

Design and Development Employee Payroll Information Systems in Indeks Media Teknologi Inc.

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Abstract: The research was conducted to be able to develop an employment information system at Indeks Media Teknologi Inc. which later if this system is successful can help the company tasks when making employee payroll for each period. Research is carried out at Indeks Media Teknologi Inc.. The method of collecting data by interview asking questions related to the employee salary management system. By means of observation, namely making observations directly to the Indeks Media Teknologi Inc.. In this study, the system development method used is waterfall with the supporting software used is PHP and MySQL. The network topology used is a star topology. The results of this study are in the form of client-server based employee salary data management which can improve service and facilitate the provision of salaries for employees of Indeks Media Teknologi Inc..

Index Terms: Information Systems, Payroll, Indeks Media Teknologi Inc., Network, Client-server.

1. Introduction

Employee salary data processing at Indeks Media Teknologi Inc. is a very important part of a Company [1, 2, 3]. Therefore we need a system that provides convenience in planning and development in order to increase the operational performance of Indeks Media Teknologi Inc. already has a payroll system for employees, but the existing system has several shortcomings that allow for the development of a better system [4, 5]. Seeing the performance of the current employee salary data processing, namely: Employee data entry is multiuser based but cannot be used together on different computers (networks) [6], Employee salary deductions can only be deducted once in one paycheck [4, 7, 8]. If we want to deduct wages more than once, the total deduction of wages must be corrected and adjusted to the correct amount, the deduction information is incomplete because it only displays the total deductions from wages [9, 10]. Sometimes if the salary deduction statement is too long [11], the paycheck statement will not be visible or deduction (The paycheck paper is not enough) [12]. The development of an employee data system is now very necessary [13, 14, 15, 16, 17, 18]. so that the provision of information can be carried out quickly and accurately [16, 18]. Based on the background described, in the framework of this research is the design and development employee payroll information systems at Indeks Media Teknologi Inc. Client-server based.

2. Research Methodology

2.1 Requirement Definition

This step is an analysis of software requirements, and the stage for conducting data collection by conducting meetings with employees, as well as collecting additional data both in journals, articles, and from the internet. The following is an analysis used in designing an employee payroll information system at Indeks Media Teknologi Inc.:

a. Data analysis

In designing employee payroll information systems [19, 20] at Indeks Media Teknologi Inc., obtained analysis of any data which will be processed both as input and output later. The data obtained include:

1. Employee Data contains employee data contained in Indeks Media Teknologi Inc.
2. Salary data contains the amount of salary of an employee at Indeks Media Teknologi Inc.
3. Allowance data, contains the amount of a job allowance for employees of Indeks Media Teknologi Inc.

b. Technology Analysis

Technology analysis is an analysis of the software and hardware requirements [21] needed for the manufacture and design of employee payroll information systems at Indeks Media Teknologi Inc. consists of:

1. Software

In making this system the author uses the software (Software) as follows:

- 1) Windows 7 Operating System
- 2) Macromedia Dreamweaver MX
- 3) MySQL
- 4) PHP 5.6
- 5) Xampp

2. Hardware

In making this system the author uses the following specifications:

- 1) AMD A8-7410 Processor
- 2) 4 GB memory
- 3) 500 GB Hard Disk
- 4) Keyboard and Mouse
- 5) Monitor

3. Network

- 1) U(Unshielded Twisted Pair) cable category 5e
- 2) *Straight Cable Connector*
- 3) *Connector RJ-45 (Connector Registered Jack)*
- 4) HUB
- 5) Star topology network topology

c. Information Analysis

In designing employee payroll information systems at Indeks Media Teknologi Inc., obtained analysis of what information will be produced later. The information generated includes:

1. Employee Data Information

Information data about employees contained in Indeks Media Teknologi Inc.

2. Salary Data Information

Information about employee salary data on Indeks Media Teknologi Inc.

3. Support Data Information

Information about employee benefits data at Indeks Media Teknologi Inc..

