

# The Implementation of Representation State Transfer (REST) Architecture Academic Information System Integrated In Pandanaran Islamic Senior High School

Muhammad Hambali  
Department of Informatics Engineering  
Faculty of Science and Technology  
Universitas Islam Negeri Sunan Kalijaga  
Yogyakarta, Indonesia  
Gus\_she@yahoo.com

Bambang Sugiantoro  
Department of Informatics Engineering  
Faculty of Science and Technology  
Universitas Islam Negeri Sunan Kalijaga  
Yogyakarta, Indonesia  
Bambang.sugiantoro@uin-suka.ac.id

*Abstract - In the rapid development of technology and the increasing speed of information flow due to globalization, making the role of information is vital and crucial to an educational institution. Institutions of Sunan Pandanaran implement policies of separate education system among male students with female students. This triggered a few problems, especially in the Senior high school of Sunan Pandanaran where researched by the author. The focus of the research is how to implement the architecture of Representational State Transfer (REST) on the integrated system academic information between two separate data server so that student academic data can be served easily from two different servers. Through the system resulting from this research, researchers offered easy access to student academic data that can then be recycled by the user into a useful information. The research methodology where used in this research is system development. The steps begin with a preliminary study research, data collection, design models, identifying system requirements and system development methods. At the end, this research produced a integrated academic system information between male school servers with a female school server where implemented using Representational State Transfer architecture. So that student academic data can be presented either to the user in order to be recycled into useful information.*

**Keywords:** *Representational State Transfer, system of academic information, RESTfull, Client Server, Web Services.*

## I. INTRODUCTION

The existence of realtime, fast and accurate information become very important for the continuity of human life now days, data and information needed certainly must be accessed easily by effectively and efficiently by variety of concern people, let alone if the data is consisting of information, flow speed caused by globalization, the role of information become vital and very decisive for an educational institution [1].

And so in sunan pandanaran islamic boarding school that become the main institution of sunan pandanaran it is consisting of three boarding schools , such as elementary school, midle school and high school of sunan pandanaran.

The boarding school implements a different policy than other school, the students are clasificated based on their sex distinction in other hand, that policy triggers some problems to the object especially high school [2]. In practical, the teacher will be teaching in two different places such as only have one office located in girls boarding the teacher including the head master and school staff.

That problem is what the author focused an how to build academic information system between the boys and the girls boarding school is integrted to ease the maximum data tabulation through the integrated basic web information system with Representational State Transfer (REST) method [3].

## II. PURPOSE

- a. This academic information can provide academic data of student from two different places, which are boys school and girls school through integrated communication network.
- b. To help authorities to do important steps in order to make a decision to student's academic problems of student easily remembering, policy of separating male classes with girl.

## III. METHODOLOGY

### a. Data Collection

- Interview
- Study Of Literature

### b. Designing Models

### c. System Development

- Hardware.
- Software.

### d. System Development Methodology

## IV. RESULT AND DISCUSSION

### a. Collection and modeling needs (Actor dan Use Case).

The use case diagram [4] of system is displayed in Fig 1.

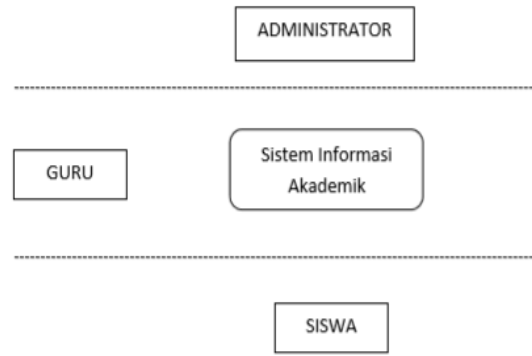


Figure 1. Actor and Usecase

Academic information systems include teachers, students and administrations that are interrelated

### b. Requirement Analysis

- Display Academic data and student achievement
- Display Student Personal data
- Display Teacher Personal data
- See Student Achievement
- See Student Attendance
- See Teacher Attendance
- View the user's personal data
- Make a request with the get to server method
- Make operational with Method Post to Server.
- Make operational with Method Put to Server.
- Make operational with Method Delete to Server.

### c. Class Diagram

The class diagram of system[5] is displayed in Fig 2.

