

A Comparison of Purchasing Modules between Dynamics AX and Dynamics GP for Supply Chain Management Courses

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Abstract: Purchasing is an important subject in supply chain management courses. This paper compares purchasing modules between Dynamics AX and Dynamics GP. The comparison focuses on concept or issues which can be used to teach students in the purchasing practices. Two assignments listed in this paper can be used in supply chain management courses or business process management courses.

INTRODUCTION

Purchasing is an important portion for supplier relationship management (SRM) and supply chain management (SCM) courses. The Institute of Supply Management (ISM) was formerly National Association of Purchasing Management (NAPM). This paper compares purchasing modules between Microsoft Dynamics AX and Microsoft Dynamics GP. The comparison focuses on concept and tips can be used to teach students in actual purchasing practices. Two assignments listed in this paper can be used in supply chain management courses or business process management courses.

PURCHASE MODELS IN ERP SYSTEMS

Similar to other functional modules, purchase module can be divided into major business processes: 1) issue purchase requisition, 2) issue purchase order, 3) receive goods, 4) receive invoices, and 5) finish payment. What we can teach students include the following things:

- a) Process management and workflow,
- b) Identity management and internal auditing,
- c) Document management,
- d) Business intelligence and reporting.

Process Management and Workflow

Figure 1 shows major processes for purchase functions. Purchase requisition is an internal document between request department and purchase department. A request for quotation (RFQ) is issued when an organization wants to purchase goods but has many vendors. If the organization wants to receive competitive offers from several vendors, it will issue a RFQ to ask vendors to provide the prices and delivery terms for the quantities of the goods (Microsoft TechNet, 2014).

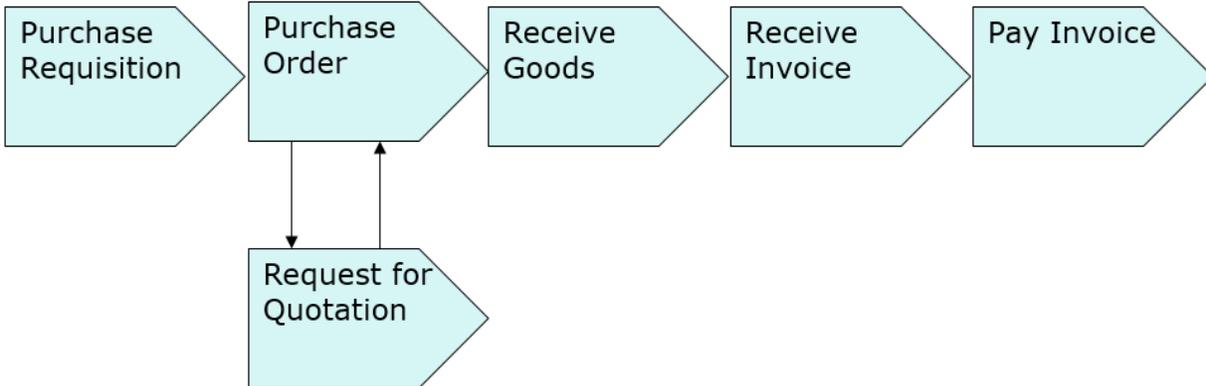


Figure 1: Major processes for purchasing

Because purchase practices are different among different companies, we can use workflow to rearrange business processes.

Identity Management and Internal Auditing

Not all the purchase agents have unlimited authorization to issue purchase orders. Dynamics GP or AX allows us to audit the purchasing process. Authorization of purchasing includes two issues: a) Does an agent has authorization to issue a purchase order? 2) What maximum amount can this agent issue a purchase order?. These features are important for internal auditing.

Documents Management

Major documents includes purchase requisition, purchase order, and invoice among others. It is important to explain to students about the difference among these documents using an ERP package.

Business Intelligence and Purchasing

Business intelligence allow managers to print out different versions of reports. In addition, BI allow us to find out the vendor performance, price calculation.

RESEARCH METHOD

The major object of this research is to compare the purchasing module between Dynamics AX and GP. The following session explain our research questions, research design, and assignments we used.

Research Questions

We are interested in finding out the following questions:

1. Which module (GP or AX) is easy for students to learn the concept of purchasing?
2. What concept can we teach students in the subject of purchasing?
3. Which module (GP or AX) is easy to install for teaching purpose?
4. Which module (GP or AX) is more valuable than the other in terms of job searching?

Research Design

Twenty five computers in the computer lab are partitioned into two operating systems: Windows 10 and Windows 2012 R2. These twenty five computers are Dell 780 which are equipped with Intel E8400 CPU with a processing

speed of 3.0 GHz and 4GB RAM. Microsoft Dynamics GP 2013 was installed in Windows 10 and Microsoft Dynamics AX2012 R3 was installed in Windows 2012 R2. These 25 computers are running independently and used for SCM 614 (IT for Supply Chain Management), IS 427/437 (Business Process and Identity Management), and IS 437/637 (IT Auditing). This was done in a comprehensive university in Midwest.

