

Received : November 31, 2022

Accepted : December 21, 2022

Published : March, 2023

Conference on Community Engagement Project**<https://journal.uib.ac.id/index.php/concept>**

Analysis Design And Development Of Sales Promotion At Astakona Anugerah Abadi Using Extreme Programming Method

Calvin Pang¹, Muhammad Ardiansyah²

Universitas Internasional Batam

Email of correspondence: 1931068.muhammad@uib.edu

Abstract

This technology is used in various fields that apply information technology, everyone can easily and quickly get new information. Using this technology as a tool that can process data so that product requests ordered by customers can be processed immediately without stock, and if the product is not available then Product Requests will be processed to the production department. Jobs related to information technology, the development of information technology is currently growing so rapidly, starting from industry, education, banking, shops, internet cafes and even households. In designing and developing PT. Astakona Anugerah Abadi the author uses the Extreme Programming (XP) method to facilitate design by dividing into four stages in the form of planning, design, coding and testing each of which is described in the results and discussion. The results of this study are in the form of conclusions and feedback from clients which are then set forth in the form of research.

Keywords: Extreme Programming, Website, Point of Sales.

Introduction

Currently, this technology is used in various fields that apply information technology, everyone can easily and quickly get new information. Using this technology as a tool that can process data so that product requests ordered by customers can be processed immediately without stock, and if the product is not available then Product Requests will be processed to the production department[1]. Data processing has not been well integrated. This causes customers to have to wait a long time to buy goods that are sent. The stock also greatly affects the payment process. If the stock is in accordance with the customer's request, the customer pays immediately, and if there is no stock, the customer must wait for the order and pay soft cash. Sales and inventory are planned to overcome the above constraints[2]. Jobs related to information technology, the development of information technology is currently growing so rapidly, starting from industry, education, banking, shops, internet cafes and even households. In today's business world there are many institutions and companies that apply this information technology, therefore technology is needed in work life to facilitate the completion of work so that it is more effective and efficient.[3]. One example of the development of information technology in the world of work or business is a digital data processing system where the system

does not use manual processes, such as data recording systems that were previously manual on paper now use information technology. to facilitate processing of data installed in the system. Can facilitate work so that it is faster and avoids errors, although the system cannot be separated from its advantages and disadvantages[4].

In the world of systems development methodologies abound and a whole field of research and practice as evidenced in methods engineering has grown up with a focus on creating software development methodologies it often appears that there may be different software development methodologies for each system. This means that choosing a systems development approach can be a daunting and very difficult task[5]. Given the extremely high failure rate associated with systems development efforts and the fact that many traditional development methodologies are complex and difficult to use, the choice of methodology becomes even more critical. When building software, developers often have a hard time finding good modeling methods. A good modeling method is one that can ensure that customer needs are met[6]. The Agile method introduces a new method that is very flexible to changes during software development so that the software can work well and according to the wishes of the customer[7].

In addition to the use of information technology in the world of large businesses, this information technology system can also be utilized in the world of micro (small) businesses, one of which is shops, home industries or other small businesses. A common example of information technology is a cashier system that uses a database system and calculations that include sales and purchase data. But in reality, not all micro businesses can use information system technology, such as POS technology or sales information systems, because not all applications can be used for free, but there are paid options.[8]. It is this factor that makes some micro (small) companies still use manual sales and purchase information systems.

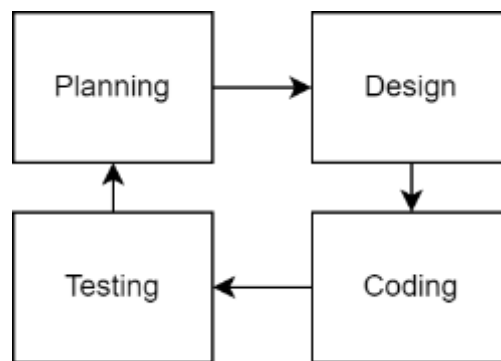
Methods

Extreme Programming is a software development method that allows customers to add or change application business processes during application development. One of the applications built using the XP method is an information system for selling telecommunications equipment online or known as e-commerce[9]. This research was conducted at PT. Astakona Anugerah Abadi which will be designed and developed as well as needs analysis carried out using the unstructured interview method with company owners. A literature study was also carried out in order to obtain technical documents regarding the procedure for using the extreme programming (XP) method which is an initial requirement in designing.[10]



Figures1. Extreme programming method

The desire to expand the sales area at PT. Astakona Anugerah Abadi telecommunication equipment requires the creation of a system. Online selling implementations evolve over time in both design and functionality, thus following the basic concepts of the XP method, which can handle these changes flexibly. Data collection is used in use to assess the needs of the user by simply receiving feedback recommended by the user and testing again until the desired function meets the needs of the user.



