

DESIGN OF SERVICE MANAGEMENT INFORMATION SYSTEM USING VISUAL STUDIO 2010 ORACLE DATABASE IN SUMUR DISTRICT, BANDUNG

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Abstract.

This research aims to evaluate the service system in Sumur Bandung District, identify existing issues, and propose effective solutions. The research employs a prototyping method, using UML (Unified Modeling Language) for system design. The software development uses Visual Studio 2010 as the programming environment and Oracle as the database. Findings from the study indicate that the current procedures in Sumur Bandung are primarily manual, highlighting a need for a computerized service information system to streamline data retrieval and processing. The authors offer the following recommendations: 1) Implement a Service Management Information System: Introducing this system would improve data accessibility and efficiency in the district's operations, 2) Adopt a Computerized System for Service Officers: This would simplify workflows, reduce processing time, and enhance service quality, 3) Streamline Reporting: A computerized system would make report generation faster, more accurate, and more efficient. These improvements aim to modernize the service system, making it more effective for both staff and residents.

Keywords: *Oracle, Prototyping, Sistem Manajemen Informasi pelayanan, UML dan Visual Studio 2010..*

Introduction

Public service is one of the district's responsibilities. In order to ensure the continuity and smooth work in public service, a computerized system is required. Sumur Bandung district has implemented a computer system, but not all work uses a computer system, some still use manual methods for their work. In this case, the author has a number of complaints from the public and workers about the quality of services, such as people who do not understand the procedures for filling out files, slow service procedures due to the accumulation of data, so that the data search process takes a long time, errors in writing data. In view of the problems encountered in the sub-district, the author was encouraged to conduct research on service information systems. In connection with the above problems, the implementation of data processing in public service in Sumur Bandung district still does not meet expectations, namely the creation of fast, precise and accurate service, or what we often call excellent service. Given the problems encountered in this sub-district, the author was encouraged to conduct research on public service information systems. consists of the following: Background of the Study, Purpose of the Study, and Literature Review.

Methodology

The process model used in the design of this service management information system is based on a prototyping process model. This prototyping method allows authors and users to interact with each other during the system creation process. A prototype is an implementation of a part of a software product that typically has limited functionality, low reliability and poor appearance.

1. Requirements gathering, Customer and developers jointly define the format of the entire software, identify all requirements and outline the system to be created.
2. Create a prototyping design, Create prototyping designs by creating temporary designs that focus on presentation to customers (e.g. by creating input and output formats).Das
3. System evaluation, This assessment is made by the customer as to whether the prototyping created meets the customer's wishes. If it is adequate, step 4 is performed. If not, the prototyping is revised by repeating steps 1, 2 and 3.
4. Coding the system, In this phase, the approved prototyping is translated into the appropriate programming language. Testing the system Performing tests on the created software.

There are two types of testing:

Table 2, Table Class Diagram

No	Nama Kelas	Deskripsi	Deskripsi
1	Login	Merupakan kelas proses yang diambil dari pendefinisian <i>usecase login</i> , sebagai proses ini untuk validasi kode simpel yang akan mengakses sistem Informasi	
2	Petugas Pelayanan	Merupakan kelas aktor yang diambil dari pendefinisian aktor, di mana aktor ini adalah pengguna yang dapat mengakses sistem informasi	
3	KK	Merupakan kelas data yang digunakan untuk meng-input-kan data data prosedur KK	
4	KTP	Merupakan kelas data yang digunakan untuk meng-input-kan data data prosedur KTP	
5	Legalisir	Merupakan kelas data yang digunakan untuk meng-input-kan data data prosedur legalisir	
6	Surat Keterangan	Merupakan kelas data yang digunakan untuk meng-input-kan data data prosedur Surat Keterangan	
7	Surat Penduduk Baru	Merupakan kelas data yang digunakan untuk meng-input-kan data data prosedur Surat Penduduk Baru	
8	Surat Keterangan Kelakuan Baik	Merupakan kelas data yang digunakan untuk meng-input-kan data data prosedur surat Keterangan Kelakuan Baik	
9	Surat Pernyataan	Merupakan kelas data yang digunakan untuk meng-input-kan data data prosedur Surat Pernyataan	
10	Surat Keterangan Miskin	Merupakan kelas data yang digunakan untuk meng-input-kan data data prosedur Surat Keterangan Miskin	
11	Laporan Register Pelayanan	Merupakan kelas data yang digunakan untuk menampilkan data dari table setiap data yang dipanggil	

c. Activity diagram.

