

# Marketing Information System of VCO (Virgin Coconut Oil) Using Operational Database

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**Abstract.** The virgin coconut oil (VCO) marketing information system uses an operational database with JavaScript Object Notation (JSON) as its database and its function in providing information. Improvement in making the design of VCO products on trade in the information system to enlarge the marketing of VCO trade. Utilization of information technology in open competition through mastery of skills, especially information technology, the internet in the form of a marketing information system based on operational databases. The research data uses the JSON object type marked with curly brackets ({} ) and arrays as square brackets ([]) , in this research object uses 3 objects consisting of 10 fields, namely: Product Name in string data, Price for string data type, product image type string model, object name string data type, category string data type, location string data type, address string data type, contact name string data type and availability of string data type in building a VCO marketing pricing information system that allows admin user can change data create, insert, update or delete data in operational database.

## 1. Introduction

Agribusiness is a movement to manage biological natural wealth by using innovation, capital, labor and implementing staff to produce agrarian products which include food crops, cultivation, plantations or domesticated animals in an agrobiological system. One of the fixed assets that has great potential is farming [1][2]. Association of Farmers, hereinafter referred to as Association of Farmers, is a Association of Breeders/Gardeners/Farmers organized based on similarities in shared conditions, finances, assets, products and equipment, as well as kinship to promote and foster individual organizations. In general, women try to make a living because of the family's economic expectations caused by the farmer's salary which is insufficient to solve family problems.

The Women Farmers Group is a business activity and discussion that provides a valuable open door for women to participate in advancing the field of horticulture [3][4]. Farmers' meetings are associations of spouses or women breeders whose activities in the field of horticulture depend on kinship, concord and the common interest of mutual use of agricultural resources to increase rural efficiency and government support from their members. Women Farmers Groups are gatherings of women farmers who help with rural service activities, fisheries and forest rangers to increase family salaries and government assistance. The Women Farmers Group is used as an instrument for the smooth running of training in the preparation of breeders to work on several cultivation assets. One form of activity that can be carried out by women farmers is by joining farmer women's associations [5].

Coconut oil that is processed from the flesh of new coconuts can now be called virgin coconut oil (VCO). VCO is a product that is processed from coconut meat as a thick brown liquid with a distinctive coconut odor. VCO contains high short and medium chain unsaturated fats [6]. The benefits of VCO include increasing the protection of the human body from infection and accelerating the healing system [7]. The use of VCO in the handling of different goods can be arranged into three groups, especially food, medicine and restorative materials [8]. The technique of making VCO oil products can be done by conventional, ripening, and then enzymatic. One strategy that can be made as a simple choice for making VCO is through the ripening cycle. This strategy is made by adding tape yeast as a starter. Improvement of enzymatic techniques can be fully completed with a view to extending the yield of oil removed from coconut milk. In practice, the enzymatic technique can be

accomplished by adding a catalyst which is equipped to separate proteins [9]. The properties of the oil produced from conventional handling are generally below the quality standards desired by the market. The gathering of female farmers who make coconut oil, until now advertising and promotion activities are still around the cities where the Women Farmers Group is located. So to increase promotion, development training and formation of Women Farmer Groups are assisted through tutoring, web composition preparation and training as well as updating VCO production data through these offices. The results of this activity are exposure data frameworks, media data and progress on minimum VCO costs so that they can expand sales areas, increase marketing projections which in turn increase government support for the lifestyle of coconut oil producing groups and their surroundings. local area. Capacity building for planning and fabrication as well as refreshing VCO generating data through a data framework to expand VCO advertising. Utilization of data innovation in world competition through information domination, especially data and web innovation as a web-based business site.