Figures2. Stages in Extreme Programming (XP)

The XP method was invented by Beck Kent, a software engineer who made a comprehensive Chrysler compensation project which was threatened with failure because Beck was contracted by Jeffries to pursue the project according to the target using the XP method to make changes to be flexible, efficient, adaptive. XP has four basic values, namely feedback, simplicity, communication and courage which ultimately becomes flexible to the changes requested by the client. The stages designed using XP are:

1. plan

In the planning stage, where the client describes the system requirements to be used from the very basics, each requirement is explained and made in the form of a simple module (user stories), the results of these modules are in the form of planning and an overview of the implementation of the sales promotion system.

2. Design

In the design stage it will be oriented towards the exploratory stage of describing the client's business needs, system requirements, design needs with a planning schedule and the use of a sales promotion implementation system.

3. coding

At the coding stage, several iterations will be carried out consisting of three stages, namely testing the system, designing the system and creating a sales promotion system for PT. Astakona Anugerah Eternal.

4. testing

At the testing stage is the final stage in the manufacture where the system is ready to be released to the public, this stage carries out testing activities of the entire system that is used to clients and the public or users.

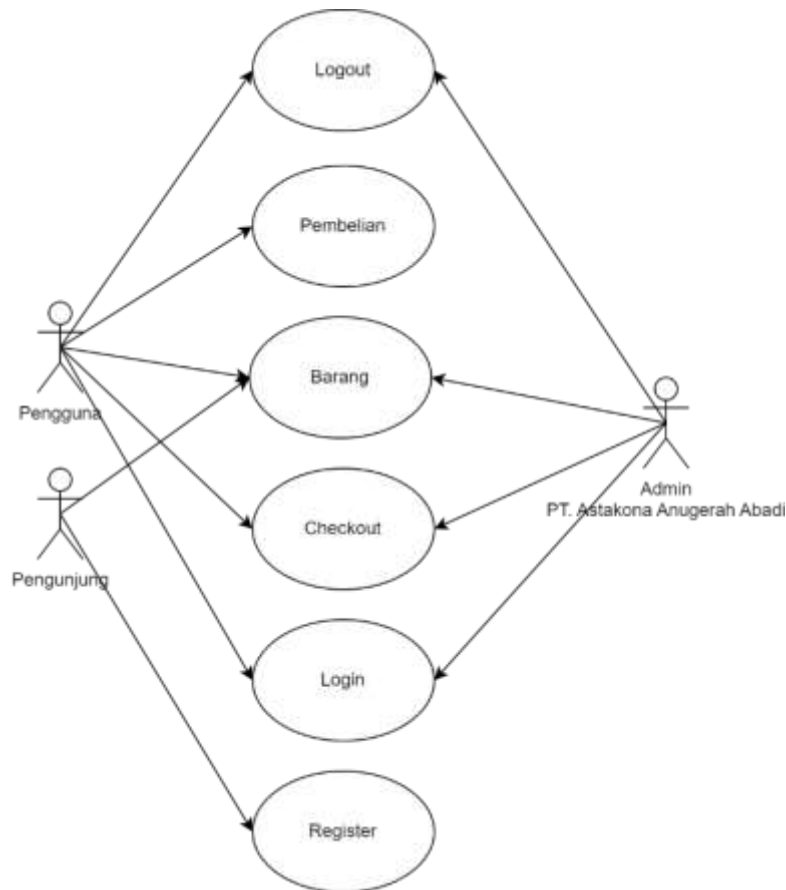
Result and Discussion

The approach using the XP method in the first stage is to take two stages in the form of planning and exploration. The explanation of each stage is as follows: Planning requirements refer to business requirements and system analysis shown in the table below as follows:

Users	Needs
members	Members are users who will shop in the sales systemPT. Astakona Anugerah Abadi for providing detailed information such as contact, address, cellphone number and criticism and suggestions
Admin	Will contain data analysis of sales items, reply to messages, warn members who have not paid the bill

In the design stage, it will contain system requirements that refer to the exploration stage, such as:

hardware	Software
PCs/Laptops	Microsoft Visual Studio
Keyboards	XAMPP
Mouse	FileZilla