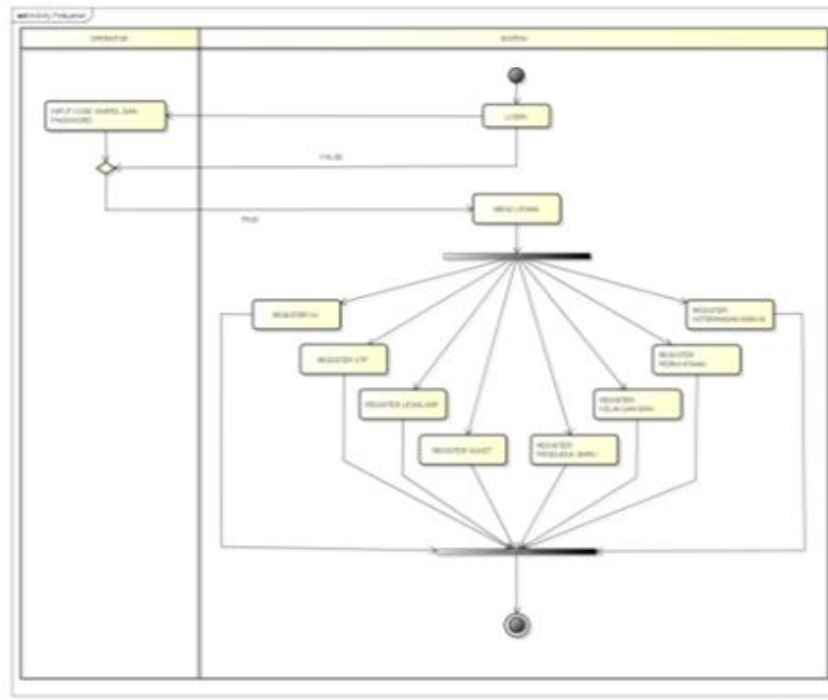


Figure 3, Activity diagram for the design of a service management information system

Table 3, Table Activity diagram for the design of a service management information system

No	Aktifitas	Deskripsi
1	<i>Login</i>	Aktifitas yang dilakukan Petugas Pelayanan ketika pertama kali masuk ke Sistem Informasi
2	<i>Input Password</i>	Petugas Pelayanan memasukkan <i>password</i> untuk validasi agar masuk ke dalam sistem
3	<i>Form Menu Utama</i>	Sistem menampilkan menu utama kepada Petugas Pelayanan untuk melakukan pengolahan data yang tersedia di menu tersebut
4	Pilih <i>form</i> register KK	Petugas Pelayanan memilih <i>form</i> register KK
6	Pilih <i>form</i> register KTP	Petugas Pelayanan memilih <i>form</i> register KTP
8	Pilih <i>form</i> register legalisir	Petugas Pelayanan memilih <i>form</i> register legalisir
10	Pilih <i>form</i> register surat keterangan	Petugas Pelayanan memilih <i>form</i> register surat keterangan
12	Pilih <i>form</i> register surat penduduk baru	Petugas Pelayanan memilih <i>form</i> register surat penduduk baru
14	Pilih <i>form</i> register surat pernyataan	Petugas Pelayanan memilih <i>form</i> register surat pernyataan
16	Pilih <i>form</i> register surat kelakuan baik	Petugas Pelayanan memilih <i>form</i> register surat kelakuan baik
18	Pilih <i>form</i> register surat keterangan miskin	Petugas Pelayanan memilih <i>form</i> register surat keterangan miskin

d. Statechar diagram.

