



# REQUIREMENT MANAGEMENT

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# I. Lizzie's Leather Belt

## 1. Some information about Lizzie's Leather Belt and True Concepts

### **Overview information about Lizzie's Leather Belt:**

Lizzie is the name of a medium-sized company. This company has been in operation for 10 years. Lizzie Company offers more than 50 different types of leather belts. Thanks to active marketing into the way retail stores in nearby localities, the company's growth rate has remained stable last year. Aiming to continue growing the company, their next goal is to complete the provision of a Lizzie's Leather Belt website for the next 3 months.

Leather belt company Lizzie doesn't have its own software development department, so they have to sign a development contract with a second party to carry out this website project. However, the "waterfall" project development model did not meet the requirements of the company. So, after learning about other project development models, Lizzie chose Scrum and Agile model to implement its own website.

### **Lizzie company employees:**

**Managing Director:** The person who drives the project and its budget. She spent a lot of time researching all information related to this project.

**Finance director:** Not have enough time to join any meeting. However, he can complete work successfully.

**Operations Director:** Has been in the company for 2 years. He has been a senior team member in an Agile software development project in his previous job. Therefore, he has experience in implementing projects with the Agile model.

**Chief Accountant:** usually representative and has the right to make decisions on behalf of the Chief Financial Officer. Did all the other parts of the company over the years. Passed the accounting.

**Warehouse Managers:** Can provide at least one Warehouse Operative available and empower them to make decision-making decisions instead of warehouse management.

**Marketing Director:** As a project administrator and agile project manager

### **Order handling system**

Order handling system is an emerging system recently. However, this system quickly spread worldwide. With the use of the Order handling system, companies can get benefits like products that are more accessible to users, saving both time and money spent on doing business.

### **True Concepts Company**

True Concepts is a company that assists clients on the information needed during project implementation using project development models. True Concepts is located near Lizzie leather belts. True Concepts can provide all the conditions for an Agile model application project. These are separate rooms for Scrum/ Agile meetings and workshops; They have dedicated teams for different projects, and those teams can flexibly do it (either directly or remotely).

### ***True Concepts Personnel:***

**Julie** - is a good programmer with good knowledge of Web development and she is a good communicator. Currently, she has not received any project and can do it in this project

**Jeff** - Jeff is a participant of this project. He has extensive experience in web development. However, Jeff is the one who has many different arguments with customers. In order to achieve a perfect website, Jeff is the right person, but if the project only achieves "perfection" of products, Jeff may not be suitable.

**Sophie** - Sophie is also one of the people willing to participate in the project. Overall, she is rated as someone with good web development skills. In her spare time, she often works for the Samaritans.

**Jonathan** - Jonathan may be involved in this project. With the participation of Jonathan, the completion of the project may end sooner because he has experience in projects applying the Agile development model. In particular, he has experience as a Team Leader in the Agile model, and has a very good knowledge of website development.

**Ken** - Ken is a person with a good understanding of web development and web testing. However, he could only spend 2 days per week to participate in the project.

## 2. Some software development model

### a. Waterfall model

According to (Marian STOICA, et al, 2013), The waterfall model is one of the first software development models. The waterfall model is implemented and applied with the general rule of sequential development (The implementation of the waterfall model is described like a waterfall. Phase 1 ends and moves on to phase 2 for implementation. After implementing or finishing stage 2, you cannot go back to stage 1).

According to (Marian STOICA, et al, 2013), there are five main stages in a basic waterfall model:

- Defining requirement and analysis
- Design
- Implementation
- Testing
- Maintenance

Also according to (Marian STOICA, et al, 2013), there are many advantages and drawbacks that you can easily define:

**Advantages:**

- The stages are defined right from the start of the project.
- Easily track the progress of the project.
- Easy to use. Beginners involved in the project can participate in the ongoing phase.
- The results of each phase are determined from the planning step. So, after each phase, we can use them to compare whether the project is on track or not.
- The stages are carried out clearly, in sequence
- Suitable for small projects, when the requirements are made clearly and accurately

