



# Order Anyday

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# Problem Description

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## Problem Description

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Organizations of any size are dependent upon certain goods in their day to day operation including products such as copy paper, toner, office furniture, writing implements, business machines, and cleaning supplies. Traditionally a supervisor or an employee tasked with facility management would take all orders, find or contract the appropriate vendor, place these orders once approval was confirmed, and finally report all expenditures to accounting staff. Not only could the ordering procedure be lengthy due to the layers of tasks involved, but would be prone to much more human error in the process. Since a software solution managing this procedure would be beneficial in several areas, we have been requested to develop an applicable system.

The system, being centralized and automated, would provide each staff member with direct access to order requests without going through a third party or issuing a fragmented collection of submission forms, and the staff member tasked with order verification and approval would only have need of checking the system to find all submitted requests. Furthermore, a secure database of orders and vendors would ensure that no submissions were misplaced during the ordering process, and would seamlessly provide ordering information and confirmation to all involved parties.

## The Customer

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A major national corporation tasked us to build a system that will help optimize and organize the orders of their organization.

The customer wants a more reliable system constructed to facilitate the internal ordering process of office related goods. The system should be fast, secure, and diminish the typical human error associated with a traditional ordering process.

The customer is not concerned with the competitors with the purchase of our software. The main goal is to have a system to increase their efficiency to save money that can be channeled into other areas of the company.

## The End Users

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All staff and administrators employed by the customer will be able to access the system via a web portal. Accounts for users will be maintained by the customer via administrator accounts. Account holders will access the system with a username and password. The design of the software will mimic that of the industry leader to minimize the learning curve required for all end users.

We envision up to twenty-five administrators, and 500 users active on the system simultaneously, per customer. Since the software is offered over the web, it will be up to the customer to decide how their employees access the service. Terminals may be shared, or they may choose to have employees access the system on their mobile devices, thus accessibility is left to the discretion of the client.

## Customer Constraints

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With cost and usability in mind, the hardware environment for the system will include many of the products the customer already uses on a regular basis. This can include devices such as a desktop computer, laptop, tablet, or smartphone. The hardware needs to support input capabilities in the form of a keyboard and mouse, or touchscreen interface with a virtualized keyboard for input.

The operating system will need to have the capability of connecting to the internet and opening a web browser. All modern browsers with HTML 5 and CSS 3 support will be able to access and display the system properly, and be capable of full interaction therewithin apart from Microsoft's Internet Explorer which has not been thoroughly updated to comply with modern protocols and conventions.

The user environment will be left at the discretion of the customer. Since the system is implemented as a web based application, the users can gain access to the system from anywhere that an internet connection can be established.

# Elicitation Plan, Assumptions, Risks

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# Functional Requirements

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## Functionality

### *1. How would the ordering process progress?*

**Timken:** Orders should be allowed to be entered and have some type of initial / pending state. Once Order is reviewed and acknowledged then the state can be set to in process. The order should be shown has completed once the order has been fulfilled or possibly can be shown has canceled if a change is made to remove or delete the order. Optionally, statuses can also be shown to show various states related to fulfilling or shipping the order.

**Chippewa Golf:** Import orders into the system and then have it track based on how many months until the service may be needed again. As of now things like pesticide is tracked manually on charts that could be tracked by the computer system. Easy to use UI for the regular user making sure that each order placed must be approved by an administrator.

### *2. What kinds of computations or data transformations must be performed?*

**Timken:** Inventory should be adjusted accordingly to reflect what is in stock, what has been received and what has been ordered or shipped. User should be able to see real time inventory numbers as well as costing per unit. Additionally possible show days to ship or days to receive.

**Chippewa Golf:** Just moving orders around if placed in the wrong department

### *3. Do reports need to be generated; if so how should they be organized?*

**Timken:** Reports should show items ordered and shipped per vendor. Reports should also show on time delivery based on delivery date compared to promise date.

**Chippewa Golf:** Yes reports that can be generated that can track user purchases to prevent money misplacement or track data for all purchases for a day, month, quarter, or year.

### *4. Should orders be searchable or at least displayed by specific criteria (what categories)?*

**Timken:** Yes – should be searchable by vendor and by product and have additional filters on order date

**Chippewa Golf:** Separate tab for orders that breaks down orders based on area of the golf course such as bar or pro shop. Keep track of orders based on date ordered.

## Data

### *1. For both input and output, what should be the format of the data?*

**Timken:** From a User entry perspective, I would limit most entries to be drop downs, radio buttons or list boxes so that customer is selecting known product & quantity from a down and requested date from a calendar widget. I would allow one open text box for any additional comments.

**Chippewa Golf:** Output organized by name and type of item or service such as the ability to see all items from a specific vendor

### *2. How long does data need to be retained for?*

**Timken:** Data should be retained for 3 years unless retention requirements indicate that it must be kept longer

**Chippewa Golf:** For items, as long as they are available in the store. For vendor services, as long as you have a contract opened with the vendor.

### *3. Must data be migrated from the old system when installing a new one?*

**Timken:** All “In Process” orders should be extracted from the old system, converted to the new system requirements and then loaded to the new system. The old system data should be “Frozen” and put in read-only mode for historical purposes.

**Chippewa Golf:** Yes all current used data would either be moved from the current system, or from documentations into the system.

### *4. What is the scope of an order? Does order tracking include shipping details until delivery, or just that it has left the warehouse?*

**Timken:** The Ordering system should follow the order from receipt of order until the order has been shipped out.

**Chippewa Golf:** For orders from the company all that matters is once it leaves the warehouse it's up to the shipping service used

# Design Constraints

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## Physical Environment

- Is there one or several locations that would use the system?*

**Timken**: There will be several locations required to use the system.

**Chippewa Golf**: Just one location could possibly be expanded.

- Will there be a centralized location for submitting and approving orders or would accessing the system through the web and on multiple devices, including mobile devices, be preferable to a traditional desktop approach?*

**Timken**: Preferred method would be Web and Mobile device enabled.

**Chippewa Golf**: A web based system would be preferable so access is possible from any location.

- What additional type of devices do you need the system accessible on (Handheld/Server/PC etc)?*

**Timken**: Any Web enabled device.

**Chippewa Golf**: Accessible on laptop, tablet, and phones.

- Are there any specific operating systems or browsers that would be used to access the system?*

**Timken**: Should support Most current versions of IE, Chrome and Firefox

**Chippewa Golf**: Would prefer it to be compatible with both Mac and Windows.

## Interfaces

- Does the system interact with any other systems?*

**Timken**: Will interact with manufacturing system to trigger when inventories are low to indicate need for additional product to be made or purchased. Can also interact with HR system to control access to active associates only. Can interact with Security system to control authorization and

authentication.

**Chippewa Golf:** Needs to be able to integrate with processing systems.

## End Users

- 1. Will there be several types of users?*

**Timken:** Should allow 2 types of users: People that can add/modify or delete orders and People that can view/search orders.

**Chippewa Golf:** Yes regular users and administrators.

## Quality Requirements

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### Performance

- 1. How many orders do you process a month?*

**Timken:** 1000-2000 orders per months

**Chippewa Golf:** 150-200.

- 2. How often will data be received or sent?*

**Timken:** Should be sent every hour

**Chippewa Golf:** Multiple times throughout the day checking in and out of the system

### Usability and Human Factors

- 1. What kind of training will be required for each type of user?*

**Timken:** Basic navigation and order maintenance requirements. Should be very intuitive GUI for the end-user.

**Chippewa Golf:** Depending on the user, easy enough to use for a regular user, but some training in how the system is used for administrator. No knowledge or training of computer programming is required.

*2. How easy should it be for a user to understand and use the system?*

Timken: Should be as easy as entering an Amazon order

Chippewa Golf: It would be nice if there was a sort of test mode so a user could get a feel for the system without the ability to change anything in the system.

## Security

*1. Must access to the system or information be controlled?*

Chippewa Golf: User must have less authorization compared to an administrator.

*2. Should each user's data be isolated the data of other users?*

Chippewa Golf: Yes, each user's data should be separate so you can tell who has placed orders, and to make it easy to see what transactions were placed by specific people.

## Reliability and Availability

*1. What happens if:*

- *An item is out of stock?*

Timken: Warning should be given to end user and the order should not be allowed unless the user acknowledges that they are willing to wait for the promised "in Stock" date if possible. If item will not be replaced, then no order should be allowed.

Chippewa Golf: The ability to receive notification when a contract period is up or if an item is out of stock the ability for a user to notify the administrator to order more.

- *A vendor goes out of business?*

Timken: Notification should be given and no products should be allowed to be ordered. If possible, a suggested replacement vendor should be listed.

Chippewa Golf: The ability to replace the business and remove the one currently in the system.

*2. How long can the system stay down before it becomes a critical problem?*

Timken: Any down time could incur financial loss. Down time should be restricted to off-hours and should be clearly communicated via message and should be limited to less than 60 minutes

Chippewa Golf: 20 minutes

*3. Is there a maximum time allowed for restarting the system after a failure?*

Timken: Should be less than 60 minutes.

Chippewa Golf: 10 minutes

*4. How often would you like the system to be backed up?*

Timken: Nightly backups should be taken.

Chippewa Golf: Daily

## Maintainability

*1. When and in what ways might the system be changed in the future?*

Timken: Expand to allow end-users to create mobile alerts so that they can get notifications. Expand to work in dis-connected state so that new orders can be. Expand to allow end-users to create mobile alerts so that they can get notifications.

Chippewa Golf: Easily updatable

*2. Is it important to be able to add features to the system?*

Timken: Yes – Will need to adapt to changing business requirements.

Chippewa Golf: Yes down the road as the system may need to grow.

*3. How easy should it be to port (or migrate) the system from one platform to another?*

Timken: Should be fully web enabled. That platform will prevent us from having to port/migrate the system.

Chippewa Golf: Easy to upgrade to newer computers

*4. Do you have staff capable of maintaining the system after purchase?*

Timken: Would prefer to not have to maintain the system and would outsource the maintenance and upkeep to 3<sup>rd</sup> party provider.

Chippewa Golf: Yes

**Timeline/Cost**

*1. Where is your data stored for the system (cloud/prem)?*

Timken: Would prefer to store data in the cloud so that we do not have to have any infrastructure to support the core system.

Chippewa Golf: Cloud

## Assumptions

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We assume the customer will be using a Microsoft based web server or cloud service such as Microsoft Azure, as by default, the system is configured to use a SQL database for storage of all application related data, managed by a recent release of Microsoft SQL Server. We also assume the organization will be responsible for migrating any existing data into the new database as the implementation of this advanced feature would heavily depend on the variance in how the customer has stored their data, and in scope could be as large of an undertaking as the system itself. The application will be web based and always available. Upon project completion, administrators will assume control of the database alongside the application, and will be responsible for the means and maintenance of hosting the system.

## Risk Areas

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The highest area of risk resides in the use of an internet connected database that is hosted on a web server or online cloud platform. Major service providers such as AWS or Microsoft Azure provide high availability database solutions; however, in a case where these options are not available due to cost, development may seek alternatives which could cause availability issues to arise.

Another concern with the current release could be data duplication and user entry errors being stored in the database as functionality for further data verification is slated for a future release. Currently database data type constraints are rigorously enforced so no entered data would change or break the system's functionality, but for now, it is up to the user to input properly spelled and relevant data, being actively concerned with not creating duplicate entries such as product names, and vendors.

Conversely, there is a very low if not nonexistent risk to our system for loss of access and functionality due to client hardware failure as it is centrally hosted and one could simply locate and use any new device with a web browser and internet access, to resume its use.