Figures3. Use case diagram of the sales system of PT. Astakona Anugerah Eternal

Testing and analysis in the extreme programming methodology will take two stages, namely iteration in system development and the final production stage, each of which is described as follows:

First Iteration

System analysis describes system requirements for users and admins in system design and development in tabular form, as follows:

table1. details of user system requirements

Page	Function
home	Filled with the goods input form and goods table as well as the name of the user/admin who is currently logged in.
Admins/Members	Filled with the name of the admin/member who brought up the message page and the level of the user.
Profile	The profile page will bring up the tab navbar menu and member data.
Inbox	Contains messages that will display tab menus such as messages from members and reply to messages buttons or chatboxes

Second iteration

The second iteration stage contains five meetings to make a sales system application for PT. Astakona Anugerah Abadi, each of which contains the following functions:

table2. requirements on web pages

Page	function
Landing Pages	Hyperlink from the logout button to exit the user member Hyperlink to the basket to make it easier for members to check groceries Hyperlinks for tab menus to make searching easier such as sale, category, about and contact us
Item detail page	Will display basic information on the item that has been pressed such as category pages, description pages, buy and basket buttons as well as photos of the items that have been clicked.
Checkout page	The checkout page will contain information about orders from members such as delivery methods and payment methods.
Category page	Category pages will contain the products being sold such as wood, components, uses.

Third Iteration

In the third stage is the development of a sales application for PT. Astakona Anugerah Abadi which will appear on the guest page and the design process uses the home page, register, categorize, contact us and the functions provided on each page.

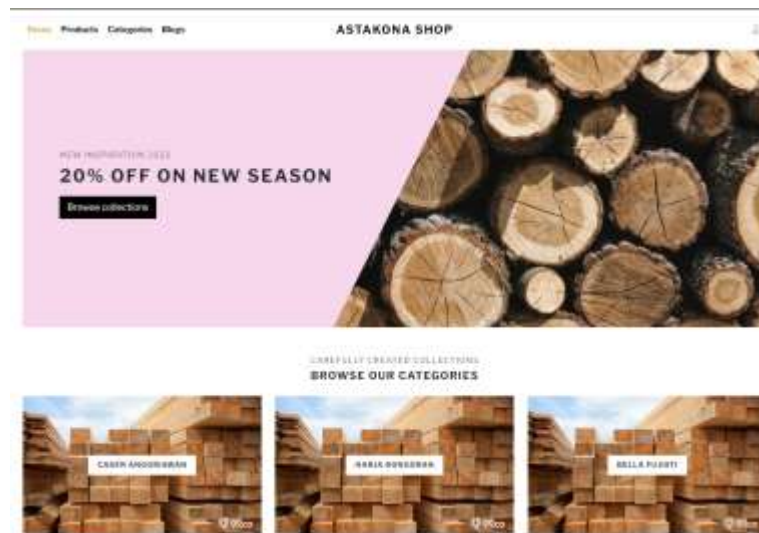
table3. function requested by the client

Function	Results
Enter item data	success
Edit item data	success
Delete item data	success
View item data	success
View item sales data	success
Clear sales data	success
View member data	success
Edit profile	success
User registration	success
Administrators page	success
Chat page	success

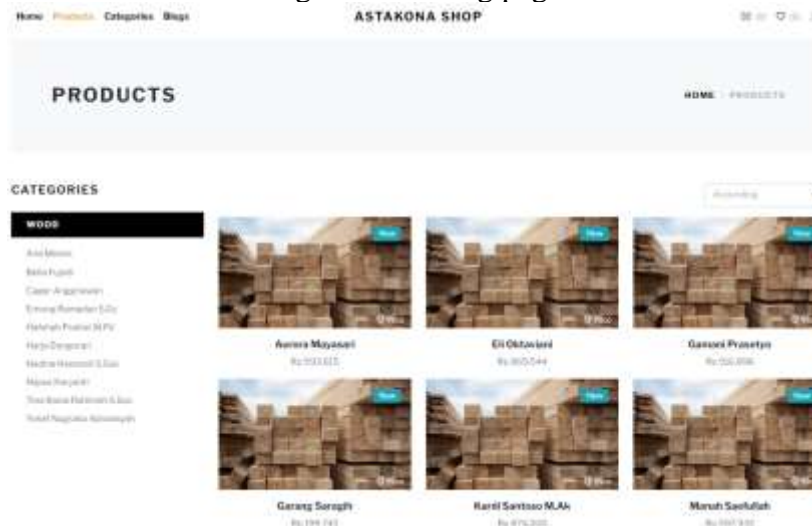
Last Iteration

The final iteration stage will consist of building a system that uses the developer as a top-level user which gives the client the opportunity to provide additional requirements related to the sales application of PT. Astakona Anugerah Abadi and is a functional system.

