Czech University of Life Sciences Prague

Faculty of Economics and Management

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Bachelor Thesis

Point-of-sale system analysis

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Thesis title

Point-of-sale system analysis

Objectives of thesis

The main objective of the thesis is to analysis a Point of Sale System (POS System)
The partial objectives of the thesis are such as following:
- To make a comprehensive literature review of Information Systems Analysis and POS System,
- To find out problems of a selected POS System,
- To recommend solutions to improve this POS system.

Methodology

The theoretical part will be done using literature review of academic papers, professional books about Information Systems Analysis and POS System.

In the practical part, the analysis methods and techniques which were found in theoretical part will be used to analyze the POS System of a restaurant in Prague. After that recommendations and final conclusions will be formulated.

The proposed extent of the thesis

30 – 40 pages

Keywords

systems, information systems, systems analysis, point of sale, POS system

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Recommended information sources

GIBSON, John E.; SCHERER, William T.; GIBSON, William F.; SMITH, Michael C. How to Do Systems Analysis: Primer and Casebook. John Wiley & Sons, 2016. ISBN 978-1-1191-7959-7.

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Declaration

I declare that I have worked on my bachelor thesis titled "Point-of-sale system analysis" by myself and I have used only the sources mentioned at the end of the thesis. As the author of the bachelor thesis, I declare that the thesis does not break copyrights of any their person.

In Prague on 16.03.2020 _____

Acknowledgement

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Point-of-sale system analysis

Abstract

The thesis focuses on analysing Point-of-sale system. The thesis consists of 2 main parts: Literature review and practical part. The literature review covers some basic theories about Information system, System Analysis, Analysis methods as well as the trend of POS system. In the practical part, the study is focused on the ordering process of the current POS system in the selected restaurant (MS restaurant located in Prague, Czech Republic). The study has found out some problems of the process and pointed out the need of users. After that, the author suggests some solutions to improve.

Keywords: systems, information systems, systems analysis, point of sale, POS system.

Analýza pokladního systému

Abstrakt

Bakalářská práce je zaměřena na analýzu pokladního systému (tzv. Point-of-sale systém). Práce se skládá ze 2 hlavních částí: Literární přehled a praktická část. Literární přehled pokrývá některé základní teorie o informačním systému, systémové analýze, analytických metodách a trendu POS systému. V praktické části je studie zaměřena na proces objednání prostřednictvím POS systému ve vybrané restauraci (MS restaurant se sídlem v Praze). Studie zjistila některé problémy procesu a poukázala na potřebu uživatelů. Poté autor navrhuje některá řešení ke zlepšení.

Klíčová slova: systémy, informační systémy, analýza systémů, Pokladní místo, POS systém.

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1 Introduction

To improve competition, all the enterprises in general and restaurants specifically have the demand to analyse their information system to find out their remaining problems and have improvements to advance and optimize the system. MS restaurant is having a stable profit however the management can still recognize some issues their staff is facing in the process of ordering. The thesis has the main objective to analyse the current Point of Sale System (POS System) used in the restaurant. To realize the above ambition, the following steps must be taken:

1. Making a comprehensive literature review of Information Systems Analysis and POS System, the modern features available in the market nowadays, the new trend of the POS system, such as cloud-based, tablet-based, mobile-based.

2. Implementing analysing the current POS system to find out the practical problems that the users need, the features needed in the future POS system. Within the sphere of this study, the author only focuses on the ordering process relating to chefs and waiters as the system users.

3. Recommending solutions to improve this POS system, helping the staff working in the restaurant (bartenders, chefs, waiters, headwaiter) exchange information more precisely and conveniently.

2 Objectives and Methodology

2.1 Objectives

The main objective of the thesis is to analysis the Point of Sale System (POS System) The partial objectives of the thesis are such as the following:

- To make a comprehensive literature review of Information Systems Analysis and POS System
- To find out the problems of a selected POS System
- To recommend solutions to improve this POS system

2.2 Methodology

The theoretical part is done using a literature review of academic papers, professional books about Information Systems Analysis and POS System.

In the practical part, the analysis methods and techniques which were found in the theoretical part are used to analyse the POS System of a restaurant in Prague. After that recommendation and final conclusions are formulated.

Data Flow Diagrams (DFD) are developed to analyse the POS system of MS Restaurant. According to Vrana (2013), DFD depicts processes and data flows between them. And to develop a data flow diagram, we use four items: process, data flow, data store, and terminator with the following rules:

1) Process (the main component of the DFD)
    - symbol: circle (rectangle with rounded corners)
    - name: verb + subject
    - at least one input and one output data flow
    - numbering is possible
    - decomposition is possible
2) Data flow:
    - symbol: line, connecting a process with rest of the system (arrow – the direction of a flow)
    - usually with a name (exceptions)

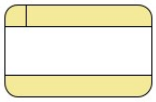
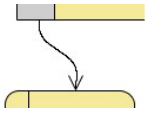
- at least one end connected with a process
- the other end must be connected with: another process, or data store, or terminator

3) Terminator: (external entity)
   - symbol: rectangle (sharp-edged/shaded)
     repeating ~ line-through a corner
   - it is place of origin or consumption of system data

4) Data store: (logical file)
   - symbol: pair of parallel lines
   - name: noun between lines
   - it provides:
     - asynchronic data transmission
     - (de)composition of data structures
   - at least one input and one output data flow

In this thesis, DFDs are developed by using Visual Paradigm Enterprise 16.1 with the notations in Table 1.

Table 1. DFD Notations

Symbols	Meanings
	Process
	Data flow
	Data store
	Terminator (External Entity)

3 Literature Review

3.1 Information System Analysis

3.1.1 System

A system is a set of elements so interconnected as to aid in driving toward a defined goal (Gibson, et al., 2016). First is the existence of a set of elements - that is, a group of objects with some characteristics in common. Second, the objects must be interconnected or influence one another. Finally, the interconnected elements must have been formed to achieve some defined goal or objective.