# Usage Scenarios

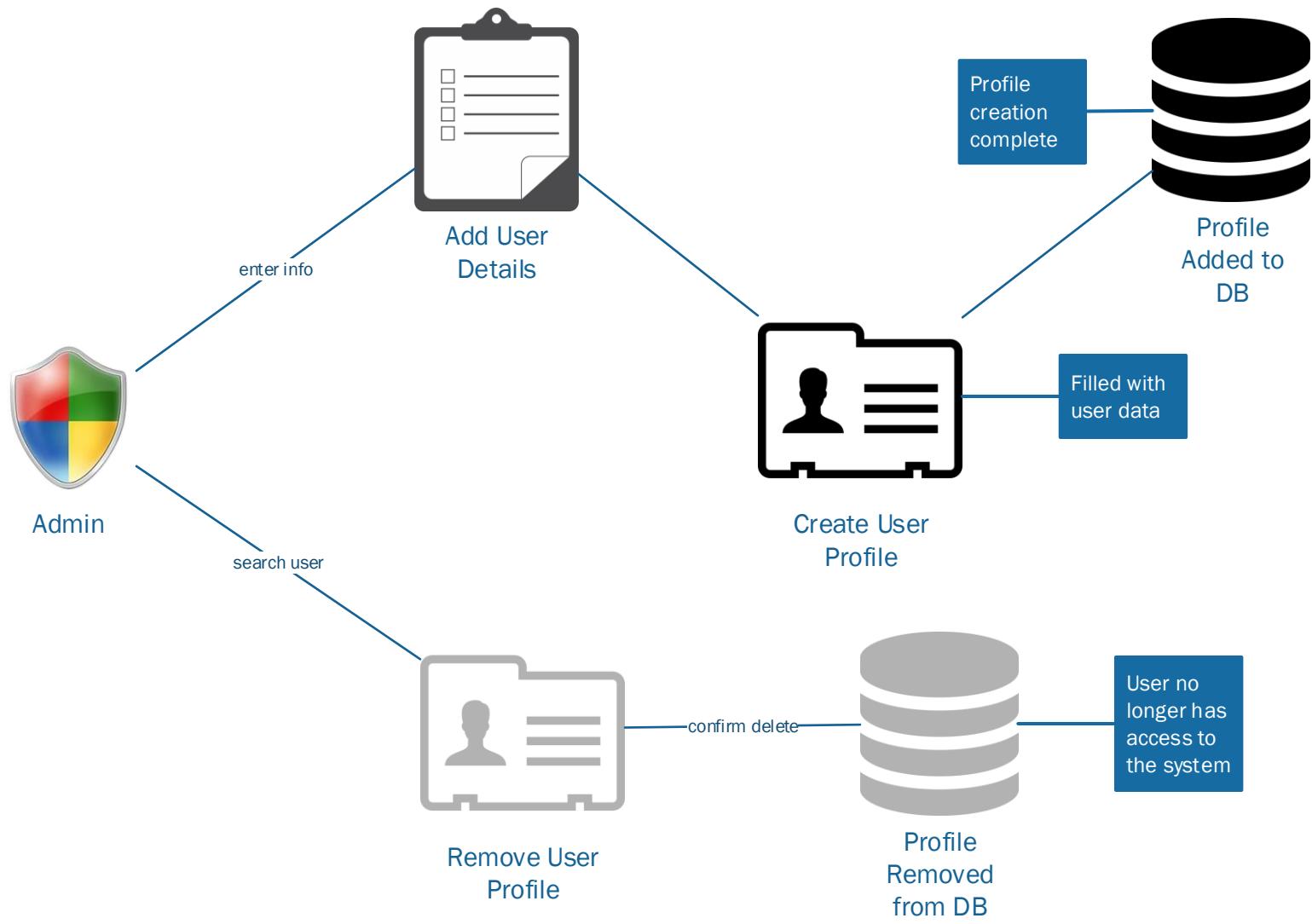


Figure 1: Add/Remove a User or Admin

**Narrative for Figure 1****Add User**

- An Admin must create a new user and enters their info via the Create User page.
- The Admin is responsible for creating the profile's password.
- The new profile is given the role of User or Admin.
- Once the information is submitted, a new user profile is added to the database.

**Remove User**

- An Admin can search or browse to the specified user via the All User's page.
- They can select the Delete button on the desired user.
- They must confirm the removal of the user.
- Once the final Delete is selected, the user profile is removed from the database.

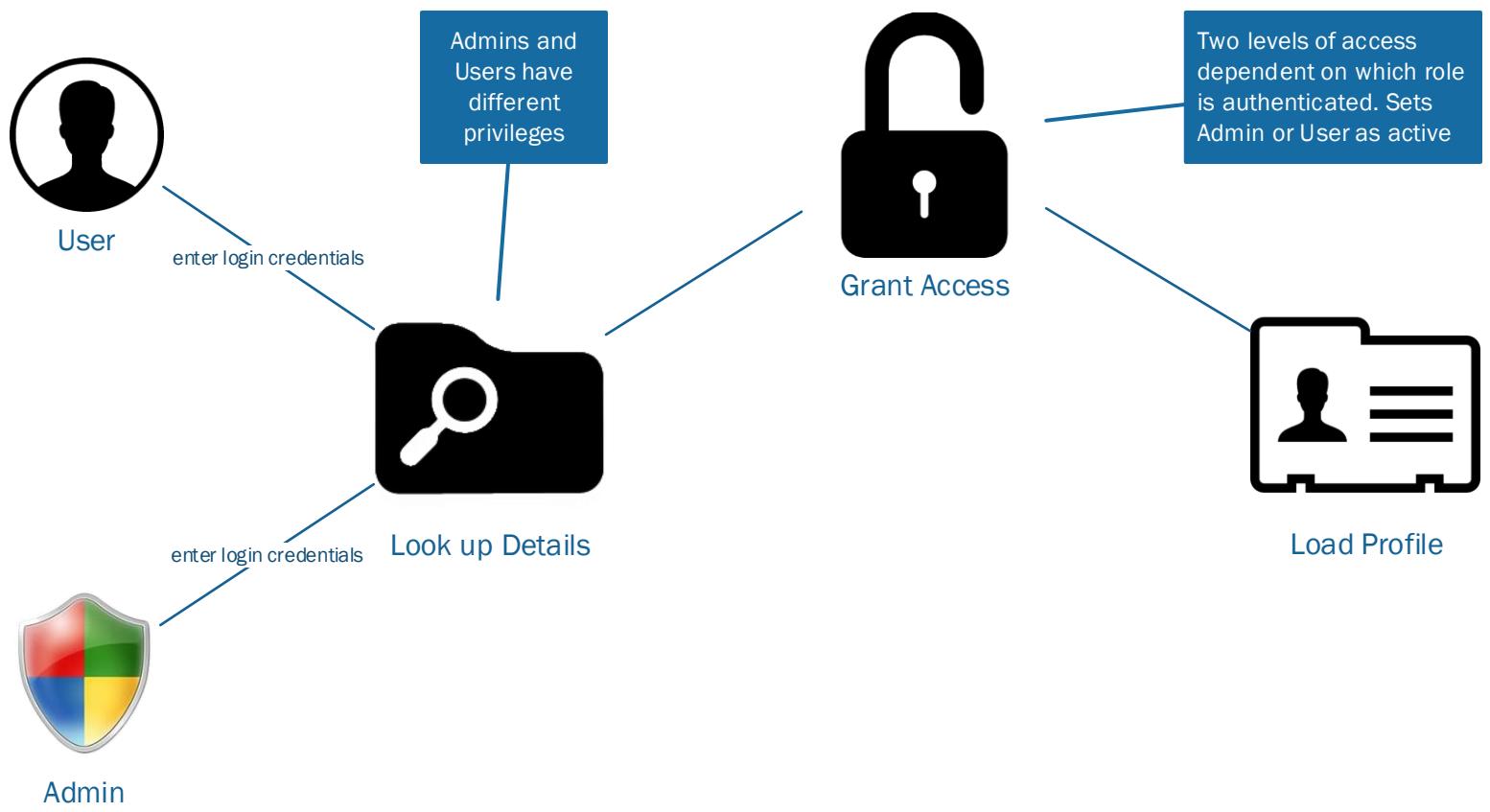


Figure 2: System Login

**Narrative for Figure 2**

- Admins and Users enter their login credentials on the systems initial splash page.
- The system locates the credentials. If they are not found or are invalid, a warning is given and reentry is possible.
- Access is granted to the system with privileges based on the profile's role.
- The User or Admin profile page is loaded according to the role authenticated.



Figure 3: Place an Order with Approval

**Narrative for Figure 3**

- An Admin or User can add Items to their shopping cart via the Products page.
- An Order is placed via the Cart page.
- After placing an order, it is added to the database with a Pending status.
- Only an Admin has access to approve or deny a Pending order.
- After approving or denying the order, its status is appropriately changed.
- A notification informing the user of their order's new status is created and delivered.

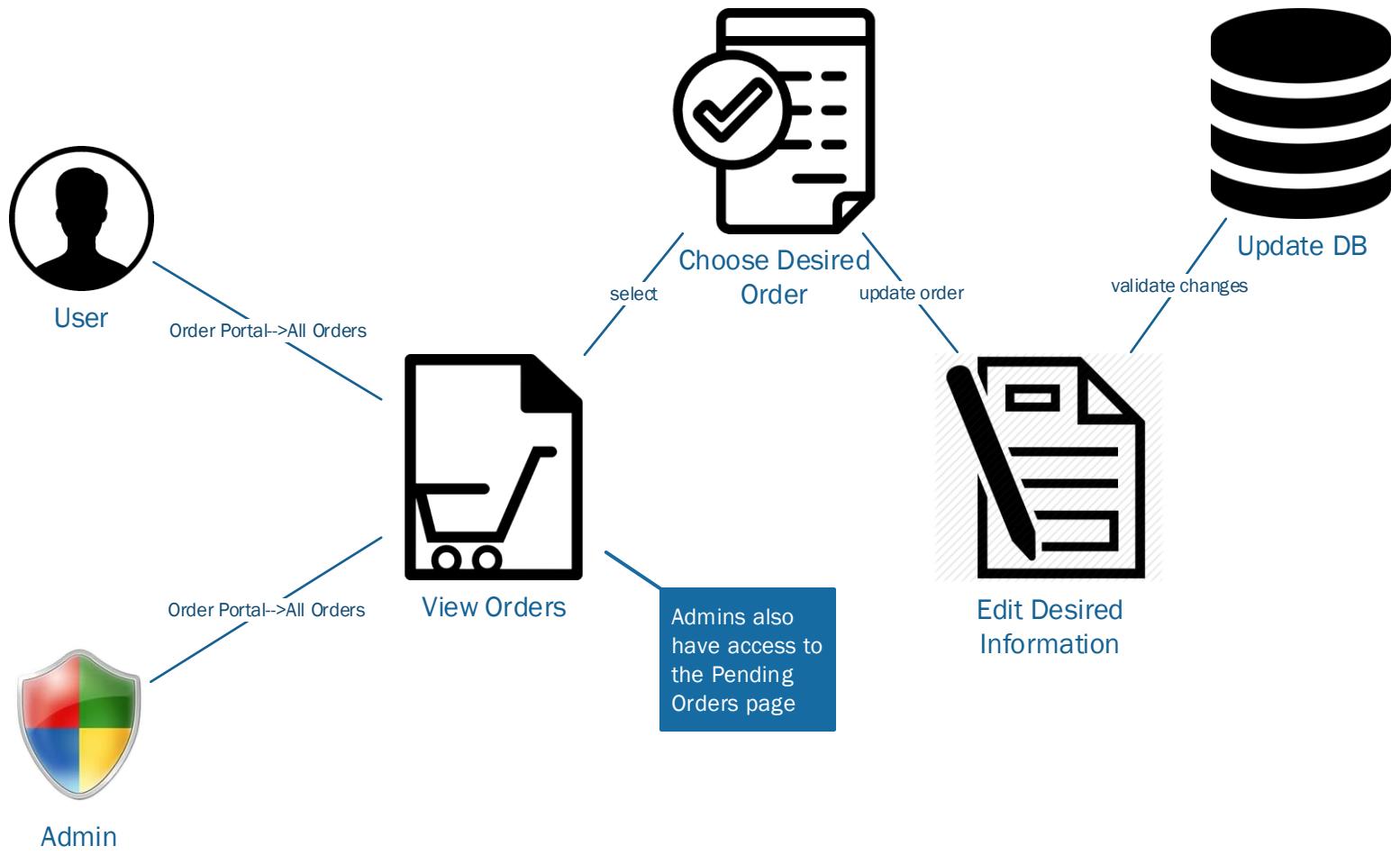


Figure 4: Edit an Order

**Narrative for Figure 4**

- An Admin or User can search for and view orders in the system via the All Orders page.
- Additionally, Admins have access to Pending Orders page via their Profile page.
- Select the specific order to be updated and choose edit.
- Change any desired order information and save.
- The database is updated to reflect the changes made.

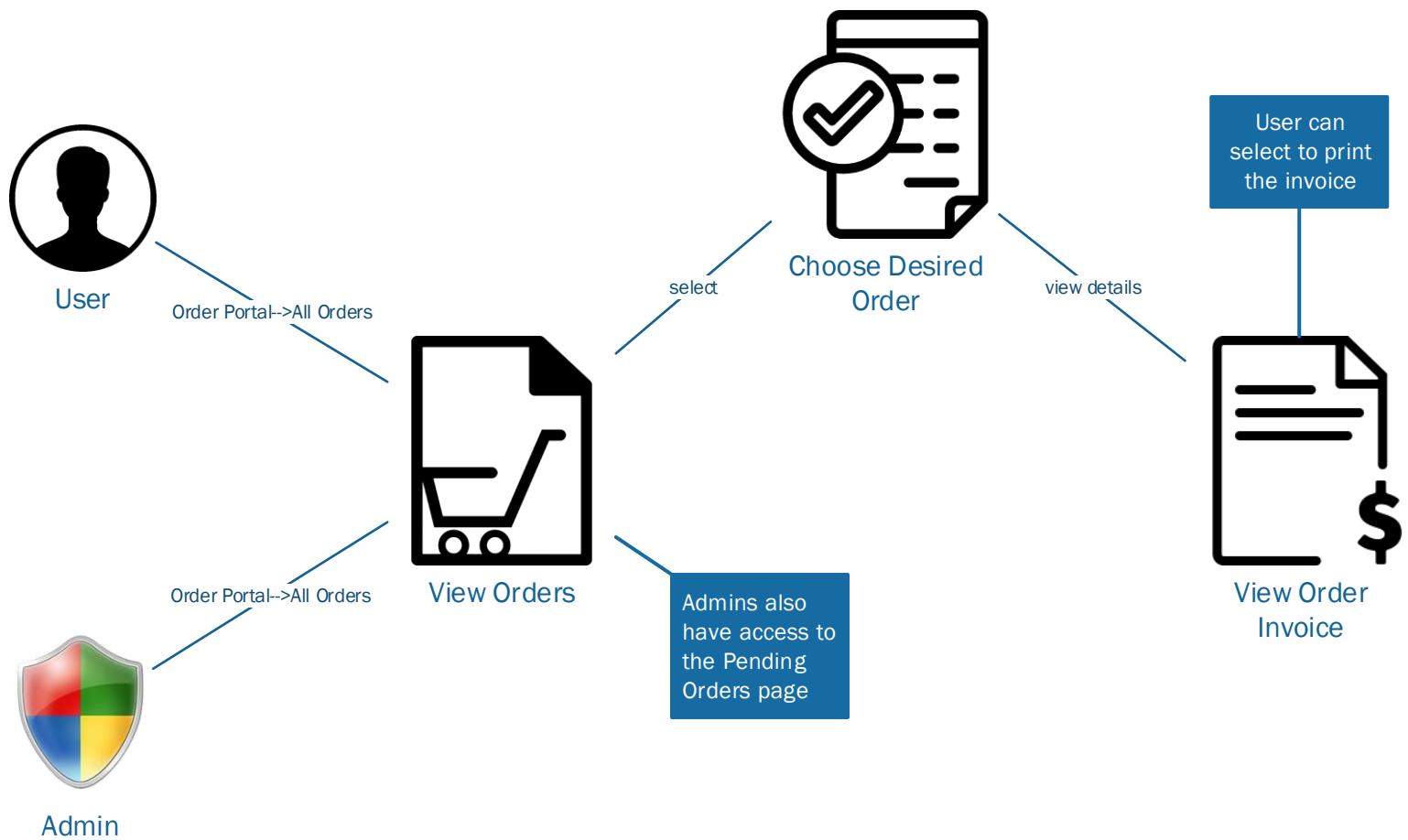


Figure 5: View Order Details

**Narrative for Figure 5**

- An Admin or User can search for and view orders in the system via the All Orders page.
- Additionally, Admins have access to Pending Orders page via their Profile page.
- Select the specific order to be viewed and choose details.
- The order details are laid out into an invoice format with purchase totals.
- The invoice can be printed via the print button.

