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Design of a Web System for the Sales Processes in a Microenterprise in Peru

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Abstract- The present work is a design of a sales web site with which we will observe everything it contains and we can have a good control of all sales, because today is microenterprises still do it manually, and so much time is wasted and becomes very tedious, For this the web system was implemented with the SCRUM methodology which helps us in a more agile way and we will divide it into its 5 phases with which it has and by the Application was developed the phases already mentioned and was also used the program Balsamiq Mockups for the design of the prototypes that he is going to have the web system to store all the necessary information requested by the client as a final product.

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I. INTRODUCTION

The problematic is the control that is given to the sales process, is that in the modern season the commercial sector has suffered great alterations and is forced to the growth of communications and the entry of new technologies and it is essential that new companies achieve these changes so that they force other competitors to continue in their participation in the market[1]. We will touch some examples found in Perú is that most microenterprises do not have optimal control of their sales we will take the company Angelito located in the city of Chepén that is dedicated to the sale of clothing for children, men and women and as mentioned above do not have optimal control of sales and only handle it manually[2]. We have another example of the company Vasgar that is located in San Juan de Lurigancho that is dedicated to the sale of cleaning products, beverages and sweets, as mentioned above the company also handled manually where they controlled their profits and payments and wasted too much time and also had the problem of customer service [3].

As for the methodologies to develop this investigation there are different ,we begin by SCRUM that has a utility for the more agile development and using more than all the selection of Sprints[4], on the other hand we have to UML that more than everything is an agile planning for the progress of software and more than everything demands a complete documentation [5], RUP is known for the software process development

framework that extends in the unified process [6] , the MVC pattern is well known to developers because it interacts with databases and storage systems[7], I chose the SCRUM methodology because it helps us in a more agile way because and has an established duration that lasts between 2 to 4 weeks as a unique delivery date.

En el caso de aplicación abarcara en las microempresas que se encuentran en puente piedra el sistema web será desarrollado con algunas herramientas como creación de prototipos por el Balsamiq Mockups, se trabajará con el lenguaje PHP que explicaremos en el servidor web y va procesar código HTML u otra salida que los visitantes puedan ver [8], y por la metodología Scrum se va a trabajar con las 5 fases.

The objective of this work is to implement a web system with which we can have a control of all sales, products and customers, so that we may have an excellent information administration and improve customer service.

In this work is organized by stages, II stage we have the methodology that is going to be developed for research, III stage we have the study case which is related to the methodology, IV stage we will see the results, V etapa the conclusions of research work.

II. METHODOLOGY

This investigation will be carried out using the following methodology:

a) PHP

PHP or hypertext processor is a server-side scripting language designed for the web. PHP will be explained on the web server and will process html code or other output that visitors can see. PHP is an open source project that allows everyone to have access to the source code at no charge, it also has many integrated functions to perform many useful tasks related to the web. [8].

b) Balsamiq Mockups

After mentioning the methodology with which the project will be done, we will know the tool Balsamiq Mockups which will help us to create views of the interface that shows the system, such as buttons, links, tables, and so on. With which it will be possible to design a model of the ones we want to implement in the finished system. [9].

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c) SCRUM

Scrum proposes a personalized image to work on various projects that have a variety of conditions and having a usefulness as the selection of sprints and there is no method to follow. Being considerably scrum used for some essential components that can give an edge to other methods [10].

i. *Producto Backlog*

Here we begin with the list of requirements of functionality that offers us the client with which he wants it to be his final product.

ii. *Sprint Backlog*

We will see the list of requirements of the backlog product, how we will work with the team to achieve the objectives and that will become an increment in functionality.

iii. *Sprint Planning Meeting*

Tells us about the planning of the Sprint, are prioritized more than everything the inspection and the adaptation of the advances more than everything of the tasks of the product backlog.

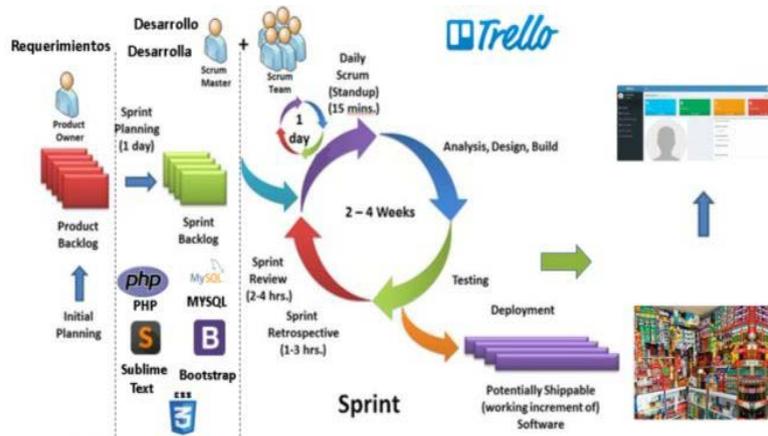
iv. *Ejecución de Sprint*

We will have a review of the increment (Sprint) as it will have a duration of 2 to 4 weeks as a unique delivery date.

v. *Inspección e Interacción*

It is the presentation of the sprint already finished with the requirements that have been indicated from the beginning by the client.

