phone	varchar	50
	Email	varchar	50
	CreateDate	datetime	
	IsActive	Bit	

Table 12 :Accessory			
Key	**Name**	**Data Type**	**Size**
primary	AccessoryId	bigint	
	AccessoryName	varchar	50
	IsActive	bit	

Table 12 :Color			
Key	**Name**	**Data Type**	**Size**
primary	ColorId	bigint	
	Color Name	varchar	50
	IsActive	bit	

Table 01 : Employee			
Key	**Name**	**Data Type**	**Size**
primary	EmployeeId	bigint	
	Employeename	varchar	100
	Country	varchar	50
	Address	varchar	200
	Phone	varchar	50
	Email	varchar	50
foreign	sectionId	int	
	MachineId	int	
	createDate	datetime	
	IsActive	bit	

Table 12 :Machine			
Key	**Name**	**Data Type**	**Size**
primary	MachineId	bigint	
	MachineNo	varchar	50
	MachineName	varchar	50

Table 11 :Order			
Key	**Name**	**Data Type**	**Size**
primary	OrderId	bigint	
foreign	BuyerId	bigint	
	orderDate	datetime	
	LcNumber	varchar	15

Table 10 :OrderStyle			
Key	**Name**	**Data Type**	**Size**
primary	OrderStyleId	bigint	
foreign	OrderId	bigint	
	Description	varchar	50
	SizeId	int	
	ColorId	int	

Table 01 : Requistion			
Key	**Name**	**Data Type**	**Size**
primary	RequistuiionId	bigint	
foreign	OrderStyleId	bigint	
foreign	AccessoryId	bigint	
foreign	SupplierId	bigint	
	Qty	int	
foreign	unitId	int	
	RequestionDate	datetime	
	RequestionStatus	int	

Table 12 :Requistion Status			
Key	**Name**	**Data Type**	**Size**
primary	RequistionStatusId	int	
	Description	varchar	50
	IsActive	bit	

Table 12 :Section			
Key	**Name**	**Data Type**	**Size**
primary	SectionId	int	
	SectionName	varchar	50
	IsActive	bit	

Table 12 :Size			
Key	**Name**	**Data Type**	**Size**
primary	SizeId	int	
	SizeName	varchar	50
	IsActive	bit	

Table 10 : StockRawMaterial			
Key	**Name**	**Data Type**	**Size**
primary	StockRawMaterial Id	bigint	
foreign	RequestionId	bigint	
foreign	AccessoryId	bigint	
	Qty	bigint	
foreign	unitId	Int	
	NumberofBosta	bigint	

Table 10 : StockRawMaterialBostaInfo			
Key	**Name**	**Data Type**	**Size**
primary	StockRawMaterialBostaInfo Id	bigint	
foreign	StockRawMaterial Id	bigint	
	bostaNumber	varchar	50
	IssueStatus	bit	
	NumberofLot	bigint	

Table 11 :StockRawMaterialLotInfo			
Key	**Name**	**Data Type**	**Size**
primary	StockRawMaterialLotInfo Id	bigint	
foreign	StockRawMaterialBostaInfo Id	bigint	
	LotNumber	varchar	50
	IssueStatus	bit	

Table 10 :StockYearnCone			
Key	**Name**	**Data Type**	**Size**
primary	StockYearnCone Id	bigint	
foreign	OrderStyleId	bigint	
foreign	WindingIssueId	bigint	
	LotNumber	varchar	50
	NumberOfCone	bigint	

Table 11 :StockYearnConeDetails			
Key	**Name**	**Data Type**	**Size**
primary	StockYearnConeDetails Id	bigint	
foreign	StockYearnCone Id	bigint	
	ConeNumber	varchar	50
	IssueId	bit	

Table 01 : Supplier			
Key	**Name**	**Data Type**	**Size**
primary	SupplierId	bigint	
foreign	SupplierId	varchar	100
	Country	varchar	50
	Address	varchar	250
	Phone	varchar	50
	Email	varchar	50
	CreateDate	datetime	
	IsActive	bit	

Table 12 :Unit			
Key	**Name**	**Data Type**	**Size**
primary	UnitId	int	
	Description	varchar	50
	IsActive	bit	

Table 01 : WindingYearnIssue			
Key	**Name**	**Data Type**	**Size**
primary	WindingYearnIssueId	bigint	
foreign	EmployeeId	bigint	
foreign	OrderStyleId	bigint	
foreign	StockMaterialId	bigint	
foreign	AccessoryId	bigint	
	IssueDate	datetime	
foreign	WindingYearnIssueStatusId	int	

Table 12 : WindingYearnIssue Status			
Key	**Name**	**Data Type**	**Size**
primary	WindingYearnIssue Status Id	int	
	Description	varchar	50