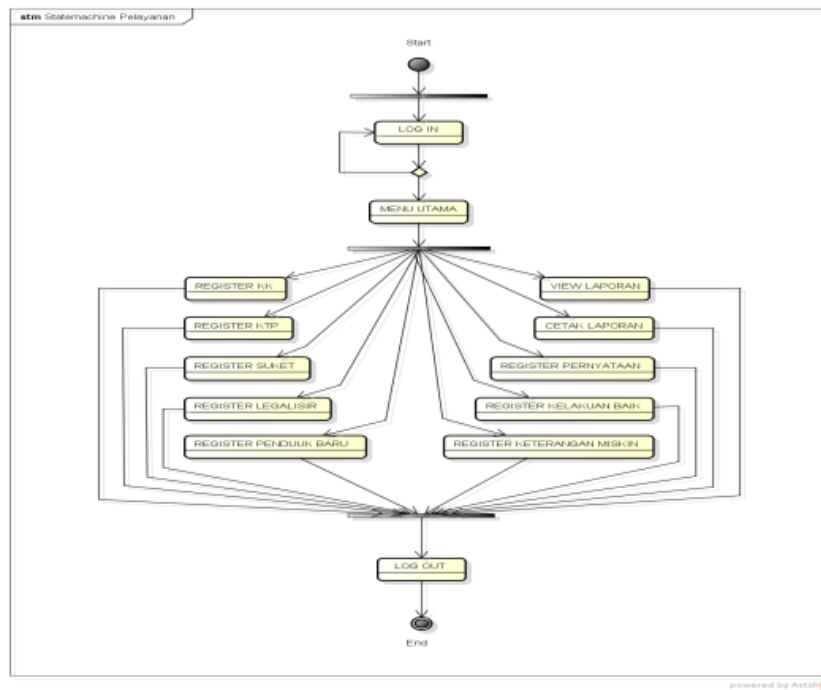


Figure 4, Statechart Diagram Perancangan Sistem Informasi Manajemen Pelayanan

Table 4, Description Statechart Diagram

No	State	Deskripsi
1	Login	Pada status ini menunggu dan menerima masukan kode simple dan <i>password</i> dari petugas atau kasi pelayanan kemudian melakukan validasi <i>login</i>
2	Menu Utama	Status ini menampilkan menu utama pada Sistem Informasi Manajemen Pelayanan
3	Register KK	Pada status ini menunggu masukan data register dan memproses data baru dan data lama, simpan, ubah, hapus kemudian menampilkan pesan
4	Register KTP	Pada status ini menunggu masukan data register dan memproses data baru dan data lama, simpan, ubah, hapus kemudian menampilkan pesan
5	Register Surat Keterangan	Pada status ini menunggu masukan data register dan memproses data baru dan data lama, simpan, ubah, hapus kemudian menampilkan pesan
6	Register Legalisir	Pada status ini menunggu masukan data register dan memproses data baru dan data lama, simpan, ubah, hapus kemudian menampilkan pesan
7	Register Surat Penduduk Baru	Pada status ini menunggu masukan data register dan memproses data baru dan data lama, simpan, ubah, hapus kemudian menampilkan pesan
8	Register Surat Kelakuan Baik	Pada status ini menunggu masukan data register dan memproses data baru dan data lama, simpan, ubah, hapus kemudian menampilkan pesan
9	Register Surat Pernyataan	Pada status ini menunggu masukan data register dan memproses data baru dan data lama, simpan, ubah, hapus kemudian menampilkan pesan
10	Register Surat Keterangan Miskin	Pada status ini menunggu masukan data register dan memproses data baru dan data lama, simpan, ubah, hapus kemudian menampilkan pesan
11	View Laporan	Pada status ini dari semua <i>form</i> laporan ditampilkan menggunakan filter data
12	Cetak Laporan	Pada status ini semua <i>form</i> laporan di- <i>print</i> /dicetak berbentuk <i>pdf</i> , <i>word</i> , <i>exel</i> untuk di serahkan kepada Camat