Dynamics GP Assignments

The assignment for Dynamics GP is revised from Brunson, Romney, and Steinbart (2009) and handouts from Western Michigan University. The original assignment is for Dynamics GP 10. New assignment is rewritten using Dynamics GP 2013. Appendix A shows the sample of the assignment for Microsoft Dynamics GP 2013. As shown in Figure 2, GP assignment has the authorization and auditing features.

Dynamics AX Assignments

The assignment for Dynamics AX is revised from Thomas (2015) in Microsoft Customer Source website. Appendix B shows the sample of the assignment for Dynamics AX. As showed in Figure 3, Dynamics AX include additional concept of ‘Approved Status’ and ‘Status’. Approval Status includes:

- “Approved: The purchase has passed the approval process and can now be issued to the vendor.
- Confirm: The purchase order is sent to the vendor.

Finalized – All lines on the PO have been received and either invoiced or canceled when reaching this stage; no changes can be applied after this point.” (Walia, 2012). Status for a PO includes open order, received, invoiced, and cancel.

Purchase order	Vendor account	Name	Invoice account	Purchase type	Approval status	Status	Direct delivery
000015	CN-001	Contoso Asia	CN-001	Purchase order	Confirmed	Open order	<input type="checkbox"/>
000016	US-101	Fabrikam Electronics	US-101	Purchase order	Confirmed	Open order	<input type="checkbox"/>
000017	US-104	Fabrikam Supplier	US-104	Purchase order	Confirmed	Received	<input type="checkbox"/>
000018	US-105	Datum Receivers	US-105	Purchase order	Confirmed	Received	<input type="checkbox"/>
000019	US-103	Rain Projectors	US-103	Purchase order	Confirmed	Canceled	<input type="checkbox"/>
000020	CN-001	Contoso Asia	CN-001	Purchase order	Approved	Open order	<input type="checkbox"/>
000021	CN-001	Contoso Asia	CN-001	Purchase order	Approved	Open order	<input type="checkbox"/>
000023	US-104	Fabrikam Supplier	US-104	Purchase order	Confirmed	Open order	<input type="checkbox"/>
000026	US-104	Fabrikam Supplier	US-104	Purchase order	Confirmed	Received	<input type="checkbox"/>
000027	US-101	Fabrikam Electronics	US-101	Purchase order	Confirmed	Invoiced	<input type="checkbox"/>
000028	US-101	Fabrikam Electronics	US-101	Returned order	Confirmed	Invoiced	<input type="checkbox"/>
000030	1001	Acme Office Supplies	1001	Purchase order	Approved	Canceled	<input type="checkbox"/>
000032	1001	Acme Office Supplies	1001	Purchase order	Confirmed	Invoiced	<input type="checkbox"/>
000033	1001	Acme Office Supplies	1001	Purchase order	Confirmed	Invoiced	<input type="checkbox"/>
000034	US-101	Fabrikam Electronics	US-101	Purchase order	Confirmed	Invoiced	<input type="checkbox"/>
000035	US-111	Contoso office supply	US-111	Purchase order	Approved	Open order	<input type="checkbox"/>
000036	US-111	Contoso office supply	US-111	Purchase order	Approved	Open order	<input type="checkbox"/>
000037	US-102	Tailspin Parts	US-102	Purchase order	Approved	Open order	<input type="checkbox"/>
000038	1001	Acme Office Supplies	1001	Purchase order	Approved	Open order	<input type="checkbox"/>
000039	US-102	Tailspin Parts	US-102	Purchase order	Approved	Open order	<input type="checkbox"/>
000043	1001	Acme Office Supplies	1001	Purchase order	Confirmed	Open order	<input type="checkbox"/>
000044	1002	Lande Packaging Supp...	1002	Purchase order	Approved	Open order	<input type="checkbox"/>

Figure 3: Approval status and status in the lists of purchase orders

Survey

Students in four classes in a Midwest university are given assignments in Microsoft Dynamics GP and Microsoft Dynamics AX. After these assignments, they are asked to fill out questionnaires for evaluating the user satisfaction of GP and AX.

CONCLUSIONS

The major object of this research is to compare purchasing module between Dynamics AX and GP. It is significant for the instructors who want to choose an ERP for their supply chain management courses. We are still working on this research and will present the results on the conference. However, it appears that GP is easier than AX in terms of use and installation for the instructors. AX provides extra features thus for the advanced courses.

