

**Lenovo Online Store**  
**Software Requirements Specification**  
**For Online Computer Store Application**

**Version 1.0**

grade: 85

comments: the report followed the format and provide due coverage of the system. one main drawback is the incorrect focus on actors/users, the right one should be on each oval. it's not that actors own ovals, but actually the other way around.

Lenovo Online Store	Version: 1.0
Software Requirements Specification	Date: 30/03/2021
First Phase Report	

## Revision History

Date	Version	Description	Author
20/03/2021	1.0	Create a login screen for all system users	Ziyi Huang
21/03/2021	1.0	Improve the design and create a first version of the home page	Billy Davila Ai Hua Li
30/03/2021	1.0	Work on the Specification report for phase I.	Ziyi Huang Ai Hua Li Billy Davila Toma Suci

Lenovo Online Store	Version: 1.0
Software Requirements Specification	Date: 30/03/2021
First Phase Report	

# Table of Contents

## Contents

1.	Introduction	<u>4-6</u>
1.1	Purpose	4
1.2	Scope	4
1.3	Definitions, Acronyms, and Abbreviations	4
1.4	References	5
1.5	Overview	6
2.	Overall Description	<u>6-7</u>
2.1	Use-Case Model Survey	6
2.2	Assumptions and Dependencies	7
3.	Specific Requirements	<u>7-12</u>
3.1	Use-Case Reports	7-11
3.2	Supplementary Requirements	11-12
4.	Supporting Information	12-13
4.1	Index	11-13

Lenovo Online Store	Version: 1.0
Software Requirements Specification	Date: 30/03/2021
First Phase Report	

# Software Requirements Specification

## 1. Introduction

### 1.1 Purpose

The main purpose of this document is to provide a detailed description of the system requirements for an online computer store. The Software Requirements Specification explains what the online computer store system will do, its use/purpose (functional and non-functional), and explains thoroughly each system's features. Besides the functionalities and purposes, the following document will indicate the association each user (visitors/browsers, registered customers, store clerks, store managers/ super-users, computer parts companies, delivery companies) of the system have with the computer store system.

### 1.2 Scope

The computer store system is an intuitive GUI based local application that provides customer services to visitors and registered customers. The visitors and registered customers can browse the listing of the available computers, the computer's parts and the discussion forums related with the respective product. The visitors/browsers have the option to become registered customers by providing a working unique email and enjoy the extra features a registered customer has. The extra features a registered customer has include: browse his/her own private purchasing history expenses, comment and place start votes on already purchased items, make purchases as long as a working credit card is provided or deposit cash is available on his/her account and lastly interact on the discussion forums with other registered customers or the store clerks. Also, the system allows the employees such as the store managers to keep a healthy interaction between customers and clerks, customers with other customers, and customers with delivery companies. They (the store managers) have the system's feature privilege to suspend any clerk or delivery company that received too many complaints or suspend any customer whose complaint is reversed. The store managers and the clerks can place a warning to any customer who uses any taboo word in the discussion forums and the system will automatically replace that violating word with '\*'. And finally, the delivery companies can use the system to provide an acceptable bid price to the customers and provide them with their services.

### 1.3 Definitions, Acronyms, and Abbreviations

Term	Definition
Software	Set of instructions, data, or program used to operate computers and execute specific tasks.
System Software	Consist of multiple programs that control and manage the computer operations

Lenovo Online Store		Version: 1.0
Software Requirements Specification		Date: 30/03/2021
First Phase Report		
User	A person who interacts with software system	
GUI	An acronym for Graphical User Interface. It is a user interface which uses graphical elements such as icons and buttons.	
Feature	A unit of functionality of a software system that satisfies a requirement	
Functionality	The actions, capabilities, and usefulness of the software application. The way features work to achieve the desired outcome.	
UML	An acronym for Unified Modeling Language. Industry standard in software engineering. Mainly used for facilitating the visualization and understandability.	
Clerk	A person employed to keep records, accounts, and undertake other routine administrative duties.	
Taboo	Prohibited or restricted by social custom.	
Registered Customer	A person that buys goods or services from a store (online computer store). For our case, the customer must have an active account.	
Computer Store	A retail establishment selling computer or computer related items to the public.	
Manager	A person responsible for controlling or administering all or part of a company or similar organization.	
OS	An acronym for Operating System. An operating system is a software that communicates with the hardware and allows other programs to run. Some examples include: Microsoft, Apple MacOS, and Linux.	

