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# **Software Requirements Specification**

**for**

## **Build-My-Bot Case Study**

**Version 1.0 approved**

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**10/08/2022**

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## **Revision History**

<b>Name</b>	<b>Date</b>	<b>Reason For Changes</b>	<b>Version</b>
SRS 1.0	10/08/2022	Initial Draft	1.0

# 1. Introduction

## 1.1 Purpose

*The purpose of this document is to provide an overview of the goals, and objectives of the system being developed. It explains in detail all the functionalities and environments in which the system will function. It is intended to ease system understanding for the stakeholders, developers, and users. It serves the following purposes:*

- *Validation- To validate if the product is built correctly and the document is easily understandable.*
- *Verification - To verify if the project objectives are met and the product is built as per required specifications*
- *This document is made with reference to future modifications and additional updates to maintain compatibility throughout the product lifetime.*

## 1.2 Document Conventions

*The entire document text is formatted with a Font size of 11 and headings of size 14. The document follows a Font-style of Times New Roman. The document follows the index order and the SRS is to be read with the normal flow. The document is a Copyright © 1999 by Karl E. Wiegers. Permission is granted to use, modify, and distribute this document.*

## 1.3 Intended Audience and Reading Suggestions

*The document is intended to ease system understanding and the target audience includes stakeholders, users, developers, and other people involved in the project development.*

*The reading sequence is very straightforward and should be read in order. The document will highlight all details about the system, right from descriptions to features to requirements.*

## 1.4 Product Scope

*The sole purpose of the Build-My-Bot's (BMB) system is to provide an exclusive user experience along with additional features to the users for convenient robot ordering along with customizations. It also focuses on enhancing the system's usability and functionality within the organization. The new system also aims at overcoming the current system's shortcomings and bottlenecks. Redesigning and updating the system will also augment the overall performance and will have several benefits to BMB.*

## 1.5 References

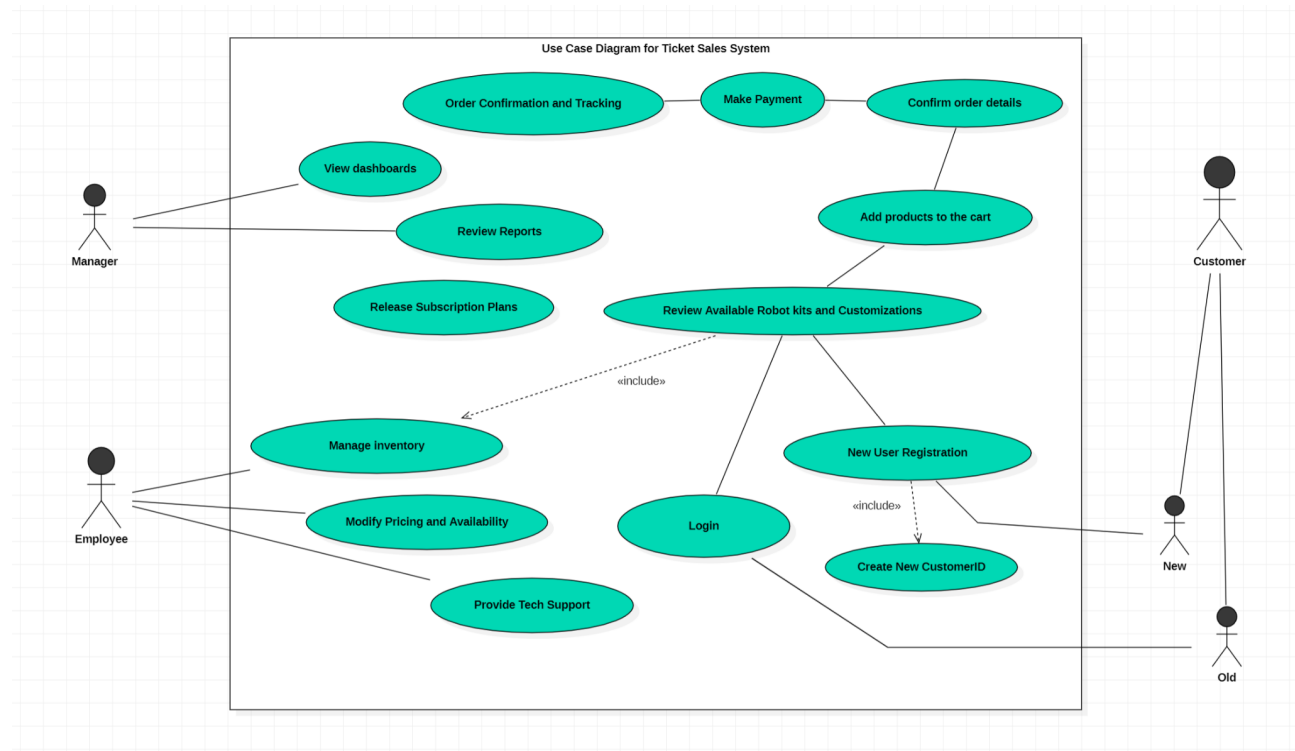
- *Software Engineering Software Requirements Specification(SRS) Document Version 1.0  
Authors: Ryan Evans, Barry Chapman, Sam Williams, Devin Coger*
- *E-Store Project Software Requirements Specification (Marvel Electronics and Home Entertainment)Version 4.0*