**Drawbacks:**

- The requirements must be clearly defined in the first place. If these requirements are not clearly and accurately identified, the project will incur costs, time, manpower. Especially customers will not be satisfied with these risks.
- Issues are identified ahead of time, while the stage is in progress and after the stage is completed. These are the three major types of problems addressed in the Waterfall software development model. Issues that are identified before the implementation phase will be fully addressed. While the stage is being implemented, there are a number of issues that will be identified. and most of these problems cannot be completely solved at this stage. And certainly, the whole problem related to this stage after it ends will not be solved in that stage. And like the rule of the Waterfall model, after that stage is over, we have to go to the next stage, not go back to do the single phase.
- It is difficult to determine the specific time and budget for a period. And that leads to uncertainty about the time and budget to provide for a project that applies the Waterfall software development model.
- When the life cycle ends, there is a prototype for customers
- High risk
- There is no certainty for customers and implementers
- Not recommended for complex projects or customer requirements is still unclear.

**Recommended:**

- Short-size projects
- Clear projects
- Clear requirements and it is not changed
- Product definition clearly
- The related resources must be available

## b. Agile model

According to (McCormick, 2012), Agile model is a software development method whose main rule is to repeat and increase. This is considered an optimal software development model, fast and used by many people since its development to date. The purpose of the Agile software development model is to put customers / users as the main users. The operation phase is repetitive and continuous. Customers' requirements are broken down into many different sections. And because of such a subdivision of requirements, there is no risk of a request's ambiguity or a change in the customer's request.

Also according to (McCormick, 2012), Agile model's advantages, drawbacks:

### **Advantages:**

- Meet the changes in the requirements
- The project process is not much affected by any risk
- Customers are involved in every stage
- There is no ambiguity in the whole project
- in a short time, we can create a product of high quality, high performance and make customers most comfortable, satisfied.

### **Drawbacks:**

- If the customer has not identified the final product they want, the project will fail
- New programmers (inexperienced) should not be involved in projects. However, when the project has many experienced developers involved, they can help new developers to help them make the necessary decisions.
- It is impossible to assess the resources required for the project without prior experience

### **Recommend:**

- Short-size and medium-size project.
- Many employees who have experience in using Agile model
- Final product is defined clearly

## II. Software development model in Lizzie's project

### 1. Scrum and Agile concept will be applied in this project

In this project, True Concepts company chooses Scrum and Agile concepts to apply in this project. There are some reasons for True Concepts's choice:

In this project, the researcher will apply the Scrum and Agile concepts for the following reasons:

- First of all, in Lizzie's Leather Belt company, the employees only have 3 months to finish this project. With the Waterfall model, it will take one month for each period to implement. In another word, this project will last about 5-6 months. However, applying

the Scrum and Agile concept helps the project to finish within 3 months. As discussed by (TryQA, 2018), Supply Chain Management System is a real project that was developed by using Waterfall model. SCMS is a system to track the access of products and services to customers. These systems all have functions similar to those of the Lizzie Leather Belt sales system. The two projects have similar requirements but use two different software development models. The entire duration of the Supply Chain Management project is at least 1 year. However, the Lizzie's Leather Belt sales system project needs a demo after 3 months.

- Then, the demands of the customers may change in the process of the project. The Waterfall principles are to finish each stage then move to the next one. When processing to stage 3- Implementation or another stage after that, the change of customer demands is not able to change immediately. It should be changed after the project cycle finishes. While Agile model which is implemented by many Sprints so that the customer can easily change the demands without influencing the projects.
- Furthermore, the operational director of Lizzie's Leather Belt company used to be a senior member in the Agile projects. In True Concepts company, Jonathan, Julie and other employees have truly good web-developing skills. Especially, Jonathan already had his own experiences as a group- leader in Agile projects.
- In addition, with the Waterfall model, the risk of products is very high. The products have only experimented when all of the stages are finished. However, with Agile, the risk is so low. Experimented products will be sent to the customers when some of the significant functions are properly finished.
- Finally, Lizzie's Leather Belt company which provides over 50 products has already operated for 10 years. This is a medium-sized company which is suitable to apply the Waterfall model. While Agile model is totally different from Waterfall, it could meet almost the requirement that Waterfall model could not fulfil.