System – An integrated set of interoperable elements or entities, each with specified and bounded capabilities, configured in various combinations that enable specific behaviors to emerge for Command & Control, C2 by Users to achieve performance-based mission outcomes in a prescribed operating environment with a probability of success (Wasson, 2015).

3.1.2 Information System

An information system is a set of human, material and software resources, used by a user to carry out an activity within a given environment, which must be taken into account. This definition is used by Arduin et al. (2015) which is given by the French Commission Centrale des Marchés.

An information system is a consistent, coordinated set of components acting together toward the production, distribution, or processing of information. This definition sacrifices precision for generality, but in doing so it applies to computer information systems, networked information systems, biological information systems, and a variety of other intriguing contexts (Ratzan, 2004).

3.1.3 System Analysis

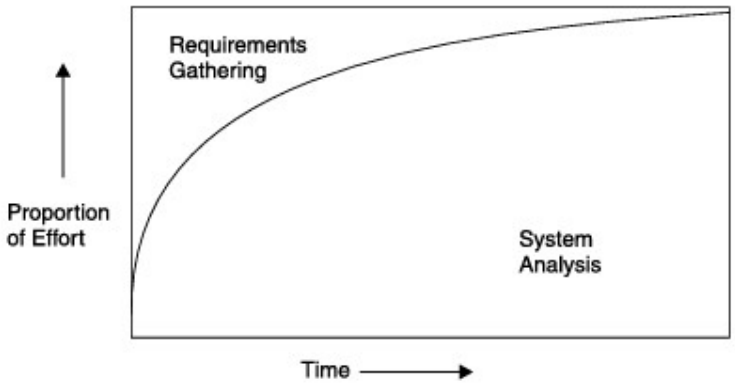
According to Bell (2003), Basics of systems analysis are: “Discover what the information problem/s is/are? • Discover what is the setting for the problem/s? • What

resources and constraints are evident? • What are the major information components of the problem/s? • Structure the problem/s into a model.

Mohapatra (2010) supposes System analysis is a sub-phase of the requirements analysis phase of the system development life cycle. The requirements analysis phase commonly called the Analysis phase can be seen to consist of two sub-phases:

1) Requirements gathering and
2) Systems analysis

Figure 1. Sub-phases of the requirements analysis



(Source: Mohapatra, 2010)

Requirements gathering process studies the work in order to devise the best possible software product to help with that work. It discovers the business goals, the stakeholders, the product scope, the constraints, the interfaces, what the product has to do, and the qualities it must have.

Systems analysis develops a working model of the functions and data needed by the product as its specification. These models help in proving that the functionality and the data will work together correctly to provide the outcome that the client expects. (Mohapatra, 2010)

According to Bell et al. (2003), the systems analyst works with the user within his or her socio-political and economic context to specify the information system requirements of an organization. The system is modelled according to terms of reference and the final outline plans are produced for hardware, software and necessary processing.

Gibson et al. (2016) suggest 10 Golden Rules of Systems Analysis:

Rule 1: There always is a client

Rule 2: Your client does not understand his own problem

Rule 3: The original problem statement is too specific: you must generalize the problem to give it contextual integrity

Rule 4: The client does not understand the concept of the index of performance

Rule 5: You are the analyst, not the decision maker

Rule 6: Meet the time deadline and the cost budget

Rule 7: Take a goal-centered approach to the problem, not a technology-centered or chronological approach

Rule 8: Non-users must be considered in the analysis and in the final recommendations

Rule 9: The universal computer model is a fantasy

Rule 10: The role of decision maker in public systems is often a confused one

3.1.4 **Requirements analysis methods**

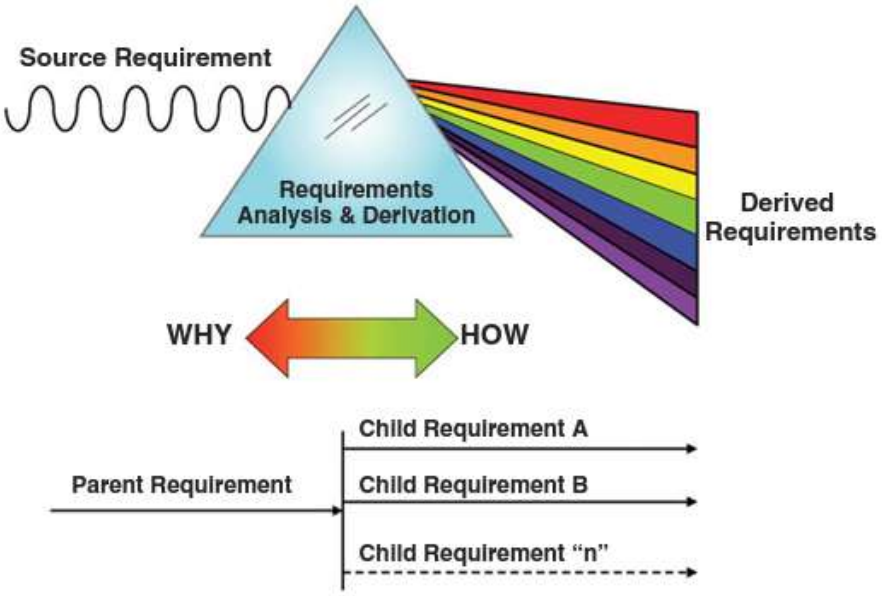
Requirements are the things that a software developer should discover before starting to build a software product. Without a clear specification of a set of valid user requirements, a software product cannot be developed and the effort expended on the development will be a waste. The functions of a software product must match the user requirements. Many computer-based information systems have failed because of their inability to capture correctly the user requirements. And when a completed software product is modified to incorporate lately understood user requirements, the effort spent, and consequently, the cost is extremely high. (Mohapatra, 2010)

Requirements are the features that your application must provide. At the beginning of the project, you gather requirements from the customers to figure out what you need to build. Throughout development, you use the requirements to guide development and ensure that you're heading in the right direction. At the end of the project, you use the requirements to verify that the finished application actually does what it's supposed to do (Stephens, 2015)

According to Wasson (2015), requirements derivation is the process of refining or elaborating an abstract "parent" capability requirement statement into a set of a lower level,

"child": capability requirements. The process is similar to an optical prism breaking down the spectral bands of white light in Figure 2.