## 2. Overall Description

### 2.1 Product Perspective

The new system being built is an upgrade and modification of the existing BMB system. It is a comprehensive E-Store system that will allow users to buy robot kits right from the comfort of their homes. The system will involve user-focused features such as tracking options, several payment gateways, and tech support. It will also assist organizational teams with greater connectivity and reporting capabilities. This new system is a comprehensive solution for kids and students for robot purchases online.

Similar systems do exist in the marketplace such as RobotShops and Jameco. Exclusive features viz. Authentication, Chatbots, and annual Subscriptions are what distinguish the BMBs system from other competitors. The system aims at amplifying the performance and user experience manifold times.



### 2.2 Product Functions

The redefined BMB system will incorporate several enhancements, and significant modifications to existing features and introduce fresh ones, resulting in greater usability and utilization. The system focuses on providing the following functions:

- Greater operational capacity
- Increased Interconnectivity among systems
- More customization options
- Tracking and Reviewing possibilities

- *Several payment gateways*
- *Individualized Administrative access*
- *Advanced features including report generation, sales tax handling, and sales dashboard*
- *24 Hour support*
- *Access via a larger pool of devices*
- *Subscription Plans*
- *Chatbot*
- *Wizard availability*
- *Authentication*

### 2.3 User Classes and Characteristics

*A number of users at different user levels will interact with the system on a regular basis. Users will range right from customers to developers, managers, and stakeholders.*

- *Customers will utilize low-level features relating to purchases. They won't have access to several administrative features.*
- *Employees will have access to selective administrative features and will handle tasks related to management and control of the system.*
- *Managers and Stakeholders will have high-level access and overview of the system and will be able to track and oversee performance in a sustainable manner.*

<i>User Class</i>	<i>Frequency of Use</i>	<i>Technical Expertise</i>	<i>Features Used</i>
<i>Customers</i>	<i>High</i>	<i>Low to High</i>	<i>Account creation, Online purchase, Tracking, Payment, Tutorials, Tech Support, Subscription Models, Chatbot</i>
<i>Employees</i>	<i>High</i>	<i>Moderate to High</i>	<i>Inventory Management, Tech Support, Email Campaigns</i>
<i>Managers</i>	<i>Moderate</i>	<i>Moderate to High</i>	<i>High-level Administrative Access, Reports, Taxing</i>
<i>Stakeholders</i>	<i>Moderate</i>	<i>Moderate to High</i>	<i>Dashboards</i>

### 2.4 Operating Environment

*The system will require an environment comprising of a hardware device and a compatible software web browser, for all operations to run seamlessly, as follows:*

- *Hardware:*
  - *Android smartphone device (or) iPhone, iPad device*
  - *Computer System(Windows, Mac, Linux system, etc)*
  - *Cloud Servers(hosting purposes)*
- *Software:*

- Chrome 45+
- Firefox 38+
- Opera 30+
- Internet Explorer 10+
- Edge 12+
- iOS 9+
- Safari 9+
- Android 4.4+

## 2.5 Design and Implementation Constraints

*The major design and implementation constraints have been that the website should be designed and developed keeping in mind the platform on which the website would be implemented. The development platform consists of the following components:*

*Web: JavaScript with CSS and HTML5 validation*

*Parameters and the interfaces can be controlled using any UI designing software.*

