Implementation of Web Service in Processing of Data Base Financing Costumer Using Fragmentation Method

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Abstract. This research is to design the Implementation system of Web service of consumer financing data processing based on fragmentation in motor vehicle loan financing in accordance with the pattern of data processing and information needs at that location, then implement the design to know and measure the level of efficiency (ease), effectiveness (speed), accurate (data accuracy), and security (data security) and the process of disseminating data and information from the design offered. Implementation of consumer financing data processing is a database fragmentation system, wherein one network scale using more than one DBMS, DBMS used is MySQL and PostgreSQL. PostgreSQL is used for web-based applications developed with PHP programming language using AJAX Technology, and MySQL developed using Notepad ++ Application. Data connection process using Web Service. Based on the result of the research, it can be concluded that Webservice Implementation for fragmentation based consumer financing data processing facilitates the updating of consumer financing data in terms of ease, speed, accuracy, and data security.

Keywords: Fragmentation, Web Service, Financing, Consumer

1. Introduction

Information systems have been proven to increase economic benefits because they can automate and compute. The use of computer-based systems can improve company performance [9]. In this research will distribute the data through a web service from a variety of different applications i.e. consisting of two different applications and different types of database tools, using two different IE database PostgreSQL and MySQL. The use of fragmentation method to classify the same type of data from different databases using a web service for data services from their respective databases, data in a table in the database are separated into the different the fragment and every fragment is stored a number of different nodes [3].

Development of database system this is for the unification of the operational data and data access are controlled. Integration of data and control data has been implemented in the form of centralized data. Data used jointly and efficiency in data access should be accompanied by the development of a database system called base distributed, accessible anywhere and do a data storage in the different locations [6].

Web services that bridge the communication between different applications, so that different applications although being in one or different network can communicate using the standard protocol used by the web service. XML (Extensible Markup Language) is a language used to describe and manipulate documents are structured. XML is technically defined as a meta-markup language that provides a format for certain documents which have structured data.

Previous research already exists that raised about the distributed database as well as fragmentation. But it has yet to combine with the web service. Research on fragmentation and data replication to distribute data [5], using MySql as the database. Distribute data by replicating databases using Asynchronous Distributed Database Technology in a single DBMS, cannot be used on other companies that still use different applications and different databases. Other researchers have examined some of his discoveries to distribute data by measuring efficiency and performance of DDMS in the fragmentation for the allocation of data grouping technique (based on Clustering Technique) namely Clustering Decision Value (CDV) to reduce the problem of redundancies of data on data redistribution [1].

The researchers had previously used some kinds of methods in a distributed database, they distribute the database using a database. In this study, researchers combined two databases and using horizontal fragmentation methods for grouped data in a web service.

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Horizontal fragmentation reduces the density of the network and improves response time so that it can provide accurate information timely and relevant to all components of an integrated database on different at each branch office motor vehicle credit financing.

There are some components that are used by researchers in the utilization of the web service consumer, the use of data processing components to create an application that can help the consumer data processing on the web portal. The component that is used to process web service and the fragmentation of them: XML, SOAP, WSDL, UDDI [7].

This study implements the web service on processing the database by using the method of horizontal fragmentation of data processing system for web-based consumer finance. Consumer finance data processing using the web-based method of fragmentation is providing convenience in getting information consumer finance in 2 (two) different Office locations as well as increasing factors of availability (availability) and reliability (reliability) of database systems.

2. Research Methods

2.1. Web Service Architecture

Consumer and service provider systems financing consists of two branches, namely FIF and FIF GBC Spectra in Gorontalo which can integrate consumer service and financing system as seen in Figure 1. Consumer services and financing available on the two web services that are built will be utilized by the user that will be applied based on the website.



Fig. 1. Web Service Architecture Implementation FIF

2.2. The Design Of The System

Consumer finance system flowchart referred to in Figure 2.



