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Designing a Mobile House Maid Hiring Application Using Service Oriented Architecture

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Abstract: This paper discusses about Service Oriented Architecture implementation in e-business. Recent years, E-business are grown gradually in Indonesia and because of this Indonesians are accustomed to use mobile application. Since majority household in Indonesia have housemaid to help their house chores, and the number of housemaid are declining, the demand of housemaid in Indonesian are high. Therefore, this paper propose a concept which customer can get their own housemaid more convenient according to their needs without ignoring the quality. This paper designs a business concept based on mobile application and try to fulfill the housemaid demand in Jakarta, Indonesia. The system will be supported by SOA, since SOA is suitable for e-commerce with faster nature, and an ever changing environment.

Keywords: SOA, e-business, mobile application, house maid

1. Introduction

In 2016 Indonesian economy grew 1% especially in Jakarta. The situation lead into growing number of middle upper class and working class. Due to this, the demand of housemaid in Indonesia are inevitably increasing [1] .However, the high demand are not followed by housemaid availability. The number of people who work as professional housemaid are drop significantly for about 20%-30% [2].

The declining number of housemaid was affected by the stigma of the profession as lowly and often considered as slaves [3]. Inasmuch as the stigma, housemaid often experienced unfair treatment and lack of government protection. For instance, physical and psychological abuse are often committed by the employer or the company towards the housemaid, yet almost 80% violence case were not exposed and remain untouched. Thus, housemaid keep getting bad treatment and unprotected by legal institution.

On other hand, Badan Pusat Statistik (BPS) claimed that more than 7.03 million Indonesian are unemployed in November 2016 [4]. Based on the data, the amount of potential labor are highly available and could comply with the high demand of housemaid with proper management.

Technology is widely implemented in Indonesia, not only by technology savvy but also beginner user such as housewives. Based on survey by Asosiasi Penyedia Jasa Internet Indonesia (APJII), Internet user in Indonesia reach more than 100 million users with 16.6% are housewives and 62% are active workers and entrepreneurs [5].

Due to significant demand of housemaid followed by immense number of job seeker in Indonesia and majority of smartphone user, hence, this paper proposed a business concept by distributing professional housemaid through mobile application which supported by Service Oriented Architecture (SOA) . SOA encourages the business to eventually change due to rapid grow of technology. Moreover, SOA can be maintained easily and considerably flexible following market changes, anticipating and managing risk, also supporting business strategic responsively [6]

This paper analyze the market of housemaid supply using mobile technology and make a business plan based on the analysis. The analysis would be applied in designing the prototype and Service Oriented Architecture. This paper intended to facilitate the high demand of housemaid in convenience way without neglecting their requirement additionally. Then, we will design the interface which will be easily comprehend by users and design SOA which served housemaid supply industry accurately.

2. Material and Method

2.1. Service Oriented Architecture (SOA)

Service Oriented Architecture could produce a responsive information technology which suit ongoing business and preplanned business. SOA plays as support in business process [7]. SOA consists of independent unit which can be added or removed and modified based on business requirement. The concept allowed to design software and application within shorter time and less costly. SOA is also better in term of updating, reusing, and maintenance[8]. Due to flexible nature, SOA become a right solution for business to challenge competition and fast changing technology. [7]. The concept of using same services for different application, means variety of user would use, and test the service which helped more the improvement of the services itself.

The idea of SOA created by the fact that the enterprise IT assets are quickly obsolete and fixed IT system cannot assist the versatile business process, therefore the business process should comply with the IT requirement. Society for Information Management studies that business- IT alignment is top priorities of the IS manager. However to obtain such a sustainable and quick alignment is expensive and need a lot of resources [9].

Besides the Business and IT alignment, companies start seeking collaboration to improve their productivity. Collaborative business process become pivotal strategy to be in highly competitive industry. SOA supports the implementation of collaborative business process to be more responsive and flexible [10].

Since SOA consisted of independent part, business requirement changes can be comply by changing certain services without changing the whole application or creating new business process through rearranging the IT services. This approach will prominently reduce the cost and spend shorter time [11] and the company can be more efficient and agile.