Figure 2. Optical Prism Illustration Symbolizing Requirements Derivation



(Source: Wasson, 2015)

Two methods are often used to determine user information requirements are 1) Asking and 2) Deriving from an Existing Information System (Mohapatra, 2010)

Asking: Interviewing each user separately, Group meetings, or Questionnaire survey

Deriving from an Existing Information System: An existing information system is a rich source of determining the user information requirements. Such an information system may reside in four forms (Mohapatra, 2010):

1. Information system (whether manual or computerized) that will be replaced by a new system.

2. System that is in operation in another, similar organization.

3. System is standardized and it exists in a package that will be adopted or customized.

4. System that is described in textbooks, handbooks, and the like.

3.1.5 Structured Analysis

The use of the structured analysis tools results in a disciplined approach to analysing the present system and in knowing the user requirements (Mohapatra, 2010). Therefore, an analyst can develop Data Flow Diagrams to discover how an information system operates in a real system by understanding how data flow and get transformed and stored. Normally, data flow diagrams are developed in four stages:

1. Physical Data Flow Diagrams of the Current System.
2. Logical Data Flow Diagrams of the Current System.
3. Logical Data Flow Diagrams of the Proposed System.
4. Physical Data Flow Diagrams of the Proposed System.

The first two diagrams are meant for the analysis of the current system while the next two diagrams are meant for the improvement and design of the new, proposed system. As indicated above, a Physical Data Flow Diagram is meant to depict an implementation-dependent view of the system. Such a diagram may include, in defining data flows and data stores, the following: - names of persons - forms and document names and numbers - names of departments - master and transaction files - equipment and devices used - locations - names of procedures (Mohapatra, 2010).

3.2 Point-of-sale system

3.2.1 Traditional POS system

The traditional point of sale system often referred to as “legacy systems” and “on-premise” POS store data and conduct business on local servers, running on a closed, internal network (Eposnow, 2019). A traditional POS system functions as a cash register that lets enterprises ring up sales and make a report of those transactions.

The POS transaction is processed using a variety of devices which include computers, touch screens, cash registers, weighing scales, barcode scanners. magnetic card readers, chip readers, payment terminals.

3.2.2 **Cloud-based POS**

A cloud-based point of sale system (also referred to as a web-based system or software as a service, SaaS) is web-hosted and stores and transmits data on remote servers at large data centers storage in the cloud. (Eposnow, 2019). Cloud-based POS systems are independent from platform and operating system. Therefore, POS system can be accessed directly from the Internet, by using any internet browser.

Cloud POS can be truly portable (if using mobile devices) while the business manager can check and use sales data from anywhere as they are being updated in real-time in the cloud. It also means lower equipment costs, since an existing iPad or mobile phone can be used as the POS interface (Sorensen, 2019).

3.2.3 **Tablet-based POS Systems**

Tablet with POS Software can be installed more fast and less costly than the traditional systems. It also can help reduce the training cost. A tablet POS app incorporates the power of an enterprise POS software solution with the flexibility of a tablet. Instead of taking orders on a desktop computer or ringing up customers at a traditional cash register, servers and salespeople can place orders, check prices, and process payments from anywhere, improving both the speed of transactions and customer experience (Grullon, 2018)

3.2.4 **Self-Ordering System**

With an eMenu and self-ordering system, customers can use a self-service kiosk in the restaurant driveway or a self-ordering terminal at a table to access the restaurant menu and order a meal. This ensures prompt order processing at peak times, improves the overall service speed, and reduces wait times to ultimately increase customer satisfaction. The system can also be integrated with remote management software to provide a web-based digital signage management platform. Managers can use this platform to edit and dispatch interactive advertisements and to configure content delivery schedules for targeting specific customers at certain times. For example, the eMenu and self-ordering system can be configured to display discount information outside of meal times to attract customers and increase purchases (Advantech, 2019).

3.2.5 **Kitchen Display System**

Kitchen Display System digitalize the order-making process for those in the back of house (kitchen). Instead of taking the form of paper tickets or verbal instructions, all orders are sent directly from the POS system to the digital screen in the kitchen (Merchantmaverick, 2020).

Some benefits of a Kitchen Display System

- Reduce paper and printer related waste
- Orders are sent immediately to the kitchen display screen
- Orders are sent from tablets or terminals and help reduce human error
- Mistakes made while taking orders can be quickly corrected in the POS system and will automatically update on the KDS screen
- Order Tracking
- Accuracy in orders can reduce food cost

4 Practical Part

4.1 Introduction to MS Restaurant

MS is one of 10 restaurants owned by BT Ltd. The service provided by BT is Sushi running and Restaurant. The company is going to expand its restaurant business in Prague and also into other cities in the Czech Republic. The current POS system operating at MS restaurant only meets the basic needs such as sales and reporting. BT's management realized that it was necessary to upgrade or replace this system with a new system with more features, such as customer care, remote report access. Employees, who are working at MS, also expect improvements to the POS system in order to work more efficiently.

4.2 POS system at MS Restaurant

4.2.1 Introduction to the current POS system

Current POS system of MS Restaurant is a traditional system with the following components:

- Hardware: Windows 7 computer, touch screen, printers, card reader, POS payment terminal
- Software: DzgPOS (from a Chinese Vendor)
- Human: Manager, headwaiter, waiters, bartender, chefs.

