



## RESEARCH ARTICLE

# Development of Cashier Application Using Delphi 7 & QR-Barcode at CV. Hidup Baru

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### Abstract

The development of sales in today's era is very dependent on technology both in the sales process, marketing and cashier calculations. CV. Hidup Baru is engaged in the sale and marketing of grocery, cosmetic and baby equipment needs. The sales and data collection method uses a computer system. But in the price summation system in the company, errors often occur and there are not a few errors in printing customer invoices. New Life as well as the author himself. The method of data collection carried out in the process of preparing this report used two methods, namely the method of library research related to this material and field studies by conducting direct interviews with employees and direct observations with objects related to this research. The Prototyping method is used as a software development model and evaluation activities are also carried out as an assessment of the results of the prototype built. The results of the study indicate that the existence of an information system for the design of the Delphi7 program is expected to help CV. Hidup Baru and the results of evaluating the appearance of the current desktop application. With the prototype design, it is known that each category has increased usability values. Content, Organization and Readability previously had a value of 0.69 and increased to 0.72. The Navigation category was previously 0.72 to 0.77. The previous User Interface Design category was 0.63 to 0.74 and the previous Performance and Effectiveness category was 0.61 to 0.73.

### Keywords

Cashier Application; Delphi 7; QR-Barcode; Database Acces; SDLC Method.

## 1 | INTRODUCTION

Technological advances today greatly affect various aspects of life today [1][2], especially the business sector [3]. Many things have changed in today's business sector, such as payment processing, marketing and purchasing, all of which are dependent on technology [4][5]. With this change, the development of the business world is increasingly rapid and creates very tight competition between businesses [6][7]. Sales is an integrated effort to develop strategic plans that are directed at satisfying the needs and desires of buyers in order to get sales that generate profits [8][9]. Sales are the lifeblood of a company, because from sales profit can be obtained as well as an effort to attract consumers who are endeavored to find out their attractiveness so that they can know the results of the products produced [10]. From some of these literacys, it can be concluded that the lifeblood of a trading business, especially a store, is sales. A shop is a trading unit that provides all human needs ranging from basic needs, basic needs, agriculture and others. With so many products provided, a ledger is needed that is used to record product names and prices, as well as a transaction ledger that is used to record all sales transactions that occur [11][12]. With this method of recording, employees have to put a price tag on each product. Besides that, manufacturing at the end of the month has difficulty because they have to recap all sales transactions recorded in the general ledger [13][14]-[15]. This does not rule out the possibility of recording errors and the time used to make reports less effective and efficient [16]. CV. Hidup Baru Banda Aceh is a company engaged in the sale of cosmetics, grocery, baby equipment and medicine. was founded on February 20, 2007 at Kp Baro Baiturrahman, Banda Aceh. This company was founded by Mr. Mahyuddin By considering this, the idea began to form to build this company. Over time CV. Hidup Baru continues to improve services to the community and develop itself in such a way as to provide value and benefits to consumers. This is CV. Hidup Baru's commitment to provide the best for customers. Do not stop there CV. Hidup Baru continues to make improvements in terms of human resources (HR), this is very important for CV. Hidup Baru because HR is a very important source of assets for the company for the company's marketing development, the company's capacity needs to be increased to make it easier for the company it manages to grow quickly. and all employees are prosperous. In terms of sales, CV. Hidup Baru has expanded its sales coverage network to Simeulue and lhoksemawe. Previously, its coverage area was only Banda Aceh, Aceh Besar and Sabang. goods that exist in the company CV. Hidup Baru. In this study, the authors limit only the design of the Delphi7 program information system and Qr code and databse access on the CV. Hidup Baru Banda Aceh. The goal to be achieved in the research is to make it easier for employees, especially cashiers to input every transaction that occurs per day, so that it can help CV. Hidup Baru in serving its customers.

## 2 | BACKGROUND THEORY

Information system design is the drawing, planning and sketching or arrangement of several separate elements into a unified and functioning whole [17][18]. While designing a detailed system based on the results of system analysis, resulting in a new system model [19]. Thus it can be concluded that the design of information systems is a stage of activities carried out by a person or group in designing or creating a system before the system is made with the aim of the system being built according to the needs in solving problems or with user needs. The system is an arrangement that describes the existence of a series of interconnected components with the same goal in a balanced and harmonious and coordinated manner and continues to run in a planned period of time. The system is a group of parts in the form of tools and so on, which work together to carry out certain goals. Understanding the system in general is a collection of objects or elements or parts that have different meanings that are mutually related, cooperate and influence each other and have an attachment to the same plan in achieving a certain goal in a different environment. complex [20]. Information is data that has been processed [21]. The data processing is carried out in such a way that the processed data can increase the knowledge of the people who receive and use it. An information system is an organized collection of data and procedures for their use that go beyond mere presentation. The term implies a goal to be achieved by selecting and organizing data and compiling procedures for its use [22].