REFERENCES

- Brunsdon, T., Romney, M. B., & Steinbart, P. J. (2009). *Introduction to Microsoft Dynamics GP 10.0 Focus on Internal Controls*, 2nd edition, Upper Saddle River, NJ: Prentice Hall.
- Microsoft TechNet (March 6, 2014), About requests for quotation [AX 2012] retrieved from <https://technet.microsoft.com/en-us/library/gg212988.aspx>
- Thomas, D. (2015).Purchasing Model, Microsoft CustomerSource , retrieved from <https://mbs.microsoft.com/customersource/northamerica/news-events/news-events/news/AcademicAlliance>
- Walia, S. (2012). Improve Controls with Purchase Order Approvals in Microsoft Dynamics AX 2012, April 23rd, 2012. Retrieved from <http://blog.ignify.com/tag/purchase-order-approvals-dynamics-ax-2012/>.
- BIS Department, Western Michigan University, Microsoft Dynamics GP 10.0 handouts. The handouts was prepared by Muhammad A. Razi and Bernard Han.

Appendix A. Portion of the Assignments for Purchasing Model Using AX

(Revised from Thomas, 2015)

IS 627 Assignment 18B Dynamics AX - Purchase Order

Create a Purchase Order

Make sure that you choose **USMF**

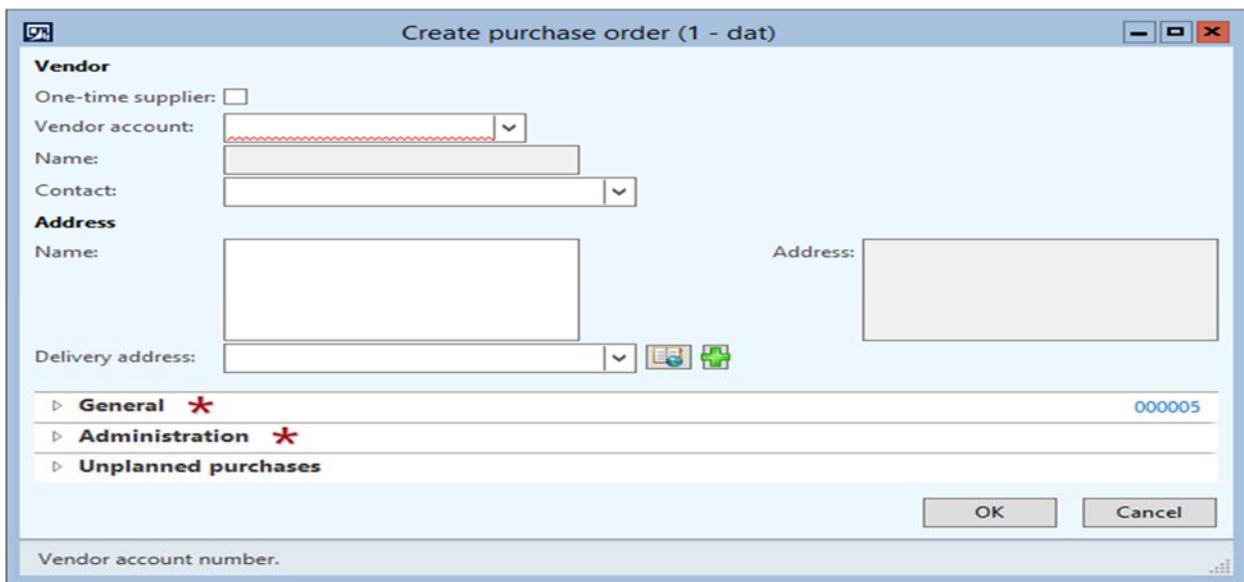
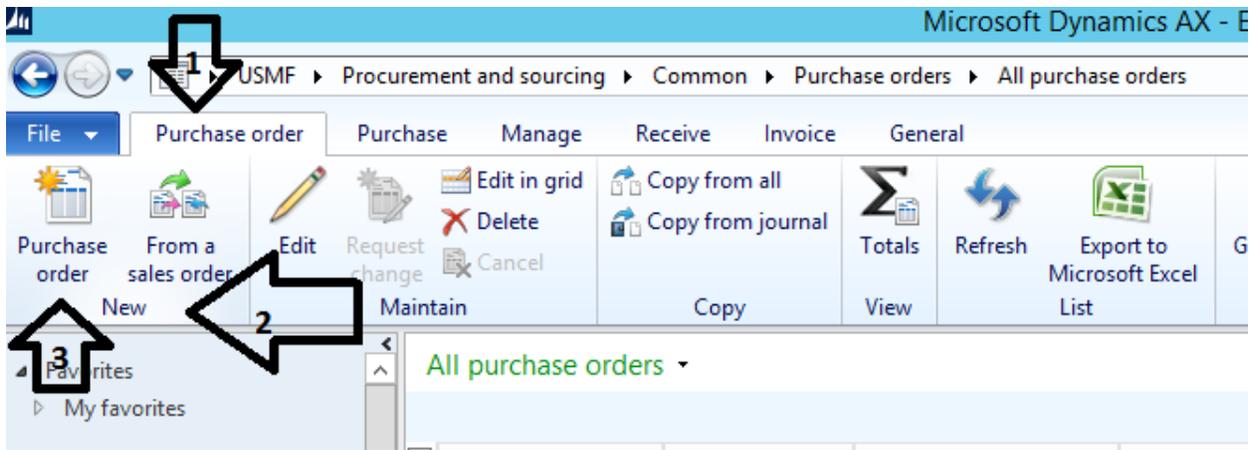
1. Click Area Page node: **USMF ->Procurement and sourcing -> Common -> Purchase orders -> All purchase orders.**