2.2 System and Software Design

At this stage it aims to provide an outline of the form of the system to be built, and also make it easier to understand the running of the system and understand the program.

a. Flow of Document (FOD) in progress

Flow of Document (FOD) The current flow of documents (FOD) at Indeks Media Teknologi Inc. begins with the employee who provides the data to the Secretary. From the data provided by the employees, the Secretary then performs employee data processing by processing job data, employee data and data periods so as to produce employee data reports and provide these reports to the President Director and Treasurer and archive the reports. From the employee data report provided by the Secretary, the Treasurer then calculates the salary by processing employee data reports, basic salary data, benefits data and employee benefits data which results in a payroll report which is then given to the financial management and President Director and archives the report. From the salary list report that has been made, the treasurer then processes year-end salaries so as to produce a year-end salary report to be submitted to the President Director and archived by the Treasurer.

Furthermore, from the payroll report that has been prepared by the treasurer, the financial management will process the report so as to produce a paycheck which is then given to each employee and the financial manager filing the data can be seen in Fig. 1.

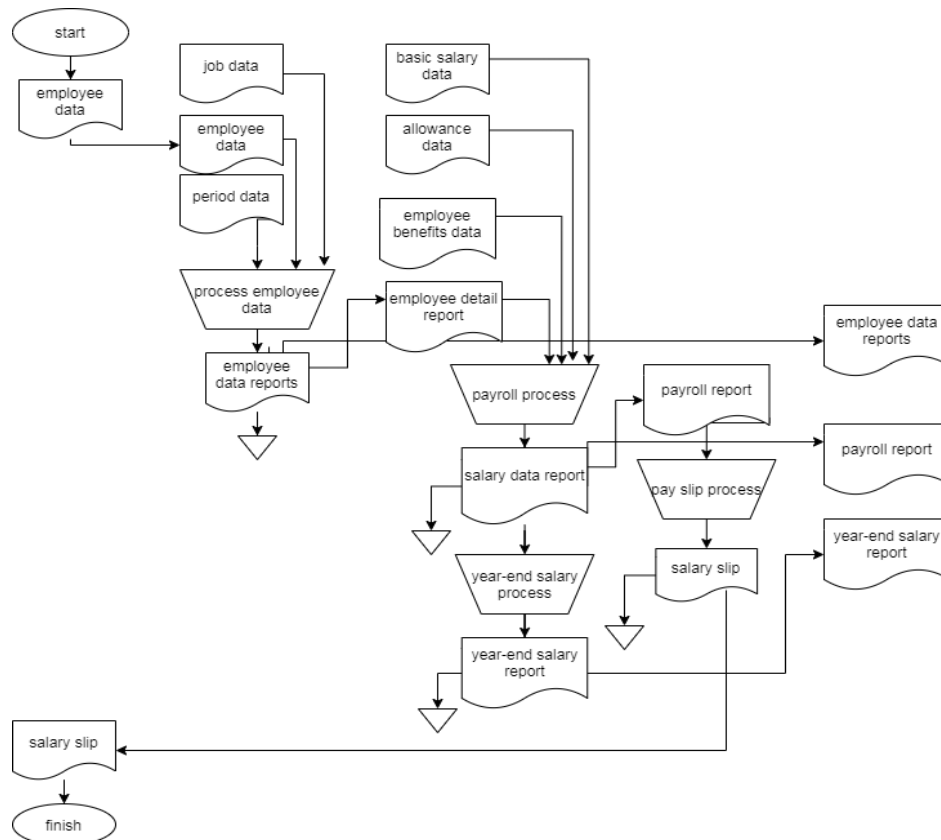


Fig. 1. Flow of Document (FOD) in progress

b. Flow of Document (FOD) Proposed

Flow of Document (FOD) proposed in the Indeks Media Teknologi Inc. begins with the Secretary inputting job data which is then processed and stored in the position table, employee data input is then processed and stored in the employee table and period data input is then processed and stored in the period table. Furthermore, after all the data has been processed. The secretary then processes the employee data obtained from the position and employee tables which are then processed and stored in the employee_detail table. After all these processes have been completed, the Secretary can process the employee list report obtained from the employee_detail table and the report will be submitted to the President Director.