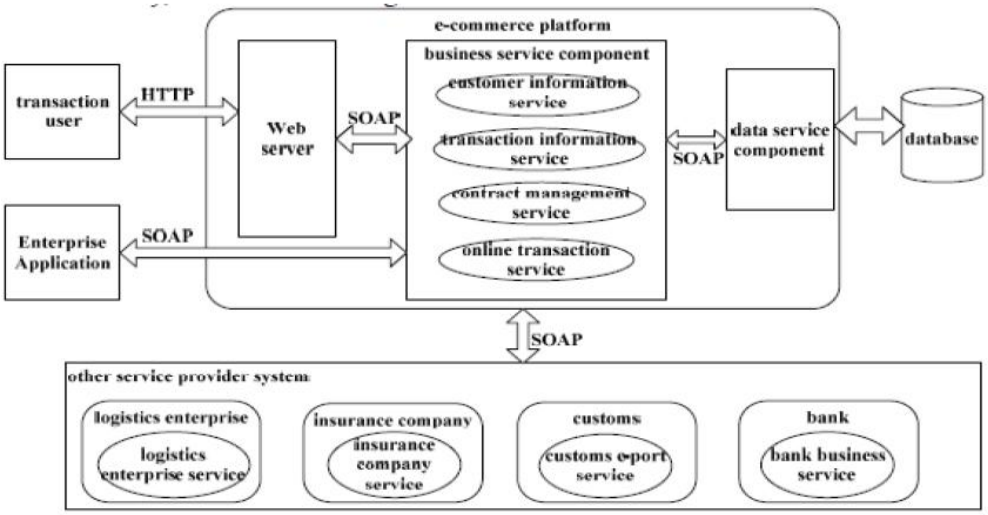

Figure 1: Basic E-Commerce Architecture [13]

SOA supposed to be built based on reference model due to special characteristic embedded in each industry. For instance, healthcare industry would have different processes and system with logistic industry, required certain degree of details, has different protocol, and implementation. Therefore the guidance will act as best practice which helped the business process more efficient, and allow higher success rate and effective usage. [12]. Meanwhile, this paper will use standard architecture framework for e-commerce, which also used in some banking industry and insurance industry [13].

To implement SOA, there are several approach used to design the architecture. The business domain and process should be analyzed and understood in detail. The examined processed is arranged into smaller part according to each design.

2.2. Maid Hunter

Maid hunter is an application intended to fulfill the needs of housemaid and delivered with quality and trusted staff. According to the data of smartphone user in Indonesia [5], Maid Hunter approach the consumer using mobile application. Thus through mobile application user allow to access after registering.

Maid Hunter business process can be decoupled into four main processes which is housemaid recruitment, training, recruited by consumer, and payroll.

(a) Housemaid Recruitment

The applicant will bring their identity card during the interview. The identity card and document will be checked using government data to know their criminal record, and the authenticity. After going through several interview, the applicant chosen will get an id as Maid Hunter staff and take a photo using the uniform

(b) Training

Training phase become one of the most important part in Maid Hunter. Therefore, the hired staffs will receive intensive training and would get punishment if they skip the training. After certain period, the trained staff will take several test such as written test or practical test. The staffs who succeed the test will have the result under their bio in the application.

(c) Recruitment by Consumer

The consumer should register their membership before using the service. After registration, the consumer can fill their data and put their requirement for the housemaid. In 2x 24 hour, Maid Hunter will give them the list of housemaid whom similar with the requirement. If the consumer agree with the list, they can choose the housemaid and settle the payment by using their deposits or transfer by bank. The housemaid will work on promised date and bring contract so that the consumer could sign the contract under the seal.

(d) Payroll

The salary will be transferred to the full time housemaid directly to their account every months from the consumer payment. In other hand, part time housemaid will receive their payment in cash every week. Both salary will be cut by commission and administration cost.