2. Database design

a. Database

The database design is used to display data stored in tables on storage media. In the Family Card (KK) and Identity Card (KTP) Information System, there are several tables used as proposed storage media based on the order of the application program:

1. Registration Table

- Table Name: registrasi_simpel
- Function: Stores officer data
- File Type: Master menu
- Primary Key: kode_simpel

Table 5, registrasi_simpel structure table

Nama Field	Type Data	Ukuran	Keterangan
kode_simpel	<i>Int</i>	100	<i>Primary Key</i>
nama_lengkap	<i>varchar2</i>	100	<i>Foreigen Key</i>
jenis_kelamin	<i>varchar2</i>	100	
agama	<i>varchar2</i>	100	
Jabatan	<i>varchar2</i>	100	
Pangkat	<i>varchar2</i>	100	
unit_kerja	<i>varchar2</i>	100	
Password	<i>varchar2</i>		
Konfirmasi_password	<i>varchar2</i>		
Nip	<i>varchar2</i>		<i>Foreigent Key</i>

2. Kartu Keluarga (KK) Table

- Table name: kk
- Function: save, edit, add, delete
- Type File: Register
- Primary Key: nomor_induk_kependudukan

Table 6, table Kartu Keluarga (KK)

Nama Field	Type Data	Ukuran	Keterangan
nomor_induk_kependudukan	<i>Int</i>	100	<i>Primary Key</i>
nama_kepala_keluarga	<i>varchar2</i>	100	<i>Foreigent Key</i>
tempat_lahir	<i>varchar2</i>	100	
tanggal_lahir	<i>date</i>		
laki_laki	<i>varchar2</i>	100	
Perempuan	<i>varchar2</i>	100	
jumlah_keluarga	<i>varchar2</i>	100	
Pekerjaan	<i>varchar2</i>	100	
Alamat	<i>varchar2</i>	100	
Rt	<i>varchar2</i>	100	
Rw	<i>varchar2</i>	100	
Kelurahan	<i>varchar2</i>	100	
tanggal_entri	<i>date</i>		

3. Tabel Kartu Tanda Penduduk (KTP)

- Table name: ktp
- Function: save, edit, add, delete dan print

- *Type File*: Register
- *Primary Key* : nomor_induk_kependudukan

Table 7,Kartu tanda kependudukan table

Nama Field	Type Data	Ukuran	Keterangan
nomor_induk_kependudukan	Int	100	Primary Key
nomor_kepala_keluarga	varchar2	100	Foreigen Key
nama_lengkap	varchar2	100	Foreigen Key
tempat_lahir	varchar2	100	
tanggal_lahir	date		
jenis_kelamin	varchar2	100	
Kelurahan	varchar2	100	
golongan_darah	varchar2	100	
Agama	varchar2	100	
status_perkawinan	varchar2	100	
Pendidikan	varchar2	100	
Pekerjaan	varchar2	100	
Alamat	varchar2	100	
Rt	varchar2	100	
Rw	varchar2	100	
tanggal_entri	date		

b. Relationship Schema

A relationship schema is a relationship description that shows the existence of a relationship between a set of entities that come from different entity sets and have the same primary key, so that the files become a single entity linked by the key field.

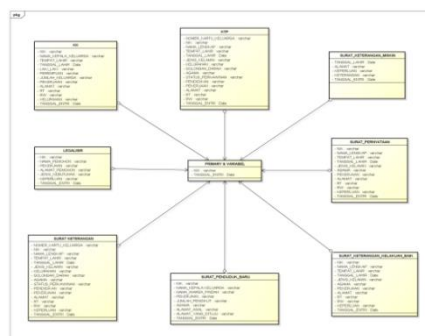


Figure 9, relationship schema

c. Input Design

The input design is a detailed representation of the data entry that is done in the information system being built. The following are the input data that are generated during data processing in the system.