### III. Requirement

ID	Requirements	Priority	Days	High level requirement
1	As the Managing Director I want a monthly report showing the percentage of belts that have been sold via the Web site so that I can get a feel for the benefits, in terms of profit, that we are getting from the Web site.	Should	3	Function
2	As a customer I want to be able to modify my shopping cart so that I can change my mind about what I want to buy.	Must	5	Function
3	As a Customer I want to enter separate delivery and invoice addresses so that I can receive belts when staying at a friend's house.	Should	3	Function
4	As the Finance Director I want all online transactions to be secure so that our customers feel safe.	Should	6	Non-Function
5	As the Managing Director I want to be ensured that the site is Data Protection Act safe so that we do not get fined hundreds of thousands of pounds.	Must	8	Non-Function

6	As the Marketing Director I want an 'About Page' so that we can promote the finer details of the brand.	Should	3	Non-Function
7	As a Customer I want a choice of delivery slots so that I can arrange my diary appropriately.	Must	5	Function
8	As the Warehouse Manager I want to place an 'out of stock' message on appropriate belts so that customers do not end up having to wait for ages due to belts being out of stock.	Must	5	Function
9	As the Operations Director I want to accept all forms of payment so that we can capture the largest market possible.	Must	5	Non-Function
10	As a Customer I want to choose whether or not I am sent marketing information so that I do not get loads of junk mail.	Should	2	Function
11	As a Warehouse Operative I want to check delivery addresses so that I can place orders with similar postcodes in the same delivery batch.	Could	3	Function
12	As a Customer I want to be able to change my account details so that my most up to date details are recorded.	Must	3	Function
13	As an Order Handling Clerk, I want to use the Web site to process telephone purchases so that I can stop using the paper-based system.	Should	2	Function
14	As a Customer I want to have belts gift wrapped and sent to an address other than my own so that I don't have to bother wrapping and delivering presents.	Should	4	Non-Function
15	As a Student I want discounts on belts so that I can look cool at parties for minimal cost.	Could	3	Non-Function
16	As a Customer I want to be sent an SMS message to remind me when my belts are going to be delivered so that I am in when they arrive.	Should	3	Function
17	As a Customer I want daily emails to let me know the status of my order because I get nervous when I don't know what is going on.	Must	4	Function
18	As the Marketing Director I would like an offers or discount page so that we can inform our customers of the aforementioned.	Could	3	Function
19	As the Chief Accountant I want to the Web site to adhere to legislation regarding VAT so we are not hit with a hefty fine.	Could	2	Non-Function
20	As a customer I want to be able to process returns via the Web site so that I do not have to phone up and answer all of those stupid questions before being put through to a human being.	Must	4	Function

## 1. High level requirement

According to (K. Mahalakshmi, et al, 2013), functional requirements are those that involve behaviors or activities on the system and are expressed in the form of services, functions or tasks. Functional requirements appear on the interface of the entire system because these requirements list all the tasks and functions that the system can perform or help users perform. Put simply, nonfunctional requirements are not functional requirements. That is, in a list of requests, after defining the functional requirements, the rest will be non-functional requirements. If the functional requirements are superficial of the system then make sure the



non-functional requirements will be the information and data hidden behind the system. These requirements are broken down into several main types: system availability; system performance; system reliability and system security. For example: Customer makes 2 requirements. The first requirement is that the user can log in using the provided account. This counted as a functional requirement. Second, the customer's data to be stored in a highly secure manner to avoid data loss. This is a non-functional requirement.

#### a. non-functional requirements

List of non-functional requirements:

- As the Finance Director I want all online transactions to be secure so that our customers feel safe.

Reason:

Because it is a requirement about the security of data. It does not involve changing the database. Information security is the preservation of the integrity, uniqueness and security of information. it is determined this requirement is a non-functional requirement.