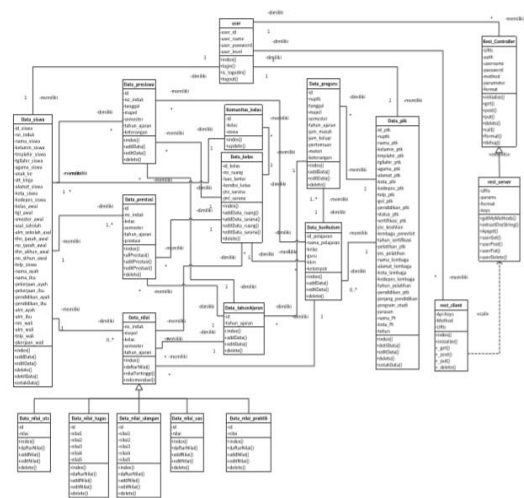


Figure 2. Class Diagram



#### d. Interface Design

The design of visitors and users interface is displayed on Fig 3. And Fig 4.

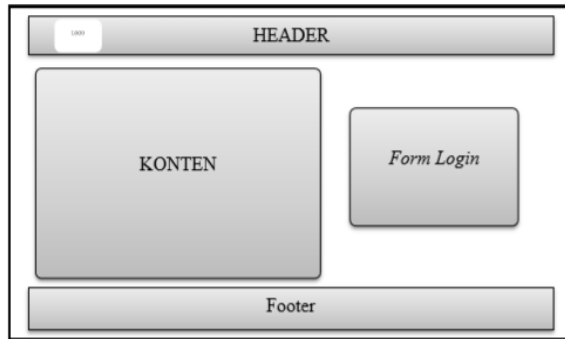


Figure 3. Display to Visitors

Visitor display with registration format and its content

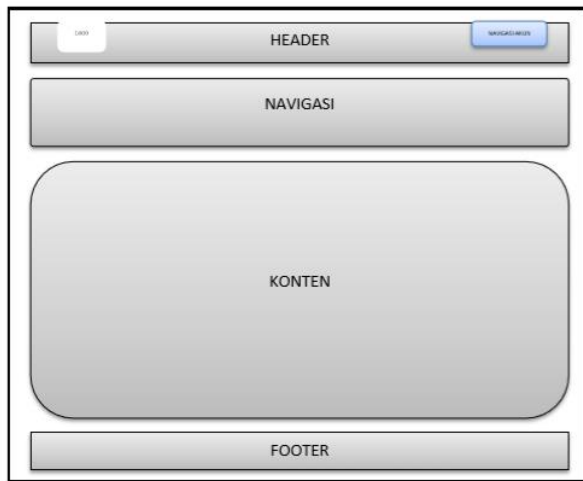


Figure 4. Display to User

To display the user's order starting from

#### e. Data Management System

Database Management System (DBMS) used in this research is MySQL. The reason why it's used is because MySQL is one free database and can be easily used and learnt, Moreover, MySQL can run faster.

There are twenty four tables that used for each academic information system server, they are: absen\_guru, absen\_siswa, keys, komunitas\_kelas, kurikulum, level, menu, nilai\_ekstrakurikuler, nilai\_kegiatan, nilai\_pengamatan, nilai\_tugas, nilai\_uas, nilai\_ulangan, nilai\_uts, prestasi, ptk, ptk\_pelatihan, ptk\_pendidikan, ptk\_sertifikasi, siswa, thn\_ajaran, tkelas, sarana\_kelas, user, user\_keys.

#### V. CONCLUSION

The last phase of the research is testing the system. On this phase, the researchers/ the writers are testing the system, using black box method . Black box technique is a testing method that focuses on functional system which have built and noticed the result of the system, whether it runs as expected or not.

The system testing is done by using beta test techniqu. Beta test technique testing is a testing which done by users by accesing the application through local computer (local host), then the users fill the questionnaire form.

Result of the testing based on the thesis, showed that most of the users stated that functional is well-performed. Meanwhile, in interface system testing, the result data showed 98,3% stated strongly agree with interface system, 5,3% stated agree, 2,7% stated disagree, 1,3% stated strongly disagree. So it can be conclude that interface system has very well performance.

#### REFERENCES

- [1] Jessup, Leonard. Valacich, Joseph. "Information System Today," New Jersey: Prentice Hall, 2003
- [2] Farida, Arismunandar, Bernard. "Sekolah Berasrama di Sulawesi Selatan," Lentera Pendidikan: Jurnal Ilmu Tarbiyah dan keguruan, Vol 21. Pp. 142-153, 2018
- [3] Abeyasinghe, Samisa. "RESTful PHP Web Services," Brimingham: Packt Publishing, 2008.
- [4] Oetomo, Budi; Sutedjo Dharma. "Perencanaan dan Pembangunan Sistem Informasi," Yogyakarta: Andi, 2002
- [5] Nugroho, Adi. "Rational Rose untuk Pemodelan Berorientasi Objek," Bandung: Penerbit Informatika, 2005.

