The program is designed to have a complete control on Demands from clients, shipments, invoices, documents and storage and of course, the articles related with every shipment/invoice/document made or change and its connected with source control of folders related with shipments, invoices, documents and storage.

I have to start with an explanation about the tables, every table has 5 buttons and textbox for search, lower tables has checkboxes. First button is clear fields (brush), his function is clear the fields. Second one is insert(icon with right arrow), that is to make insert in the database after filling all cells. Third button is update (floppy disk icon), this is used for make changes for some record in the database(previously inserted), it is called update, the way to use it is: select in the table the record you want to change, write changes and press the button. Fourth button is delete (“-“), his function is deleting a record from the table, select the record press the button and you need to confirm that you want to delete. The Fifth button is Export(Doc icon), that is to make an export of what you see in the table in an external document divides by tab(\t). The checkboxes are for assigning lower tables to upper tables, for example, if you are inserting or updating some record like Shipment and you want to assign it to some Demand, after filling all the necessary fields you check the checkbox of Demand and select the demand from the Demands table which you want to assign to and press insert/update. The same way is if you want to assign Invoice to Shipment and Demand, just need to check the both checkboxes and press insert/update, with every insert/update/delete related with invoices/documents not only will copy the document to the selected place, the SVN windows will pop too for adding and committing.

The first time you will start the program at the top you have to press the button “Select Docs Folder…” and select the folder from SVN where you will store the invoices and documents.

1. Demands:

In this abstract idea of the program, the Demands are the orders from our clients.

Creating a Demand is what the manager/Boss will do when one of our clients place an order of some of our products.

The way to place an Demand is: press the button “brush” on right side of the table Demands, choose the date, on field Kontragent you need to write and choose from DB suggestions the Client/Kontragent who made the demand, on Status you need to choose “Placed” and in Description you need to write the requested products from the client and click on Insert button. After insert the new demand if we want to change something because while inserting we wrote something wrong/client changed something what we need to do is click on demand change the cell we want to change and press update button(floppy disk). If we want to delete some demand we need to click on demand and press the delete button(“-”).

After inserting the demand rest of people have to take necessary actions for the production like order components from website(s) and most of this components will come through shipment(s) and we go to point 2.

1. Shipments:

The way to add a new Shipment is similar but with some differences, press the “brush” button, choose date, write from who comes the shipment and to who goes, after that you need to write the courier and the waybill, on status you need to select Sent, if you want to create a folder for this shipment you need to check the checkbox close to the icon folder with the “+” and press insert, next step is defining the articles in this shipment, there are 2 types of articles, one are which are not in the storage and others are in the storage, for the articles which are not in the storage we just write them in the description of the shipment and the articles which are in the storage we have to add them from the storage, we go to **storage** and find the article, right click on article we want to add and select “Add Article” after that will pop a window where we have to write the quantity and press enter or Ok and the article will appear in the Article table. Here we have to be carefully because if the shipment is **Outgoing** we need to place the **quantities in negative** because all the articles in the table will be rested from storage, otherwise if we write articles with **positives quantities** that means the Shipment is **Ingoing** and the list of articles will be added to storage. The checkbox of pending is if the Shipment is Outgoing/Ingoing and you have it prepared to send/receive but its necessary to wait, if you want to set a shipment ready you can create the Shipment with no waybill on status selected “Ready” and check pending, that will save the shipment but will have no add/remove anything to/from storage, the idea of this is when you have a package ready to send so you can prepare what you will send and when its time to send the package just change the status to Sent and update shipment and uncheck the pending, press update on articles and will rest the sent articles from storage. The same way is for Incoming Shipments, as we know what components will arrive, we can create the shipment with list of articles with positives quantities but with pending option checked, that way will create the incoming shipment without adding them to the storage. When shipment arrives, we set status on Delievered and update shipment, then uncheck pending option and press update, that will add all the articles to the storage.

Right click options:

* Find Demand: Finds the demand that shipment belongs to, if belongs. That option is done auto when you click on shipment.
* Find Invoice: Lists the invoice(s) which are linked to this shipment.
* Find document: Lists the document(s) which are linked to this shipment.
* Open Folder: If the shipment has created folder this option appears and path to the specific folder.
* Show Aarticles: Shows the articles linked to this shipment. That option is done auto when you click on shipment.
* Track Shipment: Opens browser with the link and waybill of the shipment depending of courier. That option can be executed by doing “double click” on shipment.

1. Invoices:

Is not necessary to explain again how to insert/update/delete just I will explain the different from other tables, here since we have to use the File System we need to press the button Browse… and select the document that we want to add, if we want to assign the invoice to a shipment with folder(we have to previously created the shipment folder) we check the Shipment option and check the “To Folder” option too and insert on update is little bit different because if we have already one document and we only want to change the name/date/client/price we have to select the option Same file close to Browse, that way will rename the same document but if we inserted the wrong document and we want to select another we will have to select the document using again Browse… and pressing update button.

1. Documents:

Inserting documents is the same way as invoices with a small difference that here we only have name of document and we don’t have clients, because many documents are related with customs, additional information for some invoice or other that are not related with any client.