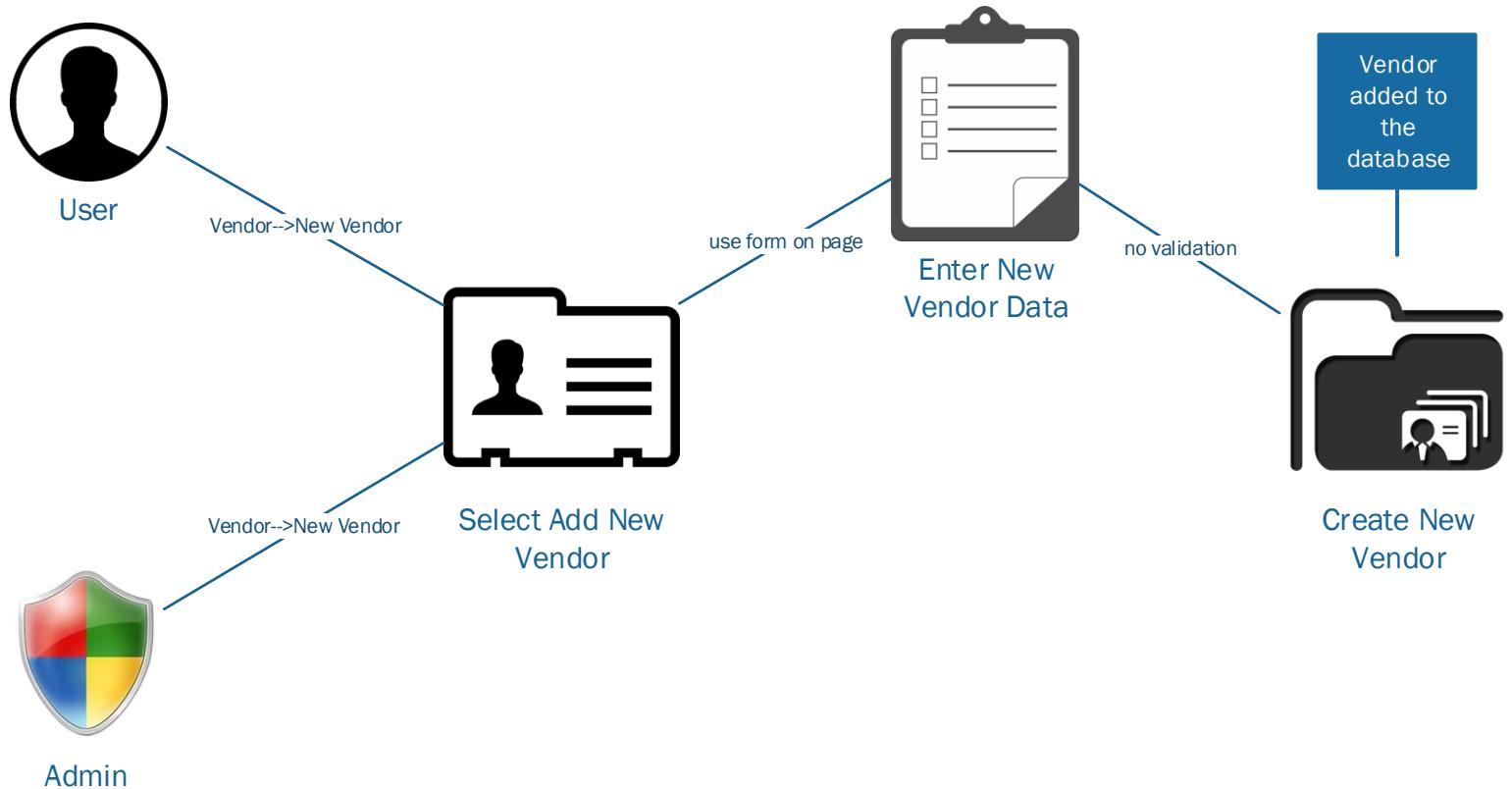


Figure 6: Add a Vendor

**Narrative for Figure 6**

- An Admin or User can navigate to the Add New Vendor page.
- New Vendor data is entered via the page's form
- After selecting the Create button, a new vendor is added to the database.
- Data type and formatting verification is provided only (e.g. phone number, email, etc.).

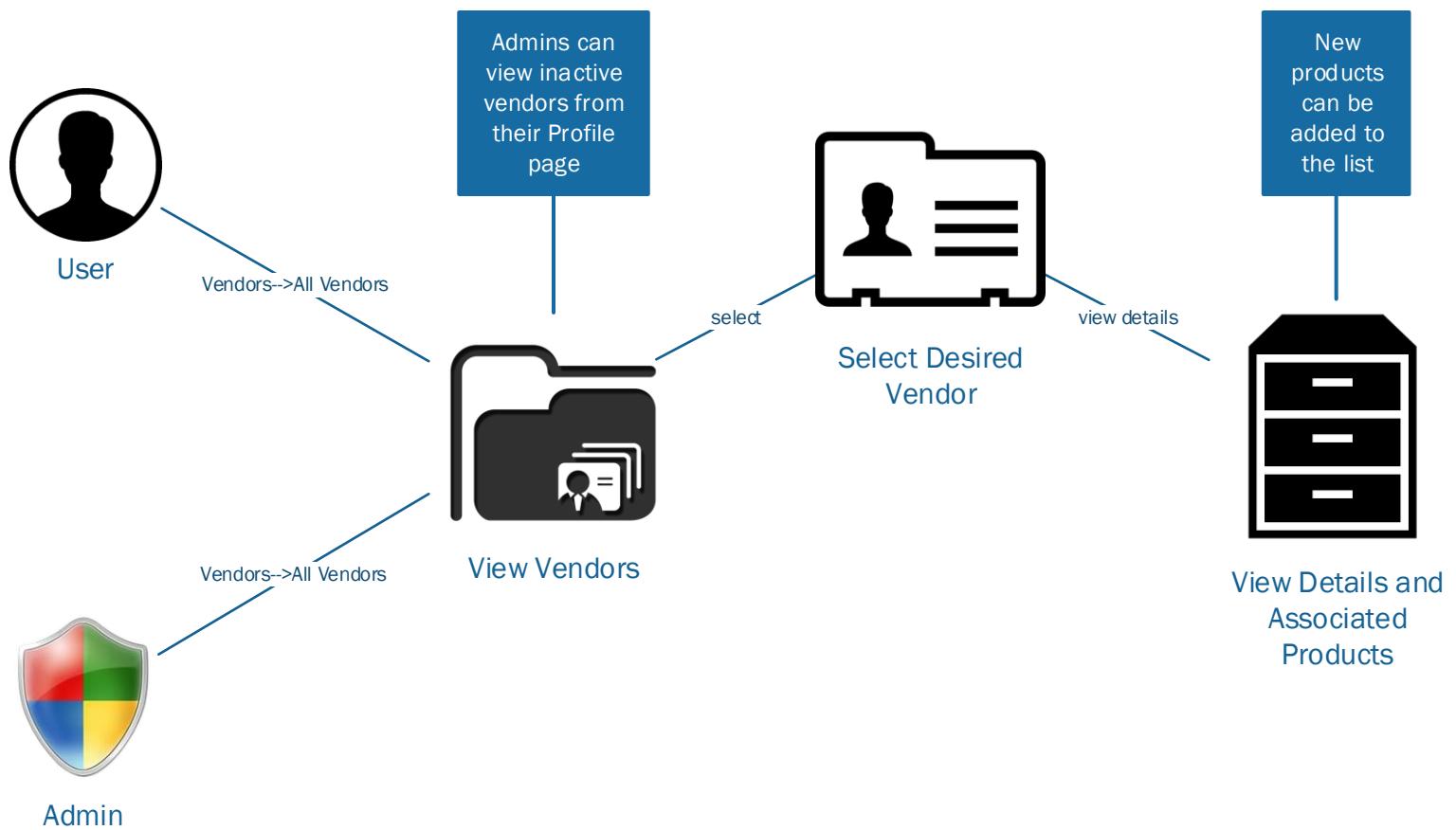


Figure 7:View Vendor Details and Product List

**Narrative for Figure 7**

- An Admin or User can search for and view vendors in the system via the All Vendors page.
- Additionally, Admins have access to the Inactive Vendors page via their Profile page.
- Select the specific vendor to be viewed and choose details.
- The vendor details are displayed on the page as well as a list of all their associated products.
- Products can be edited or added to this list, as well as added to the cart if viewing their details.

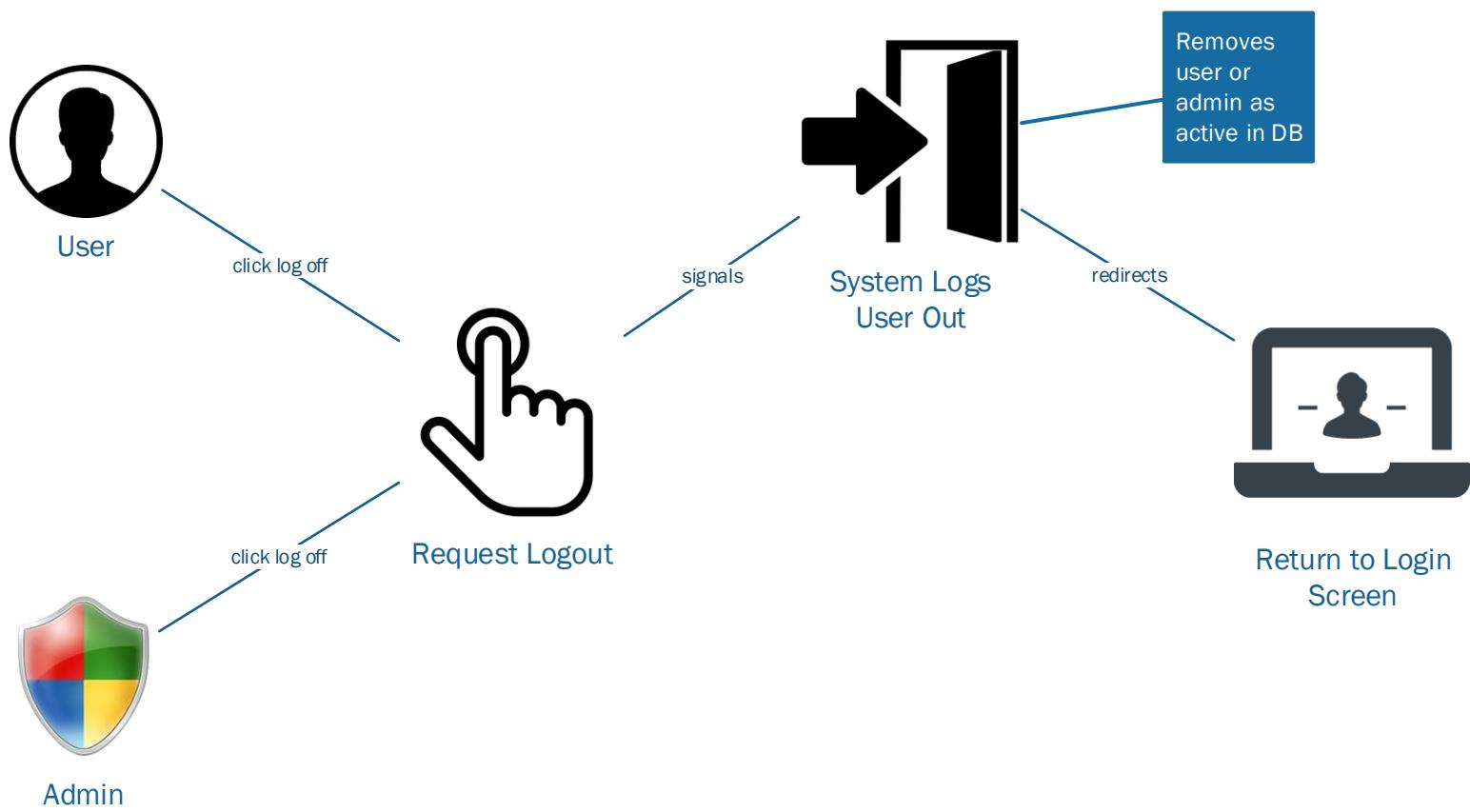


Figure 8: System Logout

**Narrative for Figure 8**

- Admins and Users request to logout of the system via the Log Off button on the top menu.
- The system receives the request and the user is logged out and removed as active in the system.
- The user is then returned to the login screen.