Purchase order	Vendor account	Name	Invoice account	Purchase type	Approval status	Status	Direct delivery
000003	dwt	dwt-ven...	dwt	Purchase order	Approved	Canceled	<input type="checkbox"/>
000004	dwt	dwt-ven...	dwt	Purchase order	Approved	Canceled	<input type="checkbox"/>

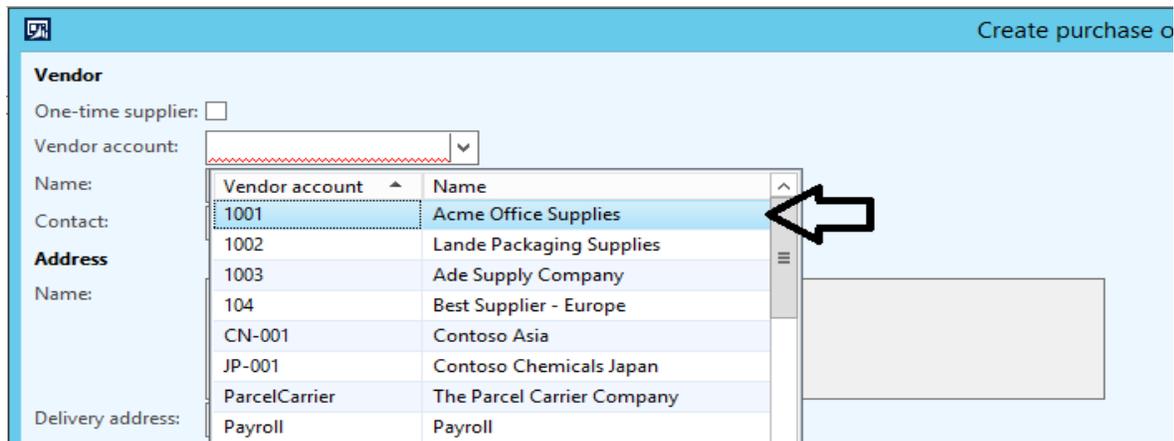
Purchase order:
Currency:
Name:

Line number	Item number	Product name	Procurement category	CW quantity	CW unit	Quantity	Unit	Unit price	Net amount
This grid is empty.									

2. Click the **Purchase order -> New -> Purchase order** button.



2. Change Vendor account 1001.



3. Switch to the **General** tab on the **Create purchase order** form.

Create purchase order (1 - dat)

Vendor

One-time supplier:

Vendor account:

Name:

Contact:

Address

Name:

Address:

Delivery address:

General 000005

Purchase order	<input type="text" value="000005"/>	Currency	Currency: <input type="text" value="USD"/>	Dates	Accounting date: 6/
Purchase type:	<input type="text" value="Journal"/>	Storage dimensions	Site: <input type="text" value="DWT"/>	Delivery date: 6/	
Invoice account:	<input type="text" value="dwt"/>	Warehouse: <input type="text" value="dwt"/>		Intercompany	Intercompany: <input type="checkbox"/>
Name:	<input type="text" value="dwt-vendor"/>				

References

Project ID:

Purchase agreement ID:

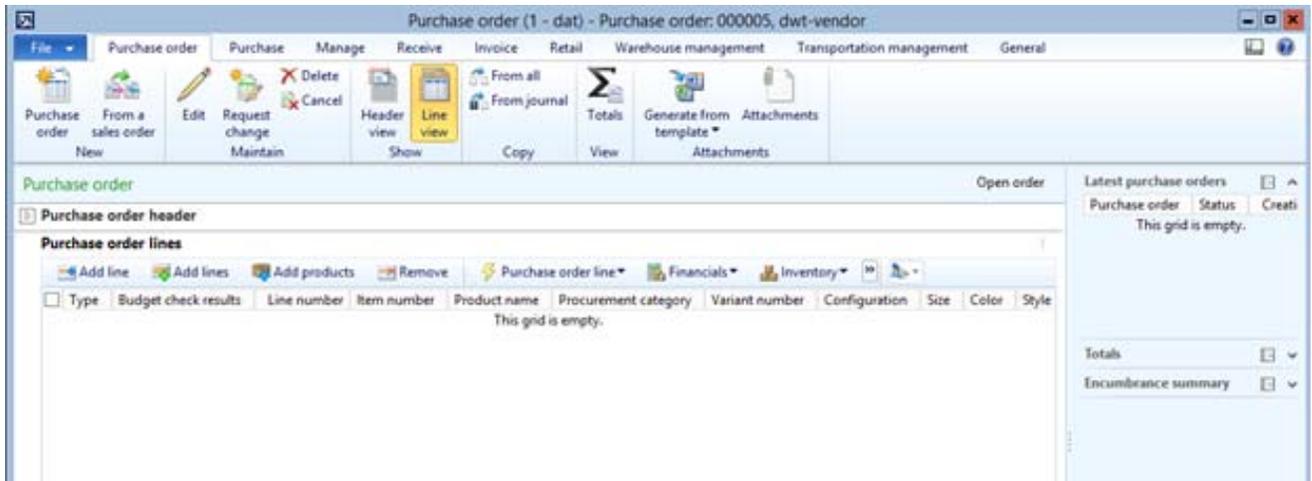
▶ **Administration**

▶ **Unplanned purchases**

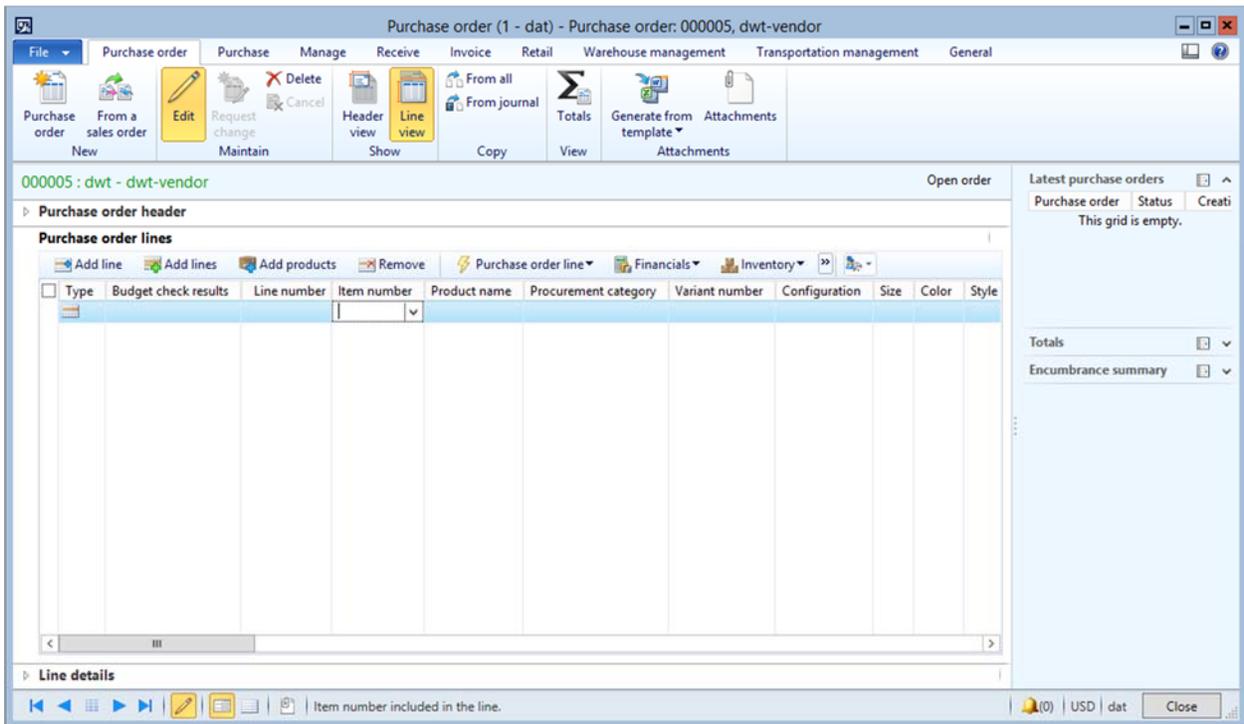
Vendor with whom the purchase order is placed.

4. Make sure **Purchase type** is 'Purchase order'.

5. Click the **OK** button.



6. Switch to the **Purchase order lines** tab on the **Purchase order** form.



7. Choose the first one in the item number.

9. Change **Quantity** to '1.00' if it not 1.

10. What are the following?

Product name _____

Unit _____

Unit Price _____

Net Amount _____.