a. Input Name: Register (KK)

- Source: Service Officer, Service Manager (Admin)
- Function: As Main Menu
- Media: Personal Computer or Laptop
- Frequency: Each entry is categorized into each storage
- Note: The Service Officer only gives access to the register while the Service Manager (Admin) has full access.

b. Input Name: Register Resident Identity Card (KTP)

- Source: Service Officer, Service Manager (Admin)
- Function: As Main Menu
- Media: Personal Computer or Laptop
- Frequency: Each entry is categorized into each storage

Note: The Service Officer only gives access to the register while the Service Manager (Admin) has full access

d. Output plan

The output design is a detailed description of the data output that takes place in the information system being set up. The following lists the input data that arises during data processing in the system.

a. Issue Name: Register Report (KK)

- Source: Head of Services (Admin)
- Functions: Find out the summary of KK register data to be printed and reported to the Sub-District Head in Sumur District, Bandung

- Media: Paper
 - Frequency: At the end of each year or at the request of the Sub-District Head
 - Description: The administrator prepares a report
 - NIK Attributes, Name of Head of Family, Place of Birth, Date of Birth, Male, Female, Family Number, Occupation, Address, RT, RW, Date of Entry
- b. Issue Name: Population Identity Card (KTP) Register Report
- Source: Head of Services (Admin)
 - Function: Find out the summary of KTP register data to be printed and reported to the Sub-District Head in Sumur District, Bandung
 - Media: Paper
 - Frequency: At the end of each year or at the request of the Sub-District Head
 - Description: The administrator prepares a report
 - Attribute: No. Family card, NIK, full name, place of birth, date of birth, gender, village, blood group, religion, marital status, education, occupation, address, RT, RW, date of entry.

Design form login



Figure 10, login form design

Main menu design

Figure15, KTP report form

e. Hardware and Software Specifications

This Service Management information system must be supported by other components for more optimal results. The specifications are described in the table below:

Figure 8, hardware specification

<i>Hardware</i>	<i>Spesifikasi</i>
<i>Processor</i>	<i>Intel Dual Core</i>
<i>Hardisk</i>	500 GB
<i>RAM</i>	2 GB
<i>Monitor</i>	14", 1024 x 768 pixel
<i>Keyboard dan Mouse</i>	Standar USB / PS2

Figure 3, Software Specification

<i>Software</i>	Spesifikasi
<i>OS (Operating System)</i>	<i>Windows7 / Windows 8</i>
<i>Oracle Develover</i>	

Form login

The screenshot shows the login interface for SUMUR BANDUNG. At the top, there is a blue banner containing the school's crest and the text 'SUMUR BANDUNG'. Below this, the login form consists of two input fields: 'Kode Simpel' and 'Password'. Under the 'Password' field are two buttons: 'Login In' and 'Exit'. At the bottom right, there is a 'Registrasi' link. The footer contains the text 'Copyright © 2013 by - All Rights Reserved - by: Eka Nurcahyani'.

Figure 16, Form login

Main menu form

Figure 17, Main menu form

KK register receipt form



REPUBLIK INDONESIA
KEKATANATAN SUMUR BANGUNG
 Jl. Lombok No. 8 Telp/Fax : 022-4255888

RESI PERMOHONAN KARTU KELUARGA (KK)

Nomor Induk Kependudukan	Tanggal
Nama Kepala Keluarga	Alamat
Tanggal Lahir	RT / RW /
Tanggal Lahir	Kelurahan
Laki Perempuan	Jumlah Keluarga

Tanggal Permohonan masuk

Selesai Tanggal

Sanding


 SAMP


 NEW


 CLOSE

Report form KK

[illegible]

Figure 19 Report form KK

Receipt register form KTP



PEMERINTAH KOTA BANDUNG
KECAMATAN SUKUR BANDUNG
 J. Lurah No. 8 Telp/Fax: 022-4235588

RESI PERMORHONAN
KARTU TANDA PENDUDUK (KTP)