#### 1.4 References

“UML Use Case Diagram Tutorial”, [Online]. Available: [www.lucidchart.com/pages/uml-use-case-diagram](http://www.lucidchart.com/pages/uml-use-case-diagram). [Last Accessed: March 30, 2021].

Lenovo Online Store	Version: 1.0
Software Requirements Specification	Date: 30/03/2021
First Phase Report	

## **1.5 Overview**

The remainder of this document contains and explains how the Software Requirements Specification is organized. It will include an overall description of the software, its specific requirements, and supporting information.

The first part is the overall description. This section gives an overview of the functionality of the product and the general factors that affect the product itself and its requirements. For those requirements only a little background will be provided such as general constraints and assumptions. Regarding the user characteristics and features, a case diagram will be provided.

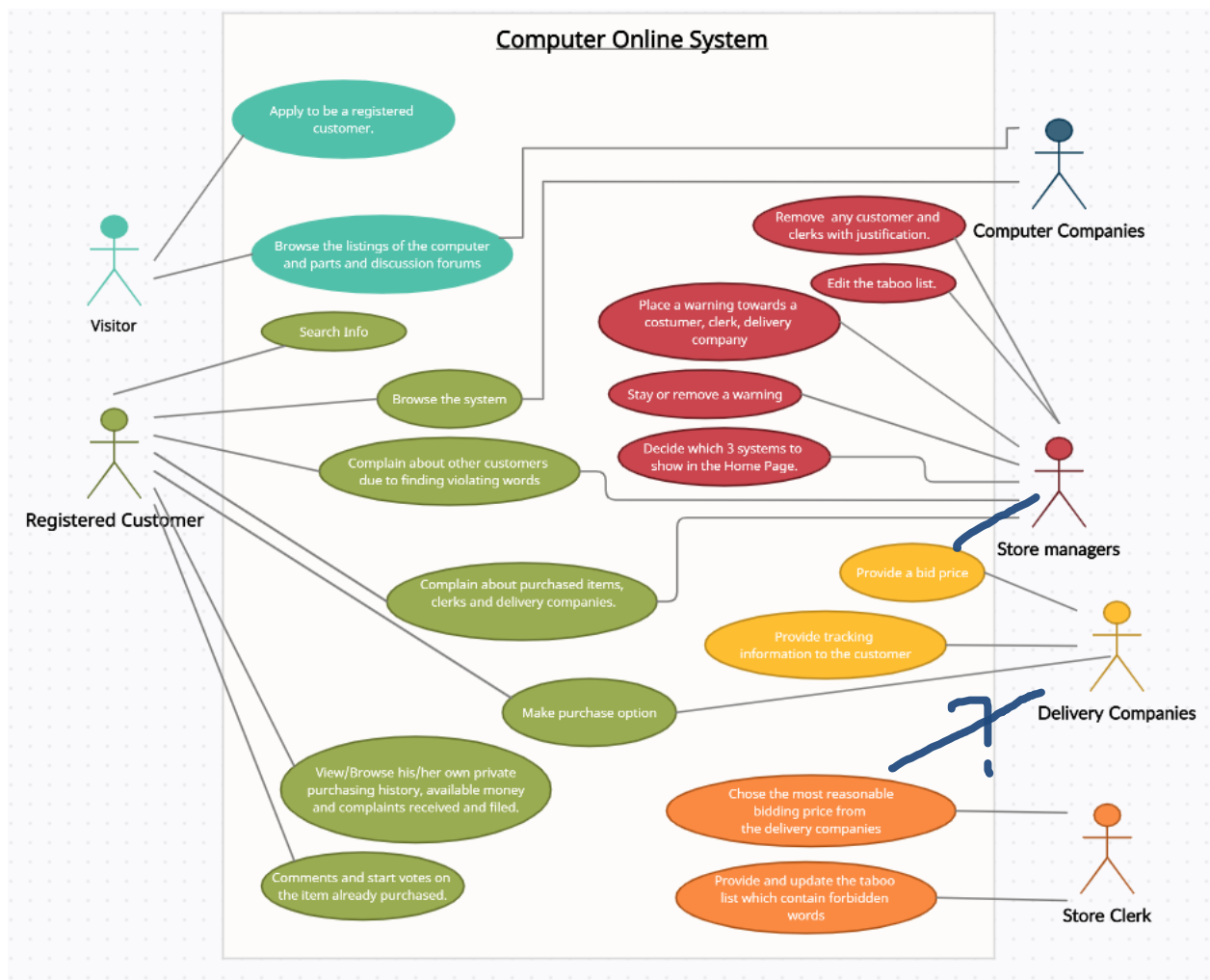
The second part is the specific requirement. This section contains all of the system's functional and quality requirements. The requirements stated in the previous section will be defined in detail. The user's features stated in the case diagram will be explained in-depth.