In this study, the use of operational databases in the VCO marketing information system. An operational database or popularly known as an OLTP (On Line Exchange Handling) database is useful for monitoring dynamic information directly or continuously. This type allows the client to execute, view, and modify information. These changes can be through the development, addition, deletion of information directly through the equipment used [10]. Several programming languages used in operational databases include JavaScript Object Notation (JSON) and Extensible Markup Language (XML) [11]. JSON is a form of data that utilizes text to transfer information. Typically, the use of JSON is used to exchange information as if it were delivered quickly via a web browser or web server. Synchronization of information should be continuously possible. JSON design uses the JavaScript programming language. The JSON language design is unique in data format creation. The JSON file format generally uses the ".json" extension [12]. The operational database contains tables that contain information to be stored as lines and sections. JSON is a trading of information obtained from text-based ECMAScript (JavaScript) object literals that can be interpreted by compiling and perusing by a computer [13][14]. JSON has two main structures, specifically objects and arrays. The article structure in the form of an image { } can be equipped with empty information, numbers, objects, strings, true and false. Meanwhile, striated structures with images [] are used to obtain successive information in the display in the form of values [15]. Operational databases use organized tables that cannot store large pieces of information, such as images (bulk configuration) or complex numbers, such as calculation sheets consisting of lines and sections using SQL. Even if it uses data objects as JSON with JSON data, such as images (design strings in the document structure), numbers use strings as design data. Parsing information changes the JSON record type to another structure, for example as a table and each table uses one JSON document.

## **2. Methods**

In this study, several research steps were divided including Research Design, Research Methods, Forms of Operational Database Design.

### **2.1. Research design**

Figure 1 is a block diagram of the VCO oil marketing information system which consists of the product master, product marketing and product costs using a shared hosting server.

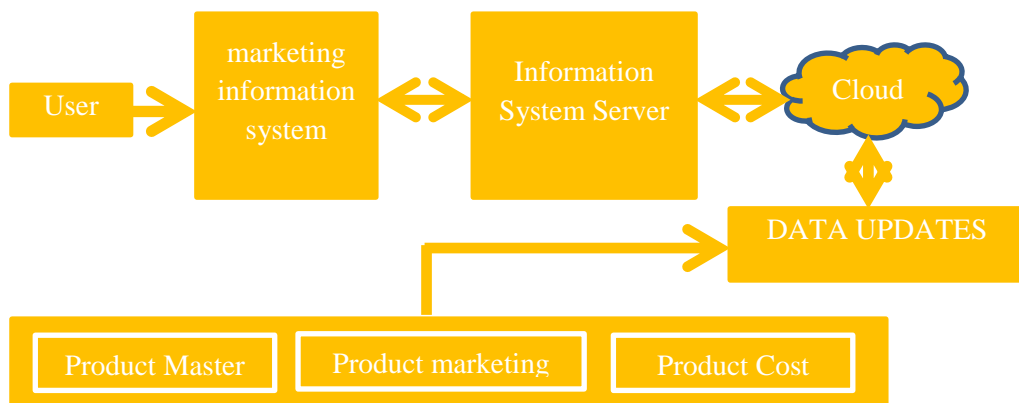


Figure 1. VCO Marketing Information System Diagram

## 2.2. Research methods

The method applied in research using the Personal Extreme Programming (PXP) method is as follows:

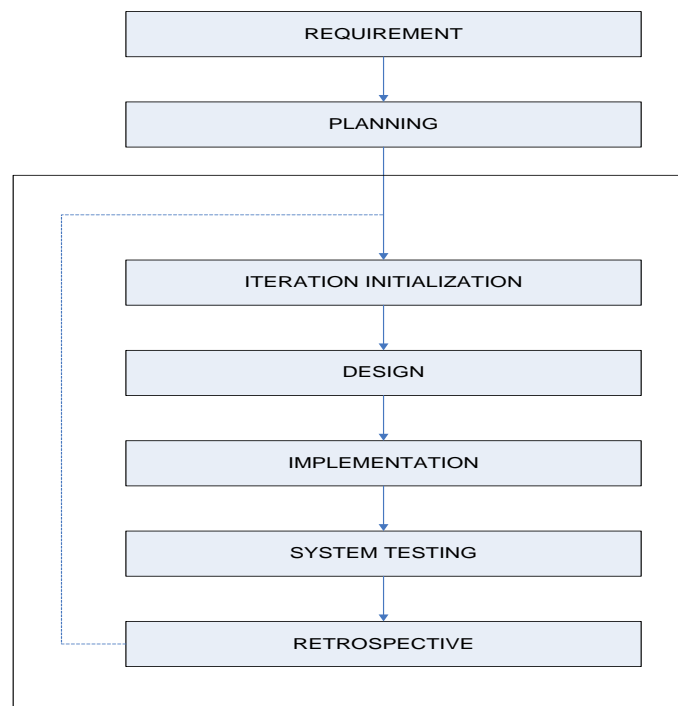


Figure 2. Research Methods

### *a. requirements,*

In this level, determine the users of the system with the design of the basic framework of the system.

### *b. Planning,*

In this level, will decide the general use that will be made in the framework of the system.

### *c. Iteration Initialization,*

In this stage, the general usability that has been designed is implemented in detail, by using use case diagrams and sequence diagrams.

### *d. design,*

Then in this form, the Framework starts to be planned starting from the data set plan and UI plan.

*e. Implementation,*

Furthermore, at this stage, using a programming script on the system. The script that has been made is done by testing, to check if an error occurs, it will be repaired again.

*f. System Testing,*

At this level, in general, an overall inspection of the entire system is carried out.

*g. Retrospective,*

At the last stage, a summary will be carried out, if an error is found, a correction will be made starting at the iteration initialization level.

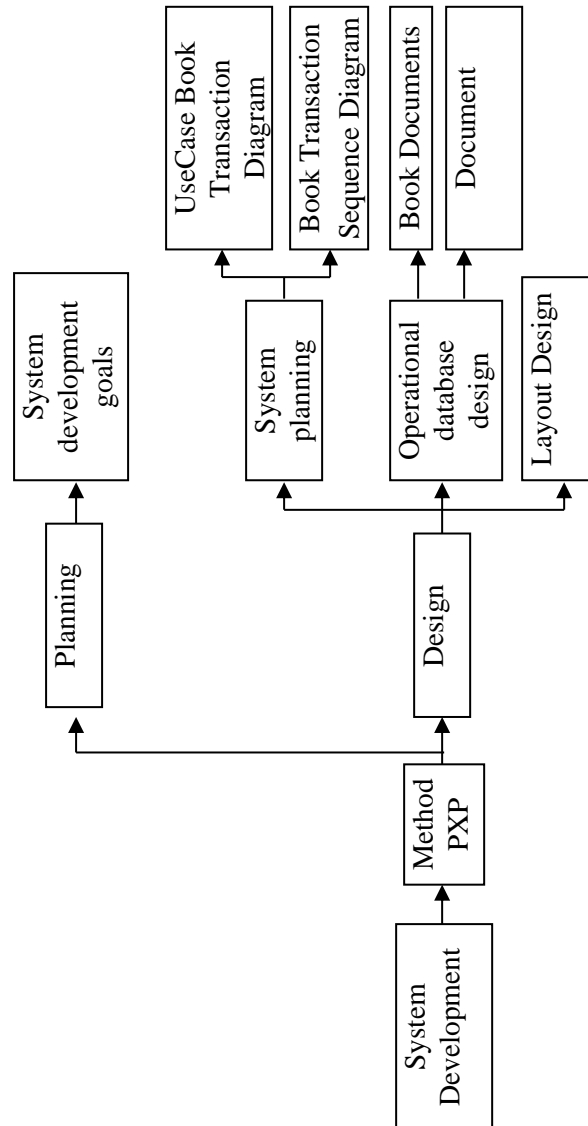


Figure 3. Research Flowchart

### 2.3. Operational Database Design Form

There are 2 types of operational database designs, namely: XML (Extensible Markup Language) and JSON (JavaScript Object Notation). An analogy is using JSON and XML for RDBMS (Relational Database Management System) databases.