# User Interface

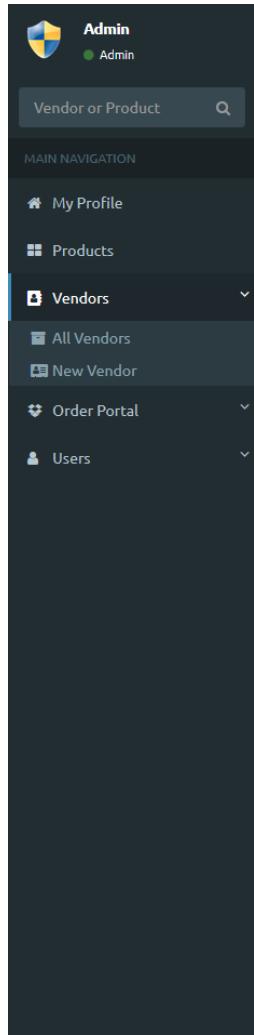
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	Notifications	

# Look and Feel



The top navigation bar houses a link to the main landing page, the My Profile page, quick glance information about the ordering shopping cart and order update notifications, alongside the Log off button.



The sidebar navigation pane serves as the site's main navigation menu with a hierarchical, nested menu design and expanding animations that are direct and intuitive. It also identifies the currently logged in user and provides a search bar which will search terms from any one of our pages' contents. Since our system was designed with a responsive design in mind, it will adapt to different screen sizes on the fly and this menu is no exception. The side bar will hide off-screen should the window shrink to a table or even phone size, and can be accessed again with the menu button located on the top navigation bar. This allows a much larger viewable area for the main page.

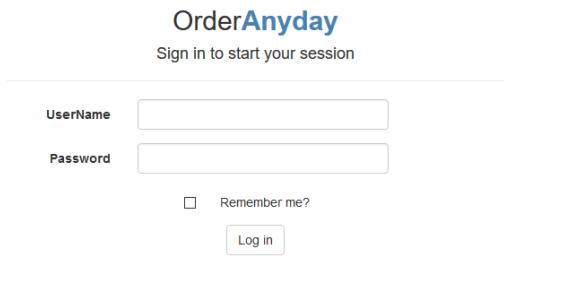
A screenshot of the OrderAnyday main body. It features a light gray header with the text 'Admin's Profile' and 'Home page'. Below the header is a grid of cards with various statistics: Pending Orders (37), Cart Items (Empty), Users (539), Notifications (9), Discontinued Products (0), Inactive Vendors (0), Approved Orders (7), All Orders (62), Add Department, Add Category, Add Product, and Add Vendor. At the bottom is a bar chart titled 'Bar Chart' showing 'Orders' over time from January to July. The chart shows fluctuating values, with a notable peak in May and July.

The main body contains all relevant information for each page and shares the same top and side navigation bars. The main body also benefits from the responsive design and will shrink and stack items on the screen to fit any device. The contents have been color coded to differentiate page purpose, and donned with bright colors to be aesthetically pleasing and engaging. In general navigation to a page or resource has multiple avenues of traversal whether one chooses the side bar or a link from the Profile page – this encourages a user to navigate the system in a way that is more productive and comfortable to them personally.

# Screens and Contents

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## Login



The image shows a minimalist login page for 'OrderAnyday'. At the top center, the brand name 'OrderAnyday' is displayed in a blue, bold font. Below it, a smaller line of text reads 'Sign in to start your session'. The form itself is divided into two horizontal sections. The first section contains a 'UserName' label next to a text input field, and a 'Password' label next to another text input field. The second section contains a small checkbox labeled 'Remember me?' followed by a 'Log In' button.

The login page is minimalist in appearance and quick to load. Its distinct look from the rest of the system helps the user know when they are properly logged out.

## My Profile

The screenshot shows the 'Admin's Profile' page of the OrderAnyday application. The top navigation bar includes links for 'Hello Admin!', 'Add New User', and 'Log off'. On the left, a dark sidebar lists 'MAIN NAVIGATION' items: 'My Profile' (selected), 'Products', 'Vendors', 'Order Portal', and 'Users'. The main content area displays several cards and a chart.

- Pending Orders:** 36 (Orange card, View Orders)
- Cart Items:** Empty (Green card, Go to Cart)
- Users:** 539 (Blue card, View Users)
- Notifications:** 9 (Red card, View Notifications)
- Discontinued Products:** 0 (Orange card, View Discontinued)
- Inactive Vendors:** 0 (Purple card, View Inactive)
- Approved Orders:** 7 (Yellow card, View Orders)
- All Orders:** 61 (Orange card, View Orders)
- Add Department:** (Blue card, Create Department)
- Add Category:** (Orange card, Create Categories)
- Add Product:** (Orange card, Create Product)
- Add Vendor:** (Purple card, Create Vendor)

A bar chart titled 'Bar Chart' shows monthly order counts from January to July. The Y-axis ranges from 0 to 90. The data is as follows:

Month	Orders
January	28
February	48
March	40
April	20
May	82
June	28
July	88

This is the landing page once an admin or user logs into the system. It displays the information most pertinent to the user at a quick glance. The admin and user pages differ with more information and options being displayed for the admin. The major functions for the user are laid out in the body of the page and color coded for ease of use. Some of these functions are pre-sorted table of information to accelerate navigation and information display.

## All Users

The screenshot shows the 'Order Anyday' admin dashboard. The left sidebar has a dark theme with white icons and text. It includes sections for 'MAIN NAVIGATION' (My Profile, Products, Vendors, Order Portal, Users), a search bar, and a user status indicator ('Admin'). The main content area has a light blue header with the title 'Order Anyday Users'. Below it is a table titled 'All Users' with columns: Username, First Name, Last Name, Birthdate, Department, Phone Number, Email, and actions (Edit | Details | Delete). The table lists ten users, each with a small profile icon. At the bottom of the table, it says 'Showing 1 to 10 of 539 entries' and has a navigation bar with links for 'Previous', page numbers (1, 2, 3, 4, 5, ..., 54), and 'Next'.

	Username	First Name	Last Name	Birthdate	Department	Phone Number	Email	Action
A	Employee35	Employee	Name35	2017-04-16	Garage	2164441035	Employee35@orderanyday.com	<a href="#">Edit</a>   <a href="#">Details</a>   <a href="#">Delete</a>
A	Employee191	Employee	Name191	2017-04-16	Shipping	2164441191	Employee191@orderanyday.com	<a href="#">Edit</a>   <a href="#">Details</a>   <a href="#">Delete</a>
A	Employee123	Employee	Name123	2017-04-16	Shipping	2164441123	Employee123@orderanyday.com	<a href="#">Edit</a>   <a href="#">Details</a>   <a href="#">Delete</a>
A	Employee0	Employee	Name0	2017-04-16	Maintenance	2164441000	Employee0@orderanyday.com	<a href="#">Edit</a>   <a href="#">Details</a>   <a href="#">Delete</a>
A	jonw31	Jonathan	Widner	1984-08-24	HR		jonw31@kent.edu	<a href="#">Edit</a>   <a href="#">Details</a>   <a href="#">Delete</a>
A	Employee151	Employee	Name151	2017-04-16	Garage	2164441151	Employee151@orderanyday.com	<a href="#">Edit</a>   <a href="#">Details</a>   <a href="#">Delete</a>
A	Employee312	Employee	Name312	2017-04-16	Maintenance	2164441312	Employee312@orderanyday.com	<a href="#">Edit</a>   <a href="#">Details</a>   <a href="#">Delete</a>
A	Employee429	Employee	Name429	2017-04-16	Maintenance	2164441429	Employee429@orderanyday.com	<a href="#">Edit</a>   <a href="#">Details</a>   <a href="#">Delete</a>
A	Employee201	Employee	Name201	2017-04-16	Shipping	2164441201	Employee201@orderanyday.com	<a href="#">Edit</a>   <a href="#">Details</a>   <a href="#">Delete</a>
A	Employee265	Employee	Name265	2017-04-16	Garage	2164441265	Employee265@orderanyday.com	<a href="#">Edit</a>   <a href="#">Details</a>   <a href="#">Delete</a>

This page displays all the current users and their personal details. Furthermore, the users' information can be edited and a user deleted altogether. Since this information is privileged, only an administrator can view and edit this information.

## New User

The screenshot shows the 'OrderAnyday' admin dashboard. The left sidebar has a dark theme with white icons and text. It includes sections for 'My Profile', 'Products', 'Vendors', 'Order Portal', and 'Users'. The 'Users' section is expanded, showing 'Admin' and 'Admin'. The main content area has a light blue header with the title 'Create User.' and a sub-instruction 'Create a new account.' Below this is a form with the following fields:

User Name	<input type="text" value="Username"/>
Email	<input type="text" value="example@email.com"/>
Password	<input type="password" value="Password"/>
Confirm password	<input type="password" value="Retype Password"/>
First Name	<input type="text" value="First Name"/>
Last Name	<input type="text" value="Last Name"/>
Phone Number	<input type="text" value="111-222-3333"/>
Confirm Phone Number	<input type="text" value="Retype Phone Number"/>
Birthdate	<input type="text" value="MM/DD/YYYY"/>
Department	<input type="text" value="HR"/>
Role	<input type="text" value="Admin"/>

At the bottom right of the form is a 'Register' button.

This is the page that the admin could add a new user to the system, giving them the login credentials that they would need to interact with the system.

## All Vendors

The screenshot shows the OrderAnyday application interface. At the top, there is a header bar with the logo 'OrderAnyday', a user icon labeled 'Hello Admin!', and links for 'Add New User' and 'Log off'. On the left side, there is a dark sidebar titled 'MAIN NAVIGATION' containing links for 'My Profile', 'Products', 'Vendors', 'Order Portal', and 'Users'. The main content area is titled 'Vendors' and contains a table titled 'All Vendors'. The table has columns for 'Vendor Name', 'Address', 'Phone Number', 'Website', 'Account Manager', and 'Notes'. Each row in the table represents a vendor with specific details. At the bottom of the table, it says 'Showing 1 to 10 of 15 entries' and has navigation buttons for 'Previous', '1', '2', and 'Next'.

Vendor Name	Address	Phone Number	Website	Account Manager	Notes	Edit	Details	Delete
Best Buy	124 somewhere st	444-666-7777	<a href="http://www.bestbuy.com">http://www.bestbuy.com</a>	Jeff	Hi	<a href="#">Edit</a>	<a href="#">Details</a>	<a href="#">Delete</a>
I Am Vendor	222 Vendor St	5555555555	<a href="http://www.iam8bit.com">http://www.iam8bit.com</a>	Vendor	Vendor	<a href="#">Edit</a>	<a href="#">Details</a>	<a href="#">Delete</a>
Office Depot	542 Anytown USA	3304554342	<a href="http://www.officedepot.com/">http://www.officedepot.com/</a>	Joe	Office Depot	<a href="#">Edit</a>	<a href="#">Details</a>	<a href="#">Delete</a>
Office Max	124 somewhere st	330-444-2222	<a href="http://www.officemax.com">http://www.officemax.com</a>	Bob	STuff	<a href="#">Edit</a>	<a href="#">Details</a>	<a href="#">Delete</a>
Staples	124 somewhere st	3302223333	<a href="http://www.Staples.com">http://www.Staples.com</a>	Jeff	Office supplies	<a href="#">Edit</a>	<a href="#">Details</a>	<a href="#">Delete</a>
Vendor0	100 This Street	2166661000	<a href="http://www.Vendor0.com">www.Vendor0.com</a>	contact0		<a href="#">Edit</a>	<a href="#">Details</a>	<a href="#">Delete</a>
Vendor1	101 This Street	2166661001	<a href="http://www.Vendor1.com">www.Vendor1.com</a>	contact1		<a href="#">Edit</a>	<a href="#">Details</a>	<a href="#">Delete</a>
Vendor2	102 This Street	2166661002	<a href="http://www.Vendor2.com">www.Vendor2.com</a>	contact2		<a href="#">Edit</a>	<a href="#">Details</a>	<a href="#">Delete</a>
Vendor3	103 This Street	2166661003	<a href="http://www.Vendor3.com">www.Vendor3.com</a>	contact3		<a href="#">Edit</a>	<a href="#">Details</a>	<a href="#">Delete</a>
Vendor4	104 This Street	2166661004	<a href="http://www.Vendor4.com">www.Vendor4.com</a>	contact4		<a href="#">Edit</a>	<a href="#">Details</a>	<a href="#">Delete</a>

Showing 1 to 10 of 15 entries

Previous [1](#) [2](#) Next

[Create New](#)

This page displays all active vendors that are in the system. An admin or user could view or edit vendor details, and delete a vendor outright.

