

Modern Web Semantic Application For Selling Fish

Kharisma Bima AP ¹, Marselina Endah ² I Wayan Ordiyasa ²

Abstract

Betta fish is famous as a fighter fish with a difference between betta fish with other types of fishes. Many people are interested in buying the Betta fish with a beautiful tail and attractive color with a giant belly. Thus, the paper aims to build a Semantic Web with API of delivery services. We design a system to enable and increase the betta fish sales of the Yogyakarta Community, Indonesia. We construct an application with REST of a web semantics to retrieve various data, including places and shipping cost of items to enable buyers to estimate fish prices and shipping costs.

Keywords

Search, Semantic Web, Shipping Cost, Fish

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1. Introduction

FISH is one of the potential non-oil and gas economic commodities. Increasing demand both at home and abroad. It encourages the development of ornamental fish culture in Indonesia. One of them is betta splendens or better known as betta fish. Betta fish are famous as fighter fish; the actual difference between betta fish is their sex. Betta male has a beautiful tail and attractive color, in contrast to female betta fish with a giant belly and colors that tend to be dull. Its size is small but has a high exotic value, significantly when the hickey widens [3].

In general, people know about betta fish through social media, marketplaces such as Tokopedia, Shopee, BukaLapak, and Olx, and can also visit the fish shops directly. New sellers may offer their fish to a fishing shop, but for daily expenses such as feed, daily necessities, etc., of course, it still lacks, while online marketing takes a long time to gain customer trust. If the betta fish seller does not sell, it will cause-effect of retirement in the world of betta fish, if that happens sustainably, it will reduce the value of ornamental fish exports, especially betta fish, which are getting better and better, and other countries like Thailand and Vietnam will gain more trust outside the country [16].

Communities can only distribute a few fish; the rest they market themselves. Based on the fish community problem when it is challenging to advertise their fish.. The community

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needs a media for marketing their betta fish by utilizing web semantic technology. Thus, we develop a system to help marketing activities by using semantic concepts [1][2].

To develop the web semantic, there are several technologies. One of them is the REST (REpresentational State Transfer). REST (REpresentational State Transfer) is an architectural style with rules such as a uniform interface so that if the rules are applied to web services, it will be able to maximize the performance of web services, especially on performance, scalability, and ease of modification. In the REST architecture (REpresentational State Transfer), data and functions are considered as resources that can be accessed through a Uniform Resource Identifier (URI), usually in the form of a link on the web.

We utilize the REST is to make the semantic website more complete with additional postage checks directly on the menu, making website users easier to check shipping costs without opening a direct shipping website. The system can display a list of prices of items and categories. Therefore, in this paper, we develop a Web Semantics application with REST in searching the Betta fish with the semantic method using the CI framework and PHP language [5][6].

2. Method

Semantic web pages a vision of the web's future, and information is given explicit meaning so that it is easier to be processed by machines automatically and more easily brings together the information available on the web. The semantic web is an extension of the web that supports databases in the machine-readable form [4].

The semantic web is a web that can describe things in a way that computers can understand. The semantic web is not separate, but a fruit extension of an existing one, where the information provided has a good understanding of the definition, better-enabling computers and people to work together. Many papers discussed the implementation of the semantic web in various fields[7][8]. Web semantics with the application of using web services, namely web technology. It enables an application to connect with other applications through the HTTP protocol with the message format JSON or XML.

REST (REpresentational State Transfer) is a web-based communication architecture that is often applied in service development Web-based. Generally, use HTTP (Hypertext Transfer Protocol) is a protocol for data communication.

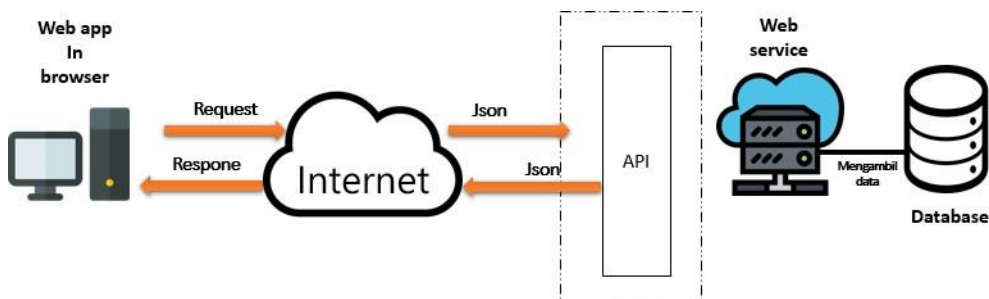


Fig. 1: Web semantic architecture for searching Beta fish using semantic concept.

Web application sends a *request* in the form of a menu available on the *REST* API via the internet in the form of JSON data sent to the destination API, and the *database* sends the requested menu to *web services* that are directly sent via the API. The API responds to the requested menu in JSON data and sends a request.

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In this semantic web system, a client sends a data or request via HTTP Request, and then the server responds via HTTP Response. Components of the HTTP request: Verb, HTTP method used for example GET, POST, DELETE, PUT, etc. Uniform Resource Identifier (URI) to identify the location of resources on the server. We utilize the Request Header that contains metadata for HTTP Request. For example, the client/browser type, the formats supported by the client, the body's format, the message cache settings, etc. Request Body, the content of data.