*Trademarks and copyrights should be maintained to avoid lawful complications.*

*Shipping rules and regulations should be kept in mind.*

## 2.6 User Documentation

*SRS will be the most important document for system interactors to understand the system specifications and use it efficiently.*

*Customers will be provided with user manuals and online tutorials within the e-portal to assist with system navigation and robot setups.*

*Customers will also have access to the web-based chatbot which will answer a predefined set of questions. Customers will have the option to contact tech support for queries that can't be resolved through user manuals and chatbots.*

## 2.7 Assumptions and Dependencies

- *System should be user-friendly and easy to use.*
- *System capacity should be high and work on a highly efficient database.*
- *The system is running for major hours of the day with the least downtime.*
- *Users have access to decent internet connectivity.*
- *Users fulfill the basic software and hardware requirements.*
- *Users have basic knowledge of using an e-commerce platform and website.*
- *Cloud platform server and service should be available and active.*

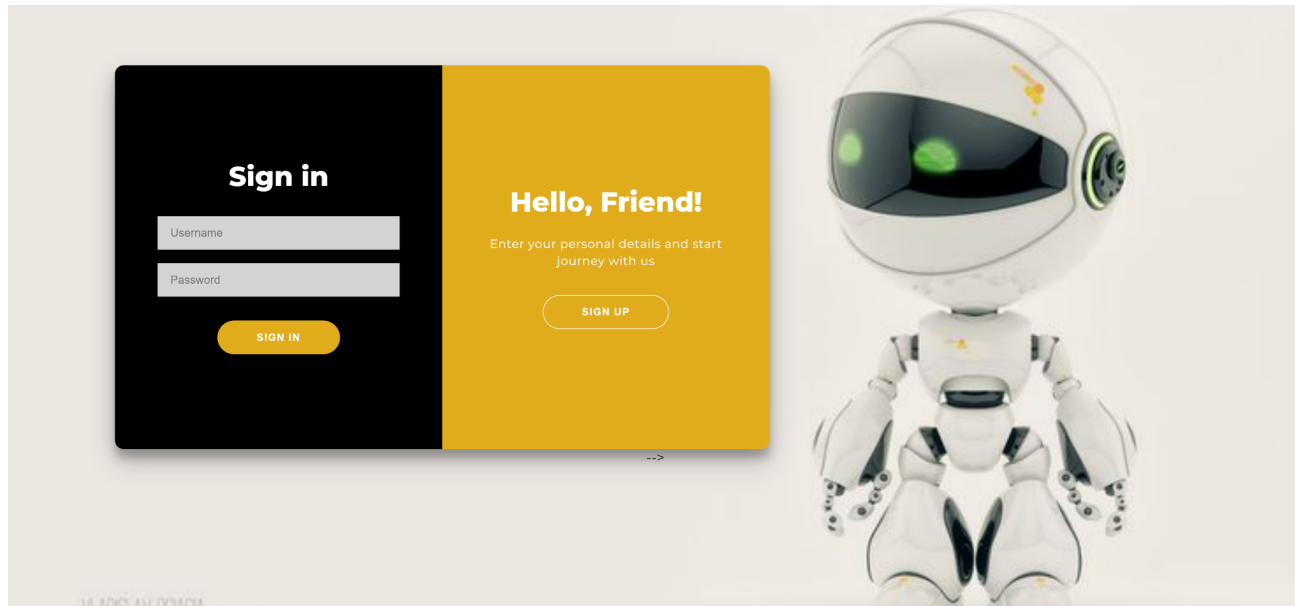
### 3. External Interface Requirements

#### 3.1 User Interfaces

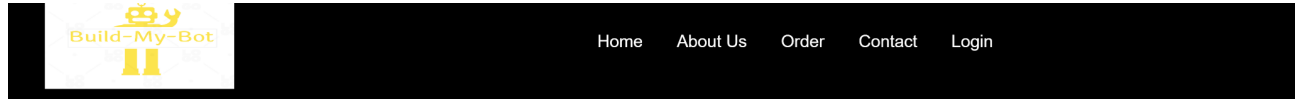
There will be employee-oriented and customer-oriented user interfaces. The interfaces will be decided using login authentication. As soon as the login matches to the employee database, it will show employee functions, or else the user can log in/signup using user credentials.

The employee interfaces will display various functions such as inventory management options, administrative accessibility, dashboards, and reports.