CHAPTER: 5

User Interface Reports

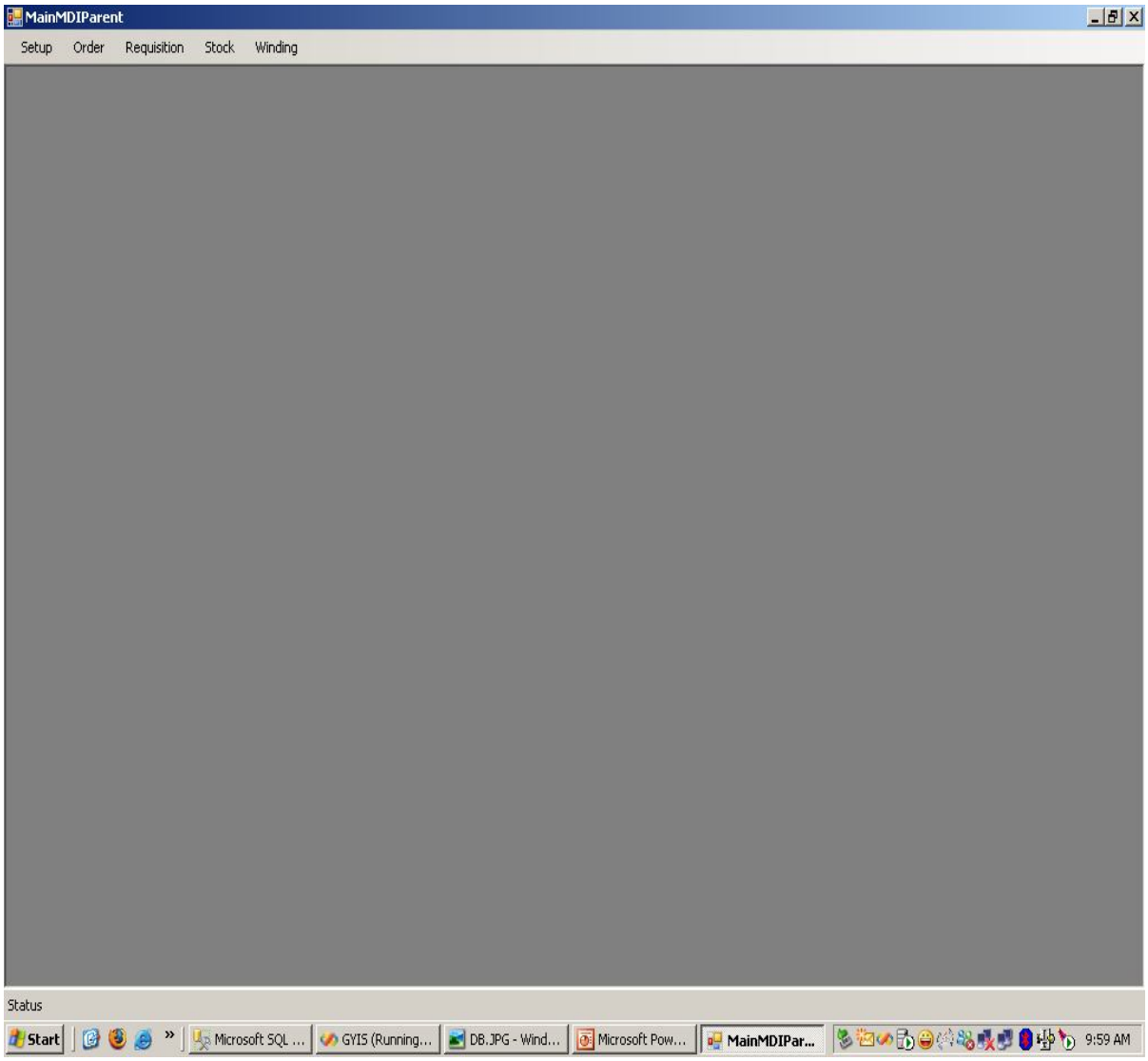
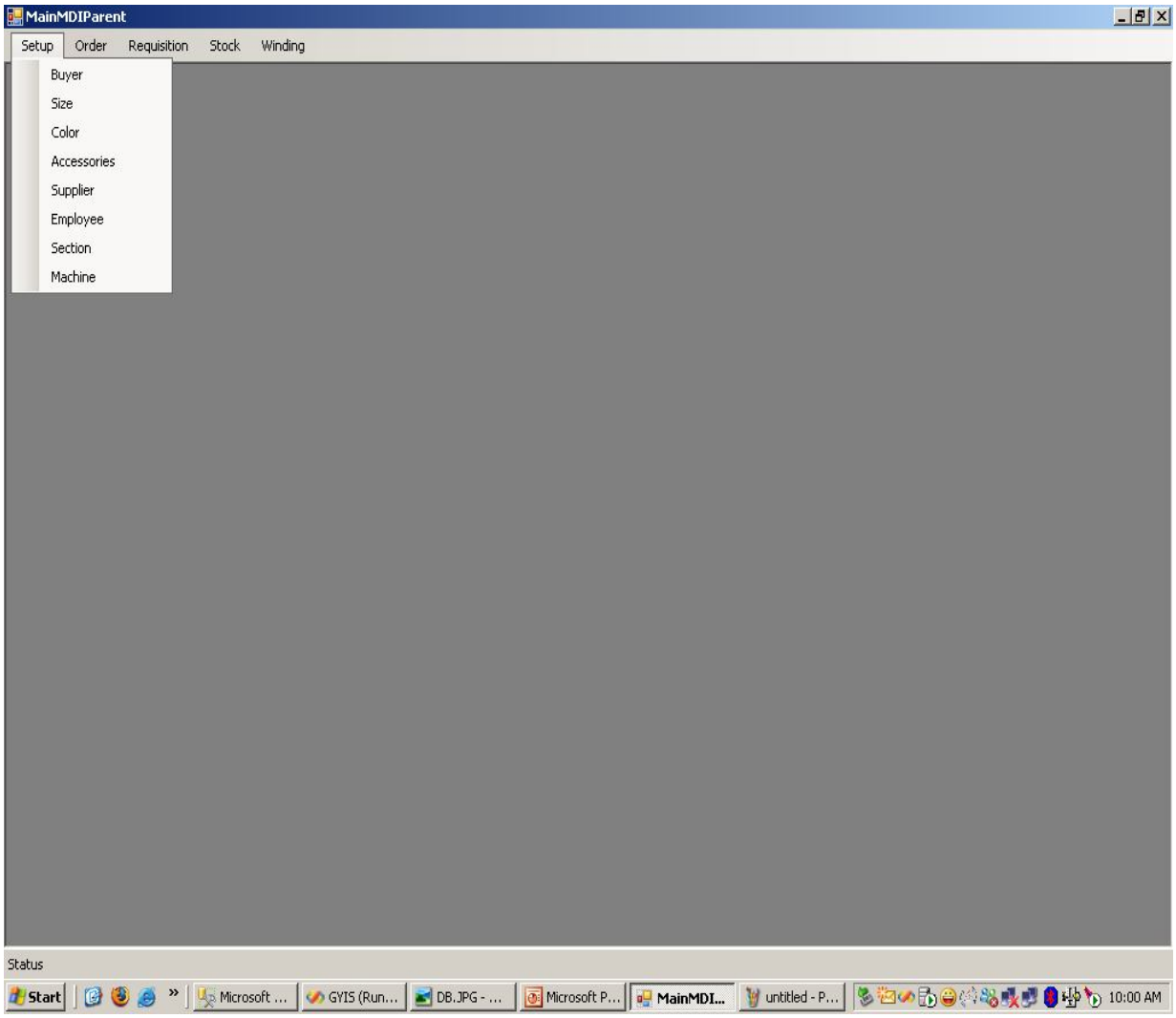