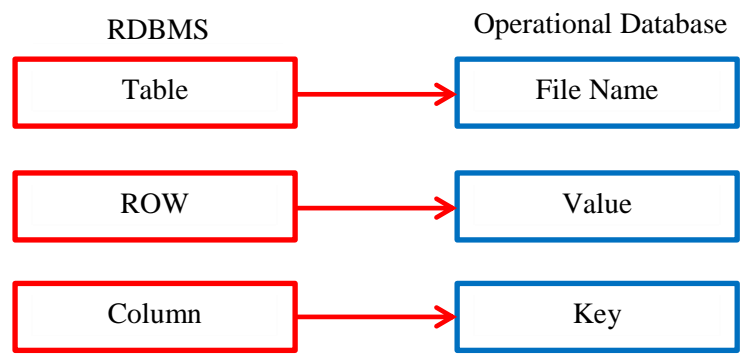


Figure 4. Analogy of the use of RDBMS with operational databases

In Figure 5, an example of implementing a database in the form of an operational database consisting of a file name, key (as an object) and value (as an array)

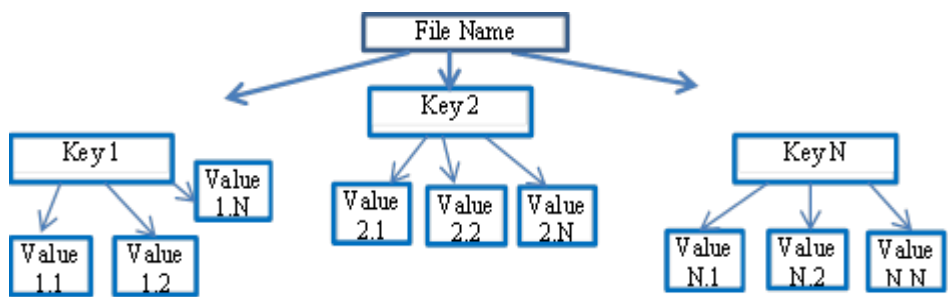


Figure 5. Example of Operational Database Implementation

### 3. Results and discussion

#### 3.1. Operational Database

In the previous experiment, we distinguished using XML against JSON and it was found that JSON is more efficient in parsing the application if it is differentiated from XML, so that the form of a json file can be used as another form of an XML file. Operational databases can use JSON and XML as databases that serve as a place to monitor active information continuously. So it is very possible for users to follow up with data changes. Data changes are defined as continuous data changes in the form of insert, update and delete data.

The system to be built has actors who interact directly with the system. Actor users can view product price types, images, sizes and packaging, purchases and product details. Figure 6 shows a user use case diagram.

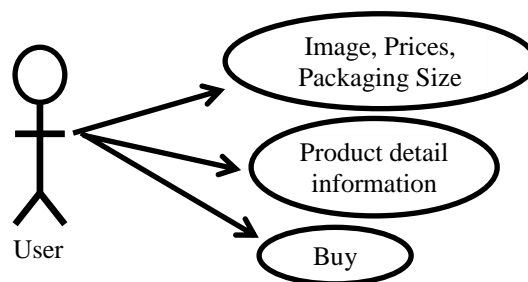


Figure 6. User Use Case Diagram

The Sequence Diagram on the actor user interacts by looking at the price display according to the various VCO prices and the detailed information needed about detailed VCO information and purchasing information from VCO. Figure 7 shows a sequence diagram for the user.