This POS system has some basic features:

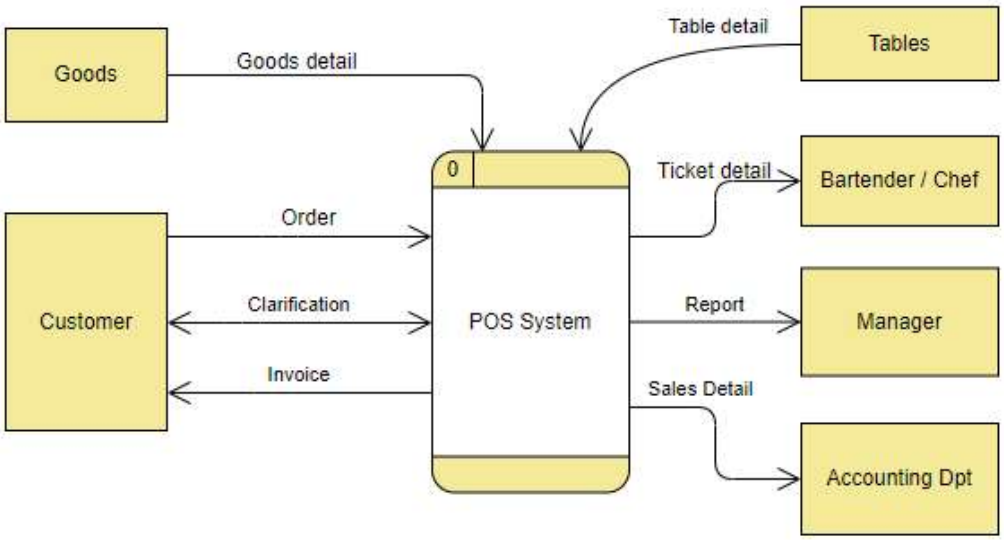
- User accounts and permissions
- Creating Menus
- Processing orders: grouping, splitting orders
- Payment options: cash, card
- Sales Summary

The current system does not have new-trend features such as customer care, accessing online reports but basically meets the requirements of payment and aggregation of sales data. Other major issues that arise from the Ordering Process. Therefore, in the context of this thesis, the author focuses on analysing the Ordering Process.

4.2.2 **Current POS system analysis**

The first step, Context Data Flow Diagram of the current POS System is developed as illustrated in Figure 3.

Figure 3. Context Diagram of the current POS System



Data Dictionary for all DFDs is present at the appendix

The whole POS System is considered as one Process

External Entities of the System:

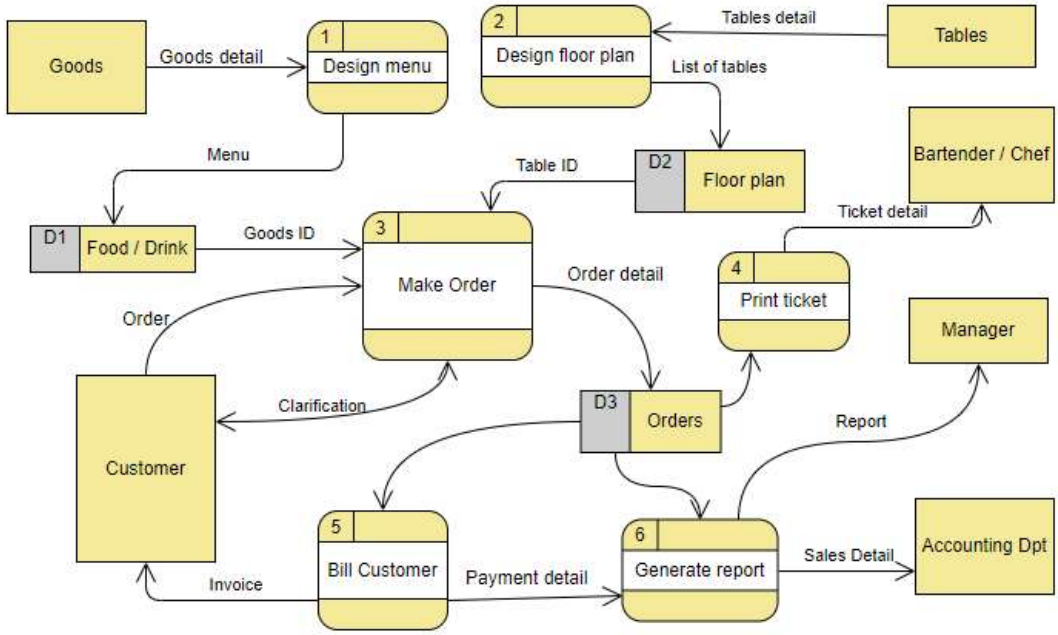
- Customer orders Food/ Drink for a meal at Restaurant or takeaway
- Manger needs reports from System to make decisions
- Accounting Department needs sales reports from System
- Bartender/ Chef makes Food/ Drink for Customer
- Goods is Food/ Drink which is served at Restaurant
- Tables is Table/ bar with a name where the customer takes the meal.

Input Data Flows: Order and Clarifiatiocn from Customer, Goods detail from Goods, and Table detail from Tables.

Output Data Flows: Ticket detail to Bartender/ Chef, Invoice to Customer, Report to Manager, and Sales Detail to Accounting Department.

In the second step, to understand how the current system is working, Level-Zero DFD of the POS System is developed as showed in Figure 4.