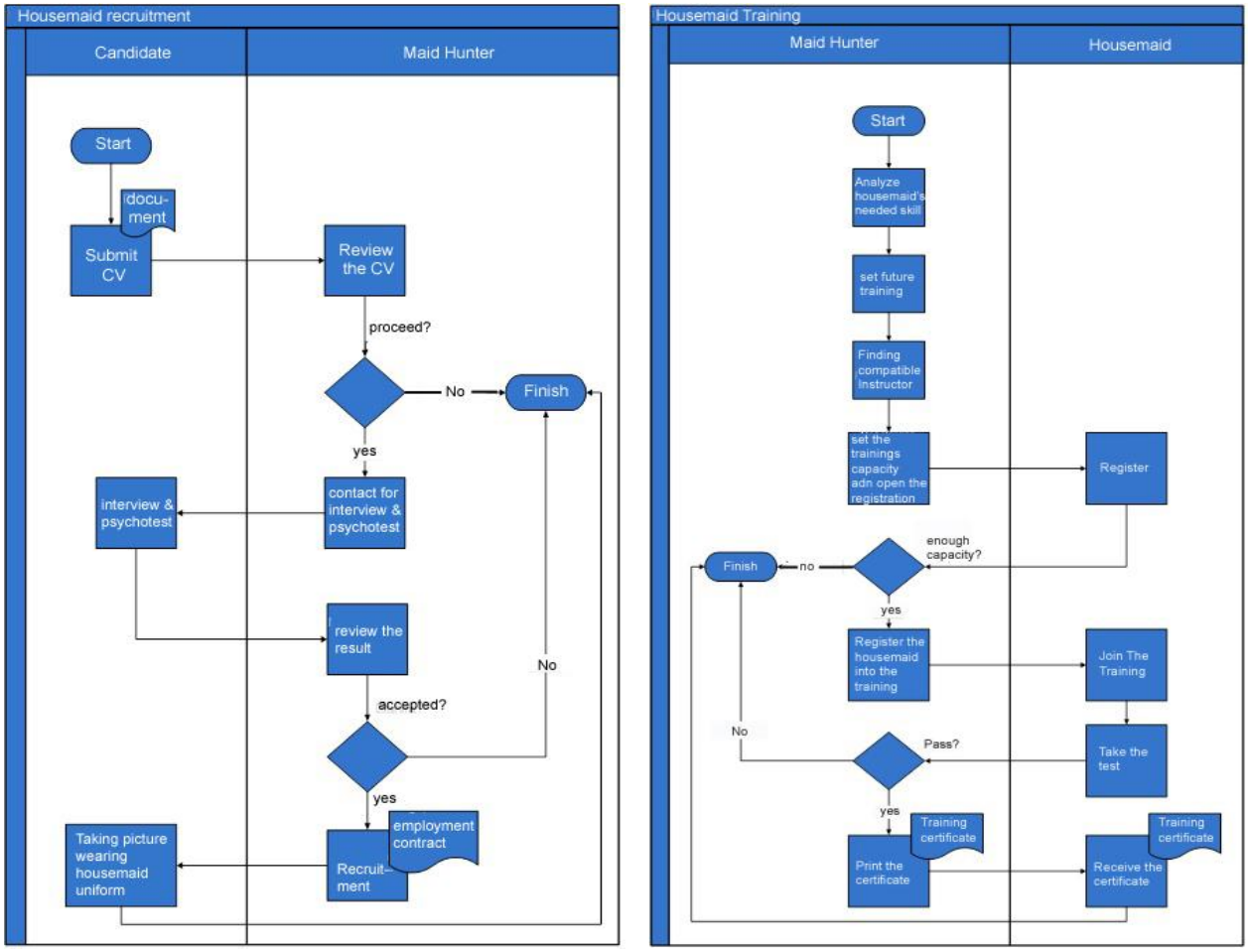

Figure 2: Housemaid Recruitment (left) and Housemaid training (right) Use Case

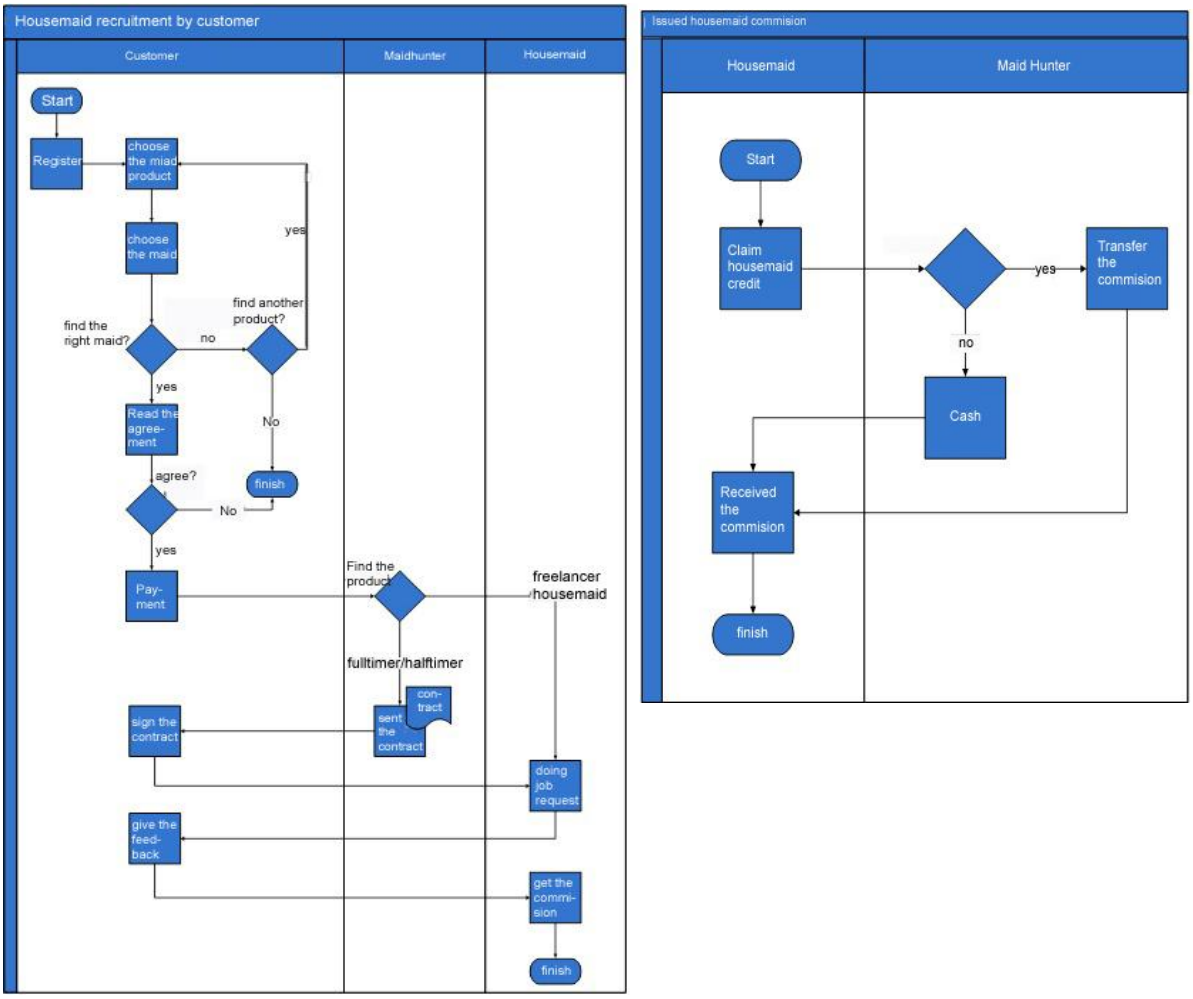

Figure 3: Recruitment by Consumer (left) and Payroll (right) Use Case

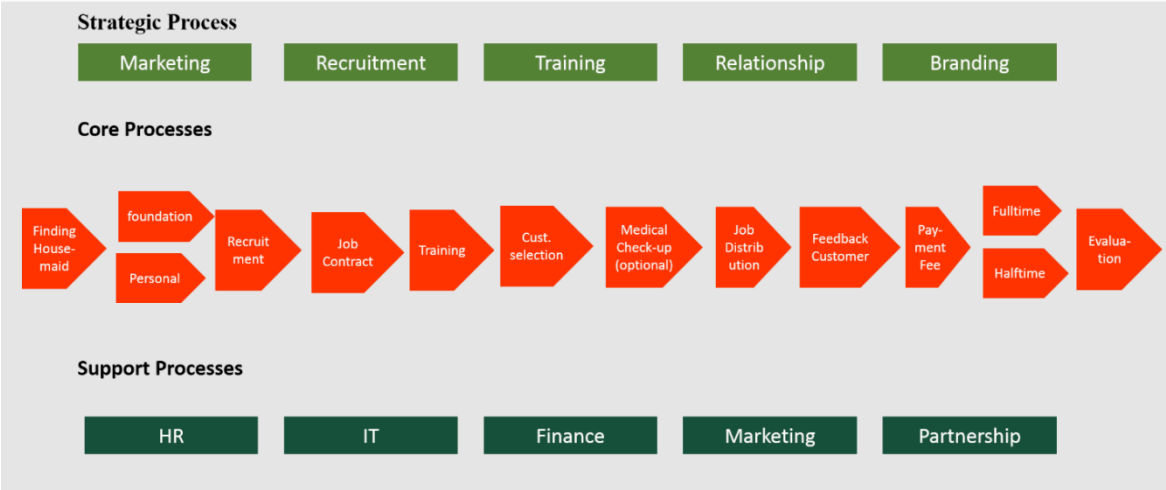

Figure 4: Business Process of Maid Hunter

Thus, the whole business process illustrated by the figure above and depicted the process from the very beginning until the end of the process.

3. Result

Based on many literature, SOA bring many advantage especially in developing IS/IT in company. Since competition between companies become strict, SOA become important to support business process and company strategy. In other hand, start-up needs to be agile and flexible due to the size of start-up smaller than established company. Start-up