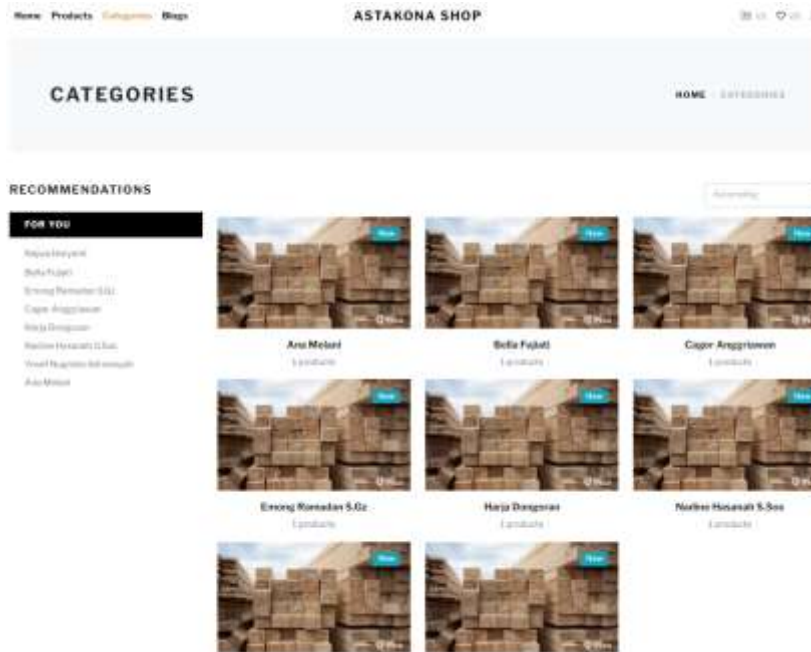
An overview on the landing page will appear as follows:



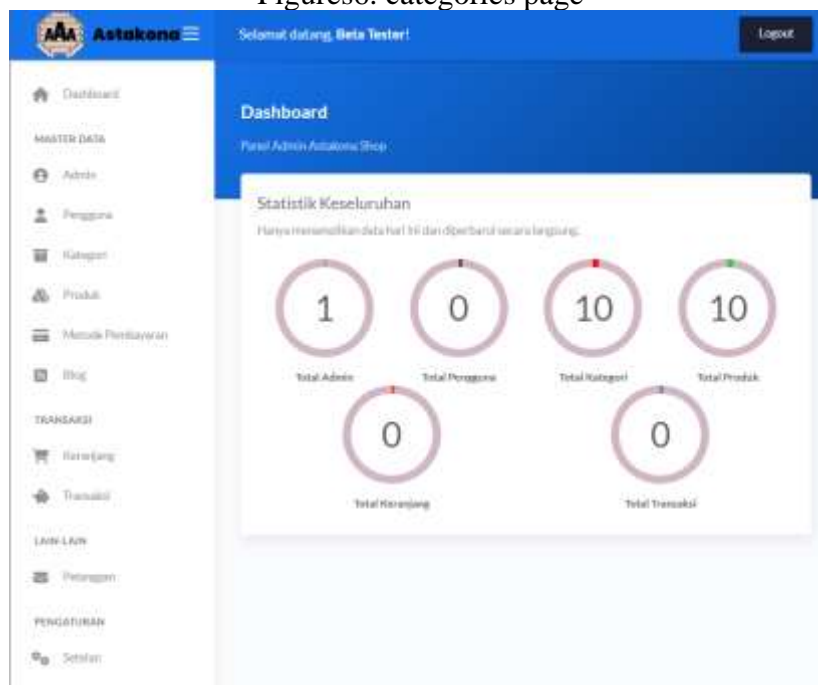
Figures4. landing pages



Figures5. product pages



Figures6. categories page



Figures7. admin page

From the analysis that has been carried out by the author, the conclusions obtained from the results of the analysis are described in the table below as follows:

table4. extreme programming functionality

Feature	Providing additional features can open up opportunities for clients and developers (developers) to better place the maximum of the features provided
---------	--

	so that the features requested are also adjusted to the client's request
Change	In the change agenda, the developer accepts the changes desired by the client in the form of obstacles when adding features so that they can be rolled back if there is an error in the process
Planning	In planning there is an outcome that has been discussed in the discussion in the form of system features used where the client changes or removes the desired and planned functions.
Communication	In communication planning there is an opportunity for clients who are carried out in a feature to get feedback every time the client wants to be connected to the administrator, after that the developer will fix errors or lack of features that have been made

