Western Michigan University

HCoB – CIS 4990

End-User Documentation Guide

Guide to Management Software Dashboard User Interface for Stryker

- Team #1 Project Manager – Austin Sarkozi
- Team #2 Application Developer – Mason Roy
- Team #3 Sales and Distribution – Tevy Wheatley & Elijah Black
- Team #4 Production – Jake Weir & Sulaiman Abdulrahman Aljammaz
- Team #5 Material Management – Ethan Rouse
- Project Advisor – Dr. Andrew Targowski

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Executive Summary

As the Stryker Corporation, together with our customers, we are driven to make healthcare better. Stryker is a medical technology company that strives to better Orthopaedics, Medical and Surgical, and Neurotechnology and Spine fields of the healthcare industry. Our company is based in over 100 countries worldwide making us one of the world's leading medical technology companies. The continuous development of our products has allowed us to obtain 4,000+ patents, 35+ years of sales growth, and maintain over 30,000+ employees worldwide. We plan to increase revenues by at least 4% within the next year. These attributes are motives for striving to better our complex organization system within Stryker's internal operations.

By developing a better system, we can analyze and optimize subsystems to work coherently with one another. These subsystems will continuously transfer useful data that will be used to improve the company's integrity of internal operations. The result of this development will permit Stryker to behave in an efficient and effective manner by reducing data error, redundancy, and proper flow of data within our internal system.

Introduction

The analysis of Stryker's current business subsystems, functions, activities and software programs is crucial to the development of future operations. Our overall objective is to create a well-designed system that will support Stryker's vital internal operations while maintaining its integrity, organization, and communication amongst subsystems. By defining each subsystems functions, activities and key performance indicators, we can determine how each subsystem will interact with the management software. The key performance indicators will be based upon 'Business Intelligence,' 'Global Intelligence,' and 'Sustainability Intelligence,' to help us further our understanding on the optimization of each subsystem's efficiency. We will determine constraints, alert reports, and inputs of activity, database files, and useful tools such as scheduling reports.

By implementing this management software, Stryker's CEO and subsystem managers can make decisions based upon the performance that is constantly displayed on the software interface. This interface will use the data from inputs to compare past and current performance. The software will immediately display any critical issues within the internal operations. This will help Stryker's CEO benchmark the company's overall future goals. This end-user documentation guide is designed for an enterprise-wide experience of the management software dashboard interface. It demonstrates various functions, tasks, and tools that assist in understanding the full potential of the dashboard. In addition, the guide will explain how the dashboard uses the ERP software data and information to create as well as display reports. These reports entail an overview of key performance indicators, alerts, inputs, data governance and schedules. The result of these reports are to enhance a positive decision making experience to further company productivity and growth.

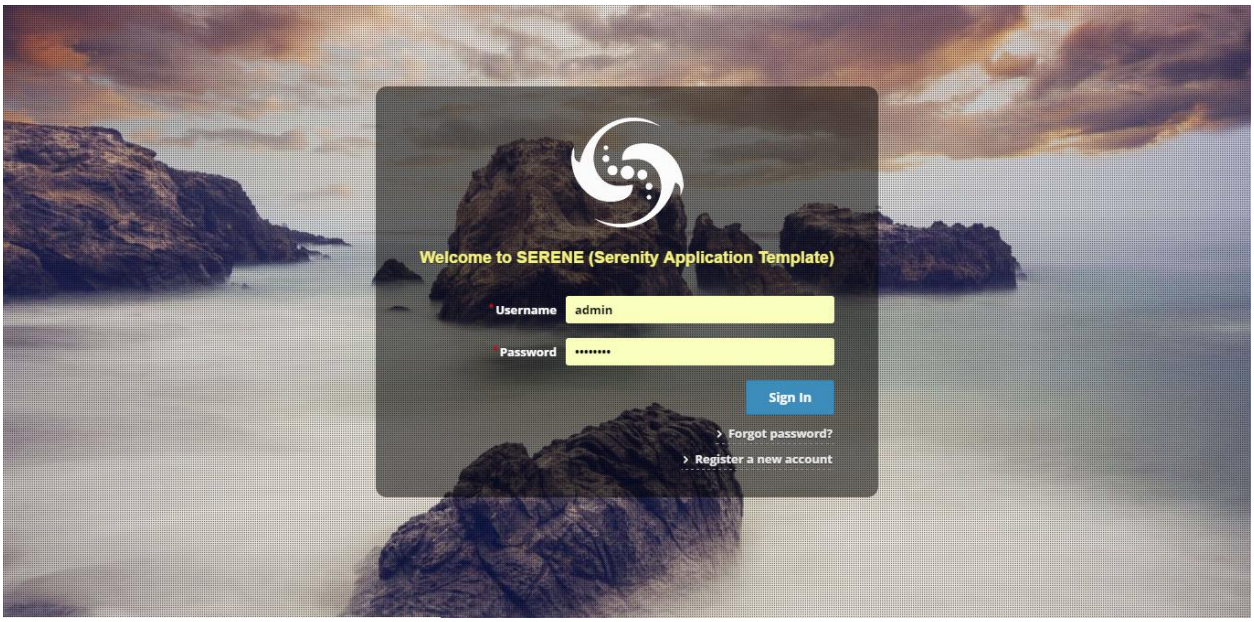
Software Definition

Our software is developed to assist the Stryker CEO, on decision-making based upon the company's internal operations and overall performance. By displaying graphs, models, and other tools, the CEO can visually compare information and data. This makes the decision process easier because it allows them to analyze the exact sector of the company that is meeting goals or falling short of objectives. Since the internal and overall operations are crucial to company growth, it is necessary to have a simplistic dashboard that displays vital information and data. The development phase of this software includes several trial and error scenarios the end-user may incur while using the ERP system. These situations help us understand how we can optimize our software to make it more user friendly, analyze data quicker, and maintain the integrity of the information.

Management Software Dashboard User Interface

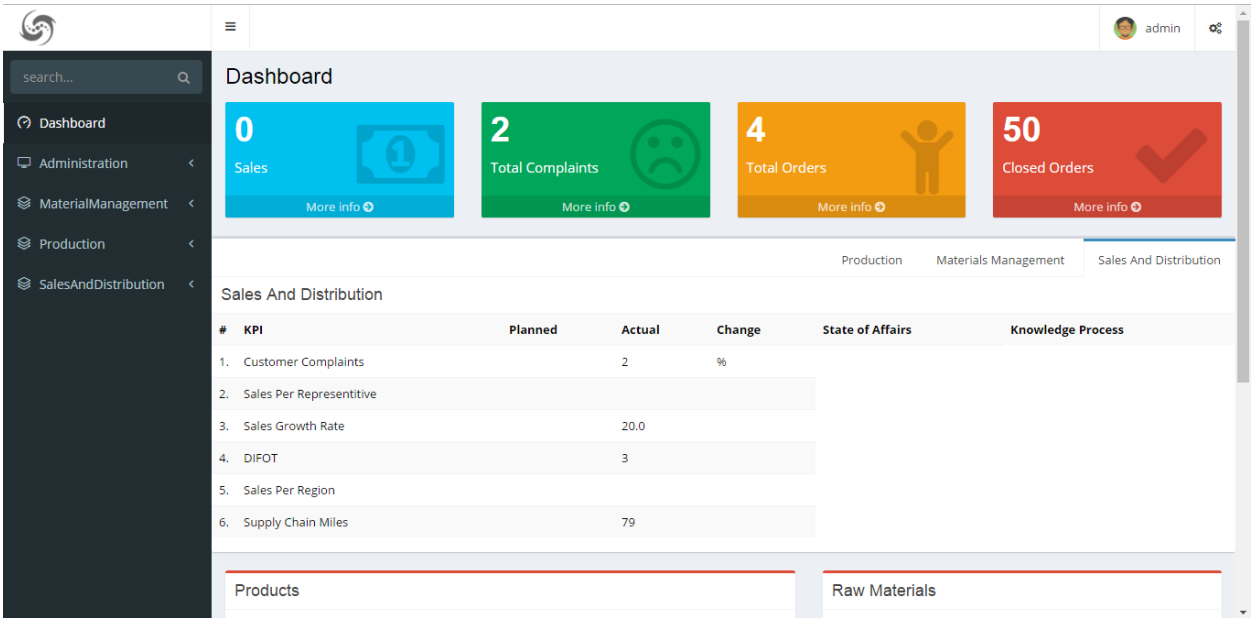
Please follow the guide below to begin your experience with the dashboard user interface.