The user interface will display various functions to log in, order robot kits, contact customer service, and display features about the company and account.





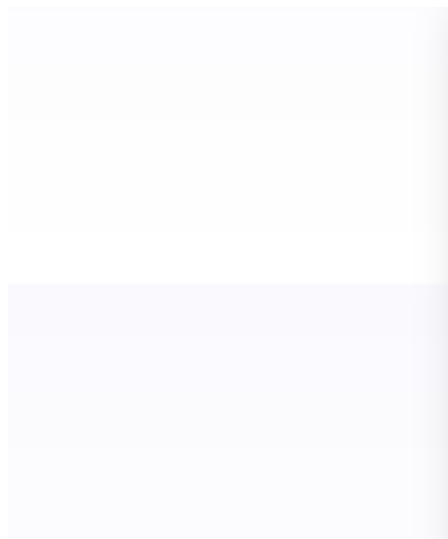


## About Us

### Build-My-Bot

Build-My-Bot is a robot retailer in the US. We sell over 1000 different customizable kits.

Our primary customers are hobbyists, schools and educators, and we even sell internationally, mostly to Mexico.

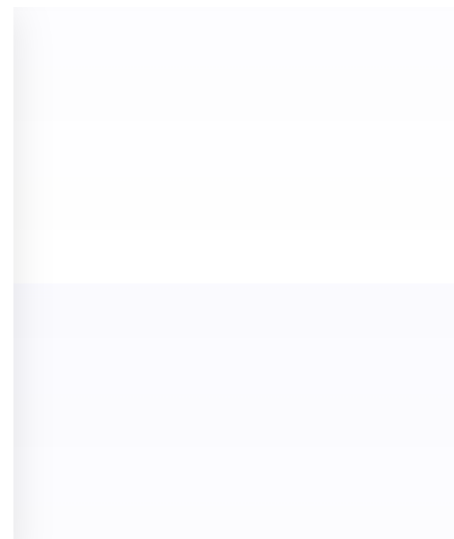


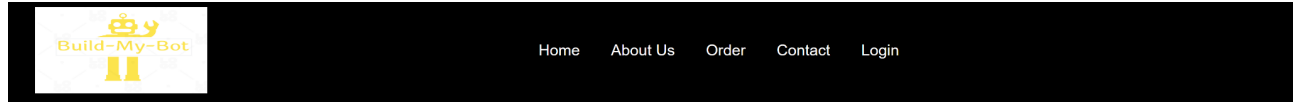
NAME \*

EMAIL \*

MESSAGE

Submit





## 3.2 Hardware Interfaces

*Hardware devices to interact with the system will include:*

- *Mobile Phones*
- *Tablets*
- *Computer Systems*

*The hardware devices should be accessible and compatible with internet connectivity using WAN, LAN, Ethernet, etc.*

## 3.3 Software Interfaces

Visual Studio Code v1.41.0

Web Browser (Google Chrome - v79.0.3945.130)

Adobe Photoshop CS6(2012)

## 3.4 Communications Interfaces

*The communication protocol shall be HTTP via which users will request data and information will be fetched from the database servers and displayed in a user-friendly way.*

*The system will be SSL encrypted to assure a secure connection and avoid security threats.*

*All incoming and outgoing data shall be RSA encrypted to increase security and prevent confidential data(username, password, credit card details) leak.*

## 4. System Features

### 4.1 Tracking and Reviewing possibilities

#### 4.1.1 Description and Priority

<i>Description</i>	<ul style="list-style-type: none"> <li>• <i>Tracking features will enable people to have a greater overview of their package delivery.</i></li> <li>• <i>This will assist in getting a good estimate of the exact delivery schedule and have better expectations.</i></li> <li>• <i>The customers will also be able to review previous order history and store confidential information such as credit cards and more.</i></li> </ul>
<i>Priority</i>	<i>High</i>
<i>Benefit</i>	<i>9</i>
<i>Cost</i>	<i>7</i>
<i>Risk</i>	<i>6</i>

#### 4.1.2 Stimulus/Response Sequences

- *The user will initially have to login (returning user) or sign up (first-time user) with their credentials*
- *They can then navigate to their personalized account page*
- *They can find their tracking history for an upcoming order using the unique order number via UPS and USPS*
- *They can even review their prior order history and also initiate a return/exchange request*
- *By navigating to the payment options, they can review pre-existing saved methods and also add new ones*