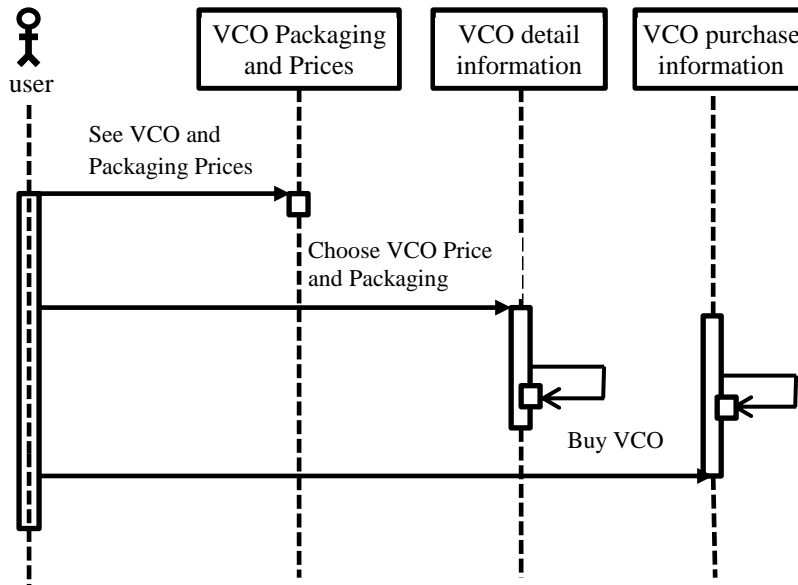


Figure 7. User Sequence Diagram

Data uses JSON arrays. An array consists of several objects. In this study using 3 examples of object data. Each data object has 10 fields. JSON as information data about the VCO which is analogous to using a table as a database:

```

{"data":
  [
    {"product_name":"VCO 150 ml","price":"Rp.17.500,-",
    "product_image":"kemasan_1.jpg","object_name":"Virgin Coconut Oil (VCO)",
    "category":"Trading","location":"Kecamatan Seputih Raman- Kabupaten Lampung Tengah",
    "address":"Kampung Rejo Asri-Kecamatan Seputih Raman","contact name ":" Nanik S.Iلمي",
    "availability":" Available","id":0
    },
    {"product_name":"VCO 1 Liter","price":"Rp.105.000,-",
    "product_image":"kemasan_2.jpg","object_name":"Virgin Coconut Oil (VCO)",
    "category":" Trading","location":"Kecamatan Seputih Raman- Kabupaten Lampung Tengah",
    "address":"Kampung Rejo Asri-Kecamatan Seputih Raman","contact name ":" Nanik S.Iلمي",
    "availability":" Available","id":1
    },
    {"product_name":"VCO 2 Liter","price":"Rp.205.000,-",
    "product_image":"kemasan_3.jpg","object_name":"Virgin Coconut Oil (VCO)",
    "category":" Trading","location":"Kecamatan Seputih Raman- Kabupaten Lampung Tengah",
    "address":"Kampung Rejo Asri-Kecamatan Seputih Raman","contact name ":" Nanik S.Iلمي",
    "availability":" Available","id":1
    }
  ]
}
  
```

Figure 8. Example of JSON Data

Adding and deleting operational databases using JSON allows users to follow up with continuous data changes in the form of inserts, updates and deletes of data.

In Figure 9 and Figure 10 it is shown that users use VCO marketing as an information system using an operational database with data in the form of prices, packaging and detailed information on sales and purchases of VCO as follows:

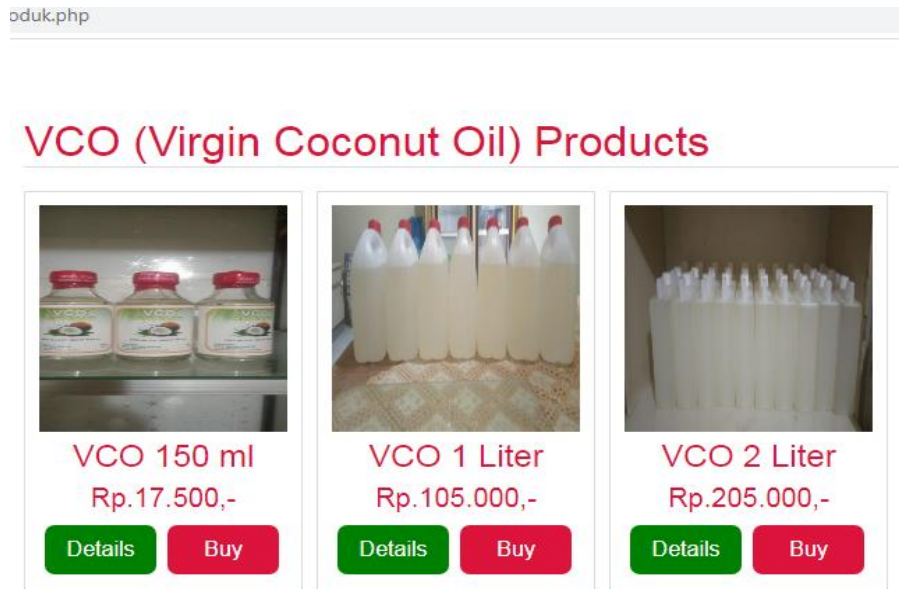


Figure 9. Display of VCO Marketing to Users

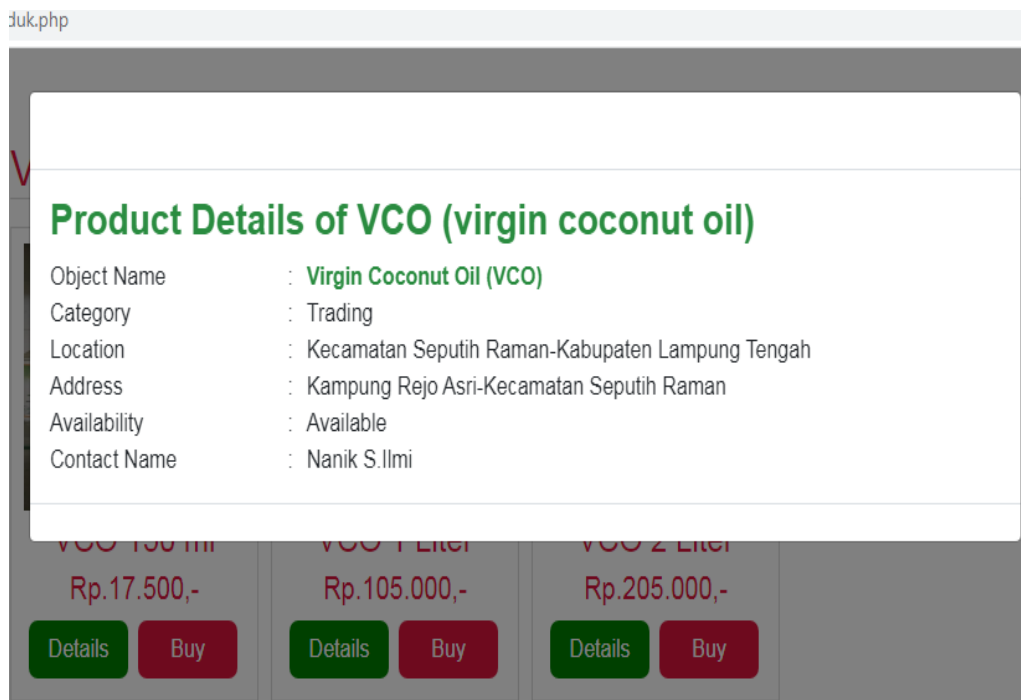


Figure 10. Display of VCO Marketing Details to Users

#### 4. Conclusions

Reasoning the peel of the experiment obtained the following results. KWT is one of the places to develop the ability of female farmers to develop creations from agricultural products, especially to produce Virgin Coconut Oil (VCO) products. The VCO marketing information system uses an operational database with JSON as its database and its function in providing information. Improvements in making designs of VCO products on trading in the information system to enlarge VCO trading. Utilization of information technology in open competition through mastery of skills, especially information technology, the internet in the form of a marketing information system based on operational databases. The research data uses JSON above with the object type marked with curly brackets ({} ) and arrays as square brackets ([ ]), this research object uses 3 objects consisting of 10 fields, namely: Product Name in string data, Price for string data type, product image type string model, object name string data type, category string data type, location string data type, address string data type, contact name string data type and availability of string data type in building a VCO marketing pricing information system that allows admin user can change the data create, insert, update or delete data to do so via a hardware device used.

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