11. Change **Line number** to '1'.

12. In **Site**, Choose the first one.

...

Appendix B. Portion of the Assignments for Purchasing using Dynamics GP

(Revised from Brunsdon, Romney, and Steinbart (2009) as well as GP handouts from Business Information Systems Department, Western Michigan University.)

IS 627 Assignment 15B Purchasing Model in Microsoft Dynamics GP

Lab

Purchase Exercise using Dynamics GP

Learning Objective:

This purchasing exercise will be completed through Microsoft Dynamics GP, and involves the supply chain management activities of procurement, and infrastructure.

Scenario:

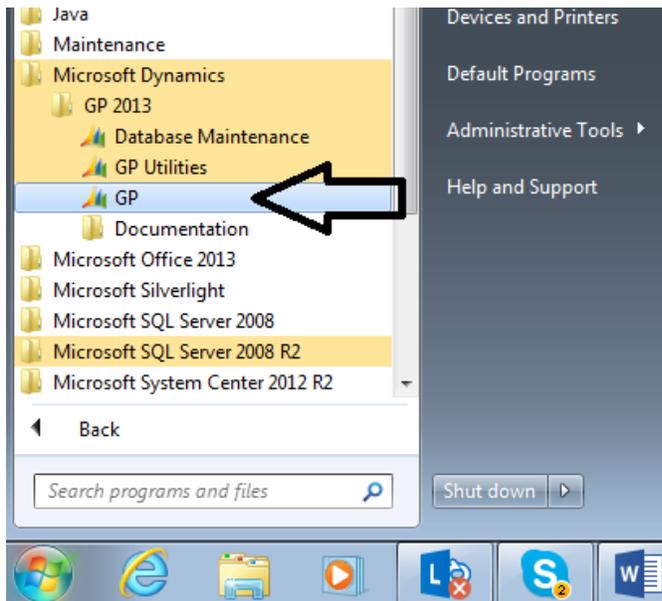
The sales department is forecasting an order for green phones (Item 100XLG) which will have to be shipped from the SOUTH warehousing site in two weeks. You are responsible for insuring that the phones are ready for shipment. Green phones are a resale item for your company. If you do not have enough in inventory, you will have to order more to arrive within a week.

Hands-on Exercise:

I. Navigation

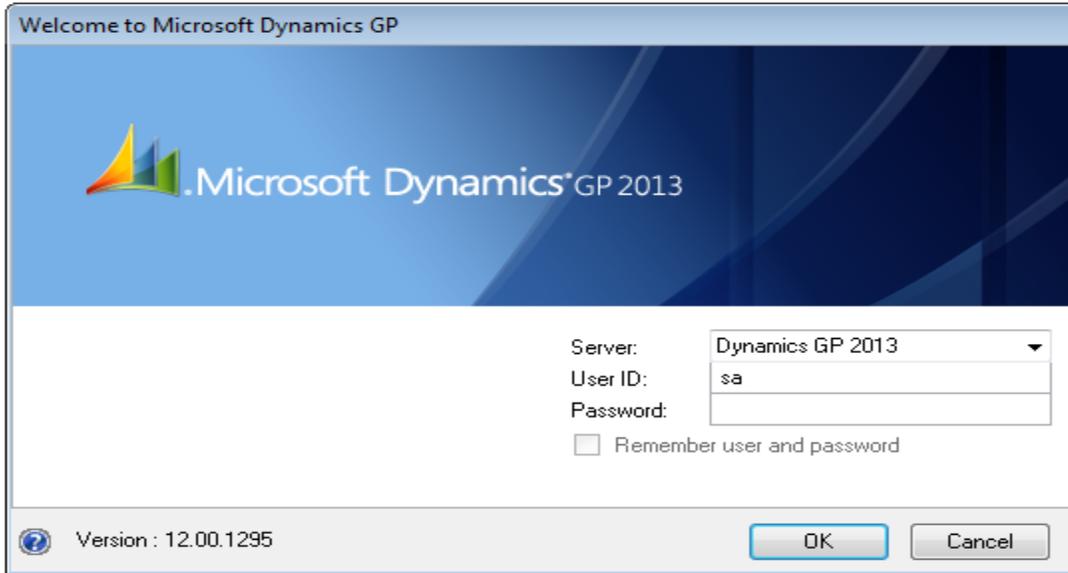
In Windows 10, access to Microsoft Dynamics GP 2013

Start -> Microsoft Dynamics GP 2013 -> GP



Enter the user id **sa** and password (See the label on the computer) provided by professor.

You will see the following screen:



II. Create and Release Purchase Order

Create a Purchase Order through the **Transactions Menu**

Transactions > Purchasing >Purchase Order Entry brings up the **Purchase Order Entry Window**.