Nomor Kartu Keluarga Nomor Induk Kependudukan Nama Lengkap Tempat Lahir 1 / Januari / 1980 ☐ Laki-Laki ☐ Perempuan Jenis Kelamin Kebupaten Sungai/Sungai Dairi Agama Data Tersebutkan Pendidikan	Pengeran Agama KT / RI 1 / 1 Bandung 1980 - 01 - 00301 KECAMATAN SUKUR BANDUNG KECAMATAN SUKUR BANDUNG MUHAMMAD RISAL AYUHERE UNH283  SAVE  PLUS  CLOSE
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Report form KTP

[illegible]

Figure 21, Report form KTP

e. System test

In this test, the author used the black box method. The method requires a faster time than testing with the white box method, so the author chose to use a black box as a system test. This test pays attention to the internal mechanisms and components of the service management information system on the output results that arise when processing multiple inputs and execution conditions. In this way, this method is the fastest method for testing and detecting the results because there is no need to consider the internal structure. The following is the system test conducted by the author.

No	Kasus/Form yang Diuji	Skenario Pengujian	Hasil yang Diharapkan	Hasil Pengujian
<i>Form Login</i>				
1	<i>Button Login</i>	Petugas memasukkan kode simpel dan <i>password</i> yang salah. Lalu klik <i>button login</i>	Tetap di <i>form login</i> dan muncul pesan kesalahan	Diterima [Y]
		Petugas tidak mengisi kode simpel dan <i>password</i> . Lalu klik <i>button login</i>	Tetap di <i>form login</i> dan muncul pesan kesalahan	Diterima [Y]
		Petugas memasukkan kode simpel dan <i>password</i> yang benar. Lalu klik <i>button login</i>	Masuk ke halaman <i>Menu Utama</i>	Diterima [Y]
2	<i>Button Exit</i>	Petugas memasukkan kode simpel dan <i>password</i> yang salah. Lalu klik <i>button exit</i>	Keluar dari aplikasi <i>form login</i>	Diterima [Y]
		Petugas tidak mengisi kode simpel dan <i>password</i> . Lalu klik <i>button exit</i>	Keluar dari aplikasi <i>form login</i>	Diterima [Y]
		Petugas memasukkan kode simpel dan <i>password</i> yang benar. Lalu klik <i>button exit</i>	Keluar dari aplikasi <i>form login</i>	Diterima [Y]
3		Petugas klik registrasi.	Masuk <i>form registrasi</i> .	Diterima [Y]

Conclusion

Based on the results of Field Work Practices (PKL) in Sumur Bandung District, Bandung City, as well as the results of interviews and discussions on the Service Management Information System, the author provides the following conclusions: (a) What is the process of kk, e-KTP, Suket, legalization, explanation letter, good behavior certificate, new resident letter and bad behavior certificate for the procedure in Sumur Bandung District; (b) How is the processing of the printout of KK, e-KTP, Suket, legalization, explanation letter, good behavior certificate, new resident letter and bad behavior certificate in Sumur Bandung District according to the government standards? (c) How to make KK, e-KK, e-KTP, Suket, legalized reports, explanation letter, good behavior certificate, new resident letter and bad behavior certificate for the data of Sumur Bandung District; (d) What kind of services does Sumur Bandung

District provide for the convenience of the community? (e) How are monthly and annual service data collected in Sumur Bandung District?

Sugesstion

After considering the results of the field observations conducted by the author on the problems mentioned in the previous chapters, the author suggests some things below:

- a. It would be good to implement a Service Management Information System in Sumur Bandung District to reduce the problem of processing time, accounting and making reports more efficient.
- b. The sub-district manager needs to contact the municipality to develop the service delivery system especially in Sumur Bandung District. Is the service in Sumur Bandung District better with the implemented system, in that case it is time. Or apply the Service Management Information System that the author made for existing system problems in the district.
- c. Implementing a computerized system in Sumur Bandung District is very important to help the officials to perform their work well and optimally

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