Payment System is a tool and means accepted in making payments in general [23], institutions and organizations that regulate these payments (including Prudential Regulations), operating procedures and communication networks used to initiate and send payment information from payers to payees. and complete the payment. A payment system is a system that includes a set of rules, institutions, and mechanisms used to transfer funds to fulfill obligations arising from economic activities. Broadly speaking, payment systems are divided into two types, namely cash payment systems and non-cash payment systems. The fundamental difference between the two types of systems lies in the instruments used. In the cash payment system the instruments used are in the form of currency, namely money in physical form of banknotes and coins, while in the non-cash payment system the

instruments used are Card Payment Instruments (APMK), Cheques, Bilyet Giro, Debit Notes, and electronic money.

In the process of designing the application later the author uses Delphi7. Delphi is a program that has a programming language similar to Pascal. Delphi is very popular with programmers, because the program itself is very efficient and easy to understand compared to Pascal [24]. Using Delphi the way it works is very easy, you just need to set the properties or properties of the object and add a little coding [25]. Delphi project is a collection of files that will build applications or libraries that can be distributed to other programmers [26]. When starting Delphi, Delphi will create a new project [27]. After that it's up to the user, whether to modify the project, create a new project again or maybe open an existing project. On the use of the Delphi database can use Microsoft Office Access [28]. As it is known that Microsoft Office Access is a collection of information that is interconnected and consists of several components and is also known as a database [29][30]. Can QRCode be used on Delphi? When viewed from the definition, a QR Code (Quick Response Code) is a two-dimensional barcode that can store data. QR Code was developed by Denso Corporation, Japan and can be used for free, even for commercial purposes. QR codes can be read using various free software available on various platforms. Use keywords "QR Code Scanner" or "QR Code Reader" on Google Play Store or Apple App Store. The amount of data that can be stored varies, depending on the version of the QR Code, the size of the QR Code and the level of its Error Correction Capability Error Correction Capability (ECC) indicates that the QR code limit can still be read when there is damage to the QR code. The QR Code can be damaged when printed and placed on the product packaging can be damaged. Answering questions about implementing QRcode with Delphi, Regarding Delphi itself is a programming language (Programming Language or Development Language) that is used to design an application program. Delphi is included in the high-level programming language (high level language). Delphi programming is designed to operate under the Windows operating system [31][32]. This program has several advantages, namely productivity, quality, software development, compiler speed, attractive design patterns and is strengthened by a structured programming language in the structure of the Object Pascal programming language. When using QRcode in Delphi, you can start by selecting the Toolbar Component Palette.

### 3 | METHOD

In application development, the researcher uses the SDLC method where SDLC is the method used in software development [33][34]. The SDLC method covers the process of creating and modifying systems, models and methodologies used in developing software engineering systems [35][36]. The process of developing software or software products (product development) will not be separated from the use of the SDLC method or Software Development Life Cycle [37]. Launching from Glints, SDLC is basically a company business process that software engineers and developers do in changing and creating systems, models, and methodologies for developing software. Thanks to the implementation of an SDLC method, companies can plan product development strategies that have high product value but low production costs (fixed cost) [38]. That way, the company has the opportunity to grow (business growth) and develop (business development) according to the expectations of users (user experience) or stakeholders and experience increased sales.

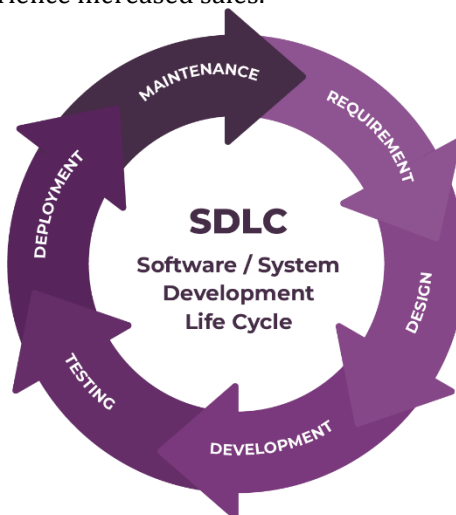


Figure 1. Software Development Life Cycle (SDLC) Method

The Scrum methodology is one of the frameworks or sub-models of the Agile method which is known for its continuous collaboration (business continuity) and a special development cycle called the Design Sprint [39]. With Scrum, developers can manage and improve the development process (Supply Chain Management) and focus on maximizing productivity so that it is transparent to all stakeholders [40]. The Scrum method refers to the general SDLC processes but is specific to the design sprint [41][42]. First, the development team will plan to identify and discuss Sprint priorities. Second, the team will review the user stories to determine how much effort is involved and can be put in place during the upcoming Sprint. Third, each team member must communicate the latest updates to the development process (corporate communication). Fourth, each team member negotiates the functionality of the product during the sprint with the client or stakeholder. And fifth, the development team meets with clients to discuss the overall performance of the product to improvements that may be needed (demand management). The next stage is data collection and interviews which aim to help establish the user context of the system that will be created. The data and information needed are user groups, therefore interviews with stakeholders and users were conducted. Then evaluate the appearance of the current web application which aims to determine the usability value by distributing questionnaires to 30 respondents, the questionnaire consists of 4 categories, namely Content, Organization and Readability, Navigation, User Interface Design and Performance and Effectiveness.