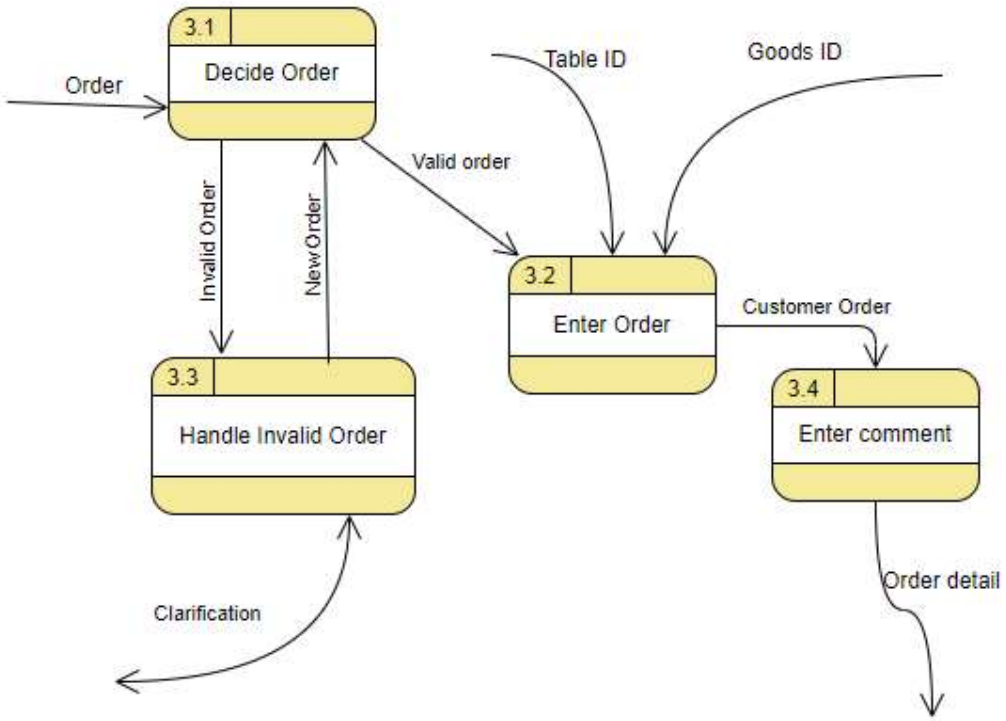
Figure 4. Level-Zero DFD of the current system



The system has 6 Processes to transform Data Flows and 3 Data Stores are added to the DFD. Process 3. Make Order transforms input Data Flows Order, Goods ID, Table ID into output Data Flow Order detail which is stored in Data Store D3. Orders. From here, Order detail is used to Print ticket for Bartender/ Chef, will be used to Bill Customer, and Generate reports for Manager or Accounting Department.

To focus on Ordering Process, Level-1 DFD of Process 3. Make Order is decomposed as showed in Figure 5.

Figure 5. Level-1 DFD of Process 3. Make Order



When a customer makes an order, the waiter writes all information into a paper ticket, then he/ she gives it to Headwaiter. Headwaiter decides which order is valid to Enter Order into System and Enter a comment if needed. In case the order is invalid, the waiter has to walk to visit the customer again and he/ she has to make order one more time.

4.2.3 **Current system problems and User needs**

Through interviews and observations, the following problems of the current POS System were found:

- Chefs have to wait for tickets for a long time
- Waiters must order for customers one more time when dishes are out of service
- Chefs may cook and prepare takeaway orders instead of orders for tables or vice versa accidentally.
- Chefs may prepare the wrong quantity ordered.
- Chefs must ask the Headwaiter about comments
- Customers have to wait for a long time.

The 1st problem: Chefs have to wait for tickets for a long time. When there are a lot of customers arrive at the same time, the waiter has to walk a long distance to make orders for all. After that, he/she gets back to Cash Desk and hands all orders to Headwaiter. Headwaiter enters all orders to POS, and then POS prints tickets to inform chefs which dishes should be prepared. This process takes time and chefs have to wait before they can start cooking.

The 2nd problem: Waiter must order for customers one more time when dishes are out of service. When a dish is out of service, the chefs call the Headwaiter to inform him about this notice, the Headwaiter informs waiters so that waiters can handle with customers. But sometimes some of them (chefs, Headwaiter, waiters) forget this notice or they have been not informed at all. That is why this problem happens.

The 3rd problem: Chefs cook and prepare takeaway orders instead of orders for tables or vice versa. Chefs do not have enough time to look at all tickets carefully. They just have a little time to scan and remember all the names of the dishes, the quantity of each dish. When 5 or 6 tickets arrive at the same time and some of them are takeaway and some of them are consumed at the restaurant, it is easy to make mistakes in this process. It often happens when chefs are trying to finish some tickets but some new tickets are being printed out as in Figure 6. Or sometimes it happens when a takeaway order is informed by a comment like in Figure 7.

Figure 6. Tickets coming at the same time

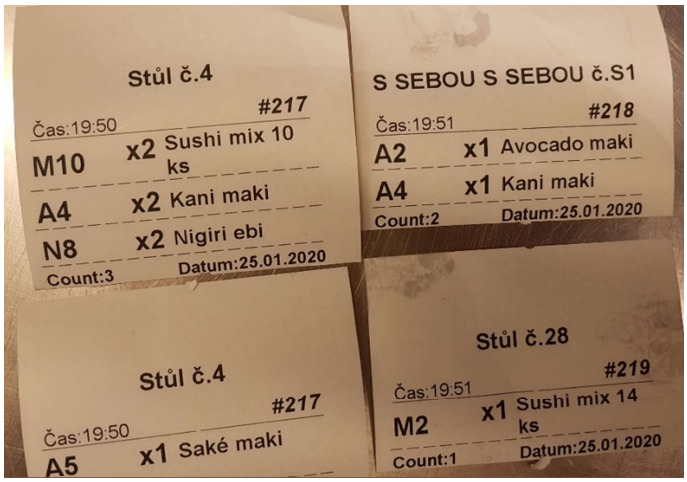
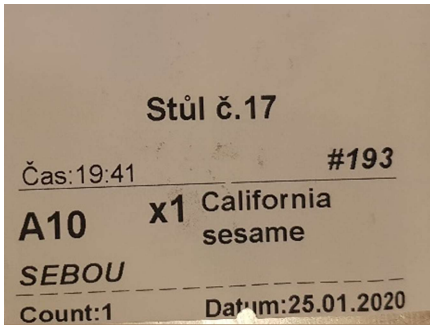
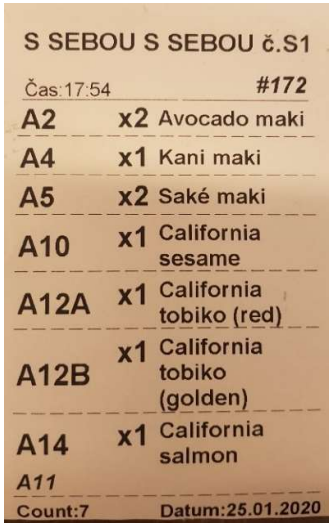