1. On the **Start** menu, scroll through **All Programs,** click **Management Dashboard:**
   a. The dashboard start screen appears. Enter an existing or desired username and password in the proper fields. (Ex: **Username:** admin **Password:** admin)

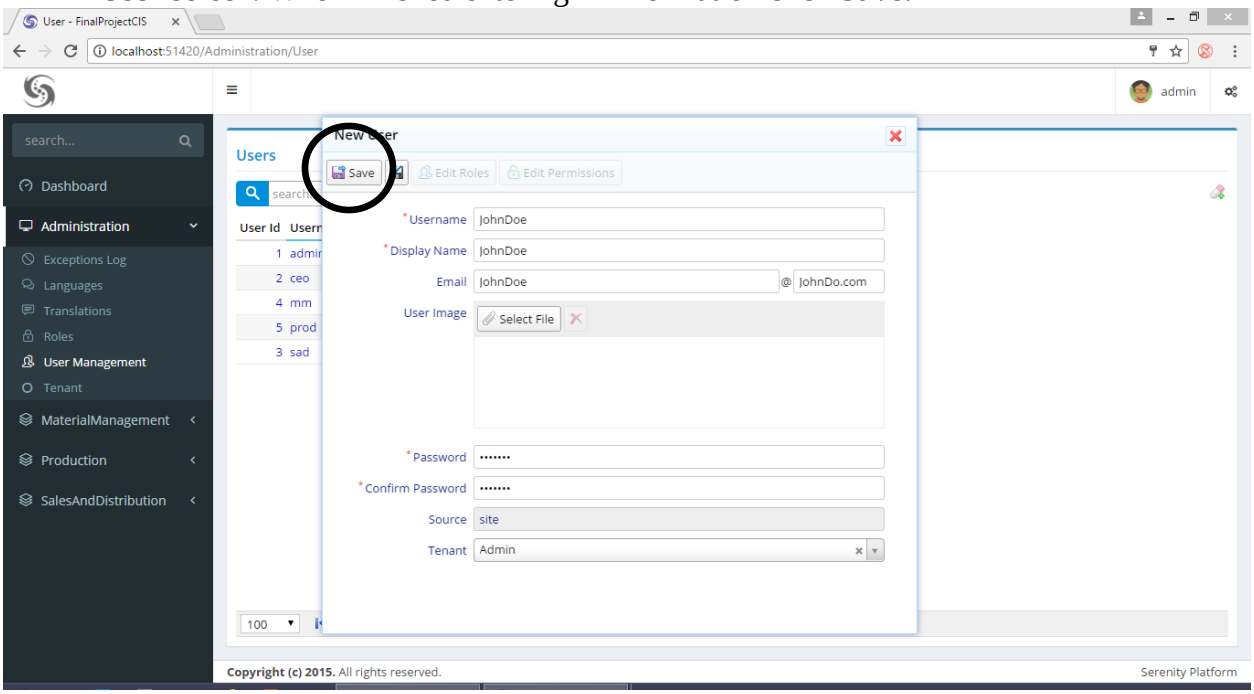


2. Click **Next**:

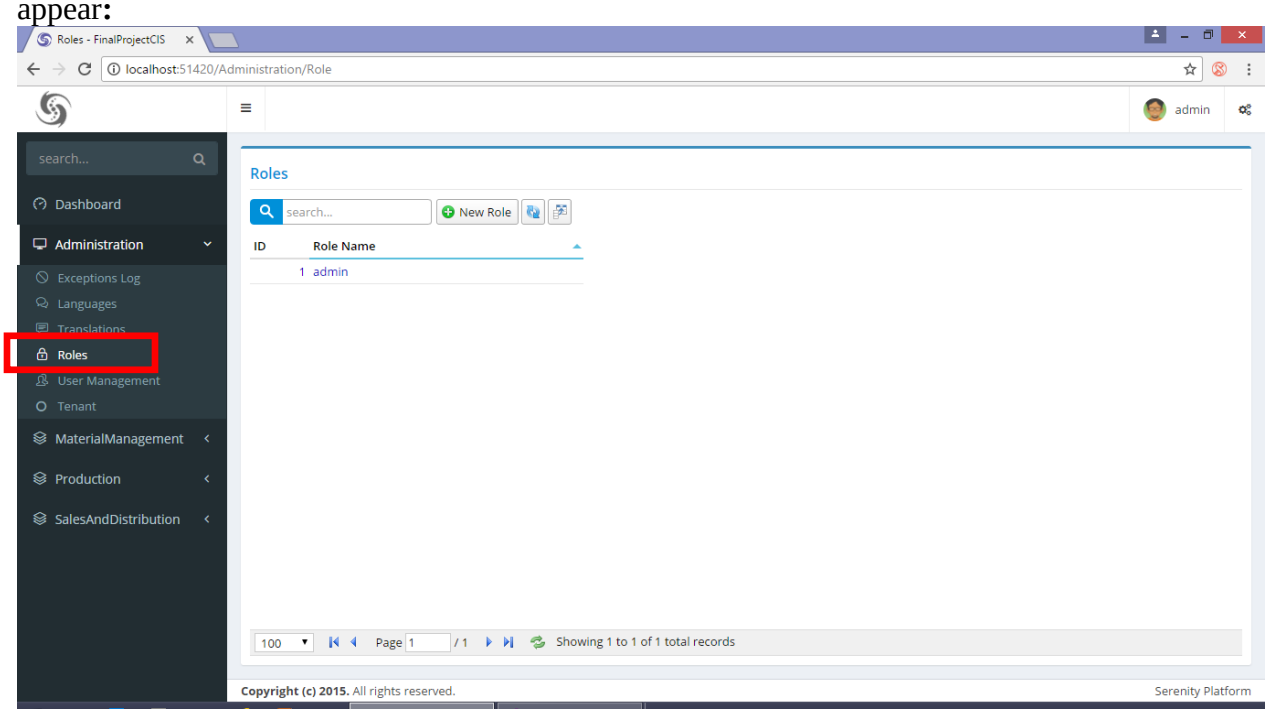
a. If the username and password exist, you will see the dashboard menu, figures, highlighted information, etc.



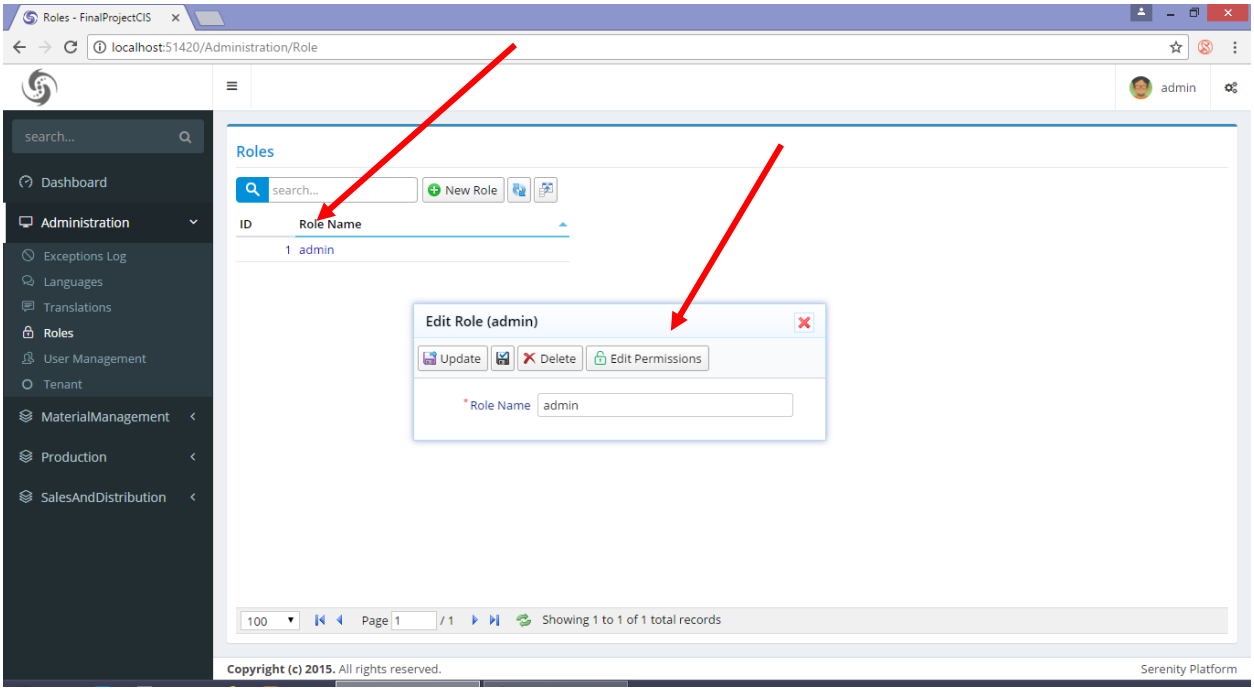
b. If the username and password do **not** exist, you will be taken to the **New User** screen. When finished entering in information click **Save:**