- As the Managing Director I want to be ensured that the site is Data Protection Act safe so that we do not get fined hundreds of thousands of pounds.

Reason:

For this requirement, the reason I define this requirement is that one of the non-functional requirements in this project is the same as in the first request. That is the security of the system requirement. It does not involve changing the database. Information security is the preservation of the integrity, uniqueness and security of information.

- As the Marketing Director I want an 'About Page' so that we can promote the finer details of the brand. Reason:

Non-functional requirements are those related to the security, performance of the system or for advertising purposes. The requirement is divided into 2 parts, which are "As the Marketing Director I want an 'About Page' " and "so that we can promote the finer details of the brand.". That is, the marketing director wants an 'About Page'. The product is an "About page", but the purpose of this is to promote the brand of the company. In this section, the author will highlight the purpose of the action to evaluate the request rather than using the prototype product to evaluate the request. That is, it requires a wide view, not an instant product. Overall, it is considered that this request is to be a non-functional requirement.

- As the Operations Director I want to accept all forms of payment so that we can capture the largest market possible.

Reason:

Changing the payment method only affects the performance of the system. With the addition of new payment methods, the system will not have to link to other payment applications. So, the speed of customer payment process will be faster. In addition, it also does not affect the database. For these two reasons, I have identified this requirement as one of the non-functional requirements

- As a Customer I want to have belts gift wrapped and sent to an address other than my own so that I don't have to bother wrapping and delivering presents.

Reason:

this requirement is understood as in the system website when buying online, users have the option of "gift packs". That is considered a function of customers. The product will be put in a gift box manufactured by the system. But in this requirement, I think it is a non-function requirement. After completing the payment, the user can ask the employee to gift the product for special occasions. This request will not affect the database or the interface of the website. Because this situation will occur with little frequency. Instead of considering it as a functional requirement for development, the developer would define this as a non-functional requirement. Those customers who need it will contact the seller to get the product they want.

- As a Student I want discounts on belts so that I can look cool at parties for minimal cost.

Reason:

In this requirement, I will consider discounted products for students such as using discount cards or discount CODE in stores. If the first meaning is correct, this will not affect the whole system. Customers as student accounts can use these cards or codes whenever they want. In addition, this requirement also aims to advertise the company to customers. The introduction and using of such discounts will apply to more people, not only student account. So, I identified this as a non-functional requirement.

- As the Chief Accountant I want to the Web site to adhere to legislation regarding VAT so we are not hit with a hefty fine.

Reason:

This requirement is related the security system with government. This requirement is met government regulations about business tax. The full provision of tax provisions made by the government will help the entire job, the process of the Lizzie company operate simply, quickly and legally. So, I determined this requirement as a non-functional requirement.

## b. Important requirements

List important functional requirements:

- As a customer, I want to be able to modify my shopping cart so that I can change my mind about what I want to buy.

Reason:

This is an important functional requirement in the project because a shopping cart function should exist. Therefore, users can change their mind before closing the bill. Without the purchase function, the online purchase for the customers is difficult to implement or meet the satisfaction of the users.

- As a Customer I want a choice of delivery slots so that I can arrange my diary appropriately.

Reason:

Because this is a website to make online purchases between the store and its users. Without the user's address, the entire product the user has purchased will not be able to receive it. The customer's address needs to change because no individual or an account is always in a fixed location.

- As the Warehouse Manager I want to place an 'out of stock' message on appropriate belts so that customers do not end up having to wait for ages due to belts being out of stock.

Reason:

This is a necessary requirement in the website. Without notice from the supplier, users will take time to wait for the product. This makes the trust and customer satisfaction greatly reduced for Lizzie company. Upon receiving notice of the issue "out of stock" of the company. Customers will certainly be satisfied with the services they receive. As a result, they will continue to buy the product when it becomes available.

- As a Customer I want to be able to change my account details so that my most up to date details are recorded.

Reason:

Changing this information is necessary. Due the function that allow the edit of accounts, the users could optimize their personal information. Therefore, the promotion of the company would be better tailored to its individual users.