Figure 7. Takeaway order informed by a comment



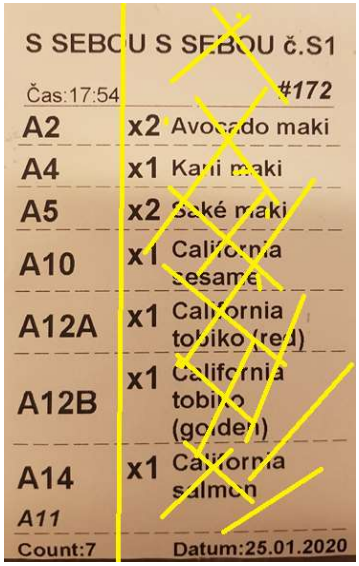
The 4th problem: Chefs make the wrong quantity of food. The current design of the ticket as in Figure 8 causes this problem.

Figure 8. The current design of the ticket



The ticket in Figure 8 seems to be a clear ticket with the Code of the dishes on the left, the number and the names of the dishes on the right but actually, this problem often happens because chefs do not have enough time to look at it carefully, they have to scan and remember it, and they usually scan and remember the left area of the ticket as in Figure 9.

Figure 9. Ticket in chefs' short memory



The 5th problem: Chefs must ask the Headwaiter about comments. Usually, the comments for a dish are quite easy to understand, such as A11 replacing A14, shown in Figure 6 above. But sometimes they are short, confusing, nonsense comments, for example, 3xBRV, 4xTX. In these cases, chefs try to guess the meaning for a while but the best way is calling the Headwaiter to ask about the meaning of those nonsense comments.

The 6th problem: Customers have to wait for a long time. When some of the above problems happen, customers have to wait for a long time and they are not satisfied.

With the understanding of 6 above problems, we can find out User needs:

- Shorten the time that chefs have to wait for the tickets
- Avoid reordering for customers when any dishes are out of service.
- Avoid confusion between take-away tickets and normal tickets
- Quantity of dishes should be easy to scan and remember
- Comments for the tickets should be made quick and easy to understand

5 Results and Discussion

5.1 Results

On the practical part, DFDs of the current POS system are developed:

- Context DFD
- Level-Zero DFD
- Level-1 DFD of Process 3. Make Order

Some problems of the current POS System were found:

- The 1st problem. Chefs have to wait for tickets for a long time
- The 2nd problem. Waiters must order for customers one more time when dishes are out of service
- The 3rd problem. Chefs may cook and prepare takeaway orders instead of orders for tables or vice versa accidentally.
- The 4th problem. Chefs may prepare the wrong quantity ordered.
- The 5th problem. Chefs must ask the Headwaiter about comments
- The 6th problem. Customers have to wait for a long time.

And we found out User needs:

- Shorten the time that chefs have to wait for the tickets
- Avoid reordering for customers when any dishes are out of service.
- Avoid confusion between take-away tickets and normal tickets
- Quantity of dishes should be easy to scan and remember
- Comments for the tickets should be made quick and easy to understand

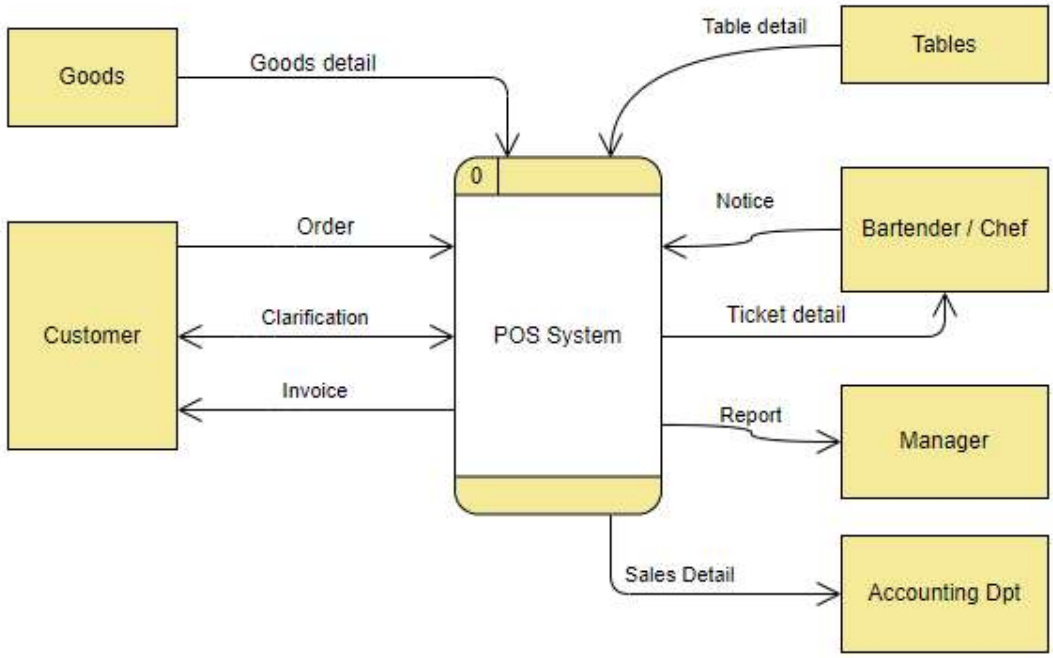
5.2 Discussion and solutions to improve POS System

The main reason for the 1st and the 2nd problems is that customers' orders go through several stages before being printed to notify the bartender/ chefs. The most time-consuming stage is the travel of the waiter between tables to write orders and then give it to the main

payers. To solve these problems, we need to shorten the period from when customers place orders until these orders are entered into the POS system.