Figure: Main Interface


MainMDIParent
Setup
Order
Requisition
Stock
Winding
Buyer
Size
Color
Accessories
Supplier
Employee
Section
Machine
Status
Start
Microsoft ...
GYIS (Run...
DB.JPG - ...
Microsoft P...
MainMDI...
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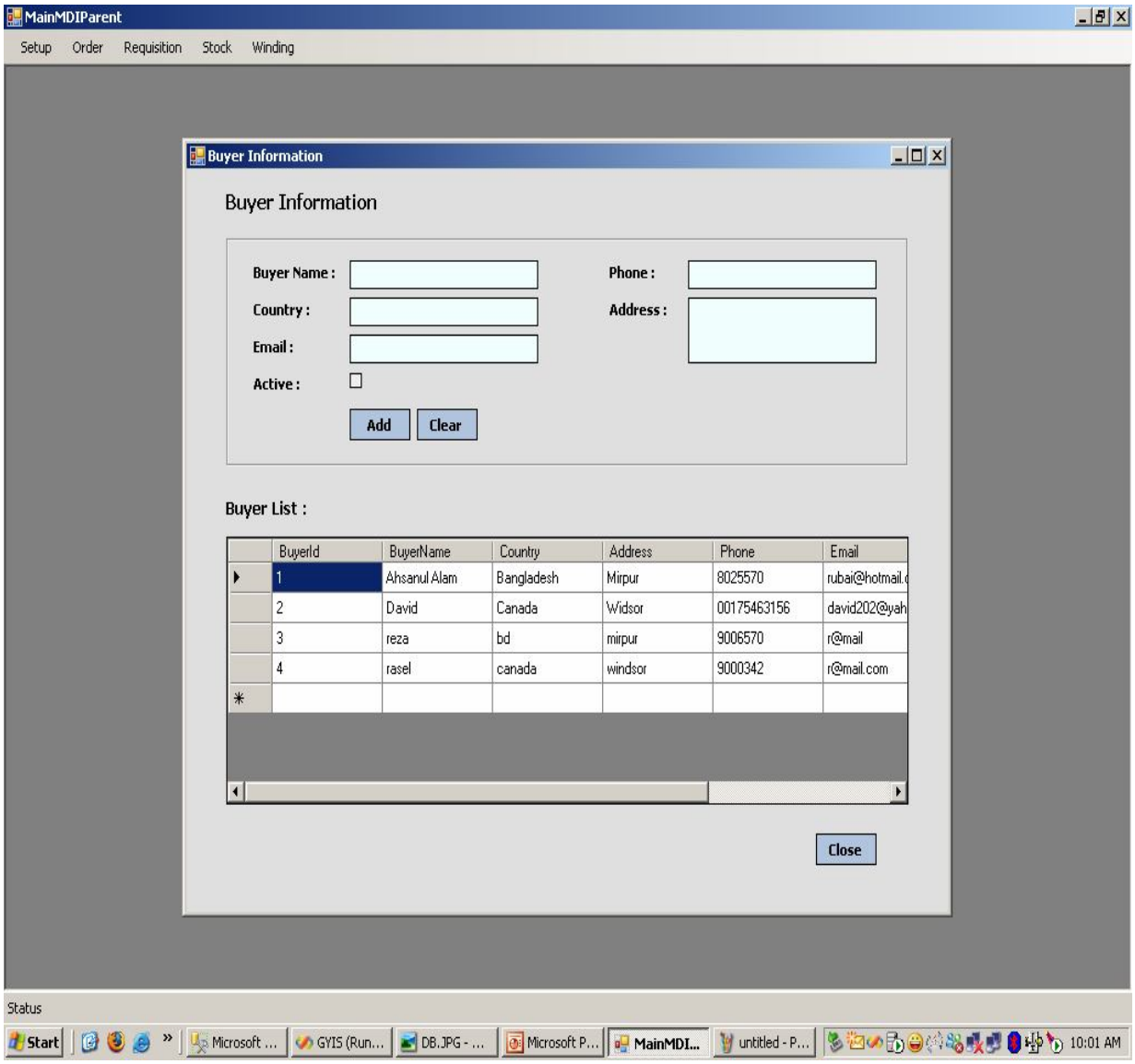