#### 4.1.3 Functional Requirements

- REQ-1: Highly efficient integration with UPS and USPS system to enable formidable tracking
- REQ-2: Robust database management system with integrity constraints well defined to manage unique tracking numbers
- REQ-3: Constant updates to refresh delivery status at all stages
- REQ-4: Integration of highly secure encryption techniques to manage credit vcard details

## 4.2 Several Payment Gateways

### 4.2.1 Description and Priority

<i>Description</i>	<ul style="list-style-type: none"> <li>• <i>Current E-store accepts only MasterCard and Visa for payments. This might cause inconvenience in ordering for people not holding either of these cards</i></li> <li>• <i>Integrating several other payment methods will considerably resolve this issue and increase user satisfaction and choices</i></li> <li>• <i>Additional collaborations will include frequent gateways such as Paypal, Apple Pay and Google Pay</i></li> </ul>
<i>Priority</i>	<i>Moderate</i>
<i>Benefit</i>	8
<i>Cost</i>	8
<i>Risk</i>	5

### 4.2.2 Stimulus/Response Sequences

- As the user confirms order, they'll reach the payment portal displaying available payment options
- This functionality will display extended payment options including MasterCard, Visa, Paypal, Google Pay, Apple Pay
- Then using secure gateways, they will be able to fulfill the order and make the payment

### 4.2.3 Functional Requirements

- REQ-1: Handle collaborations with new gateways being added to increase incentivized revenue
- REQ-2: Build and integrate a secure payment gateway to ensure end to end privacy and reduce security threats
- REQ-3: Track payments via different methods efficiently to run statistics

## 4.3 Subscription Plans

### 4.3.1 Description and Priority

<i>Description</i>	<ul style="list-style-type: none"> <li>• <i>Introducing subscription plans will intrigue customers to enroll in those while getting to avail exclusive member only deals and coupons</i></li> <li>• <i>Subscription plans will last from 1-12 months but not greater than 12 months and hence the max the customer can enroll at once would be in an annual subscription</i></li> </ul>
<i>Priority</i>	<i>Low</i>
<i>Benefit</i>	6
<i>Cost</i>	4
<i>Risk</i>	2

### 4.3.2 Stimulus/Response Sequences

- *The user will initially have to login (returning user) or sign up (first-time user) with their credentials*
- *The user will get a promotional pop-up on the landing page giving a brief description about the subscription plan*
- *They can then click on it and get more information about it and enroll themselves as required*

### 4.3.3 Functional Requirements

REQ-1: Review past sales reports, statistics and brainstorm to devise good subscription deals

REQ-2: Release promotional campaigns to publicize the subscription plans to get more customers on board

REQ-3: Alter plans and rates based upon outcome of current campaigns

## 4.4 Advanced features: Report generation, Sales tax handling, and Sales dashboard

### 4.4.1 Description and Priority

<i>Description</i>	<ul style="list-style-type: none"> <li>• <i>Scheduled reports will benefit the manager to get a overall perspective on company performance and review high/weak performance areas</i></li> <li>• <i>Sales dashboards will assist in assessing high seeling products, identifying regions with maximum sales and alot more insights on sales of the company</i></li> <li>• <i>Manual sales tax handling in different states and territories is a tedious task but automated handling of sales tax would significantly reduce human workload</i></li> </ul>
<i>Priority</i>	<i>Moderate</i>
<i>Benefit</i>	7
<i>Cost</i>	7
<i>Risk</i>	5

### 4.4.2 Stimulus/Response Sequences

- *The employee or manager can login and gain administrative access*
- *The manager can then review sales dashboards and focus on data he wants to gain insights on*
- *The manager can also review reports and estimate future trends*
- *Employees can enable the sales tax handling by turning the toggle on and the system will automatically handle the rest*

### 4.4.3 Functional Requirements

- REQ-1: Robust development of automated sales handling system while considering rules for different states and territories
- REQ-2: Testing the module since it can get complicated and throw errors
- REQ-3: Run analytics on all data stored in the database to enable report and dashboard creation

## 4.5 Chatbot

### 4.5.1 Description and Priority

<i>Description</i>	<ul style="list-style-type: none"> <li>• <i>Chatbot functionality will assist customers in getting basic to intermediate queries answered via the e-store portal</i></li> <li>• <i>This will reduce user load on the 24 hour support line by resolving several queries via the pre-trained chatbot</i></li> </ul>
<i>Priority</i>	<i>Moderate</i>
<i>Benefit</i>	5
<i>Cost</i>	8
<i>Risk</i>	2

### 4.5.2 Stimulus/Response Sequences

- *User can open the chatbot present on the e-store portal*
- *They can then type in brief questions and wait to receive a response in a bit*
- *After back-end processing, the user will receive a response from the chatbot corresponding to their query*

### 4.5.3 Functional Requirements

REQ-1: High accuracy AI Modeling to be used.