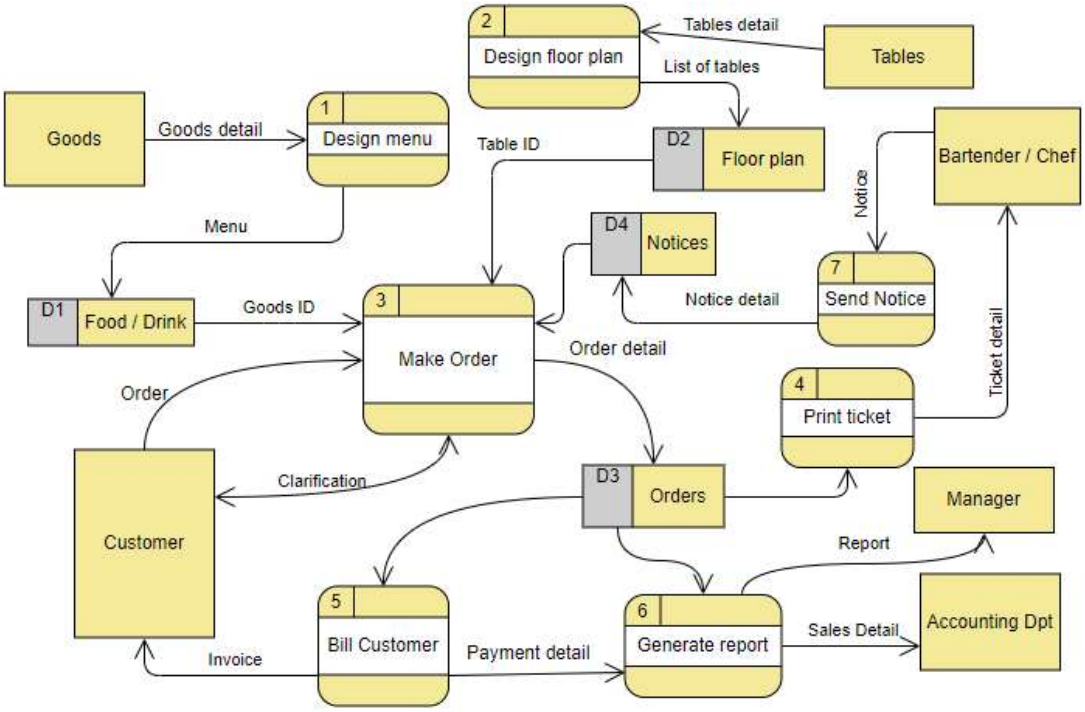
Based on DFDs of the current POS System, we may make some changes to improve the performance of this system. These changes are shown in Figure 10.

Figure 10. Context DFD of the proposed POS System



On the proposed system, Bartender/ Chef will send notices about Food/ Drink out of service to the POS system in order to inform waiters. This improvement helps waiters handle orders with customers immediately. The Level-Zero of the proposed POS System is showed in Figure 11.

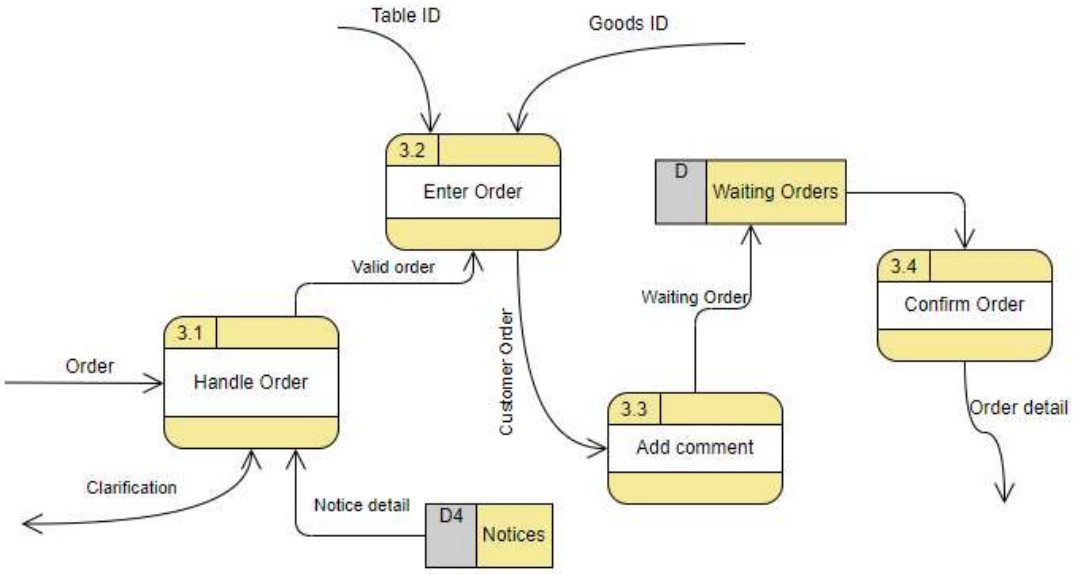
Figure 11. Level-Zero of the proposed POS System



On the future System, Process 7. Send Notice, Data Flow Notice, Data Flow Notice detail, and Data Store D4 Notices are added to help Bartender/ Chef sending notices to waiters.