3. Proposed System

In this paper, we apply the UML as a flow processing the application of semantic web in betta fish sales consisting [15]. We present the use case, activity, diagrams, and class diagrams of this system. Use case diagrams for the system to be built can be seen in Fig. 2.

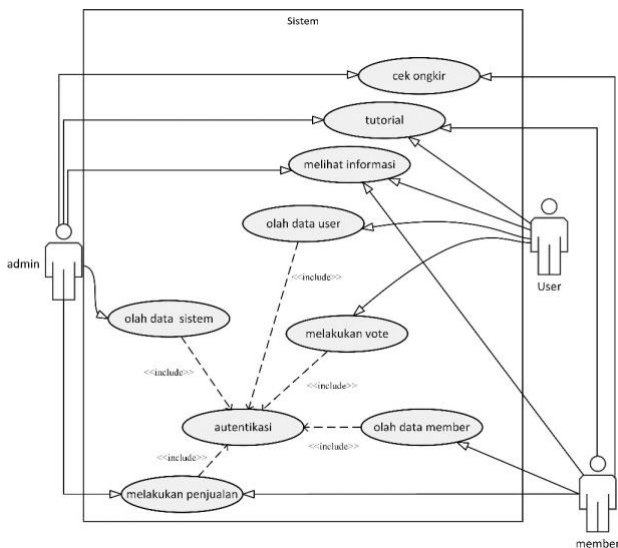


Fig. 2 Use Case Diagram The

Use case diagram in Fig. 2 shows the system's behavior with the actor who is the main character built. The system to be built has three actors: admin, member, and user. The admin actor can first view information, process system data, and make sales after logging in first. Actor members can view information and sales after logging in first. The user actor can see the information provided. Fig. 3 explains how activities process when checking

shipping costs.

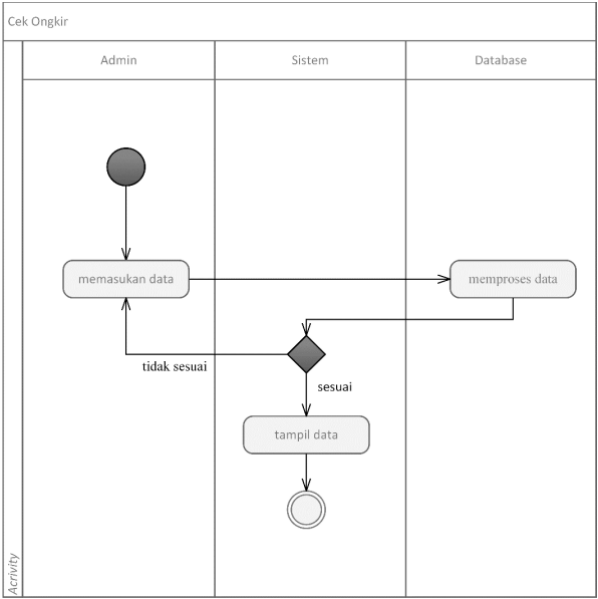


Fig. 3 Activity diagram for check shipping cost

Sequence check diagram for shipping cost. Explains the actor admin, member, and user have the same flow. Can be seen in Fig. 4.

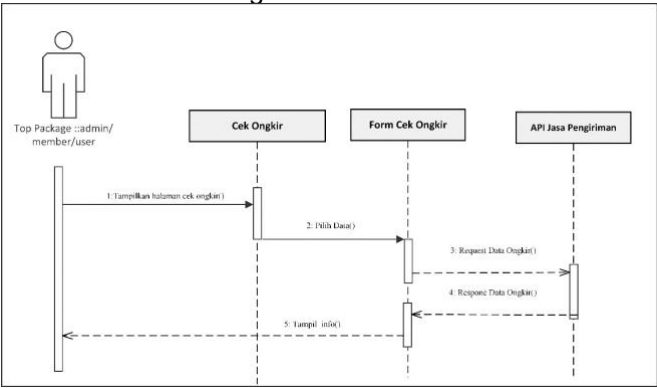


Fig. 4 Sequence diagram check shipping costs.

4. Result

Implementation of the program is the final stage that is ready to be applied to the actual situation. Based on the analysis, it is expected that the system has been built according to the community's **needs**.

- a. Page Home
Page home describes the homepage's look; the user can select a menu that has been prepared. Can be seen in Fig. 5.



Fig. 5 Homepage

b. Page Check Shipping Cost

This shipping check shipping page includes the destination city, home city, shipping service, estimation, and weight. Can be seen in Fig. 6.

Fig. 6 Delivery Check Page

c. Fish Details

The detail page for ordering is done by clicking on the Order Now button, as shown in Fig. 7.