## Vendor Details

The screenshot shows the 'Vendor Details' page of the OrderAnyday application. The left sidebar is dark blue with white text, showing the 'Admin' user role and navigation links for 'My Profile', 'Products', 'Vendors', 'Order Portal', and 'Users'. The main content area has a light blue header with the 'OrderAnyday' logo and a search bar. The top right corner shows a notification icon with '3' notifications, 'Hello Admin!', 'Add New User', and 'Log off'. The main content is divided into two sections: 'Details' and 'Products'. The 'Details' section contains a table with vendor information: Vendor Name (Staples), Address (124 somewhere st), Phone Number (3302223333), Website (<http://www.Staples.com>), Account Manager (Jeff), and Notes (Office supplies). Below this is a link to 'Edit' or 'Back to List'. The 'Products' section includes a search bar, a table header with columns for Item Name, Item Number, Brand, Category, Price, and actions (Edit, Details, Delete), and a single entry for a 'pen' item. The table shows 1 entry out of 1 total.

Item Name	Item Number	Brand	Category	Price	Edit	Details	Delete
pen	1	g2	Office	\$2.99			

This page gives detailed information on a selected vendor and lists any products currently associated with said vendor. One could add a new product to this vendor directly from this screen as well.

## New Vendor

The screenshot shows the 'Add a New Vendor' page within the OrderAnyday admin application. The left sidebar contains navigation links for 'My Profile', 'Products', 'Vendors', 'Order Portal', and 'Users'. The main content area has a title 'Add a New Vendor' and a subtitle 'Vendor'. It includes fields for 'Vendor Name', 'Address', 'Phone Number', 'Website', 'Account Manager', and 'Notes', each with an associated input box. There is also an 'Inactive' checkbox and a 'Create' button at the bottom.

Vendor Name:

Address:

Phone Number:

Website:

Account Manager:

Notes:

Inactive

[Create](#)

[Back to List](#)

On this page, an admin or user could add a new vendor to the system.

## Products

The screenshot shows the OrderAnyday Admin interface. The top navigation bar includes a logo, the site name "OrderAnyday", and user information "Hello Admin!". Below the main content area, there is a sidebar with a dark background containing the following menu items:

- My Profile
- Products
- Vendors
- Order Portal
- Users

The main content area is titled "Products" and displays a table titled "All Products". The table has the following columns: Category, Vendor Name, Item Name, Brand, Price, and Quantity: Add to Cart. Each row contains a set of buttons for Edit, Details, and Delete. The table shows 10 entries, with the first few being:

Category	Vendor Name	Item Name	Brand	Price	Quantity: Add to Cart
Misc	Vendor6	Product66	Brand66	0.10	1 <input type="button" value="Add to Cart"/> Edit Details Delete
Misc	Vendor1	Product85	Brand85	0.18	1 <input type="button" value="Add to Cart"/> Edit Details Delete
Paper	Vendor8	Product72	Brand72	0.27	1 <input type="button" value="Add to Cart"/> Edit Details Delete
Office	Vendor6	Product91	Brand91	0.32	1 <input type="button" value="Add to Cart"/> Edit Details Delete
Cleaning	Vendor4	Product35	Brand35	0.46	1 <input type="button" value="Add to Cart"/> Edit Details Delete
Office	Vendor3	Product72	Brand72	0.5	1 <input type="button" value="Add to Cart"/> Edit Details Delete
Office	Vendor9	Product6	Brand6	0.50	1 <input type="button" value="Add to Cart"/> Edit Details Delete
Cleaning	Vendor4	Product38	Brand38	0.6	1 <input type="button" value="Add to Cart"/> Edit Details Delete
Paper	Vendor1	Product6	Brand6	0.69	1 <input type="button" value="Add to Cart"/> Edit Details Delete
Office	Vendor7	Product22	Brand22	0.72	1 <input type="button" value="Add to Cart"/> Edit Details Delete

At the bottom of the table, it says "Showing 1 to 10 of 1,006 entries" and provides a navigation bar with links for Previous, 1, 2, 3, 4, 5, ..., 101, and Next.

[Create New](#)

This page lists all available products in the system from all vendors. An admin or user could view or edit the product details and delete a product outright. This is where one would add a product to their cart so they could place an order.

## Shopping Cart

The screenshot shows the OrderAnyday shopping cart interface. At the top, there's a header bar with the OrderAnyday logo, a search bar, and navigation links for 'Hello Admin!', 'Add New User', and 'Log off'. On the left, a dark sidebar titled 'MAIN NAVIGATION' contains links for 'My Profile', 'Products', 'Vendors', 'Order Portal', and 'Users'. The main content area is titled 'Review your cart' and displays a table of items. The table has columns for 'Product', 'Price (per)', 'Quantity', and 'Edit'. Three items are listed: Product21 at \$0.81 quantity 5, Product26 at \$4.39 quantity 2, and Product50 at \$64.56 quantity 1. Each row includes an 'Update Cart' button and a 'Remove' button. Below the table, a section labeled 'Amount Due' shows a total of '\$77.39'. A 'Place Order' button is located at the bottom right.

Product	Price (per)	Quantity	Edit
Product21	0.81	5 <input type="button" value=""/>	<input type="button" value="Update Cart"/> <input type="button" value="Remove"/>
Product26	4.39	2 <input type="button" value=""/>	<input type="button" value="Update Cart"/> <input type="button" value="Remove"/>
Product50	64.56	1 <input type="button" value=""/>	<input type="button" value="Update Cart"/> <input type="button" value="Remove"/>

Amount Due  
Total Due: \$77.39

This page is where an admin or user would place their order. Once products are added to the cart via the products page, quantities can be changed or products removed. A total order cost is displayed as well. The system will not allow an order with no associated products to be placed.

## All Orders

The screenshot shows the 'Orders' page within the OrderAnyday Admin application. The left sidebar contains navigation links for 'My Profile', 'Products', 'Vendors', 'Order Portal', and 'Users'. The main content area has a title 'All Orders' and a table with columns: Order Number, First Name, Date Placed, Last Updated, and Status. The table lists 10 entries from 97 down to 85. Each row includes 'Edit | Details | Delete' links. A search bar and a page navigation bar (Showing 1 to 10 of 62 entries) are at the bottom.

Order Number	First Name	Date Placed	Last Updated	Status	
97	Admin	04/17/2017	4/17/2017 11:18:41 PM	Pending	<a href="#">Edit</a>   <a href="#">Details</a>   <a href="#">Delete</a>
96	Admin	04/15/2017	4/15/2017 12:59:29 PM	Pending	<a href="#">Edit</a>   <a href="#">Details</a>   <a href="#">Delete</a>
92	Admin	04/13/2017	4/13/2017 11:15:56 AM	Pending	<a href="#">Edit</a>   <a href="#">Details</a>   <a href="#">Delete</a>
93	Admin	04/13/2017	4/13/2017 11:50:29 AM	Pending	<a href="#">Edit</a>   <a href="#">Details</a>   <a href="#">Delete</a>
94	jonathan	04/13/2017	4/13/2017 2:52:05 PM	Declined	<a href="#">Edit</a>   <a href="#">Details</a>   <a href="#">Delete</a>
95	Admin	04/13/2017	4/13/2017 7:08:59 PM	Pending	<a href="#">Edit</a>   <a href="#">Details</a>   <a href="#">Delete</a>
89	Admin	04/12/2017	4/12/2017 5:53:30 PM	Pending	<a href="#">Edit</a>   <a href="#">Details</a>   <a href="#">Delete</a>
90	Admin	04/12/2017	4/12/2017 5:18:41 PM	Pending	<a href="#">Edit</a>   <a href="#">Details</a>   <a href="#">Delete</a>
91	Admin	04/12/2017	4/12/2017 6:35:38 PM	Pending	<a href="#">Edit</a>   <a href="#">Details</a>   <a href="#">Delete</a>
85	Jake	04/11/2017	4/11/2017 11:24:16 AM	Pending	<a href="#">Edit</a>   <a href="#">Details</a>   <a href="#">Delete</a>

This page houses a list of all orders placed within the system. An admin or user can view and edit the details of an order that they have personally placed. An admin has the authority to approve or decline a pending order placed by all users. Each order has an associated status which can only be changed by an admin's action.

## Order Details

The screenshot shows the OrderAnyday Admin application. The top navigation bar includes a logo, the site name "OrderAnyday", and user information "Hello Admin!". It also has links for "Add New User" and "Log off". The left sidebar, titled "MAIN NAVIGATION", contains links for "My Profile", "Products", "Vendors", "Order Portal", and "Users". The main content area is titled "Order Details" and displays the following information:

**From:**  
**Admin**  
795 Kent Ave, Suite 666  
Kent, OH 44720  
Phone: (330) 123-4680  
Email: tech\_support@orderanyday.com

**To:**  
**AdminAdmin**  
Dept: Admin  
795 Kent Ave, Suite 666  
Kent, OH 44720  
Phone:  
Email: AdminAdmin@admin.com

**Order ID:**# 97  
**Status Last Updated:** 4/17/2017 11:18:41 PM  
**Order Status:** Pending

Quantity	Item Name	Brand	Vendor Name	Item Cost	Subtotal
5	Product21	Brand21	Vendor0	\$0.81	\$4.05
2	Product26	Brand26	Vendor0	\$4.39	\$8.78
1	Product50	Brand50	Vendor0	\$64.56	\$64.56

**DatePlaced:** 04/17/2017

**Total:** \$77.39

[Print](#) [Back To Orders](#)

This page displays a selected order's details including a listing of products purchased, subtotals for each product at the appropriate quantity, the date placed, and a total cost for the order. The order status and last date of status change is clearly displayed. The Print button can be selected to print the invoice on the screen if needed.

## Notifications

The screenshot shows the 'Notifications' section of the OrderAnyday admin interface. The left sidebar has a dark theme with a cat icon and 'OrderAnyday' logo. It includes links for 'My Profile', 'Products', 'Vendors', 'Order Portal', and 'Users'. The main content area has a red header 'Notifications' with a 'New Notification +' button. It features a table with columns: 'First Name', 'Description', and 'Notes'. The table lists 9 entries, all from 'Admin' with descriptions like 'Order Was Completed' or 'Order Was Accepted'. Each row has 'Details | Delete' links. A search bar at the top right and a navigation bar at the bottom right (with 'Previous', '1', and 'Next') are also visible.

First Name	Description	Notes	
Admin	Order Was Completed	You're order status has been updated. The New status is Completed	<a href="#">Details</a>   <a href="#">Delete</a>
Admin	Order Was Completed	You're order status has been updated. The New status is Completed	<a href="#">Details</a>   <a href="#">Delete</a>
Admin	Order Was Completed	You're order status has been updated. The New status is Completed	<a href="#">Details</a>   <a href="#">Delete</a>
Admin	Order Was Completed	You're order status has been updated. The New status is Completed	<a href="#">Details</a>   <a href="#">Delete</a>
Admin	Order Was Accepted	You're order status has been updated. The new status is APPROVED	<a href="#">Details</a>   <a href="#">Delete</a>
Admin	Order Was Completed	You're order status has been updated. The New status is Completed	<a href="#">Details</a>   <a href="#">Delete</a>
Admin	Order Was Denied	You're order status has been updated. The new status is DECLINED	<a href="#">Details</a>   <a href="#">Delete</a>
Admin	Order Was Completed	You're order status has been updated. The New status is Completed	<a href="#">Details</a>   <a href="#">Delete</a>
Admin	Order Was Denied	You're order status has been updated. The new status is DECLINED	<a href="#">Details</a>   <a href="#">Delete</a>

This screen is generated per user and contains only their personal notifications. Notifications are automatically generated when the status of an order placed has been changed. For example, a notification would be sent to a user once an admin approved or declined a specific order. These notifications can be deleted and would no longer be displayed.

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# **Software Requirements Specification**

**for**

## **Order Anyday**

**Version 176.0 approved**

**Prepared by Jake Adkins, Brian Galambos, Brock Justice,  
Jon Widner, Alvah Young**

**Sub-par Systems**

**4/10/17**

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# 1. Introduction

## 1.1 Purpose

**Scope:** The purpose of Order Anyday is to foster the organization of departmental orders for divisions of an entity (participating business) by organizing the products of orders in an elegant and efficient fashion – leveraging the existing hierarchy of the entity to monitor the order process.

**Release #:** 176.0

\*\* The system is described in its entirety in this document.

## 1.2 Document Conventions

1. If information is not needed, N/a will represent, “Not available”, meaning, “Not necessary”.
2. I denote external dependencies outside of my development with **blue** text.
3. I denote system related file names, out of context, in **blue** text.
4. I use • to represent any whole number
5. See Appendix C, I mark aspects of the project to be accomplished in future builds by **#TBD** (To Be Determined)
6. **\*\*Important information is written like this.\*\***
7. Requirements that have a high priority will be listed prior to those that do not.