Fig. 2. Flowchart design system

2.3. Data Fragmentation

Fragmentation consists of the breakdown of their relationship into a smaller relation or Fragments and saves the Fragment (other than the relationship itself), possibly on a different site. In Horizontal Fragmentation, each Fragment consists of a subset of the original relation line. In Vertical Fragments, each fragment consists of a subset of the columns of the original relation.

On horizontal fragmentation, a table of r is partitioned into a number of fragments of r_1, r_2, \dots, r_n which is parsing database. Each database in the table should be minimal in r a fragment, such that the table initially can be recreated, if necessary [6]. A fragment can be di defined as a fragment r_i as follows :

$$r_i = \sigma_{pi}(r) \tag{1}$$

The application in the operation of the union of a number of fragments, then that is done is to table r, reconstruction with expression :

$$r = r_1 \cup r_2 \cup r_3 \cup r_4 \cup \dots \cup r_n \tag{2}$$

3. Results and Discussion

The results of this research resulted in a software web service with the method of fragmentation for consumer data services and financing. Where this service web devices can provide the information to the administrator to locate the vehicle financing transactions of the two branches of the search results data by using a method of Fragmentation that results are visualized with using webbased information service system. The information generated is composed of the consumers of classification results where each consumer can be known doing the financing of more than one. So the administrator can know the number of vehicle motor vehicle credit financing is credited.

This software was created by using the programming language PHP, javascript, XML to parsing the data in the

form of elements of data into the form of a command program that will be processed. The process of inputting the data was derived from each branch and the data is stored in each database, the next step for the process of the search data from any database using the function of the components of the web service that consists of XML, NuSOAP, and WSDL. After that is done the fragmentation of data elements. The fragmentation results are shown in table form.

The system developed is the integration of the two branches of the Office of motor vehicle credit financing which was later merged into an integrated system using Web Services technologies and XML. Both systems integration services on the two branch offices that use technology facilities Web Services and databases. FIF Spectra using MySQL as its database, then to FIF GBC uses PostgreSQL as its database.

Horizontal fragmentation contains a tuple tuplepartitioned or divided from a global relation R into a number of subsets $r_1, r_2, ..., r_n$. Each tuple contains a number of subsets of r. Each tuple in R must have more than one fragment so that a genuine partnership can be rearranged. A fragment in horizontal fragmentation can be defined as a selection on the global relation r. therefore a predicate Pi is used to assemble the fragments ri.

Fragmentation of consumer data

The result of the fragmentation of consumer data processed from the table of the consumer database on each side. Following the results of the deliberations of the horizontal fragmentation attempted in Figure 3 and Figure 4.