Fig. 3 will show the graph of the Scrum methodology where it covers all the phases already mentioned:



Fuente: William B. Heys

Fig. 3: Diagram of the Scrum Methodology Cycle

III. APPLICATION

a) *Application Architecture*

In this architecture we will talk about PHP where shown in the image will generate an html document,

then send the web system to the browser and where it will generate the more than all the request of the web system by the web server as shown in Fig. 4.

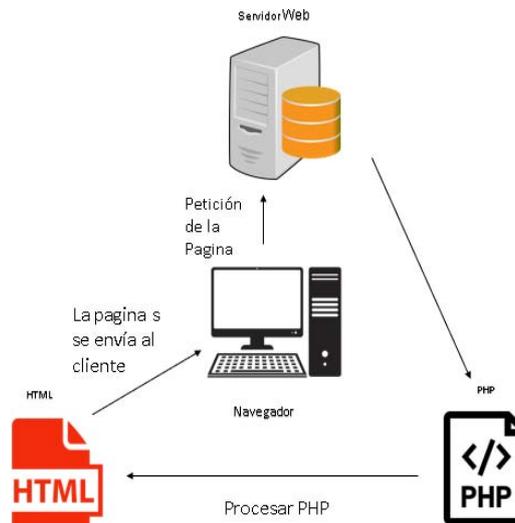


Fig. 4: Communication diagram of client and server

b) *Prototype Design*

The design of the web system was developed with the application Balsamiq Mockups, which will be implemented in microenterprises in Perú to have more than all a good control of their sales, products and customer and thus have a good administration of the data.

i. *Producto Backlog*

- As an administrator I need to register in order to enter the system.
- As a user I need the system to approve my data in order to enter the system.
- As a seller I need to register a customer to make the sale.
- As a seller I need to register the categories for each type of products.
- As a seller I need to register a product to make the sale.
- As a seller I need to register the customer's order to make the sale.
- As an administrator I need to produce a report to keep track of registered clients.

- As an administrator I need to produce a report to have a control of the registered products.
- As an administrator I need to produce a report to have a control of sales.

ii. *Sprint Backlog*

a. Increment 1: User Registration

In this increment the user records that can be administrator or salesperson will be presented (Fig. 6).

b. Increment 2: Record of the sale

In this increment we will see the registration of customers, categories, products, register orders and register the sale itself (Fig. 7, Fig. 8 and Fig. 9).

c. Increment 3: Report Management

In this increment we will have the verification of the sale and allows the administrator to generate reports on customers, products and the sale (Fig. 10).

iii. *Sprint Planning Meeting*

In this phase we will see the planning of the sprints and how long each has as shown in Fig. 5.

	Nombre	Duracion	Inicio	Terminado
	SISTEMA DE VENTA EN LA MICROEMPRESAS	45 days	08/09/19 08:00 AM	08/11/19 05:00 PM
	1.Registro Usuario	10 days	10/09/19 08:00 AM	23/09/19 05:00 PM
	Modulo de Usuarios	10 days	10/09/19 08:00 AM	23/09/19 05:00 PM
	2.Registro de la Venta	20 days	23/09/19 08:00 AM	18/10/19 05:00 PM
	Modulo de Clientes	5 days	23/09/19 08:00 AM	27/09/19 05:00 PM
	Modulo de categorias	5 days	28/09/19 08:00 AM	04/10/19 05:00 PM
	Modulo de Productos	5 days	04/10/19 08:00 AM	10/10/19 05:00 PM
	Modulo de la Venta	5 days	10/10/19 08:00 AM	16/10/19 05:00 PM
	3.Gestio de Reportes	15 days	16/10/19 08:00 AM	05/11/19 05:00 PM
	Reporte de Clientes	3 days	16/10/19 08:00 AM	18/10/19 05:00 PM
	Reporte de Productos	3 days	18/10/19 08:00 AM	22/10/19 05:00 PM
	Reporte de los pedidos	4 days	22/10/19 08:00 AM	25/10/19 05:00 PM
	Reporte de la Venta	5 days	25/10/19 08:00 AM	31/10/19 05:00 PM