The final part will be the supporting information. This section assures the Software Requirement Specification is easy to follow and understand by including: a table of contents, index, and appendices.

## **2. Overall Description**

### **2.1 Use-Case Model Survey**

Lenovo Online Store	Version: 1.0
Software Requirements Specification	Date: 30/03/2021
First Phase Report	



most ovals should be of interest to more than 1 user/actor, not uniquely owned by one only

## 2.2 Assumptions and Dependencies

The online computer store system described in the current document is a local desktop/laptop app. The default assumptions are that users are familiarized with the usage of a computer, and how an online computer store works (e.g., place order, make purchase/comments, track package etc.).

## 3. Specific Requirements

### 3.1 Use-Case Reports

The system needs to include all the users and features/functional requirements that will be interacting with it. The system also needs to deal with ordinary users: visitors, registered customers; and privileged users: store clerks, delivery companies, computer companies and the manager.

Lenovo Online Store	Version: 1.0
Software Requirements Specification	Date: 30/03/2021
First Phase Report	

The features/functional requirements are:

#### System Perspective:

1. The system provides a home page of the online computer store that shows 3 suggested systems and 3 most popular computers per number of sales. The home page also provides the choices of OS (e.g., Windows, MacOS, Linux), main purpose (business, scientific computing, or gaming), and architecture (e.g., intel, arm) for customers to choose from.
2. The system provides a new page associated with the choices for different parts (e.g., CPU, GPU, ram, hard disk, battery, screen, system) with possible constraints (e.g., a more powerful GPU needs better battery, gaming purpose needs better GPU/screen resolution etc.), and the prices, voting/rating, discussions about each computer.
3. The system maintains a “avoid” list of email addresses. Any sign up using these email addresses in the “avoid” list will be denied and send a denied message to the address only once, any further sign ups will be denied with no reply.
4. The system will automatically remove any system user which has received 3 warnings.

#### Visitor Use-Cases:

1. *Browse Items*

A visitor can only browse the listing of the computer’s information and parts and discussion forums.

2. *Sign Up*

A visitor can apply to be a registered customer with a unique working email address. The application of the visitor whose email address is in the “avoid” list, with be denied and send a denied message only once.

#### Registered Customer Use-Cases:

should be around ovals,  
not actors

1. *Login*

The registered customer can login to the home page and access functionalities only for the registered customer.

2. *Browse Items*

A registered customer can browse the listing of the computer’s information, ratings, and discussions.

3. *Make Purchase*

A registered customer must provide a working credit card or deposit money to the account for possible purchase. At submission of purchase decision, the



Lenovo Online Store	Version: 1.0
Software Requirements Specification	Date: 30/03/2021
First Phase Report	

amount will be checked against the customer's account or credit, if not enough money, the submission is returned with a warning message. If ok, the amount will be charged. The system then puts the purchase to the delivery subsystem. A registered customer can buy one whole computer or just a part.

4. *Comment or Vote*

A registered customer can only comment or vote on the items she/he already purchased.

5. *Search Information*

A registered customer can search information regarding the computer companies, delivery companies, clerks, current administrator, and his/her personal account within the system.

6. *Post Discussion*

A registered customer can discuss with other of customers or the store clerks in the discussion forum. Also, in discussion forum, a customer used words that are in the "taboo" list maintained by the clerk/manager, one such violation will automatically generate one warning and the violating words are redacted by \*.

7. *Make Complaints or Report*

A registered customer can complain about the purchased items, clerks and delivery companies she/he dealt with, and a customer whose complaint is reversed will receive one warning. Customers can complain about other customers if they find violating words/sentences/attitude in the discussion forum.

8. *Browse Personal Account Information*

A registered customer has an account in the system with information such as available money/credit, home address, purchased computer/items history, whereabouts of purchased items, and complaints she/he received and discussions, votes s/he casted.

9. *Get Suspended*

A third warned customer is removed from the system and put in the "avoid" list and she/he will be informed by email and given the last chance to clean up his/her account.

### Delivery Company Use-Cases

1. *Login*

A delivery company can login to the delivery page and access functionalities only for delivery companies.

2. *Bidding*

There are at least 2 delivery companies that will bid on each item available in the delivery subsystem. The winning company is the one who provides the lowest bidding price, otherwise the store clerk will need to provide justification about his/her choice.