- As a Customer I want daily emails to let me know the status of my order because I get nervous when I don't know what is going on.

Reason:

I chose this as one of the important requirements in the system and should be developed because after the company's order and all payments are completed. The only thing users need to do now is to wait for the product to be delivered to their hands by the delivery staff. However, the feeling of worrying about the status of the customer's products will definitely appear. Since after completing all payment procedures with the company, that product has been considered a property of the user. The notification function of the product status (such as "shipping" or "in progress") is necessary. This function will help users feel more comfortable and satisfied with the customer service of Lizzie company.

- As a customer, I want to be able to process returns via the Web site so that I do not have to phone up and answer all of those stupid questions before being put through to a human being.

Reason:

Since this is a leather belt, can be used for recycling or when users receive goods and products are not as expected. Users can call the company to return the item. Normally the delivery process will be very long and users will receive many questions about the product. In general, customers will not be satisfied with hearing many questions at the same time. So, I chose this function as an important function. Instead of having to call and answer many unhelpful questions, users can go on the website and fill out the return form. This function is necessary to help customers achieve a certain satisfaction of the company's services.

- As the Managing Director I want a monthly report showing the percentage of belts that have been sold via the Web site so that I can get a feel for the benefits, in terms of profit, that we are getting from the Web site.

Reason:

This is a function that should be included in the system. However, in the product prototype, it is not necessary to develop this functionality for the system. On the other hand, after completing the prototype, in the next updates of the system, the function of this function is required. Functionality is required for Lizzie company. Thanks to the statistics and reports, the company can make decisions about whether to continue developing its advertising projects through the website or other options to help the company grow.

- As a Customer I want to be sent an SMS message to remind me when my belts are going to be delivered so that I am in when they arrive.

Reason:

Notice of the status of the product is required. The purpose of this request is to help customers track the schedule of products. Customers will easily receive the products they have purchased in the system. Being clear about all the product information also increases customer satisfaction with the system.

## 2. MoSCoW method

### a. Updated high level requirement

High level requirement:

- The Managing Director should have a monthly report showing the percentage of belts that have been sold via Lizzie's website.
- Customers must be able to edit their shopping cart.
- Customers should set the separate delivery and invoice addresses.
- Customers must have a choice of delivery slots

- Warehouse Manager must send a message or a notification for customers when the belts is out of stock
- Customers should choose whether or not they are sent marketing information
- Warehouse Operative could check delivery addresses
- Customers must be able to change their account details
- Order Handling Clerk should use the Website to process telephone purchases
- Customers must daily email to let them know the status of their order
- Customers should be sent an SMS message to remind me when my belts are going to be delivered.
- Marketing Director could like an offers or discount page
- Customers must be able to process returns via the Website

#### b. The reason of each requirement in using MoSCoW method

- The Managing Director should have a monthly report showing the percentage of belts that have been sold via Lizzie's website.

Reason:

I chose this requirement's priority is should have because, in the demo of the Website, it is not necessary to implement this requirement. In the demo, if the website does not have that function, the website could still run normally. This requirement should be met in the next versions.

- Customers must be able to edit their shopping cart.

Reason:

I determine this requirement that it as a "must have" requirement. Because the system of the website is an online store. If it does not have the shopping cart function, it is not a website for shopping. So, this requirement has to be completed in the demo Website.

- Customers should set the separate delivery and invoice addresses.

Reason:

Although not necessary in the demo version, it is a requirement that should be in the updated version. It is an advanced function. Customer can keep the invoice inside product box. So, I define this requirement as a "should" requirement.

- Customers must have a choice of delivery slots.

Reason:

If this requirement is not in the demo version, the online shopping process could not be completed. I think a complete online shopping process is a complete process which includes choosing products, paying money and receiving products from the store. The time that customers can receive their products is needed. So, this requirement is a Must requirement.

- Warehouse managers must send a message or a notification for customers when the belts are out of stock.

Reason:

The notification or message from the system to customers is needed in the demo. If the belts are out of stock, all products can't be sold in the system. If there is no message or notification, the customers still buy belts from the website. So, this requirement's priority is must have in the demo.