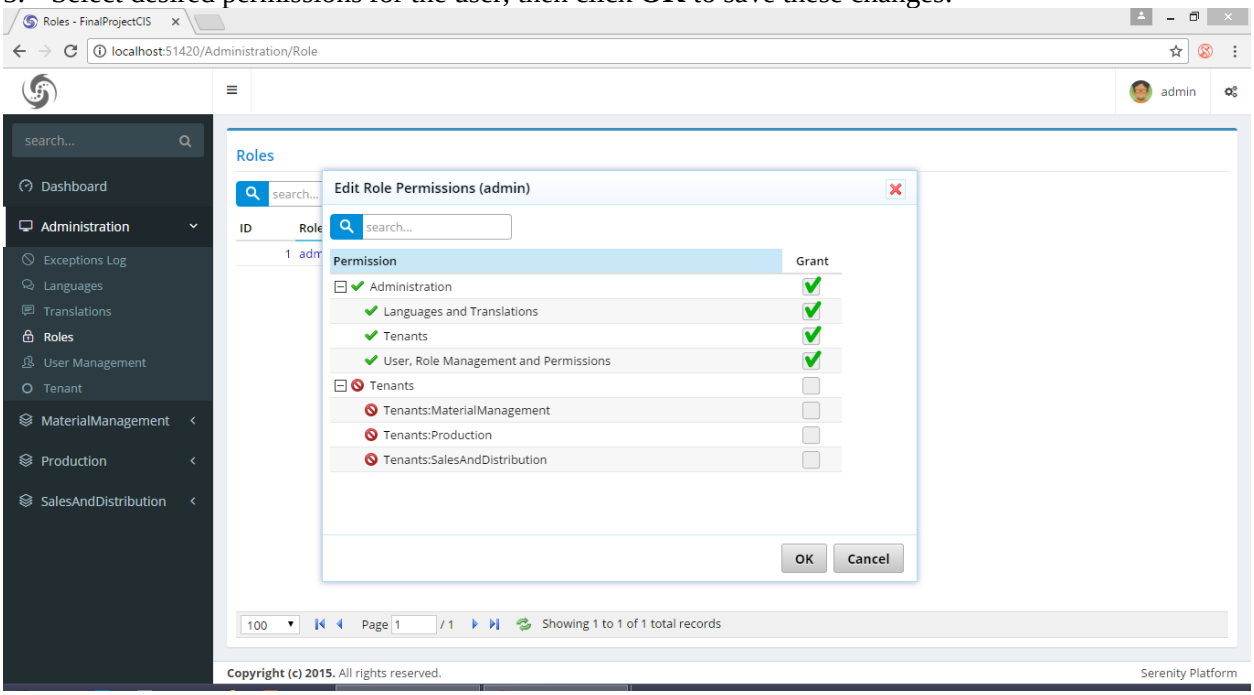
3. To view, add or edit the role of a user, click on **Roles** and the following screen will appear**:**



4. To **edit** a role of a user, double click on the **Role Name.** Then, click **Edit Permissions:**

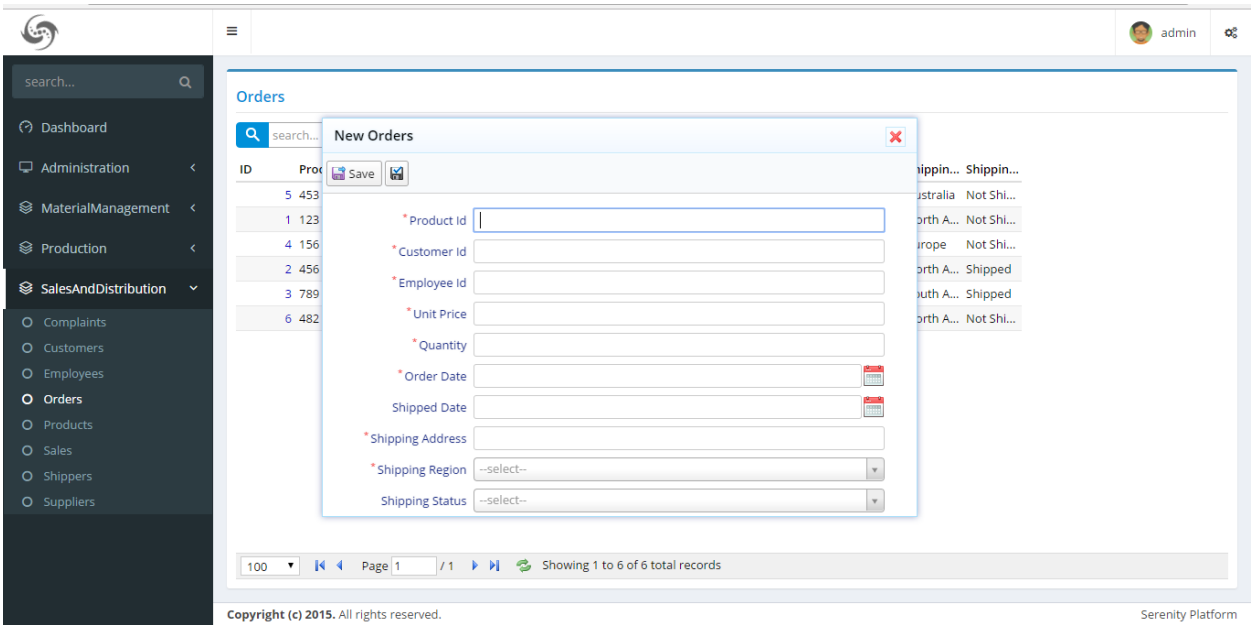


5. Select desired permissions for the user, then click **OK** to save these changes:



For the Sales and Distribution Department:

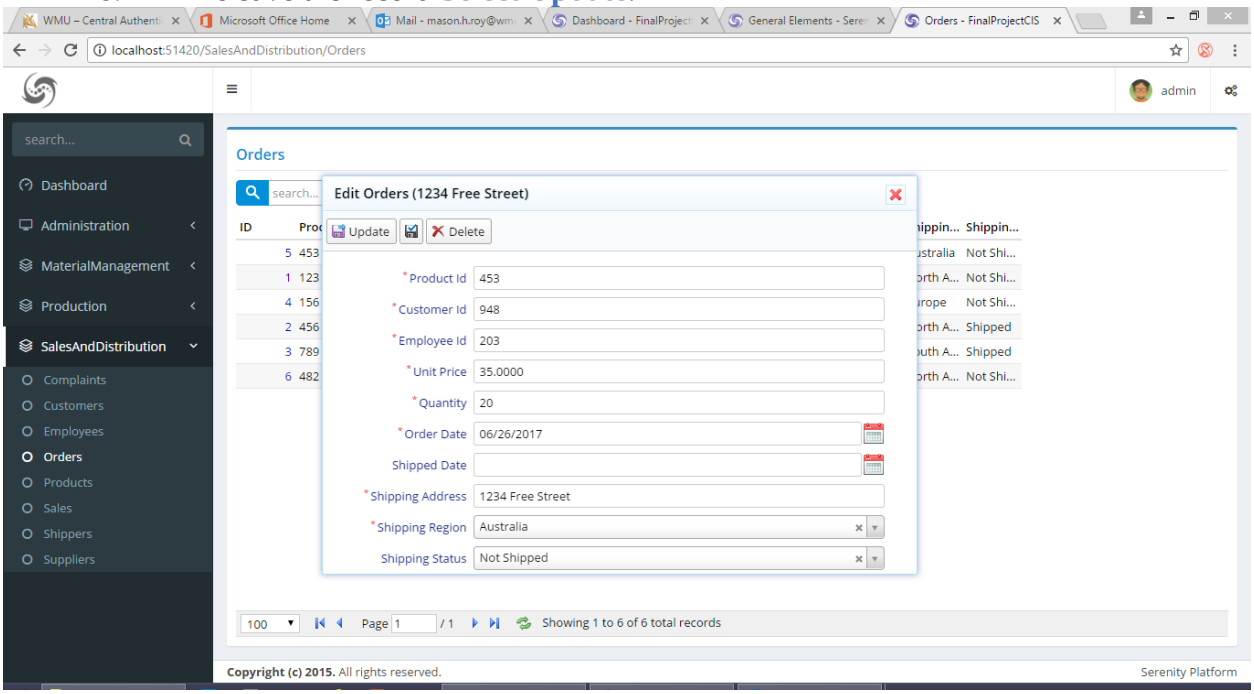
4. The Add Record window will be displayed, select **a Field,** then click **Save:**



5. The Edit Orders window will display a record entered in the past, click **an ID#.**

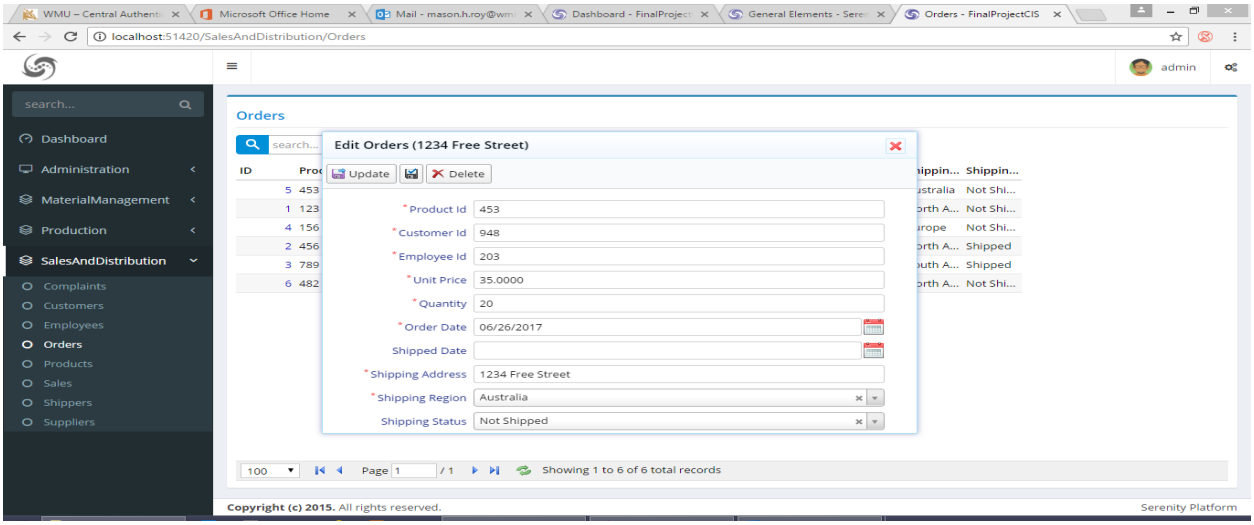
   a. This will pull up a box displaying the records information. You can then click a Record Box in order to change information.

   b. To save the record **Select Update**.