Lenovo Online Store	Version: 1.0
Software Requirements Specification	Date: 30/03/2021
First Phase Report	

### 3. *Provide Tracking Information*

The winning delivery company should provide tracking information for the customer to know its whereabouts.

### 4. *Deal with Complaints*

A delivery company who received the complaints from customers should counter with their side of information to clear the warning. If the complaint that is determined by the manager is true, the delivery company will receive one warning.

### 5. *Get Suspended*

A delivery company that received 3 standing warnings is suspended by the system automatically, the suspending delivery companies lose their bidding rights, and are suspended from the store as well.

## Computer Company Use-Cases

### 1. *Login*

A computer company can login to the delivery page and access functionalities only for computer companies.

### 2. *Deal with Complaints*

A computer company who received the complaints from customers should counter with their side of information to clear the warning. If the complaint that is determined by the manager is true, the computer company will receive one warning.

### 3. *Get Suspended*

A computer company that received 3 standing warnings is suspended by the system automatically, the suspending computer companies are suspended from the store as well.

## Store Clerk Use-Cases

### 1. *Login*

A store clerk can login to clerk page and access functionalities only for store clerks

### 2. *Choose the Winning Delivery Company*

A store clerk needs to choose the winning delivery company based on bidding. If the winning company's bidding price is not the lowest, the clerk should provide justifications about her/his choice, otherwise the system will generate a warning on the clerk for possible cheating and shown to the manager.

### 3. *Edit the "taboo" List*

A store clerk can maintain a "taboo list" that consists of violating words.

Lenovo Online Store	Version: 1.0
Software Requirements Specification	Date: 30/03/2021
First Phase Report	

#### 4. *Deal with Complaints*

A clerk who received the complaints from customers should counter with their side of information to clear the warning. If the complaint that is determined by the manager is true, the clerk will receive one warning.

#### 5. *Get Suspended*

A clerk that received 3 standing warnings is suspended by the system automatically.

### Manager Use-Cases

#### 1. *Login*

A manager can login to the manager page and access functionalities only for the manager.

#### 2. *Choose 3 suggested systems*

The manager can choose 3 suggested systems that will show on the home page

#### 3. *View and Edit Account*

The manager can view all the account information in the system, and he/she has the power to remove any customer/clerk/delivery company/computer company with justification, even less than 3 warnings.

#### 4. *Deal with complaints*

The manager can view all the complaints from customers to clerks/delivery companies/computer companies, and the manager can decide to let the warning stay or be removed and inform all parties with his or her justifications. In the discussion forums, customers complain about other customers if they find violating words/sentences/attitude which will be again determined by the manager to stay or reverse.

#### 5. *Edit the “taboo” List*

The manager can also maintain the “taboo list” that consists of violating words.

### 3.2 Supplementary Requirements

For our online computer store application to work efficiently, users need to have internet and python3 or higher versions of python on their local machines to ensure the GUI, Tkinter, and other python modules as well are imported without any issues. The packages that are needed for this application are numpy, pandas, PIL, xlrd (depending on the pandas’ version and OS version), and openpyxl (depending on the pandas’ version and OS version).

#### 1. Easy to use and maintain

The online computer store application is programmed to provide a friendly user interface experience. The user should be able to navigate the application effortlessly and intuitively (regarding his/her computer science knowledge).

Lenovo Online Store	Version: 1.0
Software Requirements Specification	Date: 30/03/2021
First Phase Report	

## 2. Security

Since our application is running locally, the system only allows one user at a time. To protect the customer's privacy such as credit card account information, the system will ask the customer to re-enter it for each purchase.

## 3. Reliability

The online computer store application will perform accordingly as user expected. It should tolerate the mistakes such as entering a wrong e-mail address or a wrong password and allow the user to re-enter. The application will automatically verify user sign-in information. The data for the application is stored in CSV/Excel files which ensure efficiency when data is retrieved.

## 4. **Supporting Information**

### 4.1 **Index**

#### **Index**

##### **C**

Clerk, 5, 10  
Computer Store, 1, 5

##### **F**

Feature, 5  
Functionality, 5

##### **G**

GUI, 4, 5, 11

##### **M**

Manager, 5, 11

##### **O**

OS, 5, 8, 11

##### **R**

Registered Customer, 5, 8

##### **S**

Software, 1, 4, 6, 7

Lenovo Online Store	Version: 1.0
Software Requirements Specification	Date: 30/03/2021
First Phase Report	

<b>T</b>
----------

*Taboo*, 5

<b>U</b>
----------

*UML*, 5

*Use*, 5, 6, 7, 8, 9, 10, 11

*User*, 4, 5