- Customers should choose whether or not they are sent marketing information.

Reason:

Because this requirement is not necessary for the demo, it should be implemented in the next versions of the website. This requirement can keep the safe and satisfaction for customer. If the system does not have this requirement, it still can run fluently. So, the priority of this requirement is Should have

- Warehouse Operative could check delivery addresses.

Reason:

It is not a "must" requirement. Therefore, it could be categorized as a "should" or "could". The personal information such as delivery addresses is not needed with warehouse operative in demo. This function is for Warehouse Operative. If the system can meet this requirement, it will be better for Warehouse Operative to check and distribute employees. So, the priority of this requirement is could have.

- Customers must be able to change their account details.

Reason:

This is one of the main functions for the customers. A basic user account that could be changed by the account owner. Therefore, if the function does not work for the customers, the demonstration will fail. Because customer always want to change their account. If the system does not meet this requirement, there are many clone accounts in system's database and customer will not want to use the system. So, this requirement's priority is must have.

- Order Handling Clerk should use the Website to process telephone purchases.

Reason:

This function can be implemented in later stages of the project if there is not enough time for implementation. Because this requirement is not for all user in system, it just be useful and helpful for Order Handling Clerk. If the system does not meet this requirement in demo, the system still can be used normally. So, this requirement's priority is Should have.

- Customers must receive an email daily to let them know the status of their order.

Reason:

The system is used by the customers. So, all information about the order (such as status, bill, etc.) must be shared for them. So, this requirement must be implemented in the demo.

- Customers should be sent an SMS message to remind me when my belts are going to be delivered.

Reason:

Because the status of the order will be updated daily, SMS messages for customers function is a requirement that the system should have. So, the priority of this requirement is should have

- Marketing Director could like an offer or discount page.

Reason:

It is a requirement that might be nice to have. Because no separate offers or discount page are required to give an offer or discount. Instead, it may be displayed on the home page of the system. So, this is a “could have” requirement

- Customers must be able to process returns via the Website.

Reason:

This is an essential requirement in the system for customers. The absence of this function will negatively affect customers in using the system. Because this is a process of buying/ selling products and there will certainly be a process of exchanging/ returning products. Without this function, customer satisfaction for the system will decrease. So, this requirement’s priority is Must have.

- As the Finance Director I want all online transactions to be secure so that our customers feel safe.

Reason:

This requirement is important for the system. However, it is not too needed in the demo if the implementation doesn’t have enough time. Because now many third parties can keep safe banking. This requirement needs to implement as soon as possible. So, the priority of this requirement is Should have

- As the Managing Director I want to ensure that the site is Data Protection Act safe so that we do not get fined hundreds of thousands of pounds.

Reason:

It is one of all must requirements in the system. If the system does not meet this requirement in the demo, the project will be failed. Because the safe is one of main,

important and necessary issues that all customer always want keep it in their account. So, this requirement's priority is must have.

As the Marketing Director I want an 'About Page' so that we can promote the finer details of the brand.

Reason:

It is a high-level requirement but it is not too needed in the demo. If this requirement is met in the system, it will have a positive effect on the customer. If this requirement is not implemented in the system, there are other solutions such as using poster, noting that information in a small part of page. So, the priority of this requirement is should have.

As the Operations Director, I want to accept all forms of payment so that we can capture the largest market possible.

Reason:

If the system does not have all forms of payment, the payment process will waste many times for the customer. Although there are many solutions to meet that requirement, this requirement development is needed. Because it can give satisfaction for customer. This requirement must be implemented in the demo system. So, this requirement's priority is must have

As a Customer, I want to have belts gift wrapped and sent to an address other than my own so that I don't have to bother wrapping and delivering presents.

Reason:

It is a high priority requirement, but it is not too necessary in the demo system. Because the seller could contact the customer to confirm the information. Meanwhile, the customers could make additional requirements such as delivery, packaging to suit with their personal purposes.

As a Student, I want discounts on belts so that I can look cool at parties for minimal cost.