allowed to be agile and will grow into bigger scale, therefore IS/IT system in start-up should be built by having future state in mind.

Since start-up typically incline to be more business driven and supposed to be quick to keep the company afloat, so IT development should be done in shorter time. Besides start-up is necessary to be fast, start-up usually have very small team while the work load can be unbearable for the team. Moreover, start-ups are relatively new in the industry and still build their pace and culture, SOA implementation will be easier than in the bigger company[14].

3.1 SOA Architecture

To support enterprise architecture solution, therefore SOA should be built by using architecture. The architecture contain several layer, such as:

(a) Upper layer contains business process which serves to the client using web service and mobile application. The service would use advertising, social media, event and blog to approach the user.
(b) Middle layer is support layer which help the main business process such as, application content, housemaid catalog, training catalog, training order, customer data, housemaid ordering, and payment system.
(c) The lowest layer contains data resources which integrated with Maid Hunter application

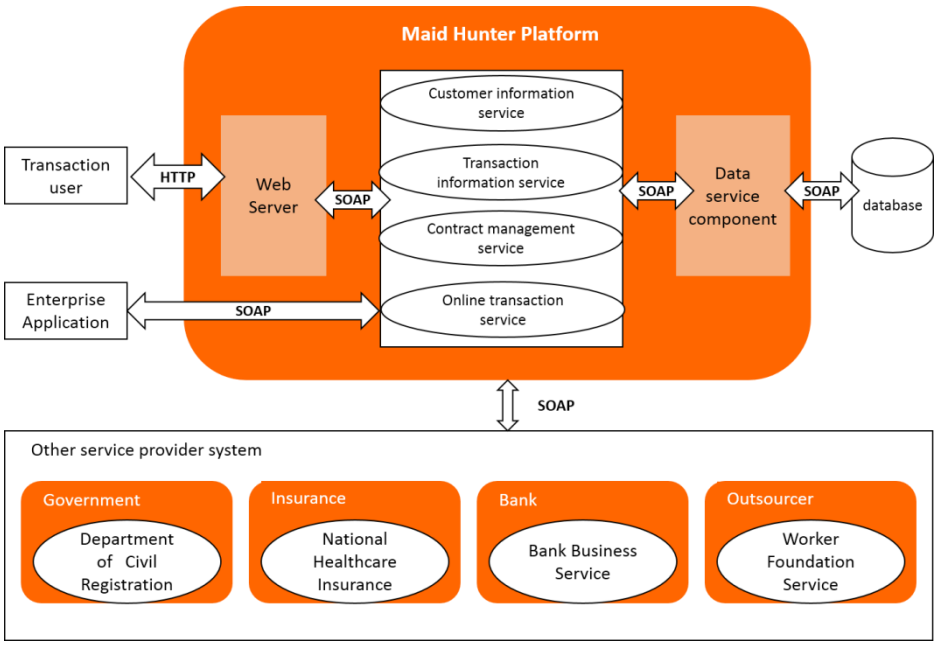

Figure 5 : Maid Hunter Architecture

3.2 Service Integration

Service integration is the ability to facilitate between previous application, pre-package application, company's data (relational, hierarchy, non-traditional, un-structured resource such as XML, text and content management) and business services implementation.