Figure: Buyer Information Interface

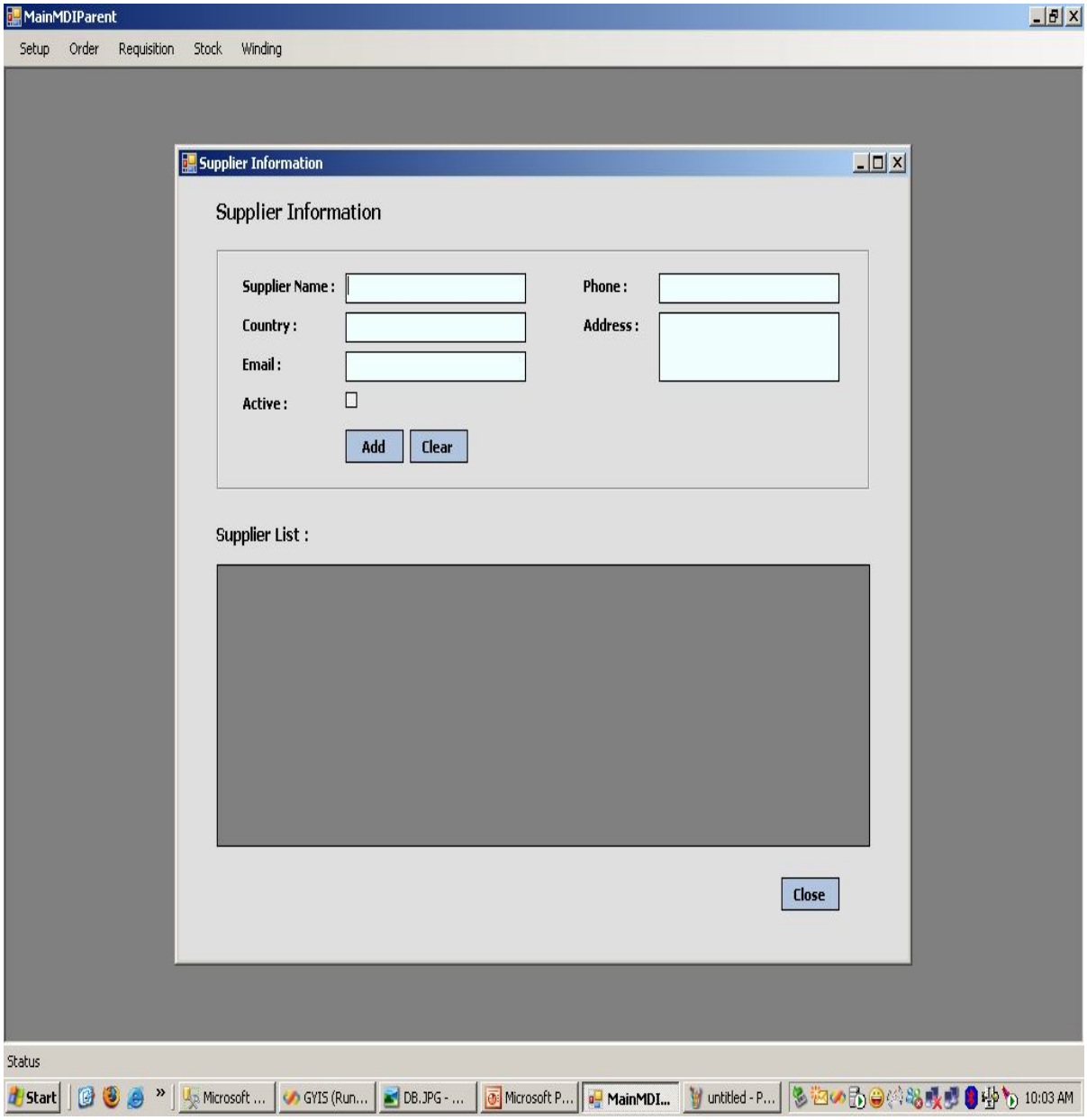

Figure: Supplier Information Interface

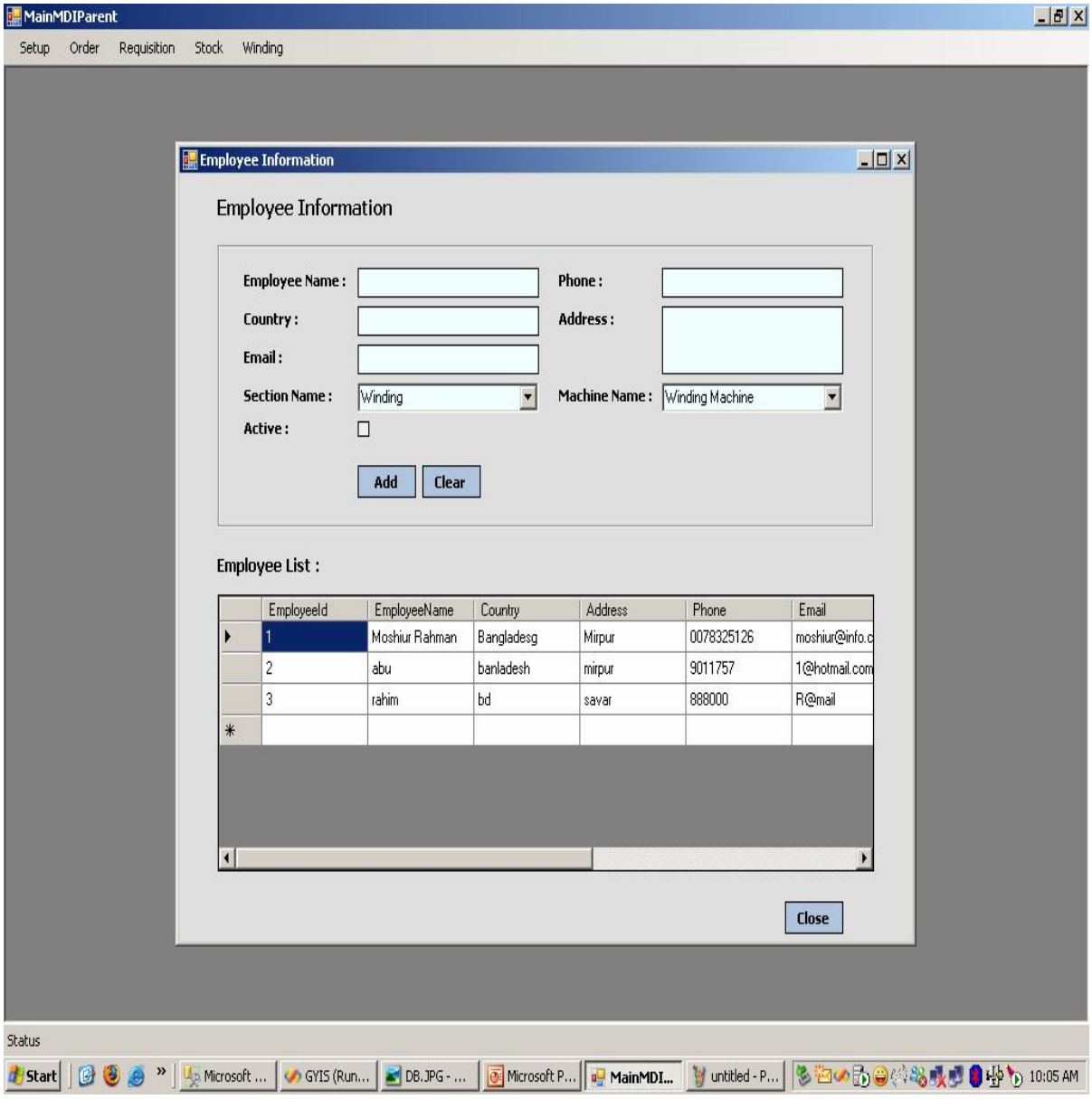

Figure: Employee Information Interface

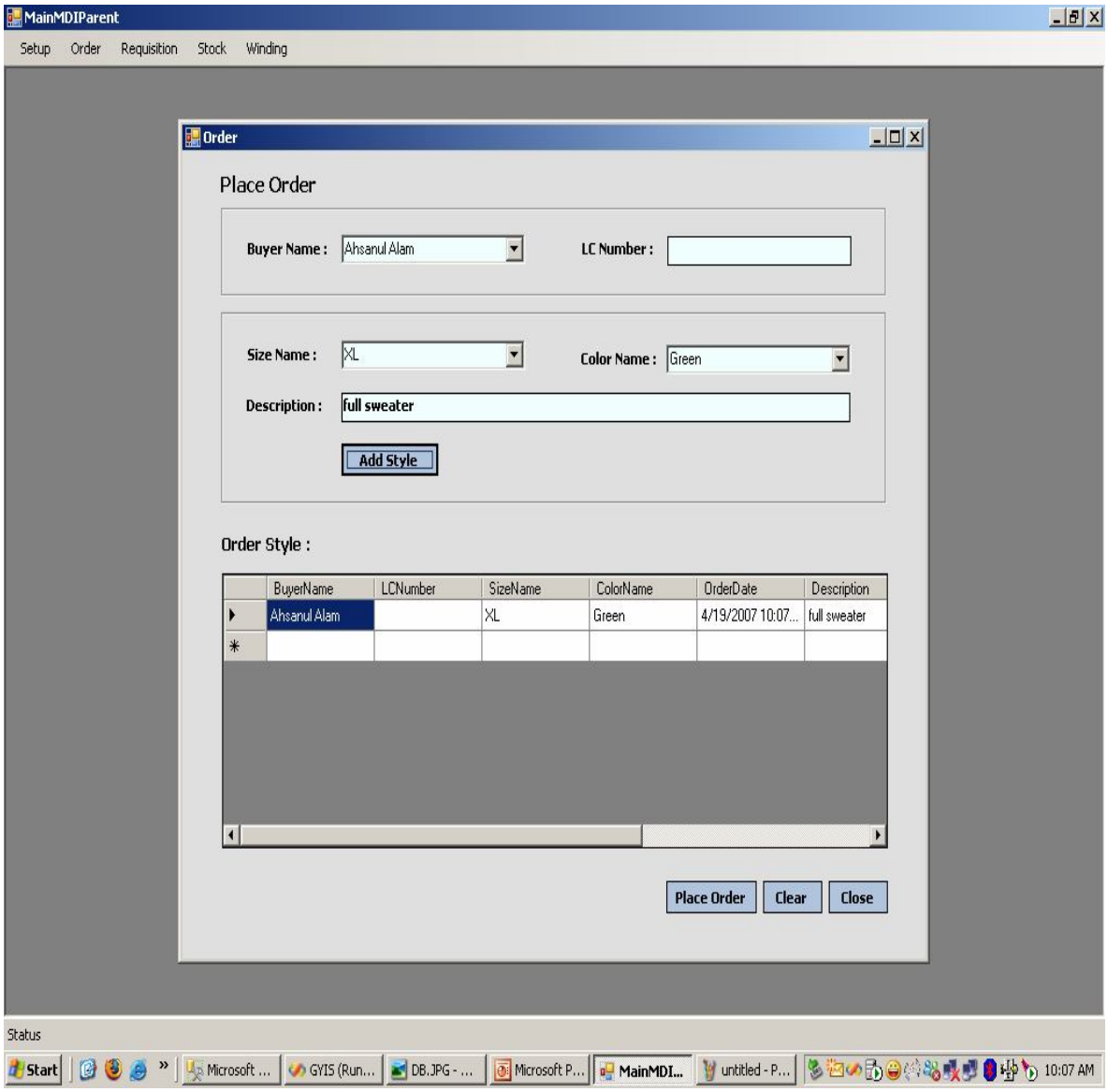

Figure: Place Order Information Interface

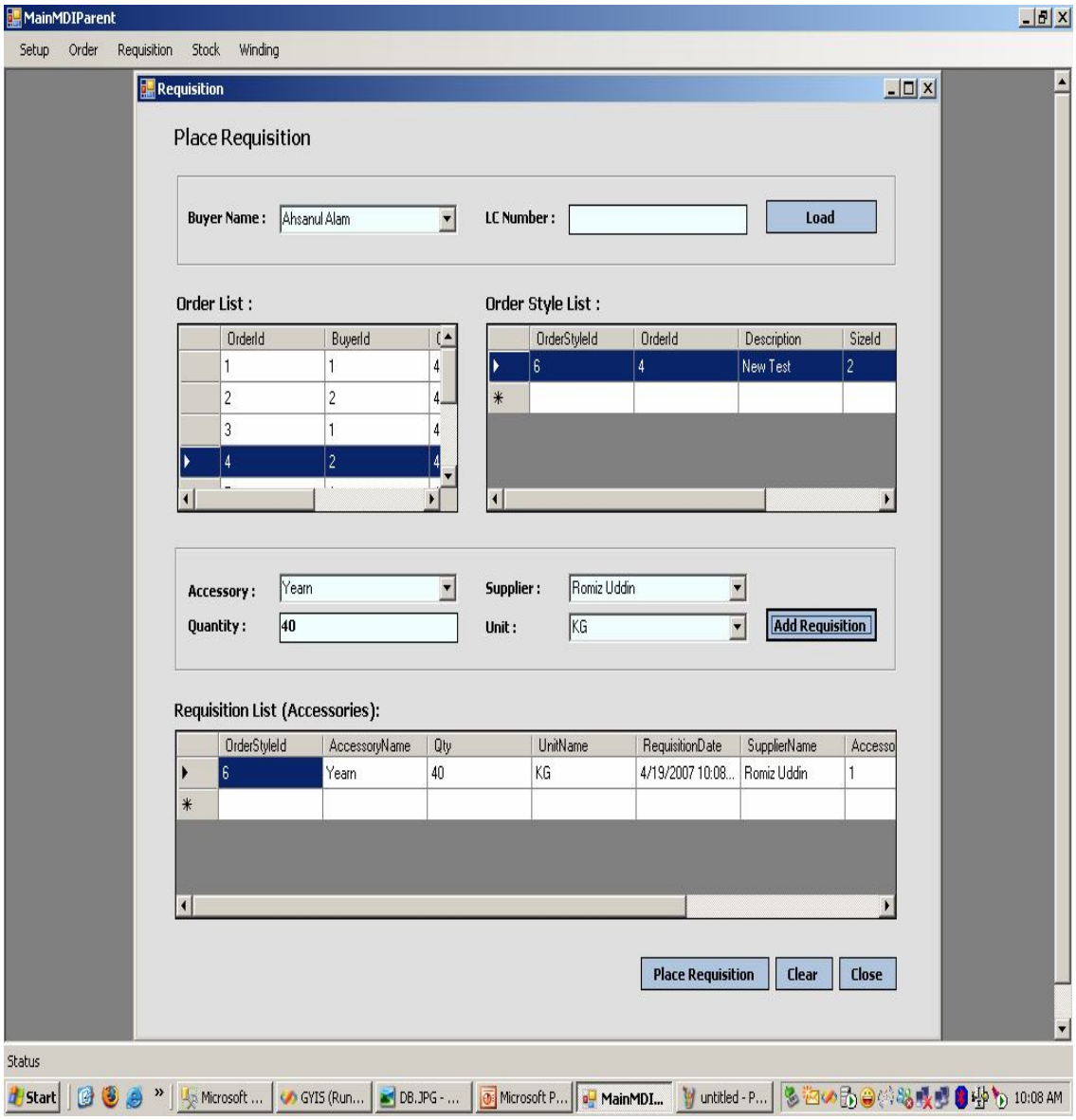