## 1.3 Intended Audience and Reading Suggestions

This document is intended for developers, users, documentation writers, and testers alike. While not all information found in this document will benefit all groups of these people, a particular section will prove to be invaluable to each one. See the table of contents for organization and contents of this document.

*Overview of This Document:*

### 1.1 Purpose

-Identification of the product whose software requirements are specified in this document, including the revision or release number. A description of the scope of the product that is covered by this SRS, particularly if this SRS describes only part of the system or a single subsystem, is given.

### 1.2 Document Conventions

-Description of standards or typographical conventions that were followed when writing this SRS, such as fonts or highlighting that have special significance. For example, state whether priorities for higher-level requirements are assumed to be inherited by detailed requirements, or whether every requirement statement is to have its own priority.

### 1.3 Intended Audience and Reading Suggestions

-Description of the different types of readers that the document is intended for, such as developers, project managers, marketing staff, users, testers, and documentation writers. A description of the remainder of this SRS contents and organization is given. I also suggest a sequence for reading the document, beginning with the overview of the sections and proceeding through the sections that are most pertinent to each reader type.

**1.4 Product Scope**

-I provide a short description of the software being specified and its purpose, including relevant benefits, objectives, and goals. The software is related to corporate goals or business strategies. If a separate vision and scope document is available, I refer to it here, rather than duplicating its contents.

**1.5 References**

-A list of any other documents or Web addresses to which this SRS refers. These may include user interface style guides, contracts, standards, system requirements specifications, use case documents, or a vision and scope document. Provide enough information so that the reader could access a copy of each reference, including title, author, version number, date, and source or location.

**2.1 Product Perspective**

-A description of the context and origin of the product being specified in this SRS is given. For example, I state whether this product is a follow-on member of a product family, a replacement for certain existing systems, or a new, self-contained product. If the SRS defines a component of a larger system, I relate the requirements of the larger system to the functionality of this software and identify interfaces between the two. A simple diagram that shows the major components of the overall system, subsystem interconnections, and external interfaces can be included.

**2.2 Product Functions**

-I summarize the major functions that the product must perform or must let the user perform. Details will be provided in Section 3, so only a high level summary (such as a bullet list) is needed here. I organize the functions to make them understandable to any reader of the SRS. A picture of the major groups of related requirements and how they relate, such as a top level data flow diagram or object class diagram, is often included.

**2.3 User Classes and Characteristics**

-I identify the various user classes that I anticipate will use this product. User classes may be differentiated based on frequency of use, subset of product functions used, technical expertise, security or privilege levels, educational level, or experience. A description of the pertinent characteristics of each user class is given. Certain requirements may pertain only to certain user classes. A distinction is made about the most important user classes for this product from those who are less important to satisfy.

**2.4 Operating Environment**

-I describe the environment in which the software will operate, including the hardware platform, operating system, versions, and any other software components or applications with which it must peacefully coexist.

**2.5 Design and Implementation Constraints**

-I describe any items or issues that will limit the options available to the developers. These might include: corporate or regulatory policies; hardware limitations (timing requirements, memory requirements); interfaces to other applications; specific technologies, tools, and databases to be used; parallel operations; language requirements; communications protocols; security considerations; design conventions or programming standards (for example, if the customer's organization will be responsible for maintaining the delivered software).

**2.6 User Documentation**

-I list the user documentation components (such as user manuals, on-line help, and tutorials) that will be delivered along with the software. I also identify any known user documentation delivery formats or standards.

**2.7 Assumptions and Dependencies**

-I list any assumed factors (as opposed to known facts) that could affect the requirements stated in the SRS. These could include third-party or commercial components that I plan to use, issues around the development or operating environment, or constraints. The project could be affected if these assumptions

are incorrect, are not shared, or change. Also identify any dependencies the project has on external factors, such as software components that I intend to reuse from another project, unless they are already documented elsewhere (for example, in the vision and scope document or the project plan).

### 3.1 User Interfaces

-I describe the logical characteristics of each interface between the software product and the users. This may include sample screen images, any GUI standards or product family style guides that are to be followed, screen layout constraints, standard buttons and functions (e.g., help) that will appear on every screen, keyboard shortcuts, error message display standards, and so on. I define the software components for which a user interface is needed. Details of the user interface design are documented in a separate user interface specification.

### 3.2 Hardware Interfaces

-I describe the logical and physical characteristics of each interface between the software product and the hardware components of the system. This may include the supported device types, the nature of the data and control interactions between the software and the hardware, and communication protocols to be used.

### 3.3 Software Interfaces

-I describe the connections between this product and other specific software components (name and version), including databases, operating systems, tools, libraries, and integrated commercial components. I also identify the data items or messages coming into the system and going out and describe the purpose of each. Descriptions of the services needed and the nature of communications are given. References to documents that describe detailed application programming interface protocols are given. Data that will be shared across software components is identified. If the data sharing mechanism must be implemented in a specific way (for example, use of a global data area in a multitasking operating system), I specify this as an implementation constraint.

### 3.4 Communication Interfaces

-I describe the requirements associated with any communications functions required by this product, including e-mail, web browser, network server communications protocols, electronic forms, and so on. Additionally, defined are any pertinent message formatting. I identify any communication standards that will be used, such as FTP or HTTP. Specification of any communication security or encryption issues, data transfer rates, and synchronization mechanisms is included.

## 4.0 System Features

-This section illustrates the organization of the functional requirements for the product by system features, and the major services provided by the product. This section may be organized by use case, mode of operation, user class, object class, functional hierarchy, or combinations of these, whatever makes the most logical sense for this product.

### 4.0.1 Description and Priority

-I provide a short description of the feature and indicate whether it is of High, Medium, or Low priority. Specific priority component ratings, such as benefit, penalty, cost, and risk (each rated on a relative scale from a low of 1 to a high of 9), are sometimes also included.

### 4.0.2 Stimulus/Response Sequences

-I list the sequences of user actions and system responses that stimulate the behavior defined for this feature.

### 4.0.3 Functional Requirements

-I itemize the detailed functional requirements associated with this feature. These are the software capabilities that must be present in order for the user to carry out the services provided by the feature, or to execute the use case. Included is how the product should respond to anticipated error conditions or invalid

inputs. Requirements given are concise, complete, unambiguous, verifiable, and necessary. I use “TBD” as a placeholder to indicate when necessary information is not yet available. Each requirement is uniquely identified with a sequence number or a meaningful tag of some kind.

#### 5.1 Performance Requirements

-If there are performance requirements for the product under various circumstances, I state them here and explain their rationale, to help the developers understand the intent and make suitable design choices. Specification of the timing relationships for real time systems is also documented here. Such requirements are as specific as possible. I may state performance requirements for individual functional requirements or features, if needed.

#### 5.2 Safety Requirements

-I specify those requirements that are concerned with possible loss, damage, or harm that could result from the use of the product. Definitions of any safeguards or actions that must be taken, as well as actions that must be prevented, are given. References to any external policies or regulations that state safety issues that affect the product’s design or use are found here. I define any safety certifications that must be satisfied.

#### 5.3 Security Requirements

-I specify any requirements regarding security or privacy issues surrounding use of the product or protection of the data used or created by the product. Definitions of any user identity authentication requirements are provided. I refer to any external policies or regulations containing security issues that affect the product. Any security or privacy certifications that must be satisfied are defined.

#### 5.4 Software Quality Attributes

-I specify any additional quality characteristics for the product that will be important to either the customers or the developers. Some to consider are: adaptability, availability, correctness, flexibility, interoperability, maintainability, portability, reliability, reusability, robustness, testability, and usability. Write these to be specific, quantitative, and verifiable when possible. At the least, I clarify the relative preferences for various attributes, such as ease of use over ease of learning.

#### 5.5 Business Rules

-I list any operating principles about the product, such as which individuals or roles can perform which functions under specific circumstances. These are not functional requirements in themselves, but they may imply certain functional requirements to enforce the rules.

#### 6 Other Requirements

-I define any other requirements not covered elsewhere in the SRS. This might include database requirements, internationalization requirements, legal requirements, reuse objectives for the project, and so on. Any new sections that are pertinent to the project are added.

#### Appendix A Glossary

-I define all the terms necessary to properly interpret the SRS, including acronyms and abbreviations. I may build a separate glossary that spans multiple projects or the entire organization, and just include terms specific to a single project in each SRS.

#### Appendix B Analysis Model (Optional)

-I include any pertinent analysis models, such as data flow diagrams, class diagrams, state-transition diagrams, or entity-relationship diagrams.

#### Appendix C To Be Determined List

-I collect a numbered list of the TBD (to be determined) references that remain in the SRS so they can be tracked to closure.

## 1.4 Product Scope

The specified software will keep track of orders placed by any department in a given entity, including what products are contained within the order, the vendor(s) supplying said items, and details about them. In doing so, we can effectively leave the system to handle the tracking of each order throughout the business logic for the entity freeing employees to use their time to do other tasks. It will allow companies to get exactly what they want with a professional interface provided by the Order Anyday via web portal, and make it easier to place and approve orders. It will let users know what items are available from entity approved vendors, their cost, and tell employees when their order has been approved. The system is optimized for enterprise scale operation; however, it can function at any size. That is, the BI model is effective, even when the subdivisions of the entity grows relatively large.

\*\* See Original Problem Domain Description, [Problem Description.docx](#)

## 1.5 References

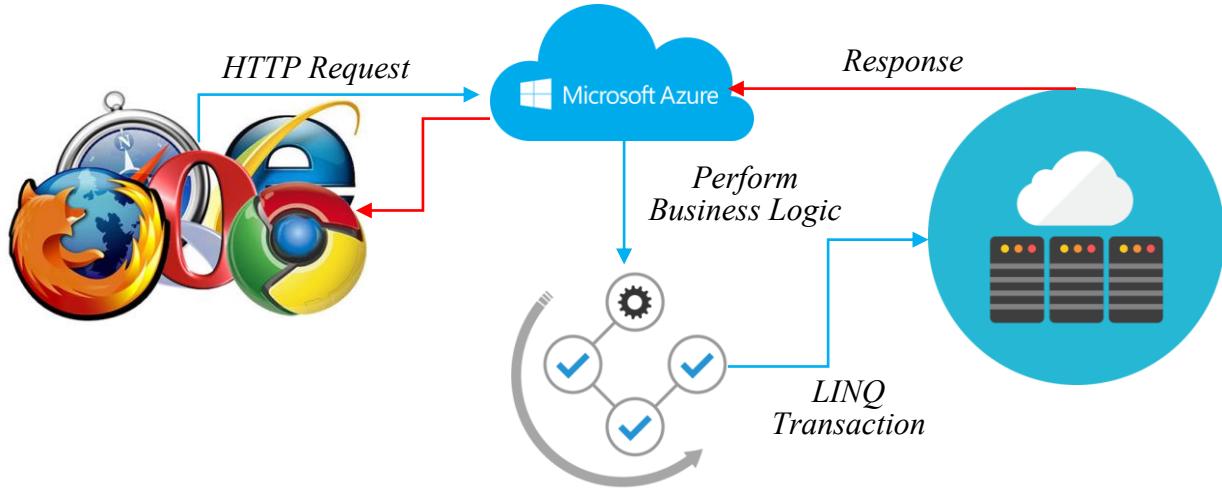
- [Sample Capstone Projects.pdf](#) – Delivered by client to Working-Level Integrated Product Team, contact [asamba@kent.edu](mailto:asamba@kent.edu) for a copy of this document.
- Use case documents (See Appendix B)
- <https://azure.microsoft.com/en-us/downloads/archive-net-downloads/>

# 2. Overall Description

## 2.1 Product Perspective

When entities place an order with a vendor, they need a method to organize this information in a way that is presentable, and helpful to both the department waiting on the order, and the administration whom is responsible for budgeting and approving purchases. Additionally, orders need to be able to be submitted for approval easily. Spending time throughout the day submitting purchase orders can add up and interrupt productivity. Without a computer system, this would all have to be done by hand. The web-driven solution we present is ideal for solving this problem since it naturally extends the entity's existing intranet, and provides all its employees on-the-go access from any mobile device. Hence, the solution serves as an interface, between employees, and a cloud platform that allows for a simple order tracking experience.

This product is designed as a new, self-contained system. It includes only basic database migration features; however, this could be extended in future builds. (See Appendix C)



**Figure 1.** Shows the flow control for requests/responses made from the browser and by the server respectively. Notice that all Business Intelligence (BI) occurs on the server.