Kata Kunci (No. KTR	H	Carl				
DATA KONSUN	IEN SPEKTRA					
NO.KONTRAK	NAMA KONSUMEN	NOMOR KTP	ALANAT	NANA DISTANSI	PENGHASELAN	PENGELUARAN
0706008193	REDWAN DOUMURA	7571020101590002	3L ILOMATA DESA HUTADAA K LASA-KAB.	Karyawan Swasta	3500000	1500000
0706008307	SULASTRI MOHAMAD	7571025504710001	A USMAN ISA 02/03LEKDEAL ARAT-KOTA	Karyawan Swasta	3500000	1500000
0706008422	FRHRI YURUS R. GANI	7571020408950082	DESA BLEE OO/COELEE SUMAW A-KAB. BO	Karyavan Sxasta	3500000	1500000
0706009515	JONE A. MADA	7571022811920001	DESA DUANO KEC SUMAWA TEN A-KAB. BO	Karyawan Skasta	3500000	1500000
1706009619	LALALITE	7571025705770003	DESA BONGOPINE 00/00TE ON A 4/A8. BO	Dosen	3500000	1500000
0706009880	ZAIRU, ONGE	7571020201920005	DUSUN PULAHENTI BULONTID LATA KABI	Karyawan Swasta	3500000	1500000
0706033695	NURMEN PULUKADANG	7571026312740001	DUSUN TATAO DESA ELYONGA GA LIMBOT	Dopen	3500000	1500000
0706012085	HERTIN DUNGGIO	7571026208840003	3L RAJA EYATO 02/0480LOSI ARAT-KOTA	Karyavan Skasta	3500000	1500000
0706012537	RNAMATY YUSUF	7571026009780001	DURUN TUHEYANGO KEC MOLEN DANG KAB.	Karyavan Skasta	3500000	1500000
0708002575	MASKUN MOLO	7571020212930002	DUSUN EL 00/02PANTUNGO TE ESRU-KAB.	Karyawan Honorer	3750000	2250000
0708002575	FOMEHAMZAH	7571021001740002	3. TAPRUU 00/00LUHU TELAG LAGA KAB.	Tukang Kayu	3530000	1800000
0708002578	RIFALDI HAMZAH	7571021309960001	3L HE U S CORROAMINGTO KE IMUR HIDTA	Karyavan Honorer	3750000	1850000
0708002580	HENDUN SAID	7571026410960001	A DOHAMAD YAMIN (2)/03/IM ATAN-HOTA	Karyawan Swasta	3000000	1500000
0708002583	JEANE LAKORO	7571024001950001	DESA AYULA SELATAN KEC BU A KAB. BO	Karyavan Skasta	2500000	1500000
0708002587	RAHMAN GANL	7571020110970001	3L HOS COKROAMENOTA 20/03 BOTO-KAB.	Dosen	2750000	1800000
0708002589	REFOR MOHAMAD	7571020109770003	DESA LONGALO DO/DOBULANGO A-KAB. BO	Buruh Itlarian Lepas	250000	1500000
0708002593	BEFOR MALANUA	7571022512660001	DUSUN IN DESA HOSONEGORO BOTO-KAR.	Pleiank	4250000	2750000
0708002595	HAMID LAKORO	7571020705560001	3L ANDALAS 02/02TAPA KOTA TARA-KOTA	Virasvasta	3750000	2250000
1708002596	RAMAN FALSA	7571022005560003	3L BRAINEJAYA 03/07TENDA K ATAN KOTA	Buruh Harian Lepes	3530000	1900000
0708002598	MEDIKUSNAZEKOROM	7571020209940001	PERUM TOMULABUTAO BLOK D BVGI KOTA	Kanyawan Honorer	3750000	1850000
0708002530	ENUS DUORLANS	7571020403540001	3. MOH HUSRE THAMRIN 01/1 IMUR KIDTA	Buruh Harian Lepes	2000000	1500000
1708002638	SRI NOVITA DUKALANG	7571024509980001	3L KATAMSO NO 17 01/01STE ATAN HOTA	Kanyavan Swasta	250000	1500000
0708002611	RAHMAD DUKALANG	7571021111950002	KEL OLUHUTA DI/OKABILAK A-KAB, BO	Transportasi	250000	1500000
0708002617	HALDIA S. ADAM	7571025639640001	DESA DUTCHE CE/OKABILA X A KAB, BO	Karyavan Skeste	3500000	1500000
07080025:19	BONE AMMAR	7571022110780001	3 RANEUTAN 04/02HUANGOBO INCC400TA	Buruh Harian Lepes	3530000	1800000
0708002620	ANESHULU	7571022104650001	DUSUN EE 00/00LAUWONU TE LAGA-KAB.	Sepir	3750000	1850000

Fig. 3 Service Consumer Data Page

Will do a second fragment of the table based on the column no_ktp.

Predicat no ktp = '7571022708950001'

 $r_i = \sigma_{Pi} (r)$

TK1= σ no_ktp=' 7571022708950001' (Konsumen spektra)

TK2= σ no_ktp=' 7571022708950001' (Konsumen gbc)

Data fragmentation Results relationships service consumers attempted in Figure 5 :



Fig. 4. results page fragmentation of consumer data service

The result of the fragmentation of data service costs

The result of the fragmentation of data service costs cost tables prepared from the database on each side. Following the results of the deliberations of the horizontal fragmentation attempted in Figure 5 and Figure 6.