Fig. 5: Sprints Planning

iv. *Execution of Sprint*

a. Sprint 1: Registro de Usuarios



Fig. 6: Login Administrador

b. Sprint 2: Registro de venta

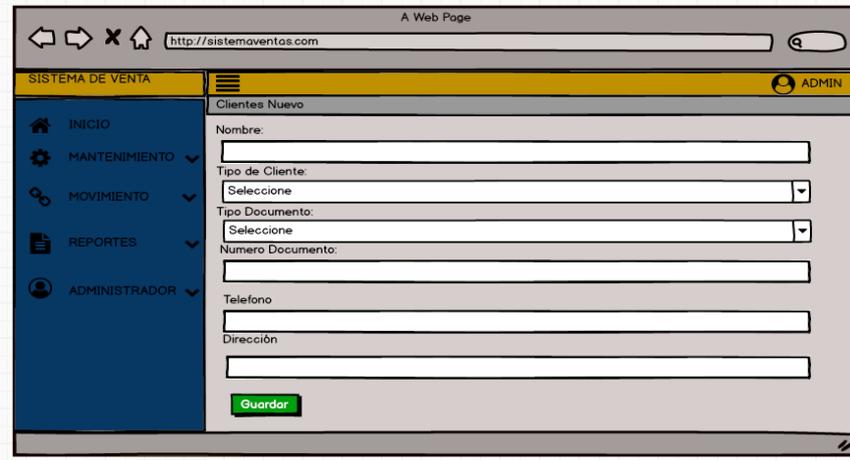


Fig. 7: Registrar Cliente

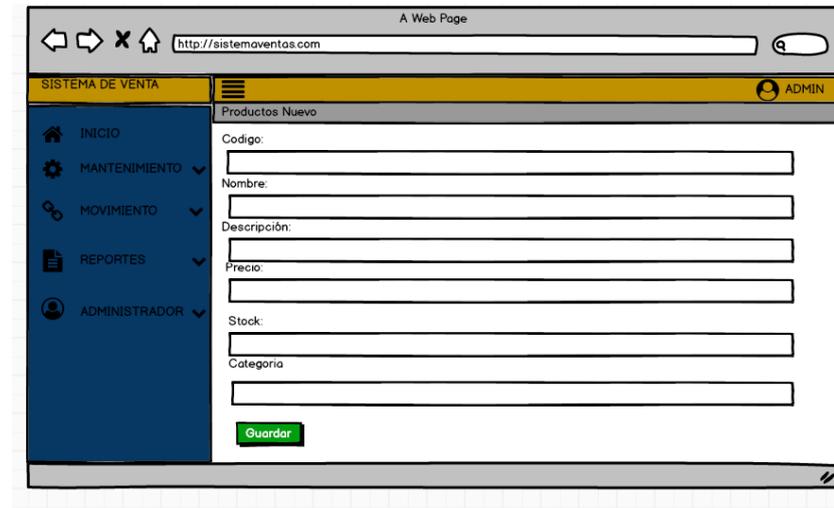


Fig. 8: Registrar Producto

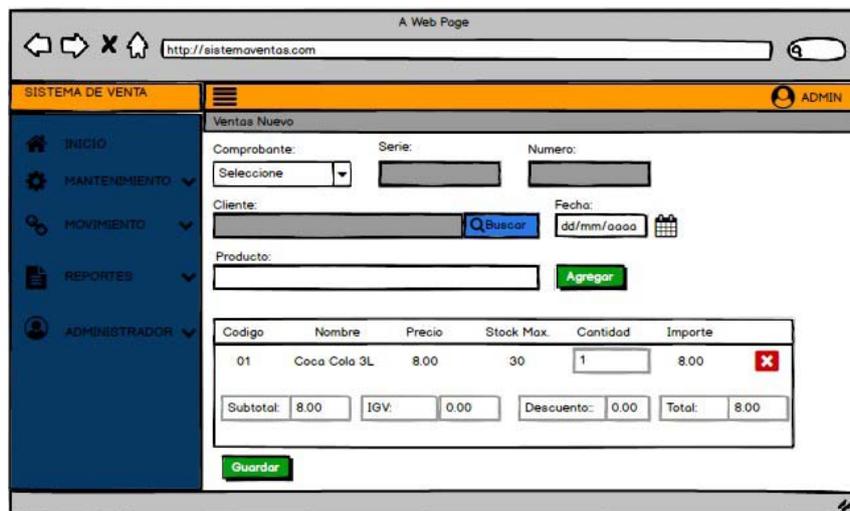


Fig. 9: Registrar Nueva Venta

c. Sprint 3: Reporte de Venta



Fig.10: Reporte de la Venta

v. Inspection or Interaction

As last phase we have the sprints already finished with the requirements they gave us, where we'll see more than the entire system fully developed.