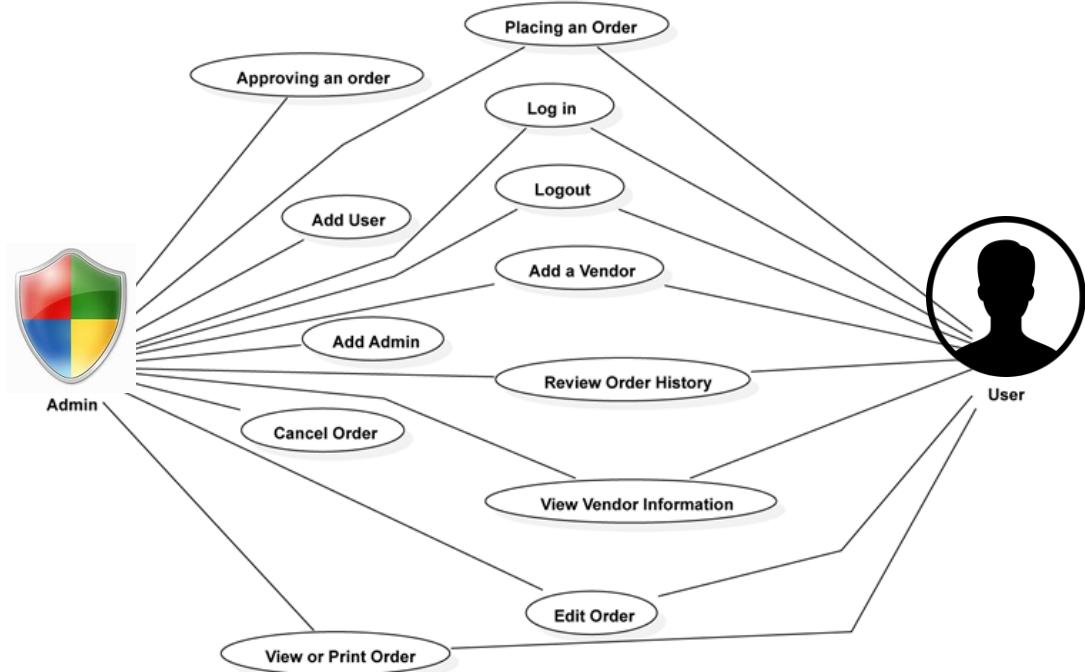
## 2.2 Product Functions

### Critical Functionality Descriptions:

- Place an order (as a user)
  - a. Add item(s) from vendor to order
  - b. Add date/time to order
  - c. Add status to order
- Place an order (as an admin)
  - a. Add item(s) from vendor to order
  - b. Add date/time to order
  - c. Add status to order
- View order details
  - a. Products in order
    - i. Quantities of each product
    - ii. Price of each product
    - iii. Vendor of each product
    - iv. Brand of each product
  - b. Order status
  - c. Details of ordering employee
  - d. Details of delivery destination
  - e. Order number
  - f. Payment due date
  - g. Total
- Edit order status (as an admin)
- Cancel order

- Add vendor
  - a. Add product to vendor
- Delete vendor
  - a. Delete a product from vendor
- Notify employees when the status of their order has been updated
- Add a user (as an admin)
  - a. Delete a user (as an admin)
  - b. Edit a user (as an admin)

## System Overview



**Figure 2.** Shows the respective privileges of each user type in the system.

### 2.3 User Classes and Characteristics

\*\* We denote the priority of each user class with an enumeration starting with the most important class. Additionally, only the top level functionalities are included, the sub functionalities are implied. These are ultimately categorized by frequency of use.

(1) User	(2) Admin
<ul style="list-style-type: none"> <li>• Order a product</li> <li>• View order details</li> <li>• Receive notification</li> <li>• Add product</li> <li>• Add vendor</li> <li>• Delete vendor</li> <li>• Edit vendor</li> <li>• Delete Product</li> <li>• Edit product</li> <li>• Cancel order</li> </ul>	<ul style="list-style-type: none"> <li>• Order a product</li> <li>• View order details</li> <li>• Receive notification</li> <li>• Add product</li> <li>• Add vendor</li> <li>• Edit order status</li> <li>• Add product</li> <li>• Delete vendor</li> <li>• Edit vendor</li> <li>• Edit product</li> <li>• Add user</li> <li>• Edit user</li> <li>• Delete user</li> <li>• Cancel order</li> </ul>

## 2.4 Operating Environment

This system will operate on the Microsoft® Azure Web Apps Platform. The system is officially supported on build version 3.0 and will run on equivalent formats. The app has been written in ASP.NET MVC C#. As such, developer terminals require a compatible C# installation. Documentation on these requirements can be found at <https://azure.microsoft.com/en-us/downloads/archive-net-downloads/>

The system operating the system on end-user terminals should include a web browser capable of interpreting DTD HTML 4.01 Transitional doctype .html files as described by the W3 Consortium®. Additionally, Java libraries for jQuery 3.2.0, and system comprehension of CSS v3.0.3 is required. We recommend Google® Chrome build 57.0.2 or later.

The system is compiled in the cloud remotely. End-user systems need not have C# binaries deployed.

The available secondary memory storage recommended for this application's smooth operation is at least 50MB, although for any enterprise-of-scale, this will not be sufficient. Please evaluate your storage needs internally when choosing an Azure deployment option.

## 2.5 Design and Implementation Constraints

### I. Limitation of Options to Developers

- **No corporate or regulatory policies included in problem domain. Data sovereignty is left to the responsibility of the end-user.**
- The system has only been configured for use in with the English (US) language
- The customer's organization is responsible for the maintenance of the system after deployment.
  - i. **If the database becomes corrupt, and the employees are unable to navigate to the employee terminal of the system, they must replace it manually. Contact Sub-par Systems for assistance.**
  - ii. We recommend making a backup on regular intervals to prevent data loss
- The organization will be responsible for migrating any existing data into the new database

### II. Limitation of Platform as a Service

- Most major cloud providers offer an extremely reliable, high availability service; however, should an outage occur, Sub-par Systems is not at fault.

- Entities are responsible for purchase, maintenance, and payment of their own cloud instance. Sub-par Systems need only deploy the product on the purchasing entity's server

## 2.6 User Documentation

This file, the Problem Description, the Use-case summaries (included), and a marketing slideshow are the only documents included with the system.

## 2.7 Assumptions and Dependencies

Order Anyday Build 176.0 includes exhaustive error handling and exception control. This does not, however, prevent an admin from performing a behind the door attack. When users are entering data, it is their responsibility to ensure its integrity. Validation at this level is an np-complete problem. This means that the data entered is that the data presented. Use common sense to determine what makes sense when entering data. Further validation methods could be implemented. [#TBD](#)

# 3. External Interface Requirements

## 3.1 User Interfaces

The input device for the system is a web portal. This means that no actor will be able to “undo” an action after it has been submitted. Some actions can be cancelled or edited, but ultimately, employees should be sure they want to complete the actions they are submitting. In some cases, they will have to contact a system administrator to apply the necessary changes. No screen shots have been provided, as the interface is not complex enough to require any special instructions. We have gone to great lengths to ensure the user interface is easy to navigate.

## 3.2 Hardware Interfaces

Key board and mouse or touchscreen and virtual keyboard required.

## 3.3 Software Interfaces

\*\* Reference [2.4] for external software and version requirements.

Outgoing Communication (OA → Azure DB): The OA system occasionally must be shut down for maintenance reasons. When this happens, only data in the SQL database is preserved. This data is stored in an Azure Cloud SQL server. Data is transferred there at the time of a successful LINQ transaction in accordance with the Entity framework.

Outgoing Communication (OA System → \*.HTML): \*.asp documents are generated by the .NET Framework in realtime on the deployment server. Write access is required.

Incoming Communication (Azure → OA System): A connection between the client and server is required.

Incoming Communication (Azure SQL → OA System): The system must be able to communicate with the cloud database.