REQ-2: Response time should be very low.

REQ-3: Chatbot tools like Dialog Flow should be used.

## 5. Other Nonfunctional Requirements

### 5.1 Performance Requirements

- *Execution Time: Speed of response impacts customer satisfaction rate a lot. To build a happy user base, BMB expects a response time of less than 1 second. This can be done by compressing data efficiently while maintaining quality.*
- *Storage Capacity: While the product catalog would increase eventually, BMB will have to make arrangements for future expansions and hence web storage of 1TB or more will be required.*
- *Scalability: BMB with its ever-increasing user base will require a greater bandwidth capacity for future scenarios. While not affecting performance, a bandwidth of 50GB or more would be sufficient to incorporate incoming traffic.*

### 5.2 Safety Requirements

- *While the server shouldn't have major downtimes, there should be a dedicated backup server to keep the system active.*
- *A dedicated team should be established to handle any downtime errors related to the server and back it up immediately.*
- *Data integrity and confidentiality should be handled and maintained with utmost care.*
- *Data loss should be prevented by generating data backups at frequent intervals based on data storage availability.*
- *Product catalog should be authenticated regularly to prevent fake third-party products.*

### 5.3 Security Requirements

- *Credit Card information should be stored using PCI DSS standards for secure and safe storage.*
- *Integrate firewall requirements and manage policies to avoid security threats.*
- *User authentication via verification codes through email or text messages.*
- *Two-factor authentication features for enhanced security.*
- *System should follow IEEE Security standards.*

### 5.4 Software Quality Attributes

*Maintainability: The system should be created in a way that it can be maintained by entry-level employees as well as experienced employees effectively.*

*Interoperability: The system can be integrated with other systems to migrate data and exchange essential information.*

*Portability: The system should be able to be migrated from the current working environment to a fresh one.*



*Availability: The system should be active and running efficiently throughout to provide customers access to services and features.*

*Reliability: The system should always perform robustly under unforeseen circumstances as well and deliver authentic and reliable results.*

## **5.5 Business Rules**

- *Administrative features and functionalities should be restricted to higher-level employees and senior stakeholders.*
- *While anyone wanting to acquire data, a formal procedure, and requesting process should be followed.*
- *Important decisions should be taken only after senior management approval.*
- *Maintaining confidentiality and integrity should be at utmost priority whilst all operations*

## **6. User Documentation**

*SRS will be the most important document for system interactors to understand the system specifications and use it efficiently.*

*Customers will be provided with user manuals and online tutorials within the e-portal to assist with system navigation and robot setups.*

*Customers will also have access to the web-based chatbot which will answer a predefined set of questions. Customers will have the option to contact tech support for queries that can't be resolved through user manuals and chatbots.*

## **7. Deliverables**

- Requirement Specification
- Feature Specification
- UI/UX Mockups
- Content Creation
- Payment Portal Integration
- POS Integration
- Quality Control
- User Training

## Appendix A: Glossary

<i>HTTP</i>	<i>Hypertext Transfer Protocol</i>
<i>BMB</i>	<i>Build-My-Bot</i>
<i>UI</i>	<i>User Interface</i>
<i>UX</i>	<i>User Experience</i>
<i>CSS</i>	<i>Cascading Style Sheets</i>
<i>HTML</i>	<i>HyperText Markup Language</i>
<i>WAN</i>	<i>Wide Area Network</i>
<i>LAN</i>	<i>Local Area Network</i>
<i>UPS</i>	<i>United Parcel Service</i>
<i>USPS</i>	<i>United States Postal Service</i>
<i>AI</i>	<i>Artificial Intelligence</i>
<i>PCI DSS</i>	<i>Payment Card Industry Data Security Standard</i>
<i>POS</i>	<i>Point Of Sales</i>