Kata Kunci (No.	ктр]-		Carl								
DATA PEME	SIAYAAN PADA	SITE FIF-SPEKTRA									
KODE	NOXONTRAK	NEMAKONSUMEN	KTP	KODE BARANS	NAMA BARANG	TPE	HEREK	HARGA	UMUKA	3MNGKA	ANSSUR 2
070509200294	0200004514	LSMAN SUNGE	7571021212090001	M4FC126380	TONOTA	NEW DYNA HT 130	TOPOT	233900000	60000000	36	6/50000
79509200413	0706009515	JONG A. MADA	7571022011920001	H4T3W42850	TONOTA	SNOUL G M/T DE	TOPOT	235500000	62500000	43	6122000
070509200430	0706008422	FAHREYUNUS R. GANE	7571020405950002	14407889417	291.070	PANTHER TERSAS	ระบรม	00000088	20000000	36	2020000
079509200474	0706000307	SULASTRI MOHANAD	7571025504710001	MR:OA015524	TONOTA	HE-LLX 2.0 M/T	TOPOT	155500000	31570000	36	4900000
79509200500	0706000193	REDUKINI DOLIMURIA	7571020131690002	NR:0M017371	TOHOTA	HOLLIX 2.0 M/T	TOYOT	154600000	\$0000000	36	4293000
220509200517	0706009619	LALAUTTI	75710267057790003	M-FX7H5385	TONOTA	INCHA G NANJAL	TOPOT	235500000	125000000	24	6520000
70509200330	0708002878	UUPA	7209054412900004	MH12547032	SUDUC	CARRY ST 150 W/	SUZUK	106000000	25000000	36	\$150000
228809200331	0208003122	FEBRICANTO	2901012202900002	M40/205328	CADHATRU	GRANMAX 1.3M/T	013-64	128500000	18190000	36	4350000
070809200332	0708003355	MINARTI MATALI	7571036613600001	MH/E543887	SUZURI	CARRY PUFD 1.5	SUZUK	105000000	30000000	36	2995000
70009200333	0708003151	MARINAN D. HURSIDE	7571021313680001	FE11972561	MTSU834	FE 129 / TRUCK	NETSJ	257000000	1000000000	24	8130000
79909200334	0708003405	HEROKANTO HOOLA	7571031503690001	MH01200137	URTANGED	LUNDO 1.5 X M/T	01244	166900000	31428000	36	\$493000
220809200335	0708002203	LECHART TANDALI	7571062911900002	H#E201052	TONOTA	RUSH S WTI 1.5	TOPOT	113000000	35000000	12	8520000
70009200336	0708004301	TANTY MALDO	7571024702710001	N112544040	SUZURI.	CARRY ST 150 W/	SUZLK:	106000000	23690000	36	3292000
79809200337	0708003672	M, SALIN	7301031601880001	MH18543035	942342	CARRY PUPO 1.5	SLOLK	9500000	25000000	36	2903000
79809200338	0708003870	RATINO HARUN	7571021412880003	MHFM177543	TOPOTA	AVANZA G M/T	TOPOT	159500000	21800000	43	4854000
79809200339	1708033479	HERMAN RAZAK	7571022109700001	MH/6540298	SUZURI	CARRY PUFO 1.5	SLOLK	105000000	23480000	36	3172000
22000200340	0708004045	JONO LAZYA	2571020502250003	141/0542458	SUZURI	CARRY PUFD 1.5	ROLK	105000000	25000000	36	3095000
28809200341	0700002766	HERMAN LANTI	7571023006740001	1447-301873	CADHATSU	GRANMAX 1.5 M/T	DA3HA	103700000	156,20000	43	2781000
79909200342	0708002944	PERMANTO MELENGA	7571023135890001	00171140031	TOPOTA	ATTAINE KIT GO	TOPOT	00000000	25000000	36	2530000
70505200343	0708002795	NURMANUTINA	79030309019933001	NHPE219035	TOPOTA	RUSH S WTI M/T	TOPOT	209 700000	65800000	45	5025000
70009200344	0708004114	RATNO HARUN	75710214128800003	HFM159683	TONOTA	AVANZA 1.3 G	TOPOT	135000000	42500000	36	3950000
70805200345	1708003299	MUHTAR D. KAU	7571022330670001	HH/7 308353	CADHATSU	CRANMAX 1.3 M/T	DADHA	96400000	21000000	48	2372000
20809200346	0206010695	NURMIN PULUKADANG	2571026312240001	14460224607	CADHATSU	TERIKOS TX MYT	DA3-M	191700000	29755000	48	5485000
20805200147	0208033552	THAN RACARD	7903172411990001	MH0/158042	URTAHIAO	DENIALLI MC SPO	DADHA	14240000	8000000	24	36,71000
20809200349	0208024042	MCHAMADINUR M. MARU	2571021501800001	M4FM197141	TOPOTA	AVANCEA G M/T	TOPOT	159600000	45000000	43	1903000
79809200350	0708002695	SELVI C MILANI	7571036005720001	MHO 200868	C40HAT9U	DENIA	DA2-M	122500000	27500000	24	5290000
100000000000000000000000000000000000000	1200033630	FOCAMERAR MENUAMAN	2521020112890001	MANTGASSIO	Q (7) BT	CARRY ST 150 WV	9.01	56000000	0000000	16	2690000