1. Storage:

The storage is a list of all important articles we have stored, for inserting some new articles is the same way as other tables, in this case we write the name, on Quantity we need to specify the starting quantity and some description if needed.

For updating is a little bit different, we select the article we want to change and if we want to change the quantity we need to go to down side of storage table on textbox Qty to change and write the quantity that we want to change(positive or negative) and fill the Changelog texbox, the Changelog is the reason why the quantity is changed, for example on Qty to change we can write “-10” and on Changelog we can write “used to solder 10 board” and when we press update will update the database with -10 articles and save the Changelog.

* 1. SingleLog:

SingleLog is a history for single article from storage, that is shown in the table “Single log”. Every time you click on some article in the storage, in the Single log table will show the complete history of this article from the beginning when was inserted and all quantity changes that have been done.

* 1. History:

History is a complete history of changes of all articles in the storage, is shown in the table “History”.

Note: SingleLog and History tables has right click options to find the Demand/Shipment/Invoice.

1. Articles:

The table of Articles is used for Shipments and managing of incoming/outgoing articles. On the table Shipments you have right click options and one of them is “Show Articles”, when option is selected in the table of Articles will appear the list of all articles of this shipment. If we inserted wrong some article or some quantity we can change/delete the article(s) by modifying what we need to and pressing the button update but have in mind that will change the History, Singlelog and the storage quantities, the same way if you delete all items by clicking on the brush button and then update that action will restore the quantities in the storage.

The right click option is “Show Singlelog”, is used to find in the storage the article and in the Single log table where and when exactly is this change made.

1. Kontragents and Couriers:

To access to the couriers form we press the button Couriers from the main form and will pop a small windows where we can add/modify/remove. The only specific of this is the link, to add a new courier we have to know the link which tracks the waybill, for example:  
speedy has this link:

“https://www.speedy.bg/en/track-shipment?shipmentNumber=”  
and when we add to this link the waybill we will get the complete track URL:  
“https://www.speedy.bg/en/track-shipment?shipmentNumber=**6235165196854**”, we need to find the URL and write it in the Link cell without the waybill.

The kontragents are our clients/partners, we can access to them from the button Kontragents from the main form.

We have 3 simple cells to fill so we can place order/shipment/invoice etc… to them, its important to fill the name and address because name will appear in suggestions and address will be easy to find when you have to send some shipment.

1. Tracking:

The program is structured like this: Demands>Shipments>Invoices>Documents, Articles are part of shipments and storage is on other scheme. When you click on the lower table, in this case Documents it auto shows you upper tables like invoice, shipment and demand if its linked. But if you go to the upper table, in this case Demands if you want to see the shipments linked to this demand you need to right click on demand and select Find shipment/invoice/document, that will show you in the table of shipments/invoice/document only linked to this demand, so if you want to refresh all the tables you need to press the button with the 2 arrows in circle. Now the other example is with Shipments, clicking on shipment will select you the upper table, in this case demand, and if you want to filter the lower tables you can do right click and find invoice/document.

With this example we can understand all the functionality of the program:

All starts with making a Demand, for example one client asked us to make 50 x boards of type XXXX, we create the Demand, after that we will need to buy the components from different websites/distributors, we make a shipments connected with Order and every shipment has his list of Articles, we have to add the 3 shipments and after that for each shipment add the articles to the table and set them to pending and update button of articles, because the order of the components will delay some days, lest say we need to order from 3 websites/distributors and we create 3 shipments connected with the demand, each shipment with list of components(articles) and passes some days and arrive the first shipment, the only what we need to do is select the shipment, uncheck the pending option and press update button of articles, that action will add all the articles to the storage, let’s say we have 1 invoice and 1 additional document what is for customs for this shipment. We create the invoice with assigning “Shipment” and “To folder” options, selecting the invoice and inserting it, that way the new created invoice will be placed in the shipment folder in the file system and SVN pops. The document the same procedure with the small difference that we can assign the document not only to the Shipment but we can assign it to the Invoice too.

After the other 2 shipments arrives we do the same procedure and lets say we assemble the pcb board in the office, on every article we used for the assemble we need to rest it from the storage, and we need to do it manually. We go to the storage and find the article and we have to place the quantity to change in the textbox and the Changelog we write “used for assembling XXXX boards”. After assembling the 50 XXXX, we will need to change in the quantities in the storage that the XXXX assembled boards now are +50, after that we prepare them for sending and we prepare an shipment with pending articles with the article -50 XXXX boards pending of course, and when its time to send the shipment, we will fill only the courier cell and the waybill, select Sent on status and uncheck pending option and press update on shipment, that will rest 50 of XXXX boards from storage.

Database is making a backup automatically every week, so if we have some problem with database only we can lose 1 week the track.

Future updates:

* Pass the program completely to OOP.
* Replace MySQL database for SQL Server + Entity Framework.
* Implement products and BOM system when a demand is placed, we will write the quantity(ies) and the product(s) our client ordered and that will automatically will calculate every component from the BOM and what we have in storage, then will tell us the components we have and quantities that we need to buy to complete the demand.
* Improve the UI.
* Production implementation with tracking of every product with numbers/serial numbers