Drop down the type of purchasing order, What type of orders do you see?



Use “Standard” as the type of order.

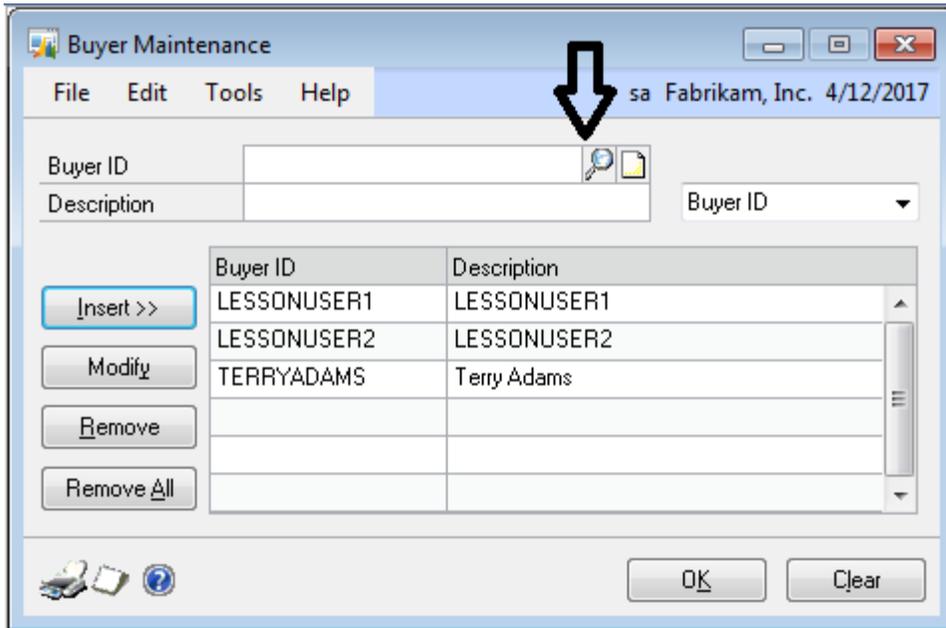
Refer to the next graphic for locations for the following instructions. Click in the PO Number field [**Now it is blank**] to obtain a self-generated PO number. Write down your PO Number below:

After you see the PO number, press the tab key to leave the field.

Then click on the magnifying glass near the Vendor ID and choose the Vendor ID of your selected vendor (Pick the first one: ACETRAVE0001.)

Enter a **Buyer ID** in the Buyer ID window. Click the lookup icon on Buyer ID to find that Fabrikam has created several buyers. Close the lookup window.

Click the hyperlinked Buyer ID field to open the Buyer Maintenance window illustrated next. This window is used to assign GP User IDs as buyers for the company.



Click the lookup icon and select the **sa** and click Select. Then Click Insert. You now have several buyers. Click OK.

Return to the Purchase Order Entry window, click the lookup icon on Buyer ID and select LESSONUSER1.

Your Buyer ID: _____

Your Vendor ID: _____

Click in the **Item** field (arrow 3 in picture in the next page). The location of the item fields can be a little confusing when you see them for the first time. The point of arrow 3 is in the Item field. It is a white box. The box below is the Site ID field

After clicking in the Item field (remember, the white box with the point of arrow 3) click the magnifying glass near the blue underlined **Item** label. Choose the 100XLG item from the list and click the **Select** button. It may give you a message: This is a made item. Ignore the message. The units of measure field should now automatically fill in.

Click in the **Site ID** field (white box at the tip of arrow 4) and then click the magnifying glass near the blue underlined **Site ID** label. Select the SOUTH storage location. Then enter the quantity (arrow 5). Order 5 phones.

If this were a taxable item, we would use the magnifying glass near the blue underlined tax schedule label to select the appropriate tax. We will assume we are buying a non-taxable item. Finally we will enter a freight charge (arrow 6) of \$20.00.

Purchase Order Entry
 sa Fabrikam, Inc. 4/12/2017

Type: Standard Hold Vendor ID: ACETRAVE0001
 PO Number: PO2075 Name: A Travel Company
 Buyer ID: LESSONUSER1 Currency ID: Z-US\$
 Date: 4/12/2017

Allow Sales Documents Commitments

Line	Unit Cost	Site ID	Quantity Canceled	Extended Cost
0	\$0.00		0.00	\$0.00

Remaining PO Subtotal: \$0.00

Subtotal: \$0.00
 Trade Discount: \$0.00
 Freight: \$0.00
 Miscellaneous: \$0.00
 Tax: \$0.00
 Total: \$0.00

Company Tax Sched: COMPANYPUR
 Comment ID:

PO Number: PO Status: New Revision: 0

We have almost completed the Purchase Order.