Reason:

It is a requirement which is nice to have. It could be implemented if the project has some free time. Because the system is still used normally without this requirement. This function is an advanced function for customer.

As the Chief Accountant, I want the Web site to adhere to legislation regarding VAT so we are not hit with a hefty fine.

Reason:

This requirement's priority is could have. Because VAT is important in business. However, any purchase requires an invoice. And because the website doesn't have an online invoice yet. Therefore, the priority of the function of automatically adding VAT to each invoice is nice to have (could have).



## IV. Legal, Social, Ethical and Professional issues

According to (Roderic Broadhurst, et al, 2014), actions such as unauthorized access, abusing the internet to steal other people information, or alike are legal problems. An individual or an organization that commit such acts might be convicted as violating the legal issues and the general moral agreement. Different countries will have different penalties. However, it is up to the purpose of the data to determine the corresponding penalty.

Example 1: A person steals all the data of a store for personal purposes. In this example, the other hacker violated at least two issues: Legal issues and Ethical issues.

Example 2: An unauthorized person accessed a government server to get all information about the state budget in the past year and that person made all that data public to everyone. In example 2, the other person violated Legal issues. However, disclosing all data on expenditures for national budgets is correct on Social issues.

As explain by (Shari Lawrence Pfleeger, et al, 2002), Social issues in the information technology industry are the effects of professional practices on various aspects of society. Social issues are related to issues such as common interests, the reaction of the majority of people. For each purpose of our actions in information technology expertise, we will have different results.

As mention by (Barbara Herlihy, et al, 2014), Ethical issues in different regions have different standards. However, the purpose of introducing those standards is to distinguish hackers. From the mentioned ethical issues, hackers are divided into 3 clear categories. For each type of hacker, the law has different treatment and decisions.

According to (Shane S. Bush, et al, 2014), In order to meet professional issues, there is a need for training courses for information technology professionals. The mentioned professional issues are related to the professionalism and responsibility of the experts. The purpose of identifying professional issues is to provide a standard that helps increase the quality of information technology professionals.

### 1. Scenario

Scenario 1: Information of customers will be stored in the database of Lizzie's system. One day, some people contact the admin and mention that they want to pay more money to take all the information of customers in the system. So, what should the admin do? Is it legal for an admin to do so?

- According to (Young, 2019), Data Protection Principle 7: Secure, all information about the customer needs to be protected in the database. If an admin sends customer information to others by anyway, they will violate the Data Protection Principle 7.
- In addition, you will violate professional issues. Because a professional person is someone who has a certain knowledge of the profession, is responsible and reliable. In this

situation, if you agree with the requests of those people, you sell customer information beyond their consent. You will lose customers' confidence in your system. (Bott, 2004)

Scenario 2: True Concepts company hands over to Lizzie's Leather Belt an incomplete system in the deadline. The system lacks functionality and the information in it does not have a tight security system. So, what has True Concepts company violated? What should Lizzie's Leather Belt do with True Concepts company?

- In Scenario 2, True Concepts company violates Code of practice in Professional issues. Code of practice mentions paying due heed, privacy and security of the system. (Bott, 2004)
- Moreover, True Concepts also violate the 9<sup>th</sup> Commandment of Computer Ethics. They should think about the effect of their system before finishing the product. In scenario 2, the system does not have an Information security system. All information can be stolen by anyone with professional skills. (Institute, n.d.)

Scenario 3: An InPrivate group access into Lizzie system to steal all information in the system. So, what has this InPrivate group violated? If an admin or anyone detects those actions of InPrivate, what should he do?

- As discuss by (Young, 2019), this above action will violate Computer misuse law. This InPrivate group does not have any role to access the system. They violated Data Protection Principle 2 and Data Protection Principle 7. Data Protection Principle 2 is mentioned as the legality of data and using data for personal aims. Data Protection Principle 7 is mentioned about the security of data. All illegal accesses and unethical actions are prioritized to be processed first.
- According to (Johnson, et al, 1995), People do not believe in using the system after the burglary. That is the essential crowd effect of everyone. Gradually, the website will get fewer visitors and will be considered a failed project. This situation can be the true if Lizzie does not have any change for the system immediately.
- As mention by (Institute, n.d.), that InPrivate group violate the 4<sup>th</sup> Commandment of Computer Ethics: shalt not use a computer to steal. In this scenario, this InPrivate access without permission of administrator to steal all information in the system.