### 3.4 Communications Interfaces

OA employs HTML document header,

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
 "http://www.w3.org/TR/html4/loose.dtd">
```

See also Entity Framework Notes: [https://msdn.microsoft.com/en-us/library/aa937723\(v=vs.113\).aspx](https://msdn.microsoft.com/en-us/library/aa937723(v=vs.113).aspx)

## 4. System Features

### 4.1 Place an Order

#### 4.1.1 Description and Priority

This functionality allows participating businesses to enter data into the system. That is, it allows them to place orders. They will be unable to place the order if any one of the items in the order is unavailable when they want it.

**Priority: HIGH**

#### 4.1.2 Stimulus/Response Sequences

- (Employee/Admin) : Add item(s) to cart
- (Employee/Admin) : Place order
- ← (Sys) : Create order with status pending and send to admin for approval
- ← (Sys) : Admin approves or denies order
- ← (Sys) : Change order status
- ← (Sys) : System notifies this employee of admin's decision

#### 4.1.3 Functional Requirements

This software will need access to the respective SQL server, and a connection to the client. The software will also need to accept user input. See [2.4]. As I've mentioned, input assertions are not a feature of OA v176. This means that all input is technically valid. Wrong input could corrupt the database or produce illogical output. It is important you follow the syntax guidelines given in the interface.

REQ-1: Read

REQ-2: Write

### 4.2 Add Vendor

#### 4.2.1 Description and Priority

This functionality allows employees to add a vendor to the system.

**Priority: HIGH**

#### 4.2.2 Stimulus/Response Sequences

- (Employee/Admin) : Request to add vendor
- ← (Sys) : Ask employee for vendor details

→ (Employee/Admin) : Enter required information  
 ← (Sys) : Enter data into database

#### 4.2.3 Functional Requirements

*This software will need access to the respective SQL server, and a connection to the client. The software will also need to accept user input. See [2.4]. At this point, payment information is not saved into the system #TBD. As I've mentioned, input assertions are not a feature of OA V176. This means that all input is technically valid. Wrong input could corrupt the database or produce illogical output. It is important you follow the syntax guidelines given in the interface.*

- REQ-1: Read
- REQ-2: Write

### 4.3 Add Product

#### 4.3.1 Description and Priority

*This functionality allows employees to add a product to a vendor.*

**Priority: HIGH**

#### 4.3.2 Stimulus/Response Sequences

→ (Employee/Admin) : Request to add product  
 ← (Sys) : Ask employee for product details  
 → (Employee/Admin) : Enter required information  
 ← (Sys) : Enter data into database

#### 4.2.3 Functional Requirements

*This software will need access to the respective SQL server, and a connection to the client. The software will also need to accept user input. See [2.4]. At this point, payment information is not saved into the system #TBD. As I've mentioned, input assertions are not a feature of OA V176. This means that all input is technically valid. Wrong input could corrupt the database or produce illogical output. It is important you follow the syntax guidelines given in the interface.*

- REQ-1: Read
- REQ-2: Write

### 4.4 View Data

#### 4.4.1 Description and Priority

*This functionality allows all actors to view information about all data in the system. They need simply navigate to the part of the dashboard dealing with the specific entity and click on the data.*

**Priority: MEDIUM**

#### 4.4.2 Stimulus/Response Sequences

→ (Actor) : Select to view data  
 ← (Sys) : Show data

#### 4.4.3 Functional Requirements

*This software will need access to the respective SQL server, and a connection to the client. The software will also need to accept user input. See [2.4]. Requires web browser capable of interpreting HTML 4.01. As I've mentioned, input assertions are not a feature of OA V176. This means that all input is technically valid. Wrong input could corrupt the database or produce illogical output. It is important you follow the syntax guidelines given in the interface.*

REQ-1: Read

### 4.5 Edit Data

#### 4.5.1 Description and Priority

*This functionality allows actors with permissions defined in 2.3 to edit data in the system. They need simply navigate to the part of the dashboard dealing with the specific entity and click edit.*

**Priority: MEDIUM**

#### 4.5.2 Stimulus/Response Sequences

→ (Actor) : Select to edit data  
 ← (Sys) : Update data  
 ← (Sys) : Show new data

#### 4.5.3 Functional Requirements

*This software will need access to the respective SQL server, and a connection to the client. The software will also need to accept user input. See [2.4]. Requires web browser capable of interpreting HTML 4.01. As I've mentioned, input assertions are not a feature of OA V176. This means that all input is technically valid. Wrong input could corrupt the database or produce illogical output. It is important you follow the syntax guidelines given in the interface.*

REQ-1: Read

REQ-2: Write

### 4.6 Delete Data

#### 4.6.1 Description and Priority

*This functionality allows actors with permissions defined in 2.3 to delete data in the system. They need simply navigate to the part of the dashboard dealing with the specific entity and click delete.*

**Priority: MEDIUM**

#### 4.6.2 Stimulus/Response Sequences

→ (Actor) : Select to delete data  
 ← (Sys) : Delete data

#### 4.6.3 Functional Requirements

*This software will need access to the respective SQL server, and a connection to the client. The software will also need to accept user input. See [2.4]. Requires web browser capable of interpreting HTML 4.01. As I've mentioned, input assertions are not a feature of OA V176. This means that all input is technically valid. Wrong input could corrupt the database or produce illogical output. It is important you follow the syntax guidelines given in the interface.*

REQ-1: Read  
 REQ-2: Write

### 4.7 Notify on Update

#### 4.6.1 Description and Priority

*This functionality allows the system to notify employees when a verdict has been reached about their order, or an action has been performed on their order.*

**Priority: MEDIUM**

#### 4.6.2 Stimulus/Response Sequences

← (Admin) : Order status changed  
 → (Sys) : Create notification for order owner

#### 4.6.3 Functional Requirements

*This software will need access to the respective SQL server, and a connection to the client. The software will also need to accept user input. See [2.4]. Requires web browser capable of interpreting HTML 4.01. As I've mentioned, input assertions are not a feature of OA V176. This means that all input is technically valid. Wrong input could corrupt the database or produce illogical output. It is important you follow the syntax guidelines given in the interface.*

REQ-1: Read  
 REQ-2: Write

## 5. Other Nonfunctional Requirements

### 5.1 Software Quality Attributes

- *Adaptability:*
  - *This product has been designed to be easily adapted based on the client's specific needs. They may contact the developer to adjust these aspects, or edit the included source code on*

*their own, and re-deploy the product. See Appendix C for the features planned for release by WIPT in OA V177.*

- *Availability*
  - *This product is to be used without license. This product may be reproduced without our consent.*
- *Correctness*
  - *The correctness of this system relies on how accurate the input information is, and how well the database is maintained by the entity's staff.*
- *Flexibility*
  - *Planned for the future included features to make it more flexible such as*
    - *Fund tracking*
    - *Payment info*
    - *API to automatically add order after payment is sent to vendor through their respective portals*
- *Interoperability*
  - *External dependencies lie in Microsoft Azure, and a network connection between the client and their server.*
- *Maintainability*
  - *The system's database can become corrupted by incorrectly formatted system input; therefore, it is important to create a regularly scheduled interval for database backups to avoid data loss. A future build would do this automatically. #TBD Most CRUM commands are directly supported through the system; however, since the entity controls the cloud instance, they have direct access to query or manage the database.*
    - *Orders are never removed from the system for archiving. This functionality can be extend via SQL scripts should the entity need this functionality.*
- *Portability*
  - *This system is not portable once it has been deployed on a web server; however, it is accessible from any device with a network connection so in that sense, it's extremely portable.*
- *Reliability*
  - *The system has been thoroughly tested and should have a mentioned work around for all encounterable errors in this document. If an unexpected error arises, contact the developer, or system administrator.*
- *Reusability*
  - *OA V176 has been designed for use with one entity per deployment; therefore, each entity will need its own license to avoid data overlap.*
- *Robustness*
  - *While many errors are dealt with internally in this system, those that do not yet have an internal workaround have been documented for the users.*
- *Testability*
  - *The system has been thoroughly tested.*
- *Usability*
  - *Great lengths have been gone to, to ensure a user-friendly environment, even on mobile devices. This has been accomplished via CSS, jQuery, and Bootstrap.*

## 5.2 Business Rules

See [2.3]

## Appendix A: Glossary

- *WIPT : Working-Level Integrated Product Team*

- *OA : Order Anyday*
- *BI : Business Intelligence*

## **Appendix B: Analysis Models**

*<UC Diagrams>.*

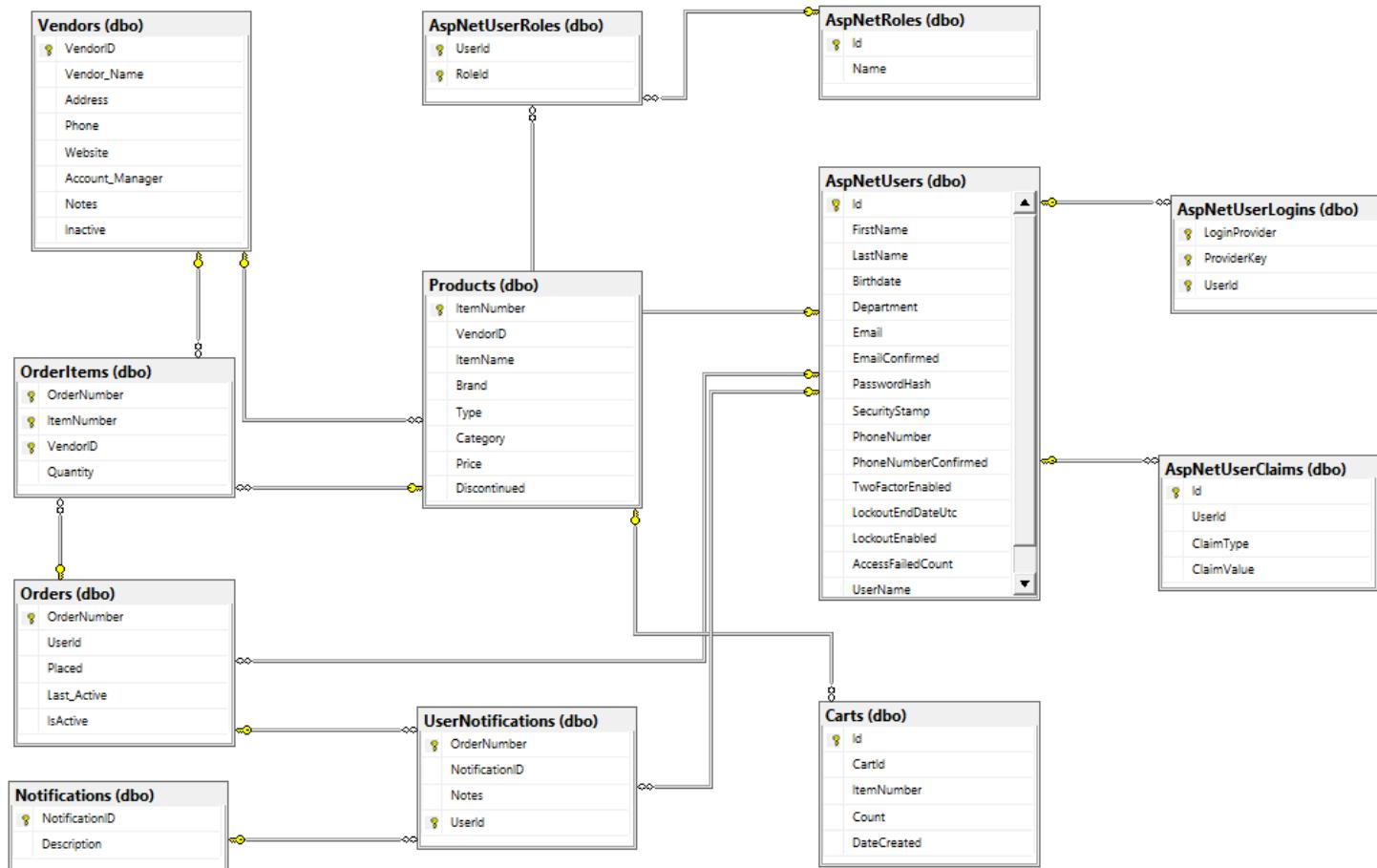
## **Appendix C: To Be Determined List**

- ***Input assertions to improve flexibility and correctness of the system [2.7]***
  - i. *Not included in Build 176.0*
- ***Payment information is not saved into the system or a database table [4.2.3]***
  - i. *This was deemed as a non-necessary feature of the system; however, this could be added by next build if the client deemed it necessary*
- ***Automatic Database Updates [5.4]***
  - i. *This feature has not been included in OA v176 due to time constraints*

# System Architecture

# Database Schema

Figure 1.

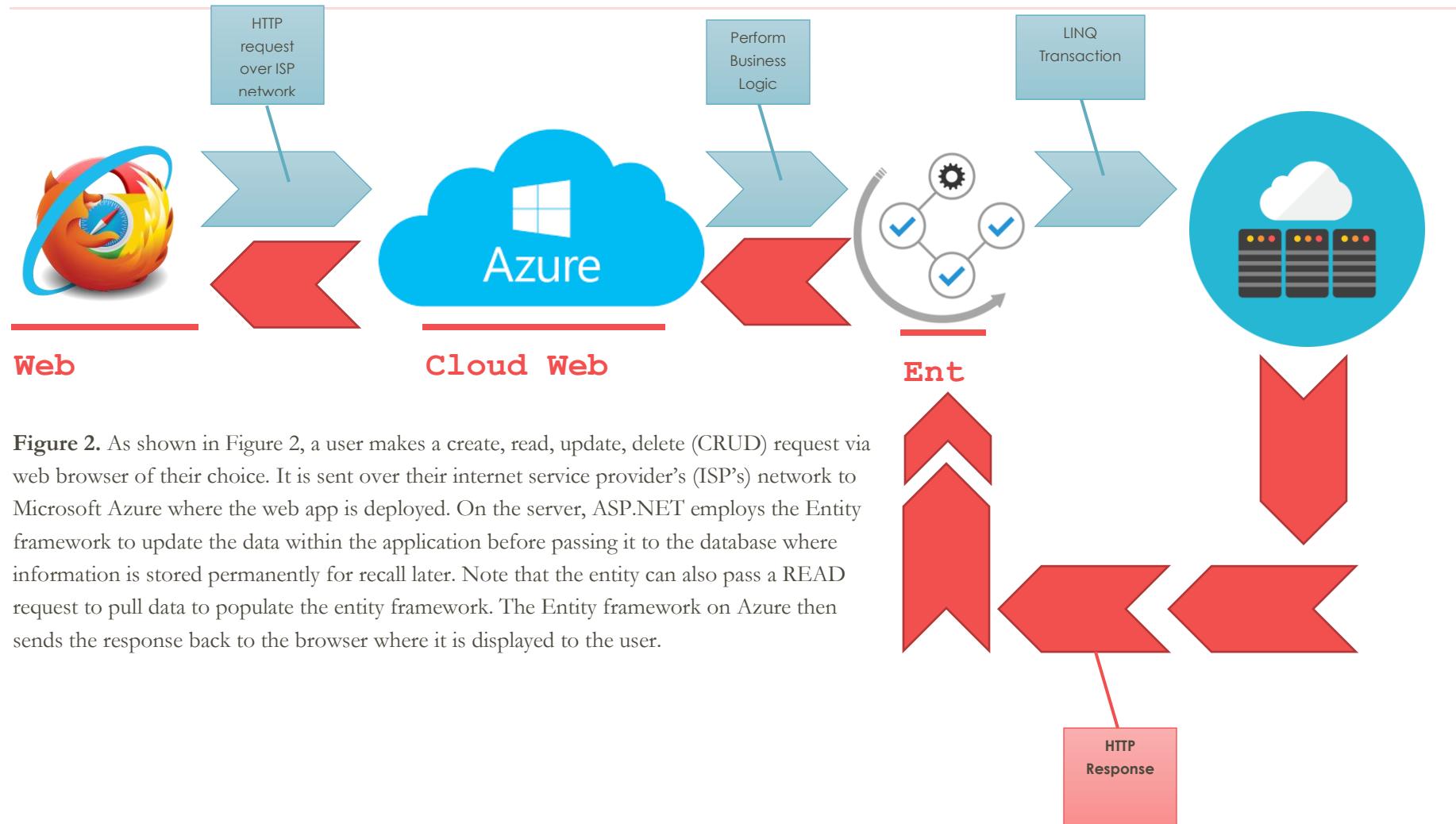


As shown in Figure 1, we designed the database using BCNF reduction wherein redundancy is reduced throughout the design bearing in mind that logical joins between tables can produce the relational tables the application needs to process queries. We started with the user table as its column values are defined in the ASP.NET framework. We then added details to the user such as contact information that the system would need to meet the requirements as defined in the SRS and problem statement. The AspNetUserLogins (1), AspNetUserClaims (2), AspNetUserRoles(3), and AspNetRoles (4), follow in this same convention. (1) provides the system with the location of the user's credentials. This is so that, in future builds, external login accounts can be added. For example, a user may wish to authenticate with their Gmail credentials. (2) provides tracking for users that have submitted "Forgotten your password claims", since this alters their password hash and the system needs to be notified to not allow logins on that user. (3) holds a list of all of the possible roles a user can hold within the system. Our system employs only two, user, and admin. Finally, (4) maps each user to one of the two roles in the system.

Now each user can place orders which are also stored in the database. Each order can be uniquely identified by its ID, and holds information about its status and dates relevant to the employee tracking the order. Also associated with each order is a cart. This holds the list of items that are placed in each order. Finally, we have products that can placed in the orders, and vendors to which these products are mapped. Vendors and Products both contain an "inactive" field that tell the system whether or not the information can be used in new orders. This is so that information can be "removed" from the system without corrupted information in old orders.

There is also a notification system requiring a Notifications table that houses the notifications themselves, and a UserNotification table that maps notifications to users.

## System Architecture Diagram



**Figure 2.** As shown in Figure 2, a user makes a create, read, update, delete (CRUD) request via web browser of their choice. It is sent over their internet service provider's (ISP's) network to Microsoft Azure where the web app is deployed. On the server, ASP.NET employs the Entity framework to update the data within the application before passing it to the database where information is stored permanently for recall later. Note that the entity can also pass a READ request to pull data to populate the entity framework. The Entity framework on Azure then sends the response back to the browser where it is displayed to the user.

# Error Recovery

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## Proactively Detected Errors

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The largest errors that may occur are the loss of connection to the hosted database or a loss of ISP access on the client's end. The customer can choose how their database and site are hosted which will play a larger part in the frequency or potential of these interruptions. A cloud based host such as Microsoft Azure would have a much stronger guarantee of stability and uptime.

Smaller input based errors are avoided by proper verification of data prior to database updates. For instance, characters for phone numbers, email addresses, and the like, are verified at the page level. SQL injection protection is handled by the ASP.NET framework and the built in safeguards of their LINQ statements.

Other actions that could cause errors in the database or elsewhere are handled with strict predicate based implementations. One cannot place an order that contains no products for example. The system is safeguarded against adding duplicate users as well.

Besides insuring proper data being stored in the database, the system has two levels of access, admin and user, to allow for the appropriate access of information for each role. The admin can view and interact with user accounts, view all orders placed, and has the ability to accept or decline orders. A user can place orders, but can only view the orders they have personally placed, and has no access to other user accounts.

## Recovery Process

---

Should an internal error occur, the client would see an official Order AnyDay error page instead of a generic browser error page to clarify where the error originated. Should a loss of connection occur, all information stored in a company's cloud based database will remain safe until the connection is reestablished. Since all data is secured in the database, the only potential for loss of data in the event of a connection loss during use is any new information within a page's form that was yet to be submitted.