Purchase Order Entry
 sa Fabrikam, Inc. 4/12/2017

Type: Standard Hold Vendor ID: ACETRAVE0001
 PO Number: PO2075 Name: A Travel Company
 Buyer ID: LESSONUSER1 Currency ID: Z-US\$
 Date: 4/26/2017

Allow Sales Documents Commitments

Line	Unit Cost	Site ID	Quantity Canceled	Extended Cost
1	\$28.46	SOUTH	0	\$284.60
0	\$0.00		0.00	\$0.00

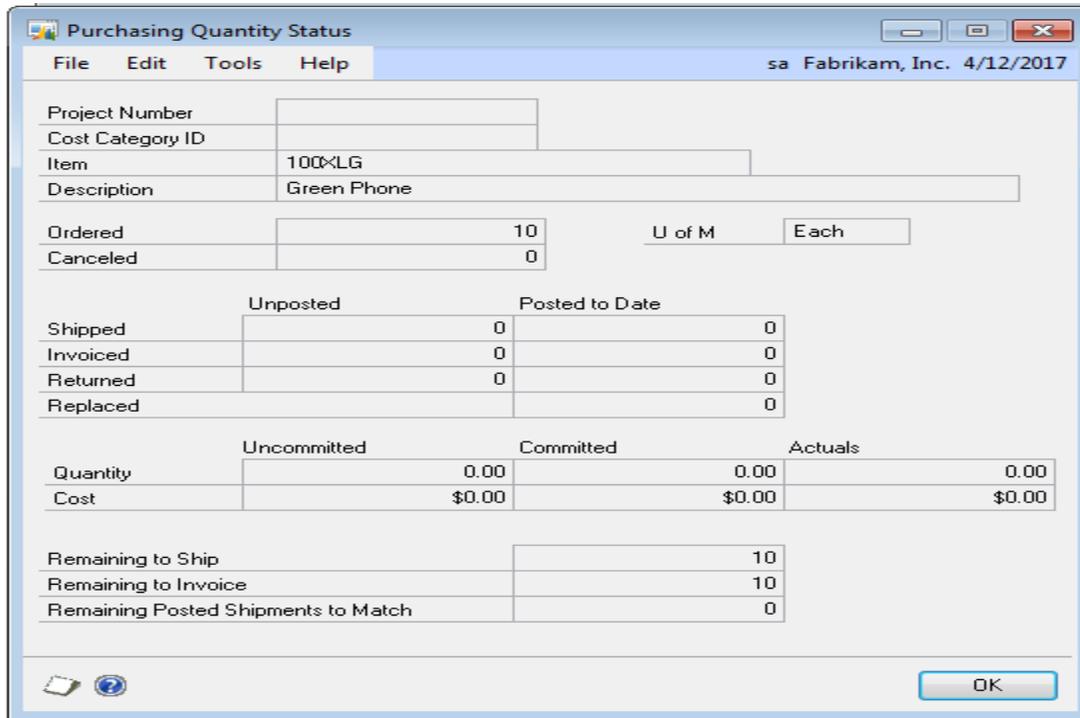
Remaining PO Subtotal: \$284.60

Subtotal: \$284.60
 Trade Discount: \$0.00
 Freight: \$20.00
 Miscellaneous: \$0.00
 Tax: \$0.00
 Total: \$304.60

Company Tax Sched: COMPANYPUR
 Comment ID:

PO Number: PO Status: New Revision: 0

Before ordering, you can view item quantity status. Place your cursor in the Item field for the first line item and click this  symbol. The Purchasing Quantity Status window shows that the only quantity on order are those for this PO. Click OK to close the window.



There is an expansion arrow near the date field that opens the **Purchasing Date Entry** window. Click on the expansion arrow  to bring up the **Purchase Date Entry** window and use the default date (4/12/2017). Change the promised ship date (4/14/2017) in the Purchasing Date Entry window. Promised dates can be entered after communicating with the vendor. Click the **OK** button in the Purchase Date Entry window. Costs should be automatically calculated and there should be a total calculation.

If it was active, the Hold box to the left of the Vendor ID could be clicked to prevent the release of the purchase order until it is approved by company management. Dynamics GP can be configured to allow certain levels of management authority to release holds.

Do a print-screen. Save the purchase order by clicking the **Save button** in the upper left of the Purchase Order Entry window. After saving, a blank Purchase Order Entry window appears ready for another PO. We will not be creating another PO at this time but we want to release the PO we just created. A company releases a purchase order when it makes it available to the vendor. **The process of releasing an order in GP is accomplished by printing the purchase order.**

Bring the PO you just created back by clicking the magnifying glass near the PO Number and select your PO Number from the list.

With the Purchase Order open, click the Printer icon located at the upper right of the Purchase Order Entry window.