Conclusions

Based on the test results it can be concluded that the system project documentation is carried out only in the early stages of development ie. in the search and design phase. Then if there is a change at the time of the request, the system design is not changed, only the system being built changes. It's safe to say that XP has no formal documentation to measure the completion of an application, but an application is considered complete if the client does not require additional requirements for the application. There is no limit to complete or change these requirements, so that the client's wishes will come true. Therefore, developers must be able to handle requests from customers, it is not uncommon for developers to have difficulty handling these requests. This difficulty can be caused by the difficulty of finding program code for system development and data changes in database tables, which forces programmers to rebuild database tables. The XP method is a software development methodology that uses no formal documentation created during development. Documentation is carried out only at the initial stage of development. If there are additions or changes to the requirements, changes can be made immediately without an official letter. Therefore, the authors suggest that the next developer add one step, namely the formal documentation step, without removing the skills from XP. The XP method is a software development methodology that uses no formal documentation created during development. Documentation is carried out only at the initial stage of development. If there are additions or changes to the requirements, changes can be made immediately without an official letter. Therefore, the authors suggest that the next developer add one step, namely the formal documentation step, without removing the skills from XP.

The XP method is a software development methodology that uses no formal documentation created during development. Documentation is carried out only at the initial stage of development. If there are additions or changes to the requirements, changes can be made immediately without an official letter. Therefore, the authors suggest that the next developer add one step, namely the formal documentation step, without removing the skills from XP.

References

- [1] AD Putra and AD Putra, "Design and Build E-Commerce Applications for Helmet Sales Businesses," *J. Inform. and Software Engineering*, vol. 1, no. 1, pp. 17–24, 2020.
- [2] IB Prayoga Bhiantara, G. Indrawan, and KYE Aryanto, "Development of an Integrated E-Ticket Mobile Tourism Information System with the Extreme Programming Method (Case Study of the Karangasem Tourism Office)," *J. SISKOM-KB (Computing System and Artificial Intelligence)*, vol. 5, no. 1, pp. 38–48, 2021.
- [3] WM Sari, A. Amran, and HO Lingga Wijaya, "Implementation of E-Commerce Using the Extreme Programming Method for Umkm in Mutara District," *Jusikom J. Sist. computer. Musirawas*, vol. 5, no. 2, pp. 136–144, 2020.
- [4] MY Vebriandi and J. Jony, "Extreme Programming Approach in E-Commerce Applications (Case Study of Palembang's Ujang Songket Handicraft)," *J. Technol. inf. Mura*, vol. 13, no. 2, pp. 109–121, 2021.
- [5] T. Tumini and H. Septiana, "Application of Extreme Programming in the Implementation of Web Food Market Web Application Design," *J. Inf. and Comput.*, vol. 9, no. 2, pp. 113–121, 2021.
- [6] H. Sama, MR Hisham, J. Pratama, L. Andito, A. Kho, and H. Wijaya, "Comparative Audit of Batam City Information System and COVID-19 National Website," *CESS (Journal Comput. Eng. Syst. Sci.)*, vol. 7, no. 2, p. 340, 2022.
- [7] EF Aryani, "Scientia Sacra: Journal of Science, Technology and Society Inventory System Design in the Web-Based Inventory Process Using the Extreme Programming Method (Case Study on LC Cell)," *sci. Sacra J. Science, Technol. ...*, vol. 2, no. 1, pp. 135–146, 2022.
- [8] S. Rahayu, L. Fitriani, R. Kurniawati, and Y. Bustomi, "E-commerce based on the Marketplace in efforts to sell agricultural products using Xtreme programming approach," *J. Phys. Conf. Ser.*, vol. 1402, no. 6, pp. 1–7, 2019.
- [9] N. Risma and S. Nur, "Design of a Web-Based Sales Information System Using the Extreme Programming Method at Pt. Dae Duck Textile," *J. Comput. Business*, vol. 15, no. 2, pp. 1–10, 2021.
- [10] R. Hisham and Heru Wijayanto Aripadon, "Design and Development of Web Marketplace for Household Needs Using the Wdlc Model with the Scrum Method," *J. Ilm. Betrik*, vol. 13, no. 1, pp. 75–86, 2022.