6. The Edit Orders window will display a record entered in the past, click **an ID#.**

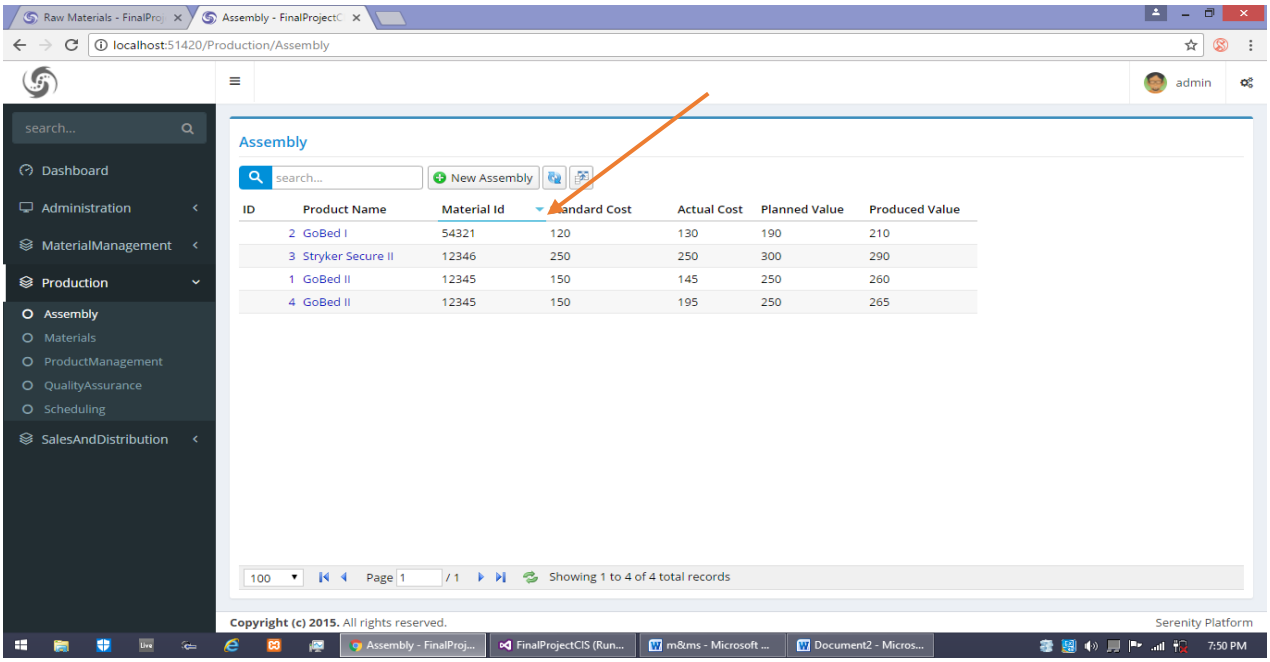
   a. To delete the record **Select Delete**.



For the Production Department:

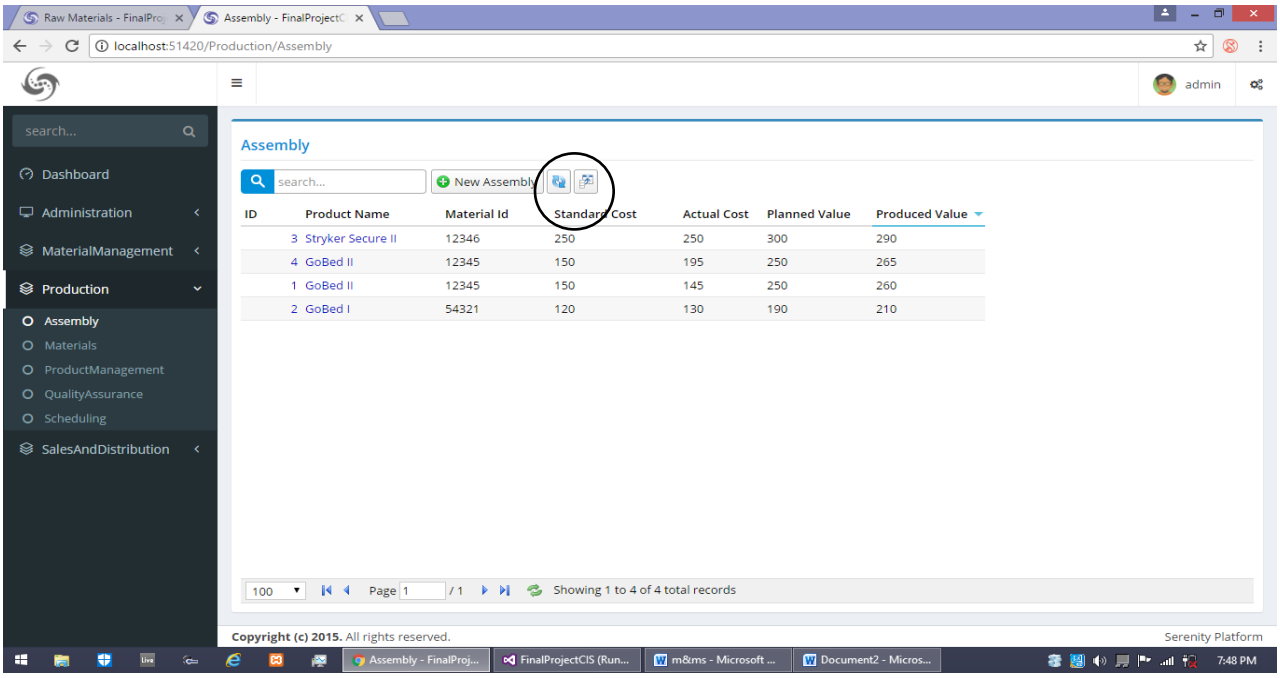
How to sort by Material Id:

1. Click on the arrow next to the header **Material Id:**

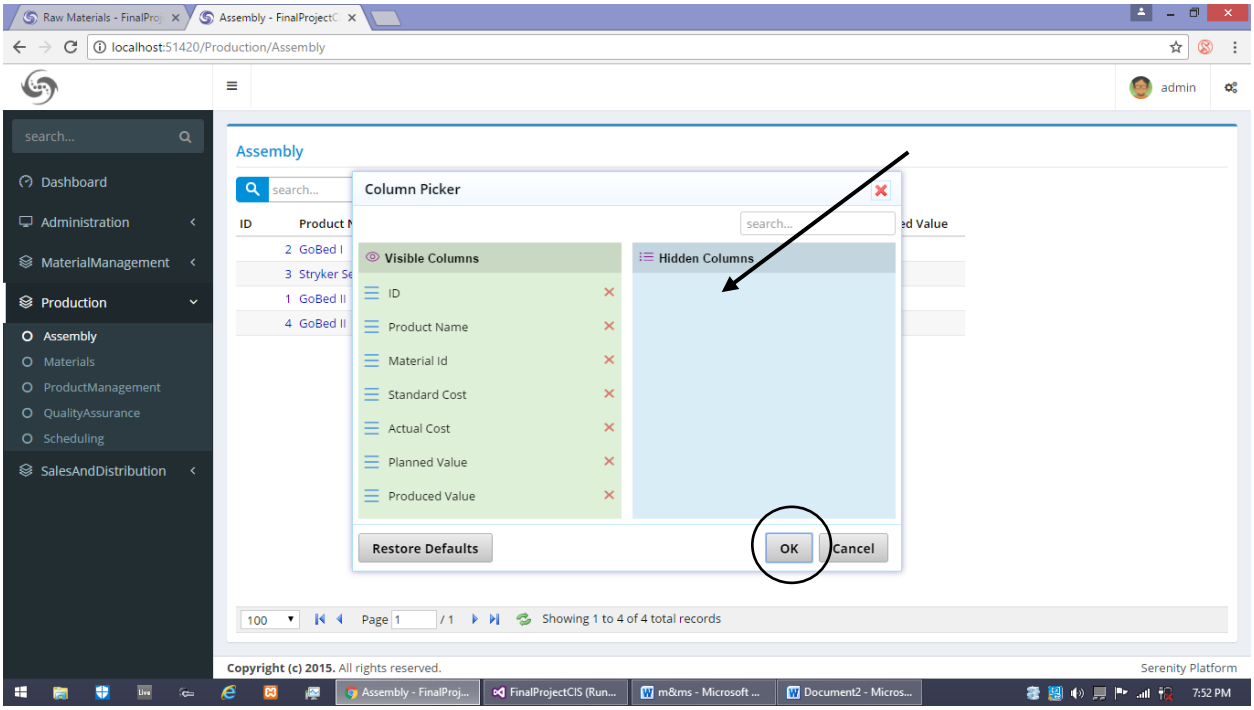


How to choose columns in a table:

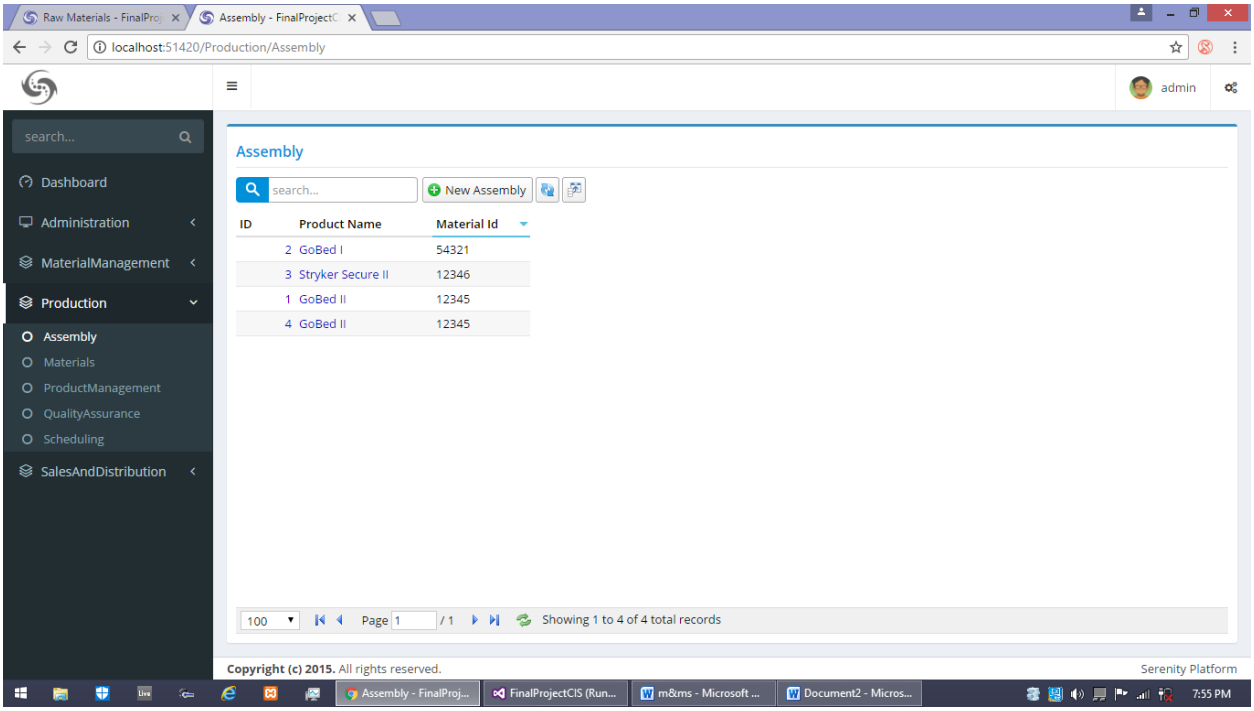
1. Click the **Sort Column** icon:



2. Clear columns by selecting the **X** next to the column name, then click **OK** :



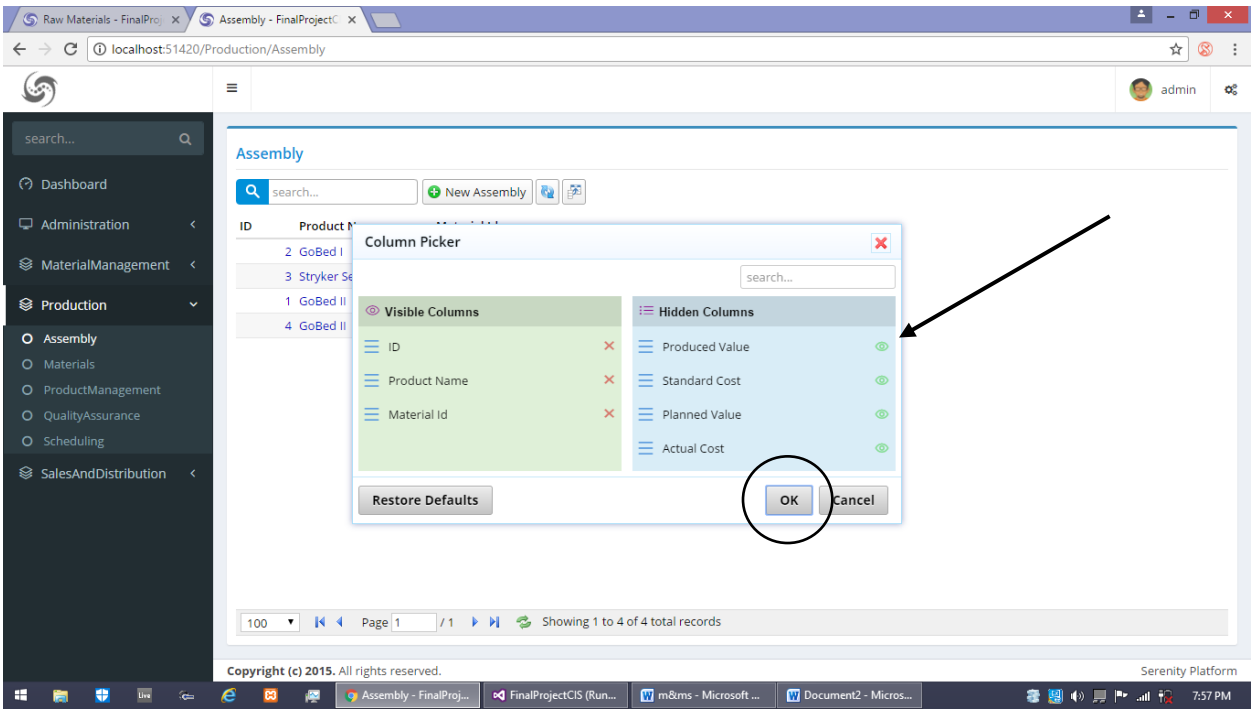
3. Your screen will appear with only the columns you chose:



Adding columns back into table:

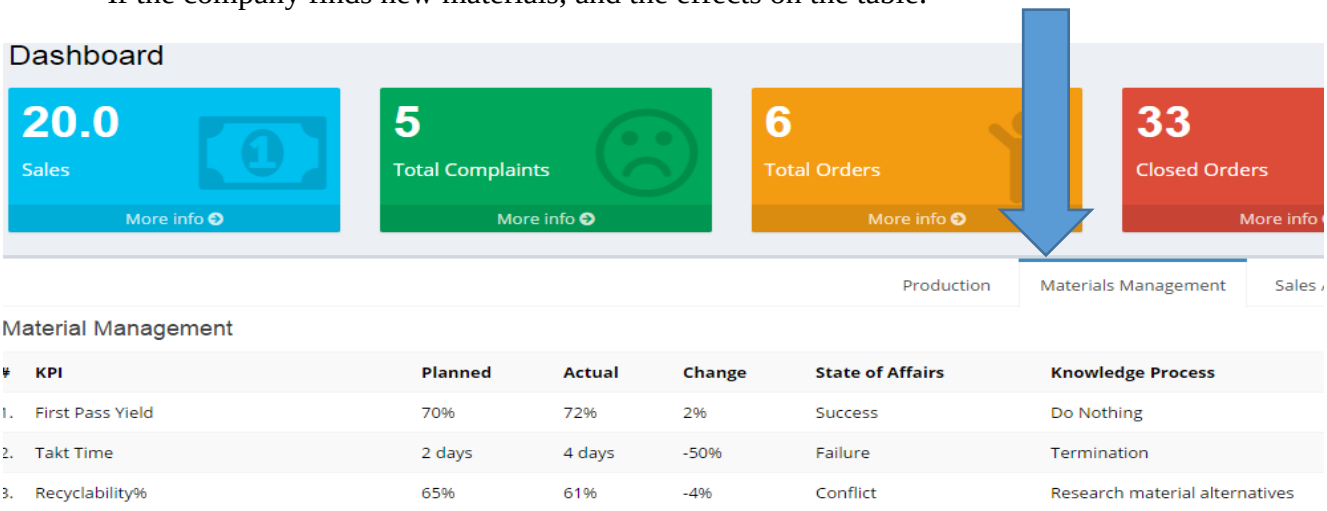
1. Click on the **green eyeball icon** next to the column name in the **Hidden Columns**:

2. Click **OK** when finished selecting the proper columns.



For the Material Management Department:

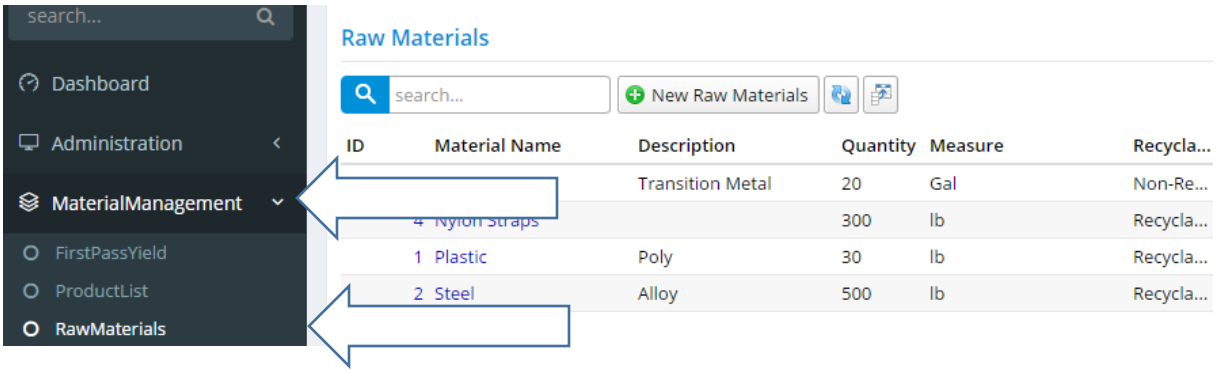
- If the company finds new materials, and the effects on the table.



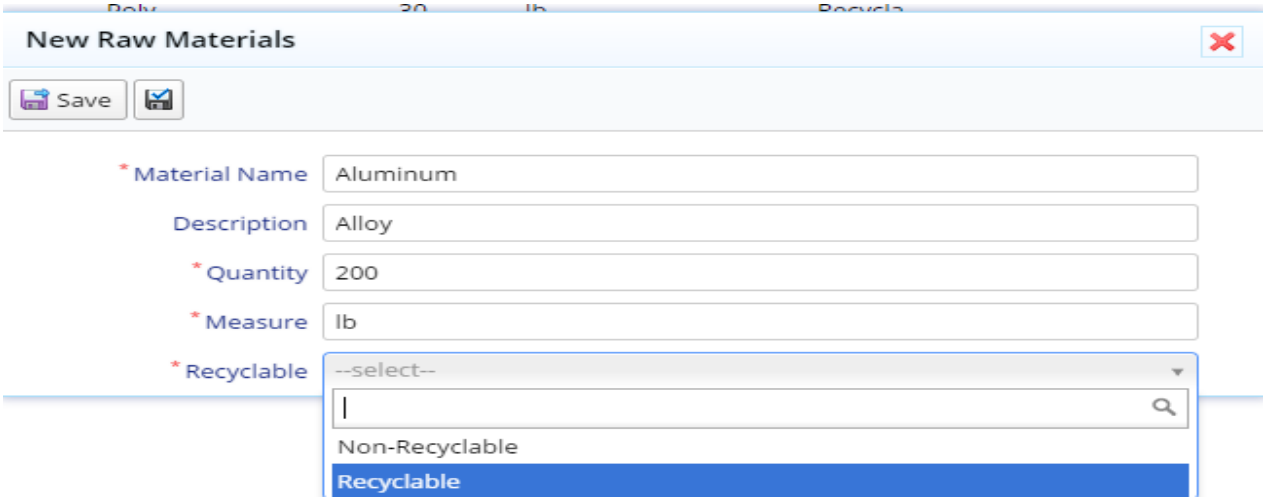
Material Management

#	KPI	Planned	Actual	Change	State of Affairs	Knowledge Process
1.	First Pass Yield	70%	72%	2%	Success	Do Nothing
2.	Takt Time	2 days	4 days	-50%	Failure	Termination
3.	Recyclability%	65%	61%	-4%	Conflict	Research material alternatives

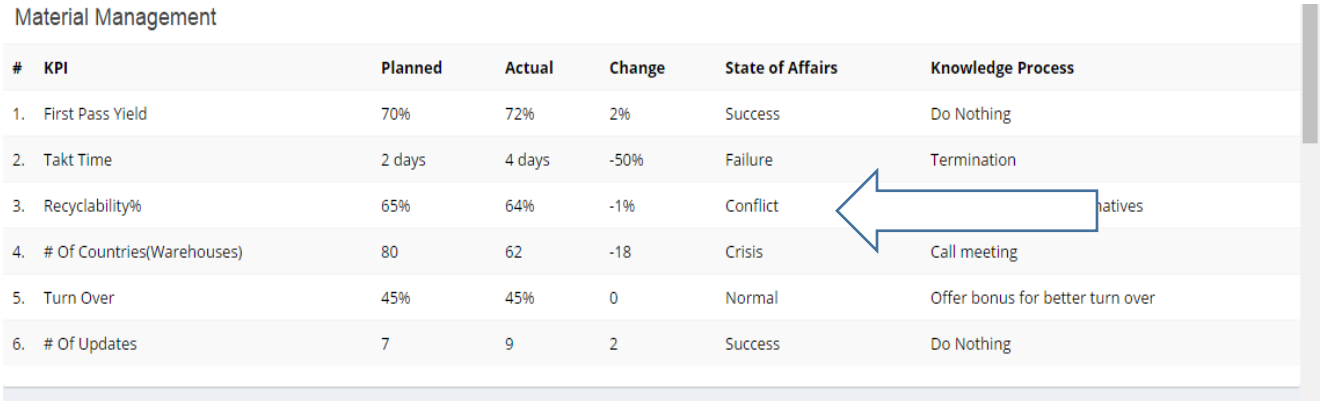
1. Select the **Materials Management** tab on the right of the dashboard, to pull up the **KPI** listings of this department.
    a. As you can see recyclability's planned is 65%, the actual at -4% of planned. This leaves the state of affairs as a conflict, and the CEO picked research material alternatives.
    b. If Stryker did find a new material that is recyclable they can add it to the Raw Materials table.



2. Click the **Material Management** drop down database table list, then the raw materials table to open it on the screen.



3. Once the table is open on the screen select **+ New Raw Material**.
    a. A material name, quantity, measure, and recyclability are all required to be filled, denoted by the *.



4. Once the material is added to the list the Material management dashboard page is updated.
    a. The actual changes based on the amount of total recyclable products over the total products. Depending on the amount of change from planned and actual the state of affairs will also change between: Success, normal, conflict, crisis, and failure. These ranges are based on the companies requirements of the KPI's.

Evaluation Criteria

Our section of the project was designated to simulate the CEO of Styker's wisdom based off the knowledge, information and data provided by the company's ERP system. The dashboard interface is strategically designed to display models first, then provide the information below, while allowing communication to others, and allowing full access to other subsystem operations. The dashboard interface displays these key performance indicators of the company to easily understand fluctuations within internal and overall operations. The design had to be simplistic enough to offer quicker interpretation and decision making. It often makes it is easier to visually see models and information. By formatting the dashboard, with an overview and subsystem overview, they can make decisions based upon individualized sections of the company.