Fig. 5. Page service data service costs

Will do a second fragment of the table based on the column no_ktp.

Predicat no_ktp = ' 7571050807870002' $r_i = \sigma_{Pi}(r)$

TK1= σ no_ktp=' 7571050807870002' (Biaya spektra) TK2= σ no_ktp='123456789' (Biaya gbc)

Data fragmentation test results relationships service financing is shown in Figure 6.

KCOE	NO.KONTRAK	NAMA KONSUMEN	KTP	KODEBARANG	NAMA BARANG	TIPE	MEREK	HARGA	UMUKA	WIGH MIGSUR
3809200486	3706003188	TOPAN GAGANA	7572050807870002	MHKY149348 D	UCHINTSU DE	ENERATE MC DATES	ι	142500000	15250000	48 4230000
TA PEMBL	AYAAN KONSUI	IEN PADA SITE FIF-GBC								
KODE	NO.KONTRAK	NAMA KOYAUMEN	KODE BARANS	NAMABARANG	79%	PEREK	HARGA	UHU	A I	IANGKA ANGSLE
009103278	0708002825	TOPAN GASANA	MH1H590742	MOTOR HONDA	REVO CW	HIDA	10000000	1700000	17	700000
809102347	0708002899	TOFAN GASANA	MH13077465	MOTOR HONDA	ABSOLUTE REVO CM	N HEA	14245000	2350000	28	651000
805103001	0708003315	TOFAN GAGANA	MH0K068958	PROTOR HONOA	MEN MEDA BRO OW	/ Jana	100000000		144	652000
			·	,	<u>periodina ca</u>				P*	
			·		<u>per locardo en</u>		1			partor
							1			partor
										partee



Conclusion

The results of research and discussion, then the web service using the methods of Fragmentation can be applied in data processing of financing. It brings some conclusion as follows :

- 1. Retrieved the implementation of web service consumer finance data processing that uses 2 (two) fruit database with emphasis on one of his horizontal fragmentation method.
- 2. Implementation of the web service consumer finance data processing which is designed can provide information about a web-based database at the same time implementing it.
- 3. Implementation of the web service consumer finance data processing provides convenience in getting information out of data processing and consumer financing.
- 4. Implementation of the web service data processing financing provides convenience in accessing the databases separate in 2 (two) different branch office location.
- 5. In the application database, further research using the method of storage of data is more complex that is by using replication. The implementation of this method can further improve the performance of the system and at the same time to compare with the results of research that the author has created.

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