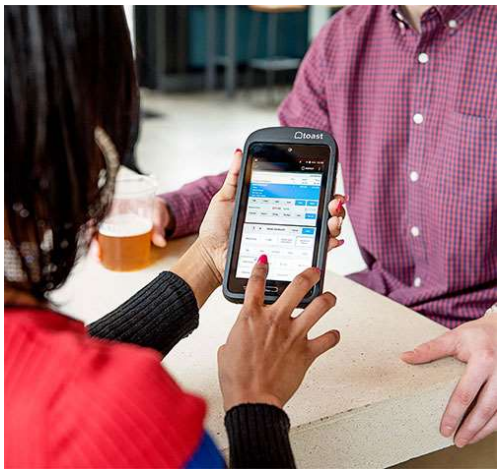
We may improve the Ordering Process of the system by developing a new Level-1 DFD of the Process 3. as Figure 12.

Figure 12. Level-1 DFD of Process 3. Make Order in proposed System



With the new system, waiters will use tablets to make orders. They can handle orders immediately based on the notices, which have been sent by Chefs and Bartenders. Valid orders will be sent immediately to the POS system. The Headwaiter confirms the orders, then all tickets will be printed for Chefs/ Bartenders. For an experienced waiter, he should be granted the right to confirm orders so that all tickets will be printed immediately. The 1st and the 2nd problem are solved.

Figure 13. Tablet ordering

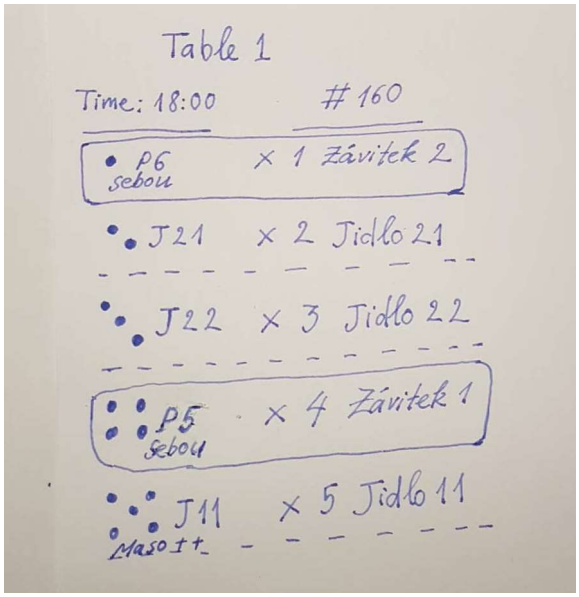


(Souce: toasttab.com, 2019)

The design of the takeaway ticket should be easier to differentiate with normal tickets. We can use a rounded rectangle box around the lines of takeaway dishes, and use italic font for them. By this way the 3rd problem is solved.

To solve the 4th problem, we add dots before the Codes of dishes. The pattern is similar to dots on a dice. If the amount ordered of one dish is more than 12, we use a normal number. This solution can be illustrated in Figure 14 below.

Figure 14. The new design of the ticket



The 5th problem: Chefs must ask the Headwaiter about comments. With this problem, The POS system needs to provide comment templates feature. All users make these templates together, so all can understand them easily. When making orders, waiters do not need to type comment, they just need to choose one from templates.

With these recommend solutions, we suppose POS Software of proposed system should have some new features:

- Order by tablet
- Send notice to menu
- Customizable Forms for tickets
- Comment templates

6 Conclusion

The main goal of the thesis was to analyse the current Point of Sale System used in a selected restaurant which was accomplished by studying different works of literature of Information Systems Analysis and POS System, by finding out the user needs and the features needed in the future POS system.

The first partial goal was done in Chapter 3 of this thesis, it figured out a comprehensive literature review of Information Systems Analysis and POS System, the modern features available in the market nowadays, the new trend of the POS system, such as cloud-based, tablet-based, mobile-based.

In the practical part, Data Flow Diagrams of the current POS System were developed to understand how the System work, and to find out where problems come out. The main problems arise from the Ordering Process of the System.

Based on the results obtained, the author has proposed some recommended solutions to improve this POS system to help the staff who work in the restaurant exchange information more precisely and conveniently.

The revolution in POS system development is ongoing, creating opportunities and challenges for developers. The author hopes that the results obtained from this thesis can be used for further research in the future.

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8 Appendix

Data Dictionary

Goods detail: GOODS_DETAIL = GOODS_NAME +
GOODS_DESCRIPTION +
GOODS_PRICE

Tables detail: TABLES_DETAIL = TABLES_NAME +
TABLE_DESCRIPTION

Order: ORDER = TABLE_NAME +
GOODS_NAME +
GOODS_AMOUNT +
(COMMENT)

Clarification: CLARIFICATION = 1 {Alphabetic Characters} 200

Ticket detail: TICKET_DETAIL = ORDER_ID +
DATE_TIME +
TABLE_NAME +
GOODS_NAME +
GOODS_AMOUNT +
(COMMENT)

Invoice: INVOICE = INVOICE_ID +
ORDER_DETAIL +
DATE_TIME
VAT_TAX +
TOTAL

Report: REPORT = DATE_TIME +
GOODS_ID +
GOODS_NAME +
SUM_OF_TOTAL

Sales Detail: SALES_DETAIL = DATE_TIME +
SUM_OF_VAT +
SUM_OF_TATAL

Menu: MENU = GOODS_ID +
GOODS_DETAIL

List of tables: LIST_OF_TABLES = TABLES_ID +
TABLES_DETAIL

Valid Order: VALID_ORDER = ORDER +
CHECKED

Customer Order: CUSTOMER_ORDER = ORDER_ID +
DATE_TIME +
VALID_ORDER

Order detail: ORDER_DETAIL = CUSTOMER_ORDER +
COMMENT

Payment detail: PAYMENT_DETAIL = ORDER_DETAIL +
DATE_TIME +
VAT_TAX +
TOTAL