Figure: Place Requisition Information Interface

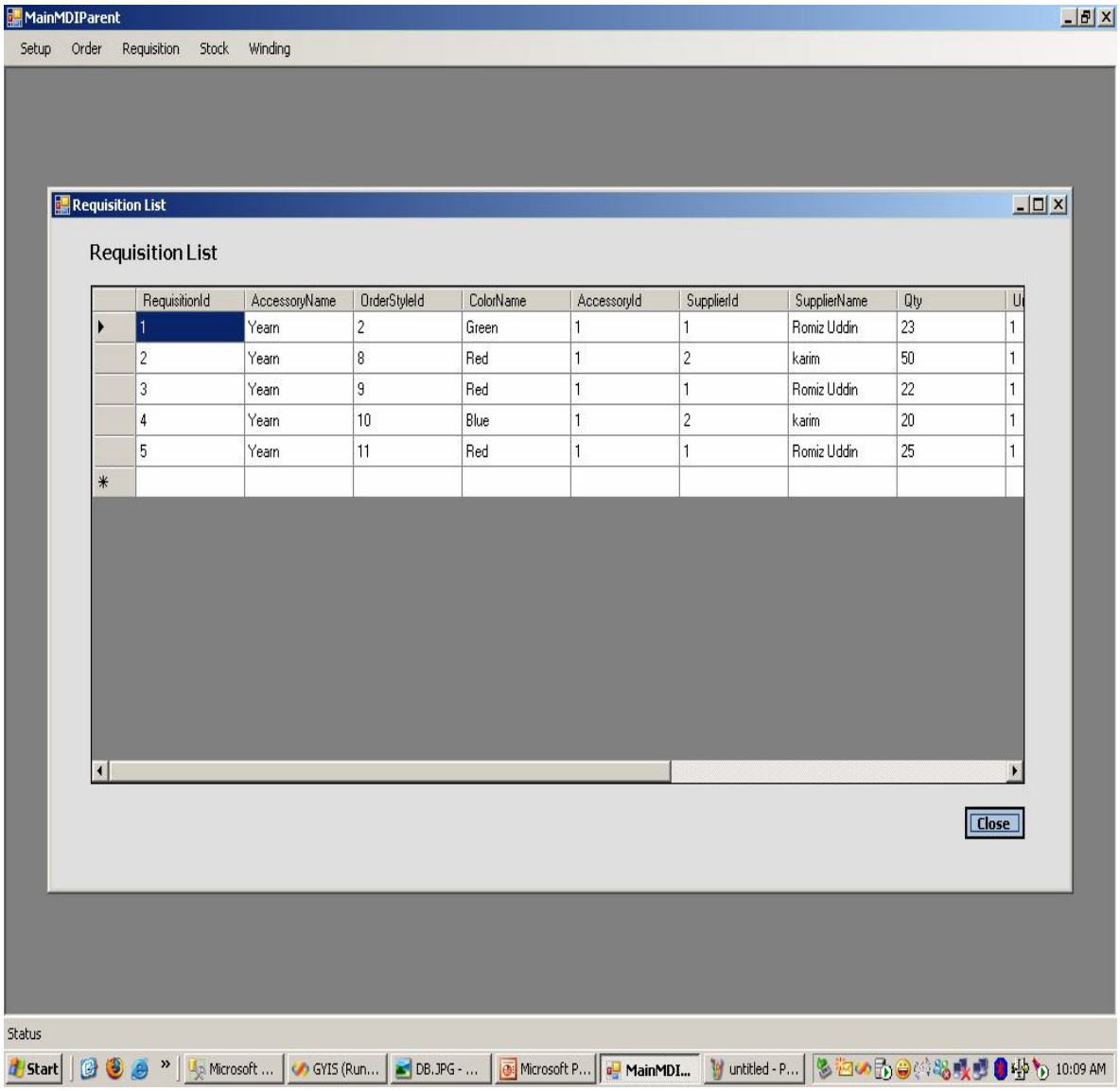

Figure: Requisition List Information Interface

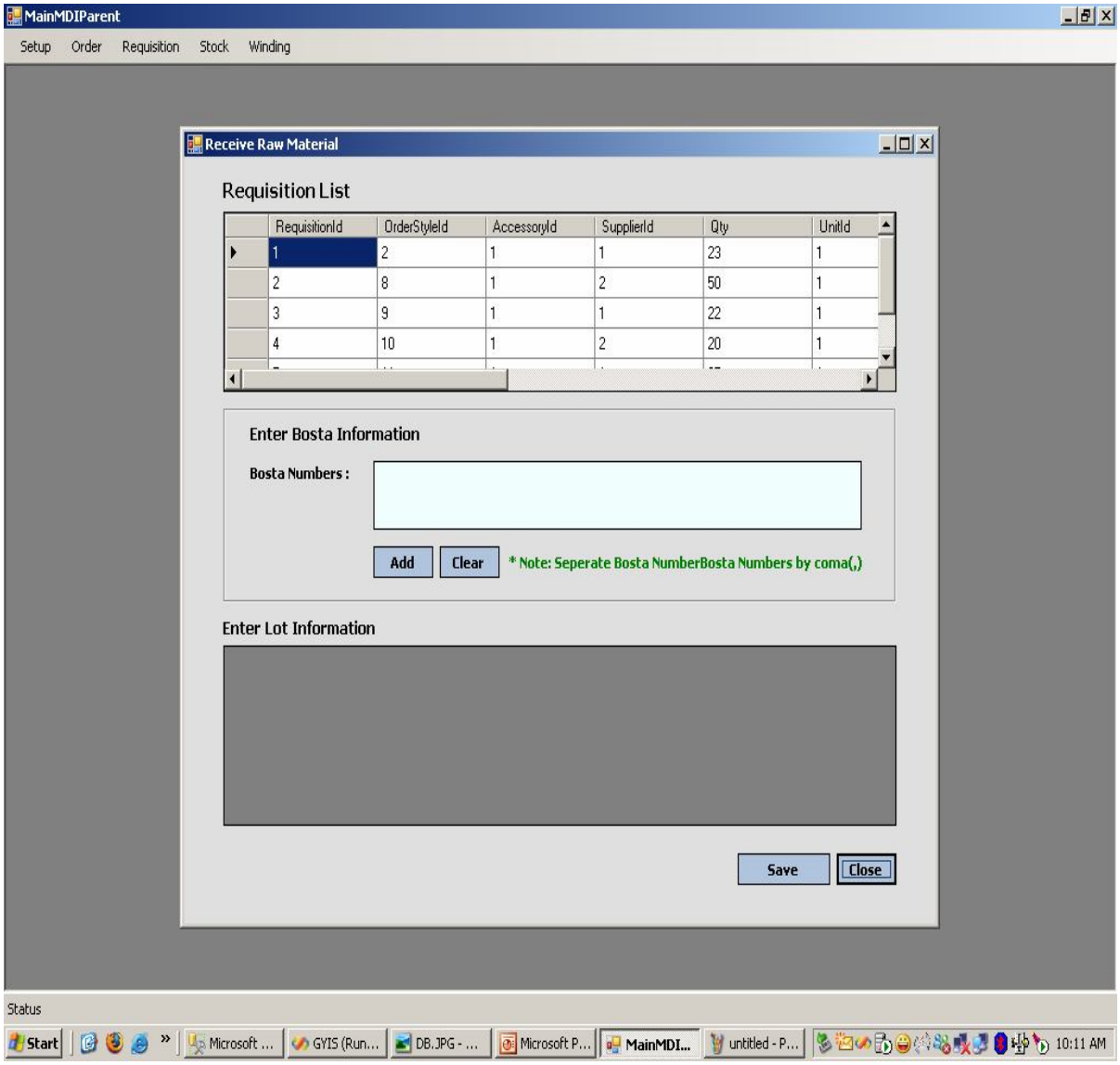

Figure: Sack & Lot Information Input Interface

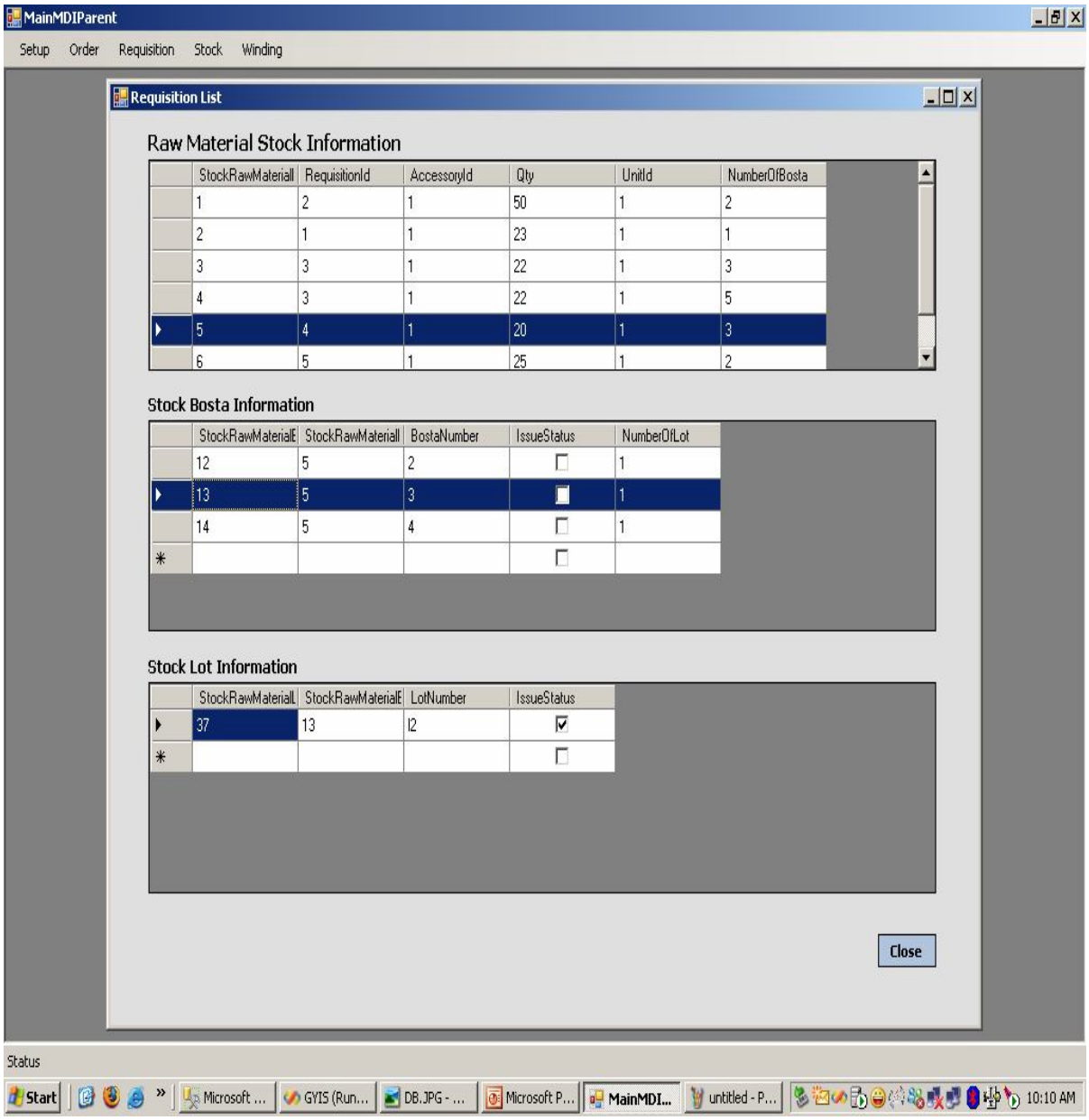

Figure: Raw Material Stock Information Interface

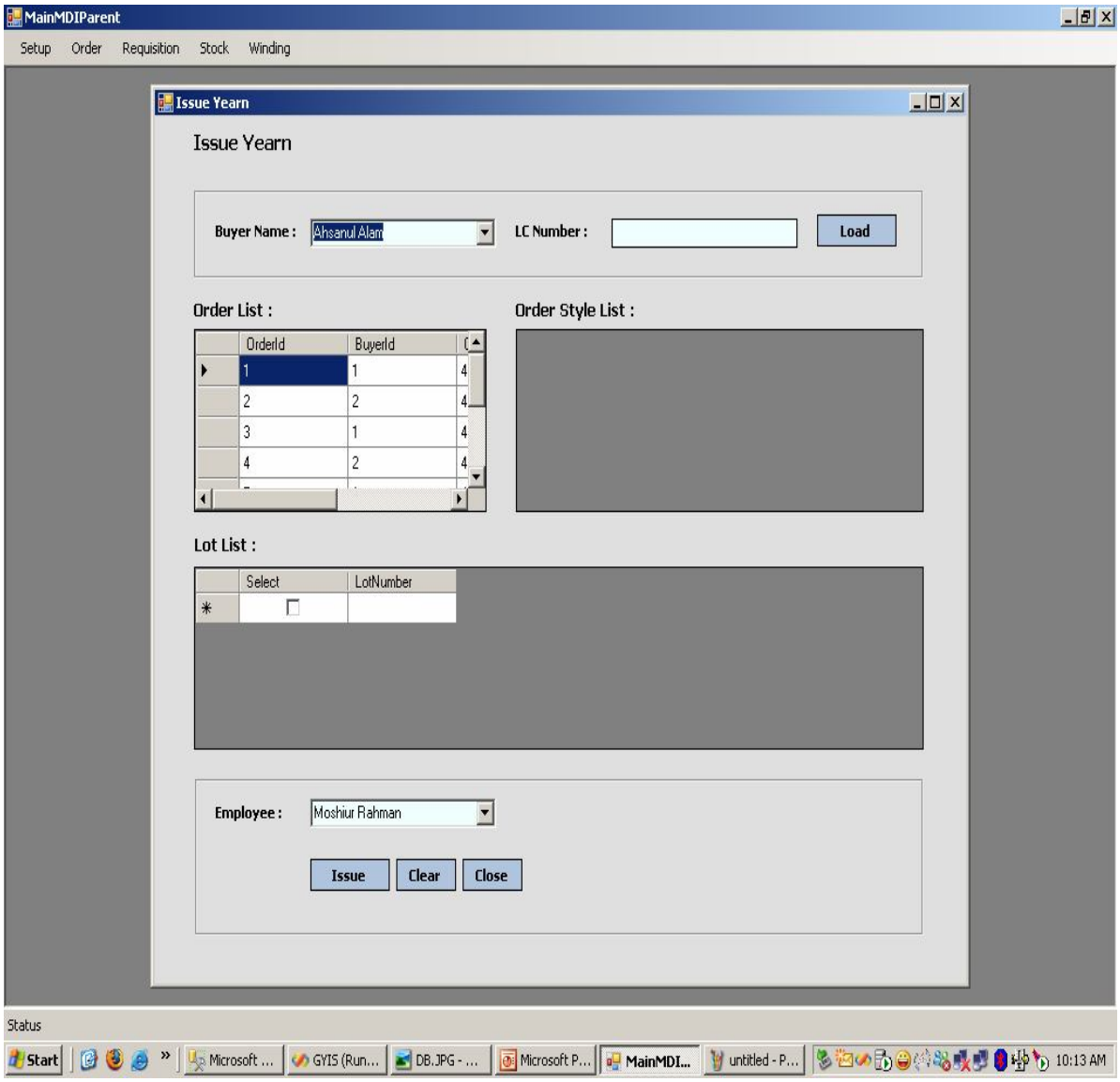