Maid hunter is built based on SOA, which defines as a group of services that communicate each other through data passing service or more which coordinate several activity. SOA builds application from web services/ software. Services consists unrelated unit function which unconnected one another and embedded inside. To fulfill new or existing business requirement, consecutive services are arranged in processes called orchestration. Web service makes the functional block able to be access through internet protocol. Meanwhile, XML will support resources to share structured data using internet

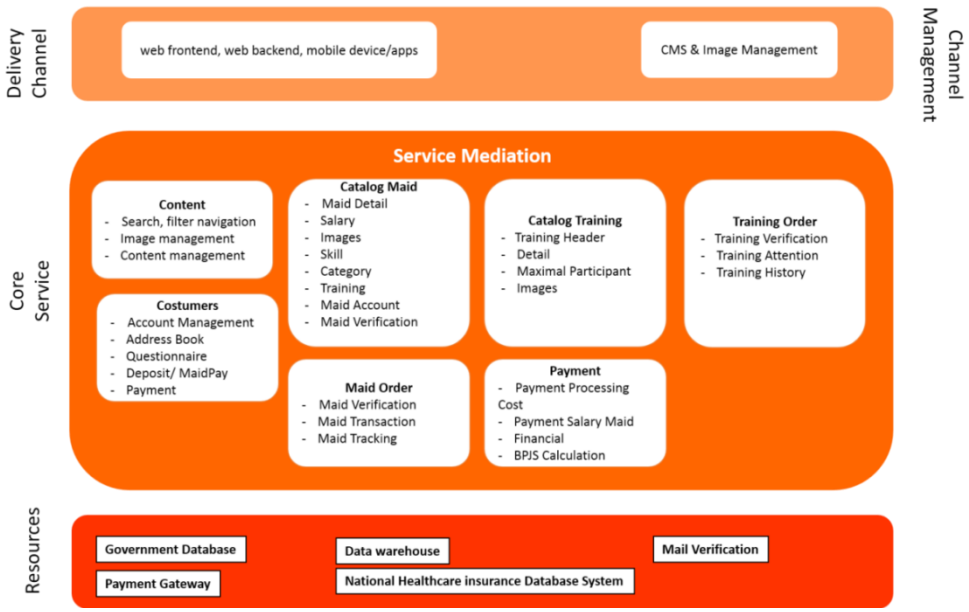

Figure 6: Business Service Implementation

The picture informs several layers which divided into three part, client layer, company platform and resources.

(a) Client Layer

Client layer will use web application and mobile application which connected with web server using HTTP. Client access the platform through internet to do transaction or perform any business process. Meanwhile, Enterprise application could directly access the platform and monitor the process.

(b) Platform

Maid hunter platform layer contain services which offered by maid hunter. Client do the transaction and the data will connected into database using SOAP.

(c) Resources

Resources layer is integration between the application and resources who provide supporting data by using SOAP.

4. Conclusion

SOA is very useful architecture implemented by any start-up which still growing and need flexible system to keep the business responsive with market changes. To implemented SOA, start-up should find best practice therefore SOA can be more effective and match with the industry needs.

Maid Hunter is a house maid hiring system which mold into mobile application to facilitate between housemaid and the employer. Previously, people should look for house maid through acquaintance or family without any guarantee about their skill or look for the house maid through some organization which often disappointing. Maid Hunter helps the consumer to find the suitable housemaid along with complete information about the housemaid and review from other consumer. However, as complicated as another e-commerce, each process in Maid Hunter needs integration from other party such as recruitment online application, government database, National Healthcare Insurance database, and payment gateway.

With a lot of processes and services, Maid Hunter application should be supported by flexible and easy to developed system. Hence, Maid Hunter uses SOA to help the architecture therefore, the ICT development and management could be easier and less expensive.

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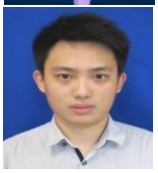

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