Scenario 4: True Concepts completed Lizzie's Leather Belt website two days ago. After customers use the site, all their information is stolen, including their bank card information. Upon learning of this news, Lizzie's leather Belt asked True Concepts to handle the problem. What should True Concepts company do? What was the penalty for the true concept company?

- As discuss by (Young, 2019), True Concepts company violated Data Principles 7: Secure. All information about the customer needs to be protected. A database security system is necessary. In this scenario, the system that True Concepts implemented and completed two day ago is not have security system or the security system is not secure completely.

- Moreover, after that burglary, all customers will be more careful in using the Lizzie system. The number of customers of Lizzie company will be reduced. In the worst case, this project will be failed because it does not meet the user requirements about satisfaction of user and safe data. (Johnson, et al, 1995)

## 2. British Computer Society

According to (Society, 2019), British Computer Society is a professional body. British Computer Society is an agency that sets standards and principles in order to set a standard for a group of professionals. Anyone who breaks the rules set by BCS will be kicked off from the society. The general purpose of the association is to guide everyone in the industry or related to the information technology industry in the association to have a common standard, towards a safe and useful association.

There are four main codes of conduct in British Computer Society. Here are four principles, standards for people to apply, with the aim of helping people be more responsible for their work.:

- Public Interest
- Professional Competence and Integrity
- Duty of Relevant Authority
- Duty of the Profession

### a. Public Interest

According to (Society, 2019), this Code of Conduct mentions about privacy, security, equality interest of others

- Respect and protect everyone's privacy
- Exercising equal rights with all people.
- Do not discriminate against people for any reason.
- Based on the legality of third-party information.

Example: In Lizzie's Leather Belt system, all information of customers (such as ID, Name, personal mobile phone, etc.) need to be secured by anyway. As Marketing Director, I want to access some information of customer (such as place, age, etc.) to give some decisions about marketing strategy for Lizzie's Leather Belt.

### b. Professional Competence and Integrity

According to (Society, 2019), Professional Competence and Integrity is determined as:

- Do not perform work that is outside of your area of professional
- Develop based on the basic knowledge of the different topics, which you already own. Without making a commitment to do so, develop any professional issues that are beyond your capabilities
- Before engaging in any professional activity, you need to be certain of your understanding of the legal field.

- At work, giving your opinions frankly, respect, and acceptance are essential when performing professional behavior. In addition, the prohibition of bribery or immoral acts is strictly prohibited.

Example: There are two main majors in True Concepts are website development, mobile application development (Android platform). True Concepts cannot apply mobile application development project (IOS platform) to implement.

### c. Duty of Relevant Authority

According to (Society, 2019), Relevant Authority is defined as:

- Carry out project tasks with care, precision and responsibility
- Do not cause conflicts of interest to individuals with related companies.
- Accept supervision of the work of companies involved with the project
- All project-related data must be strictly confidential for the general purpose of the project. Do not disclose any information other than the consent of the law or the relevant company
- Do not give false information or store information for personal purposes.
- Do not take advantage of lack of experience, knowledge of others to steal information that does not belong to you and use them for personal gains.

Example: If True Concepts company have any issues that affect the development project progress, some employees of True Concepts need to notify to relevant authority about those issues to have some solutions.

### d. Duty of the Profession

According to (Society, 2019), this Code of Conduct mention about some professional actions of BCS members

- Keep the positive image about profession toward other
- Improve knowledge about professional standards
- Fairness, respect and integrity in all relationships in the projects.
- Willing to support other members if they need it.
- When facing any risks, notify BCS at that time.

Example: As a member of BCS, you should be available to support, share all personal knowledge and personal experience with other members who need them.

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