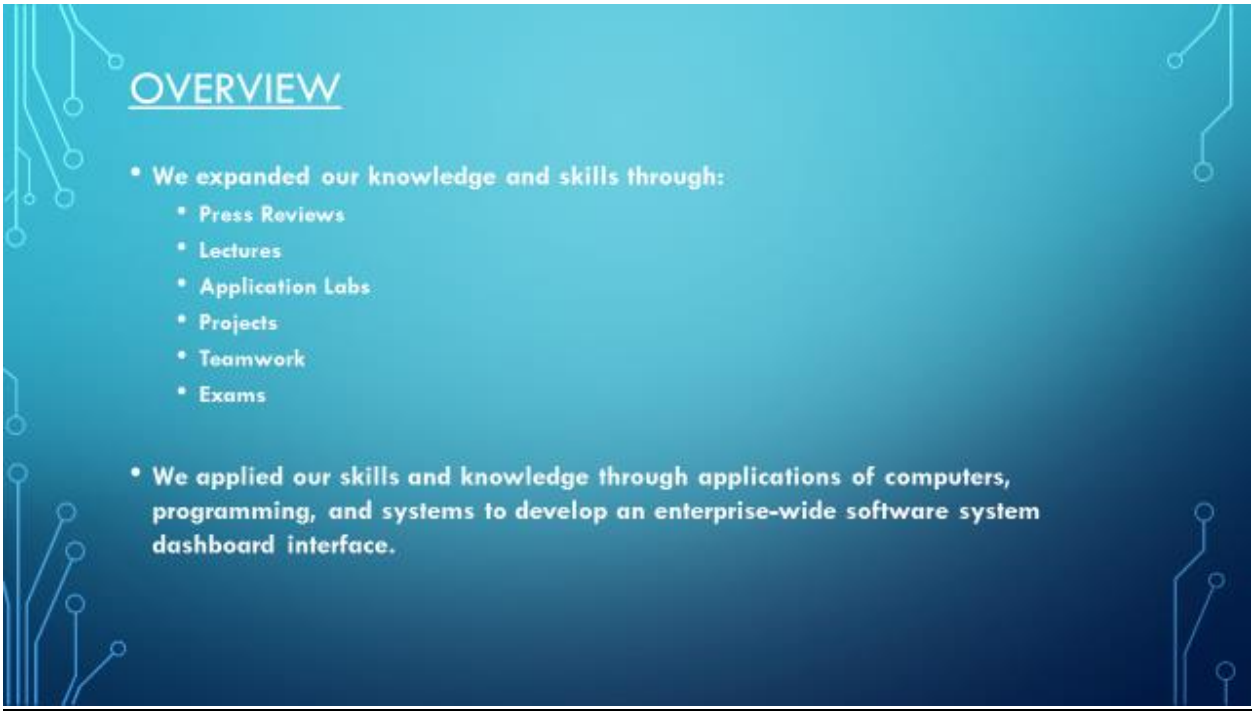
Self-Evaluation

Austin Sarkozi

A. This project allowed to me to understand how to create a dashboard interface using applications such as Serenity. By using the knowledge of coding, we could create, format and implement the dashboard to help interpret inputs. These inputs resulted in alerts that were visually displayed by models and set by equations within the code. I am not proficient in coding, however Team 2 (Mason Roy) helped the teams understand how to use and apply his directions to make the interface.
B. I can apply these skills to my future job opportunities by understanding how and why were designed the dashboard the way we had. The interface was designed to be simple enough to allow quicker operations. I can also apply these skills to create, modify and implement a dashboard system based upon understanding the information and system criteria. My portion of the project also allowed to me to create deadlines and help organize other teams to accomplish an overall goal. I can use those skills to help manage future projects so companies can further their growth.
C. I can apply these skills to my life by understanding how to organize others as well as myself to meet objectives. Deadlines are important and by organizing as well as being informed I helped myself understand that communication amongst others can make for great business skills.

Appendix


CIS – 4990
ENTERPRISE PROJECT


OVERVIEW
• We expanded our knowledge and skills through:
• Press Reviews
• Lectures
• Application Labs
• Projects
• Teamwork
• Exams
• We applied our skills and knowledge through applications of computers, programming, and systems to develop an enterprise-wide software system dashboard interface.

LECTURES

- Architecture of System Concepts
- Enterprise-Wide Systems
- Business Process
  - Bill of System Processors
  - Bill of Material Processors
- Data Governance
- Semantic Ladder
- SAP Projects/Lifecycles
- Project Team Structure
- Microsoft Lifecycle
- Testing
- SOA – Service Oriented Architecture
- Resume

SEMANTIC LADDER

WISDOM – Choice

↑

KNOWLEDGE – Awareness Unit of Cognition

↑

CONCEPT – Directional Unit of Cognition

↑

INFORMATION – Comparative Unit of Cognition (Change)

↑

DATA – Actual/Measuring Unit of Cognition

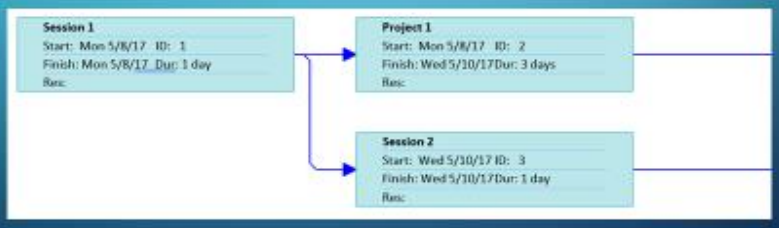
↑

REALITY

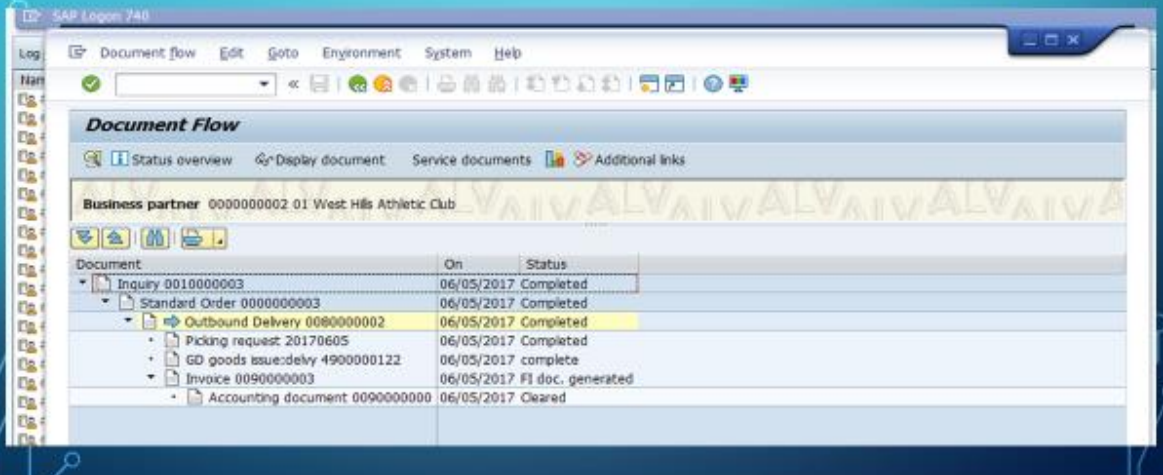
Gantt Schedule

ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors
1		Session 1	1 day	Mon 5/8/17	Mon 5/8/17	
2		Project 1	3 days	Mon 5/8/17	Wed 5/10/171	
3		Session 2	1 day	Wed 5/10/17	Wed 5/10/171	
4		Session 3	1 day	Mon 5/15/17	Mon 5/15/173	
5		Lab 1: CPM	3 days	Mon 5/15/17	Wed 5/17/174	
6		Project 2	6 days	Mon 5/15/17	Mon 5/22/174,2	
7		Session 4	1 day	Wed 5/17/17	Wed 5/17/174	
8		Session 5	1 day	Mon 5/22/17	Mon 5/22/177	
9		Session 6	1 day	Wed 5/24/17	Wed 5/24/178	

CPM/PERT Schedule



SAP - ERP PROCESS



EXAMINATIONS

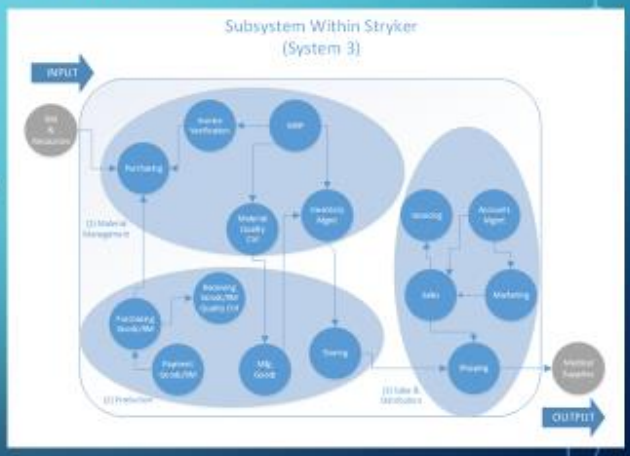
- Exam One
  - Project 1 – Information Engineering
  - Project 2 – System Engineering
  - Project 3- Software Engineering
  - Data Governance
- Exam Two
  - Project 3 – Software Engineering
  - Enterprise Software – Before/After, 5 W's, How
  - SAP – Lifecycles & Projects
  - Microsoft Lifecycles
  - Internet and Beyond
  - Enterprise Complexity

PROJECTS OVERVIEW

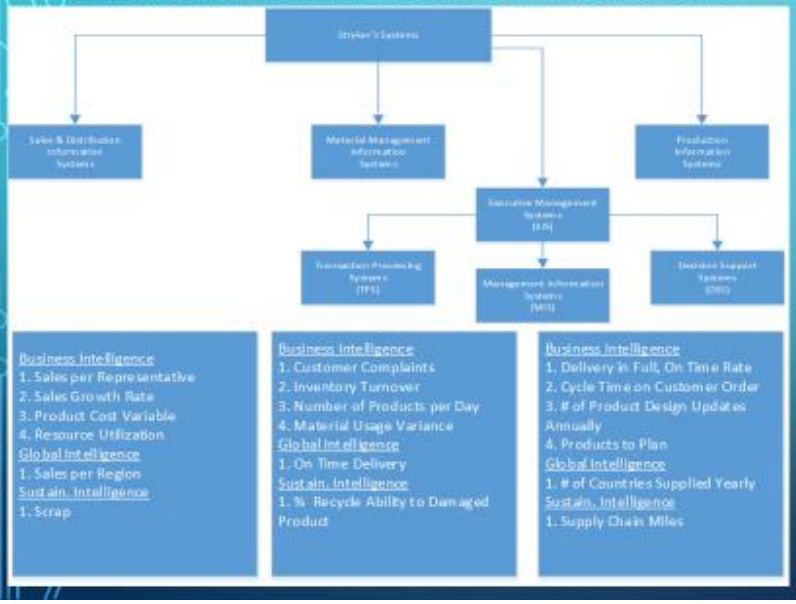
- Teams
  - Advisor – Dr. Andrew Targowski
  - Team #1 Project Manager (Leader) – Austin Sarkozi
  - Team #2 Application Developer – Mason Roy
  - Team #3 Sales and Distribution – Tevy Wheatley & Elijah Black
  - Team #4 Production – Jake Weir & Sulaiman Abdulrahman Aljammaz
  - Team #5 Material Management – Ethan Rouse
- Formal Documentation/Report of Project Material
- Presentation of Project Material
- Engineering based upon designated system sector