Figure: Issue Yarn Information Interface

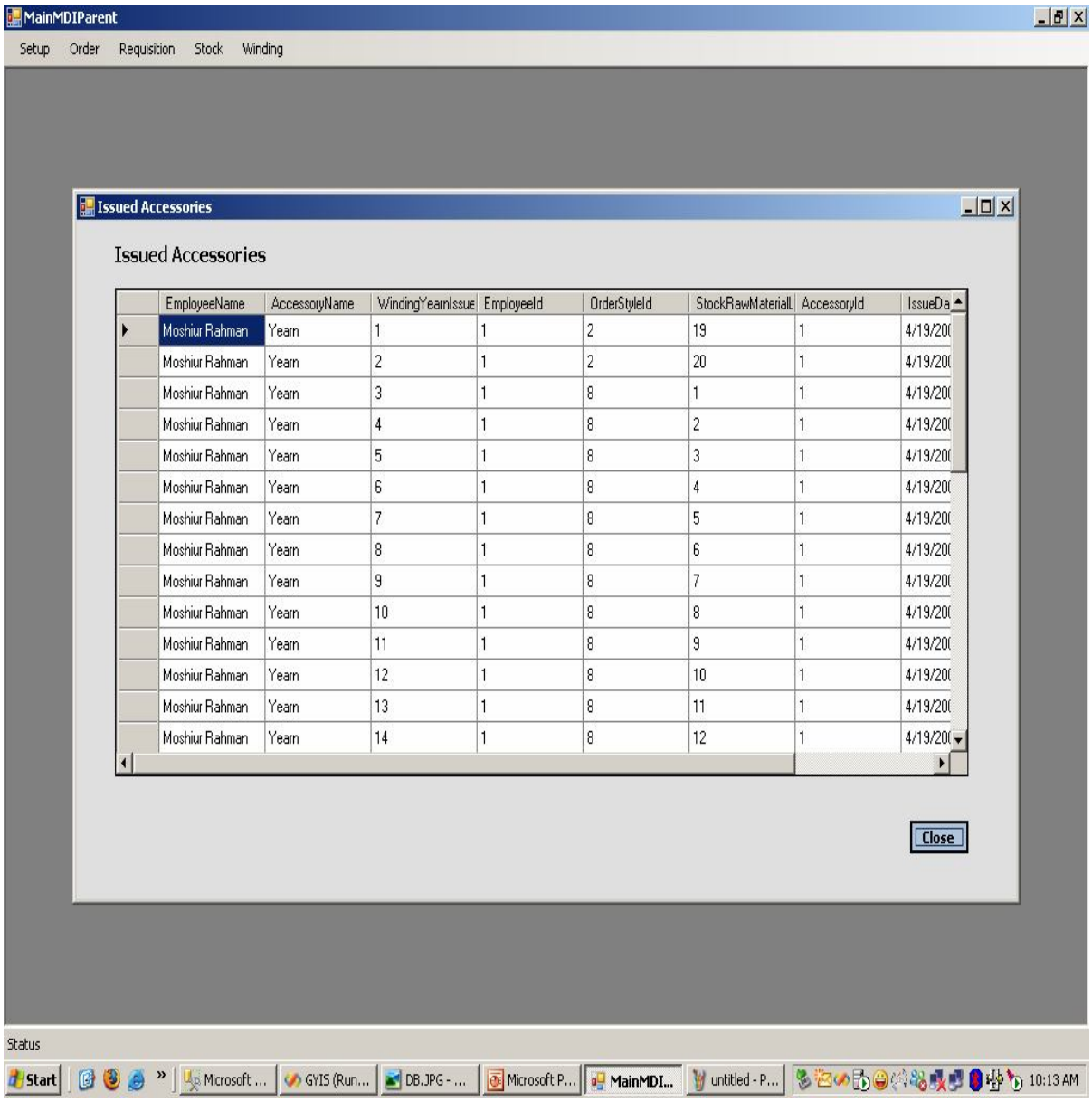

Figure: Yarn Distribution Interface

Conclusion:

We have successfully finished our Garments Yarn Inventory System. But we would like to improve our system in future. Our current system is desktop based. We want to turn this system into web based system. Also now a days security is of major importance. So we would like to tighten up the security of our inventory system. Finally we would like to add few options for editing the information that are already saved into the inventory system. We sincerely hope that our Garments Yarn Inventory System will help the garments industries to work effectively with their buyers and bring great success to their business.

References:

- Books:
  - J. Richter, "Applied Microsoft .NET Framework Programming"
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  - T. Thai and H. Lam, ".NET Framework Essentials"

- Web Sites:
  - http://msdn.microsoft.com/net
  - http://www.gotdotnet.com/