IV. RESULTS AND DISCUSSION

a) In the Application

The design of prototypes of the sales web system for the micro-companies in Puente Piedra was completed, ending with the requirements already requested and having a good control of sales and thus only having the design of the system to be implemented later.

i. Comparison

- Compared to a web-based platform for customers and designers for website prototypes [11], what we can observe is that we have developed the papers with the software Balsamiq Mockups for the prototypes our work, another comparison is that this paper has created a process to create prototype and has communication from client to server and get customer feedback, in comparison with our work has also developed an architecture for communication of the client and server with PHP language.

b) In the Methodology

i. Ventaja

- One of the advantages with the Scrum methodology is that the development team meets every day approximately 15 minutes to complete some elements of the sprint backlog to be a review of the project which will be presented [12].

ii. Desventaja

- One of the disadvantages would be that if you focus on large projects with several members, the results would not be as good.

iii. Diferencias

- In the differences exist is that the scrum methodology is for more agile projects on the other hand if we use the UML methodology it is for more extensive projects and in addition they are too heavy as the implementation of the sales system of the monitoring based on mobile devices in Semi Tani Shop. [13].

V. CONCLUSIONES

In this way the implementation of the sales web system will help with the improvement of the sales process, so there will be no problems with calculations such as for preparing a ticket, or control of products.

The application was used with the program Balsamiq Mockup which helped with the design of the interfaces for the design of a website for a microenterprise.

La Metodología Scrum nos ayudo de una manera más ágil ya que cuentas con 5 fases, y que se ejecuta en ciclos temporales, ya que los Sprint tienen una duración entre 2 a 4 semanas como una fecha límite de entrega del proyecto.

In future investigations an artificial intelligence system could be added with a chatbot so that customers can ask for information about each specific product they are looking for in the store and the prices for each one.

REFERENCES RÉFÉRENCES REFERENCIAS

1. J. Huaman Varas and C. Huayanca Quispe, "Desarrollo e implementación de un sistema de información para mejorar los procesos de compras y ventas en la empresa HUMAJU," Lima.
2. A. Quispe Hernández and F. Vargas Chavarri, "Implementación de un sistema de información web para optimizar la gestión administrativa de la

- empresa comercial Angelito de la ciudad de Chepén," Trujillo.
3. A. Rodríguez, R. A. Asesor, M. Herrera, and R. Edson, "TESIS PRESENTADO POR FACULTAD DE CIENCIAS E INGENIERÍA ESCUELA PROFESIONAL DE INGENIERÍA DE SISTEMAS E INFORMÁTICA," 2017.
 4. P. Ounsrimuang and S. Nootyaskool, "Introducing scrum process optimization," Proc. 2017 Int. Conf. Mach. Learn. Cybern. ICMLC 2017, vol. 1, pp. 175–181, 2017.
 5. E. Braude, "Incremental UML for Agile Development: Embedding UML Class Models in Source Code," Proc. - 2017 IEEE/ACM 3rd Int. Work. Rapid Contin. Softw. Eng. RCoSE 2017, pp. 27–31, 2017.
 6. P. Borges, P. Monteiro, and R. J. Machado, "Tailoring RUP to small software development teams," Proc. - 37th EUROMICRO Conf. Softw. Eng. Adv. Appl. SEAA 2011, pp. 306–309, 2011.
 7. A. Singh, P. Chawla, K. Singh, and A. K. Singh, "Formulating an MVC Framework for Web Development in Java," Proc. 2nd Int. Conf. Trends Electron. Informatics, ICOEI 2018, no. Icoei, pp. 926–929, 2018.
 8. H. Ri et al., "Development of Theses Categorization System Search Engine Using PHP and MySQL," pp. 3–8.
 9. A. Delgado and J. Sosa, "Mobile application design of geolocation to collect solid waste: A case study in Lima, Peru." p. 4, 2019.
 10. A. Srivastava, S. Bhardwaj, and S. Saraswat, "SCRUM model for agile methodology," Proceeding - IEEE Int. Conf. Comput. Commun. Autom. ICCCA 2017, vol. 2017-Janua, pp. 864–869, 2017.
 11. T. Soutome, D. K. Ling, M. Niibori, and M. Kamada, "A web-based platform for clients and designers to prototype web sites," Proc. - 16th Int. Conf. Network-Based Inf. Syst. NBIS 2013, pp. 459–463, 2013.
 12. R. J. MacAsaet, "Just in Time Demos in the Scrum Framework," Proc. - 2018 3rd Int. Conf. Syst. Reliab. Safety, ICSRS 2018, pp. 21–24, 2019.
 13. H. Setyo and U. The, "Implementation of Mobile based monitoring sales system na," pp. 1–5, 2017.