PROJECT ONE
INFORMATION ENGINEERING
DESIGN AN ENTERPRISE SYSTEMS COMPLEX

- Srombrero Model of Stryker
- Set of Business Activities within Stryker (System-1a)
- Define Limited Relationships within Stryker (System-1b)
- Multiple Relationships between Elements (System-2)
- Subsystems within Stryker (System-3)
- Cybernetic Model of Stryker



PROJECT TWO
SYSTEM ENGINEERING
STRYKER CORPORATION MANAGEMENT SOFTWARE SPECIFICATION



Business Intelligence
1. Sales per Representative
2. Sales Growth Rate
3. Product Cost Variable
4. Resource Utilization
Global Intelligence
1. Sales per Region
Sustain. Intelligence
1. Scrap

Business Intelligence
1. Customer Complaints
2. Inventory Turnover
3. Number of Products per Day
4. Material Usage Variance
Global Intelligence
1. On Time Delivery
Sustain. Intelligence
1. % Recycle Ability to Damaged Product

Business Intelligence
1. Delivery in Full, On Time Rate
2. Cycle Time on Customer Order
3. # of Product Design Updates Annually
4. Products to Plan
Global Intelligence
1. # of Countries Supplied Yearly
Sustain. Intelligence
1. Supply Chain Miles

- Bill of System Processors
- Information Subsystems
  - Transaction Processing System (TPS)
  - Management Information Systems (MIS)
  - Decision Support Systems (DSS).
- Information Functions
- KPI's - Key Performance Indicators
- Schedule Reports
- Alerts
- Files of Data
  - Primary and Foreign key Relationships
- Data Governance
- Requirements of Implementation

PROJECT THREE - SOFTWARE ENGINEERING

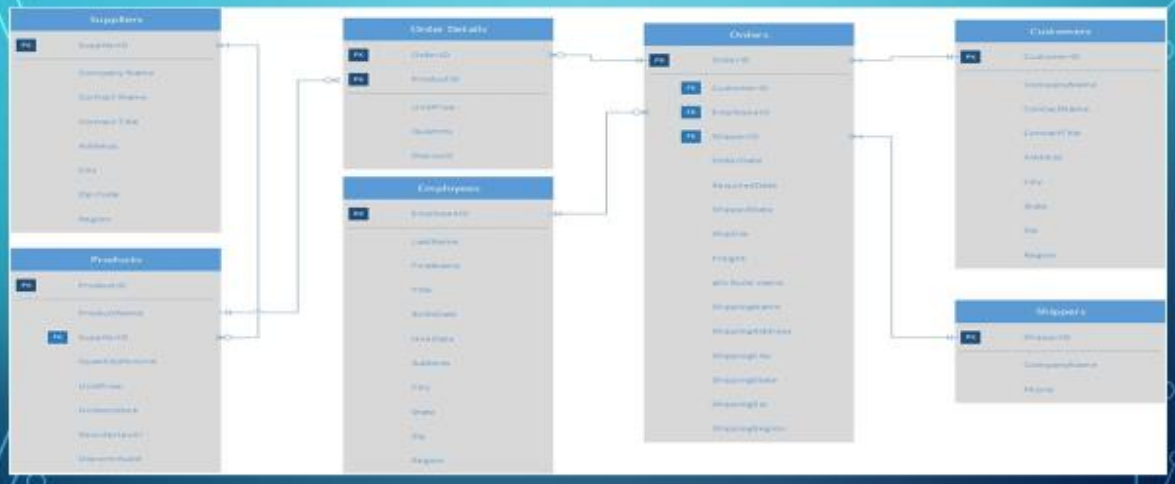
DESIGN SOFTWARE FOR MIS-EPM-MANAGEMENT DASHBOARD INTERFACE

- Define and design software for dashboard interface based upon designated team using Serenity
- Design includes:
  - Data, Information, Concept, Knowledge, Wisdom Processing
  - Alerts
  - Reports
- End-user Documentation Guide
- Visually Appealing for Users

WHAT WE LEARNED

- An understanding on the resources needed in order to start working on a project.
- Serene: C#, JavaScript, HTML
- Time Management
- How to interpret what we learned from previous classes into a final product.
- Better understanding on what is needed from a database.
- Making a final product user friendly for the client.

SALES AND DISTRIBUTION ERD DIAGRAM



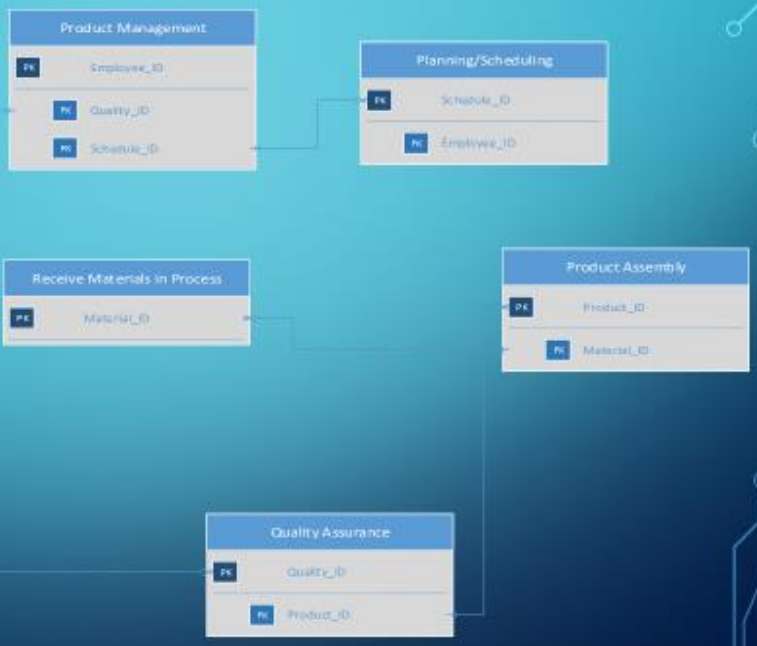
SALES AND DISTRIBUTION

- Business Intelligence
  - Customer Complaints
  - Sales per Representative
  - Sales Growth Rate
  - Delivery In Full, On Time (DIFOT) Rate
- Global Intelligence
  - Sales per Region
- Sustainability Intelligence
  - Supply Chain Miles

ALERTS

Reports						
	Customer Complaints	Sales per Rep	Sales Growth Rate	DIFOT	Sales per Region	Supply Chain Miles
Weekly	1	$1,200	0.45%	98%	17%	600
Monthly	7	$4,000	5%	97%	18%	2000
Yearly	75	$50,000	13%	95%	18.30%	24000
Alert Reports	>25 quarterly	>10 quarterly	>1.5 quarterly	>90%	>14%	<9000 quarterly

PRODUCTION ERD DIAGRAM



PRODUCTION KPI'S

- Business Intelligence
  - Production to Plan
  - Production Cost Variance
  - Material Usage Variance
  - Resource Utilization
- Global Intelligence
  - Response Time
- Sustainability Intelligence
  - Scrap

ALERTS

	KPI					
Reports	Production to plan	Production Cost Variance	Material Usage	Resource utilization	First Response Time	Scrap
Weekly	77.6%	.08%	5.0%	91.3%	0:30	1.0%
Monthly	77.0%	1.2%	7.3%	89.8%	0:30	1.3%
Yearly	75.4%	2.0%	10.0%	85.0%	0:30	1.6%
Alerts	<70%	>4.0%	>15%	<80%	<0:38	>2.0%

MATERIAL MANAGEMENT ERD DIAGRAM

MATERIAL MANAGEMENT KPI'S

- Business Intelligence:
  - First Pass Yield
  - Inventory Turn Over
  - Task Time
  - Updates
- Global Intelligence
  - Warehousing
- Sustainability Intelligence
  - Recyclability

MM ALERTS

	KPI's					
Reports	Takt Time	Inventory TurnOver	First Pass Yield	Updates	Recyclability	Countries
Weekly	27 Days	.40	68%	1 Updates	80%	99
Monthly	29 Days	.47	64%	7 Updates	82%	102
Annually	35 Days	.56	73%	12 Updates	81%	108
Alert	> 40 Days	< .33	< 60%	< 10 Annually	< 75%	< 100

THE TAKE AWAY

- Able to gain experience in order to pursue our career goal of seeking employment where we can apply our hybrid knowledge in business and information technology
- Understand and develop Information, System and Software Engineering
- Design/understand an ERP System and how it helps further company growth
- Project management
- Teamwork
- Lecture knowledge
- Hands-on Lab work
- "If you are not in charge a dog will take your seat"

References

http://www.stryker.com/en-us/index.htm

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