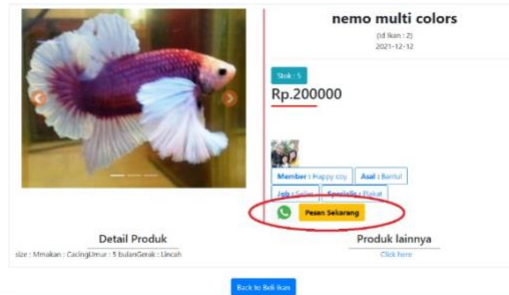


Fig. 7 Fish Details

d. Check Costs

Next directed go to the postage check page then the user enters the destination city and courier, then click the check postage button. The requested data in the form of JSON can be seen in Fig. 8.

KOTA ASAL

Provinsi
5

Kota
135

KOTA TUJUAN

Provinsi
Provinsi -

Kota
Pilih Kota -

Kurir [Untuk Daerah Bantul (NE)] [Untuk Daerah Jogja POS] [Untuk Daerah Gunung Kidul (TKI)]
Pilih Kurir -

Berat (Kg)
5

CEK ONGKIR

Fig. 8 Check Shipping and Ordering

e. Page Results Check Shipping Costs and WhatsApp Booking

Finally, click the Buy Now button, and the user will be directed to the WhatsApp web to continue ordering. The data sent is the result that the user inputted in Fig. 9.

Send the following to +62 877-1991-9014 on WhatsApp

SEND

Id Ikan : 2 Nama Ikan : nemo multi colors Lokasi Tujuan : DKI Jakarta .Jakarta Selatan Layanan : Paket Kilat Khusus Tarif Ongkir : Rp.15000 . .Total : Rp.215000 Estimasi : 1-2 HARI /day Id Ikan : 2 Nama Ikan : nemo multi colors Lokasi Tujuan : DKI Jakarta .Jakarta Selatan Layanan : Express Next Day Barang Tarif Ongkir : Rp.30000 . .Total : Rp.230000 Estimasi : 1 HARI /day

Fig. 9 Check Results On WhatsApp

6. Conclusion

In this paper, we design a semantic system by taking data from the Shipping Services API and the Community Data using UML. We implement web semantics using the REST architecture in which the REST client was requesting JSON data to obtain data on the postage check form. The data will show the items based on estimation and postage prices requested and displayed with web semantics concepts in the fish searching process. Based on the system implementation, the semantic web can help increase fish sales and predict what fish will be trending in the future. In this system, the user can select the fish he likes and displays the number of fish based on user preferences. This study can motivate other semantic research to upgrade our semantic model to increase fish selling via online media.

References

- [1] O. Nait Hamoud, T. Kenaza, and Y. Challal, "Security in device-to-device communications: a survey," in *IET Networks*, 2018; 7(1);14-22.
- [2] Adi Nugroho. 2010. Object-Based Software Engineering with the Method USDP. Andi. Yogyakarta
- [3] Atmadjaja, Joty., And Maloedyn Sitanggang.2010 COMPLETE GUIDELINES FOR DECLARATION & CUPANG CARE: AgroMedia.
- [4] Berners-Lee, T., Hendler, J., and Lassila, O. (2001). The Semantic Web. USA: Scientific American.
- [5] Betha Sidik, 2012, Using CodeIgniter 2.x Framework to Facilitate
- [6] Development of WEB Application Programming with PHP 5, Informatics Bandung, Bandung.
- [7] Dhanar Intan Surya Saputra, Dkk. 2017. [thesis] UTILIZING CLOUD SPEECH API FOR DEVELOPMENT OF ENGLISH LEARNING MEDIA USING SPEECH RECOGNITION TECHNOLOGY. Purwokerto: Amikom Purwokerto.
- [8] Fadillah, Nava'atul. 2010. APPLICATION OF WEB SEMANTIC TECHNOLOGY IN LIBRARY COLLECTION SEARCH APPLICATION (CASE STUDY: FTI LIBRARY UPN "VETERAN" YOGYAKARTA) (Thesis) Yogyakarta: UPN "Veteran" Yogyakarta
- [9] Hidayatullah. Priyanto, Kawistara. Jauhari K., "Web Programming", Bandung: Informatics, 2014
- [10] Indah, Putra.2010.RAGAM TYPES OF POPULAR Freshwater Decorative Fish: Putra Ayu.
- [11] Kleppmann, Martin and Alastair R. Beresford. 2017. A Conflict-Free Replicated JSON Datatype. University of Cambridge Computer Laboratory, Cambridge.
- [12] M. Awaludin, "Context-Based Navigation and Search Systems on Elearning Content Using Semantic Web Technology" [thesis]. Surabaya: Informatics Engineering Department - Faculty of Information Technology-Surabaya Institute of Technology, 2010.
- [13] Pratama, I Putu Agus Eka. 2014. Computer Network Handbook. Bandung: Bandung Informatics.
- [14] Scribner, Kenn and Seely Scott. 2009. Effective REST Services via .NET: For .NET Framework 3.5 (1st Edition). Addison-Wesley Professional.
- [15] Widodo, Prabowo.P, et al, 2011, Object Oriented System Modeling with UML, Graha Science, Yogyakarta.
- [16] Yusuf, SE (2010). Popular Types of Freshwater Fish Jakarta: Putra Danayu Publisher Publisher.