## 4 | RESULT

The design of the cashier application that the author designed consists of several stages, namely input design, output design, process design, control design, labor design, and cost design. This design later the author hopes to make it easier for every user, especially the sales department. The design of the cashier application that the author designed consists of several stages, namely, Context Diagrams, Tiered Diagrams of the design system, Data Flow Diagrams of Level 0 System Design, Data Flow Diagrams of Level 1 Process Number 1 System design, Data Flow Diagrams Level 1 Process Number 3 System design and table design. Controlling User registration begins with collecting data into the tables in the database. This process is carried out to prevent duplication or redundancy of data that will be input into the database. In addition, this process also ensures that the data entered is the correct data. In running the desktop-based cashier application design requires workers who can operate computers so that it is easy to process track record data. The current workforce is sufficient to run this application, only 1 person is needed to run this application, and it is necessary to provide training and skills on the use of the application. In order to carry out a job perfectly, it is inseparable from the cost factor. As for the details of the proposed costs needed to handle the installation process and use of a desktop-based cashier application, it only costs 4 million rupiah. This input design consists of several program files, namely; User Data Form, Product Master Data Form, Category Master Data Form, Stock Master Data Form, Cashier Data Form, Sales Data Form, and Transaction History Data Form.

Figure 2. Application Display Results

While the output design of the cashier application output design system is; Item Recap, User Recap, Transaction Recap, Stock Report. In the evaluation activity, an assessment of the resulting display is carried out. Evaluation using a Google Form questionnaire. Questionnaires were distributed to 30 respondents from AMIK Indonesian students. The results of the evaluation of the current application display in each category, namely the Content, Organization and Readability categories, obtained an average usability value of 0.64. Navigation category obtained an average value of 0.69. Category User Interface Design obtained an average value of 0.58. Performance

and Effectiveness category obtained a value of 0.62. Analysis of the design before repairs and also after completion of the improvement of the user interface and discussion of the comparison between the results of the evaluation conducted by 30 respondents to the current desktop application display and the results of the evaluation of the prototype design.

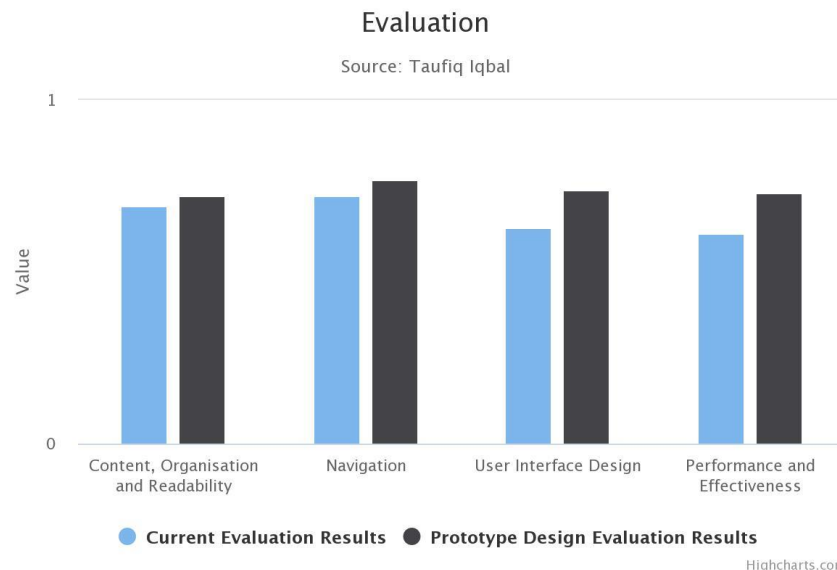


Figure 3. Category Value Diagram of Evaluation Results of the Current Desktop Application Display with Prototype Design.

Based on the picture, it can be seen that each category experienced an increase in the usability value. Content, Organization and Readability previously had a value of 0.69 and increased to 0.72. The Navigation category was previously 0.72 to 0.77. The previous User Interface Design category was 0.63 to 0.74 and the previous Performance and Effectiveness category was 0.61 to 0.73.

## 5 | CONCLUSIONS AND FUTURE WORK

From the results of the research that the cashier application has been successfully designed using Delphi7 and using an additional component QR Code as an automatic item code reader. Based on the evaluation of the current desktop application display with prototype design, it is known that each category has increased usability values. Content, Organization and Readability previously had a value of 0.69 and increased to 0.72. The Navigation category was previously 0.72 to 0.77. The previous User Interface Design category was 0.63 to 0.74 and the previous Performance and Effectiveness category was 0.61 to 0.73. In further research, an evaluation of the needs of users is carried out for suggestions/input in designing prototypes and displaying product menus so that they can make the menu display more attractive and can be integrated with various online payment features and add a feature to send payment receipts directly to WhatsApp and email buyers.

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