Furthermore, the treasurer inputs basic salary data and is processed and stored in the payroll table, the allowance data input is processed and stored in the allowance table, the employee allowance input is processed and stored in the employee_support table. After all the data has been processed, the Treasurer will process the payroll obtained from the payroll, allowances, employee_support and employee_detail tables that have been processed by the Secretary then all the data is processed and stored in the salary_list table. After all these processes have been completed, the treasurer can process the salary list report and year-end salary report obtained from the salary_list table and the report will be given to the President Director.

Furthermore, the financial management performs the processing of the paycheck obtained from the salary-list table resulting in the paycheck given to employees, which can be seen in Fig. 2.

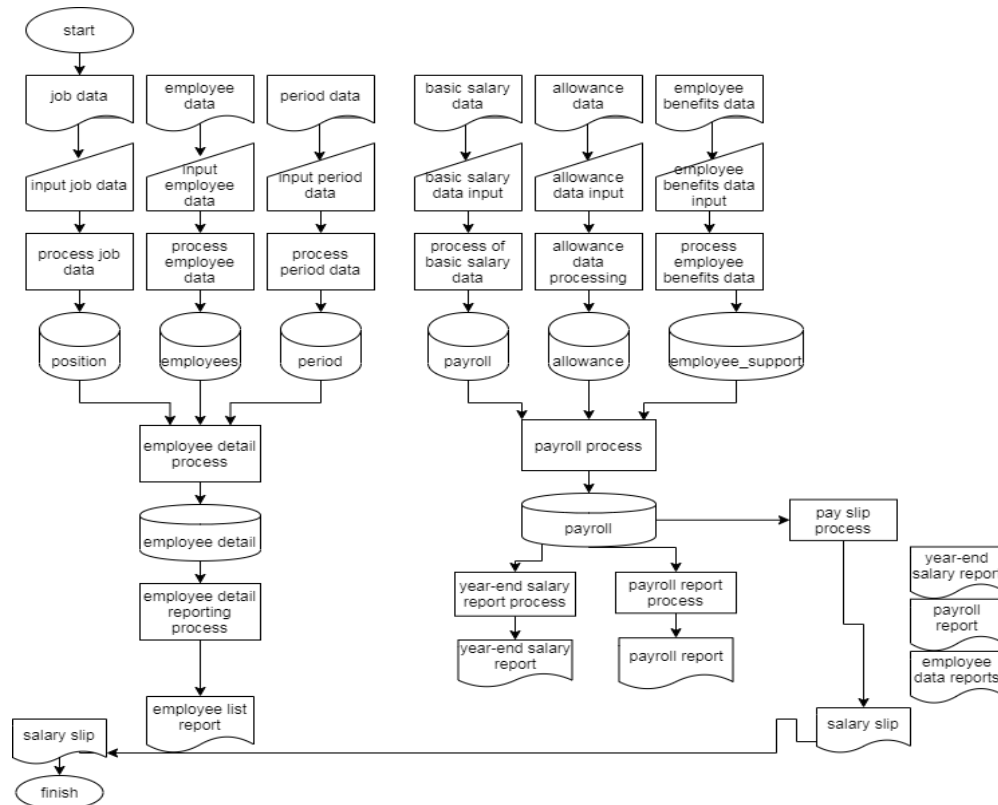


Fig. 2. Flow of Document (FOD) Proposed

c. Context Diagram (CD)

Context Diagram consists of 4 entities, namely the Secretary, Treasurer, President Director and Employees. The Secretary entity provides job, employee and period data. The Treasury Entity provides data on basic salaries, benefits and employee benefits. The President Director entity receives reports on payroll, employees and year-end salary reports. The employee entity receives a paycheck can be seen in Fig. 3.

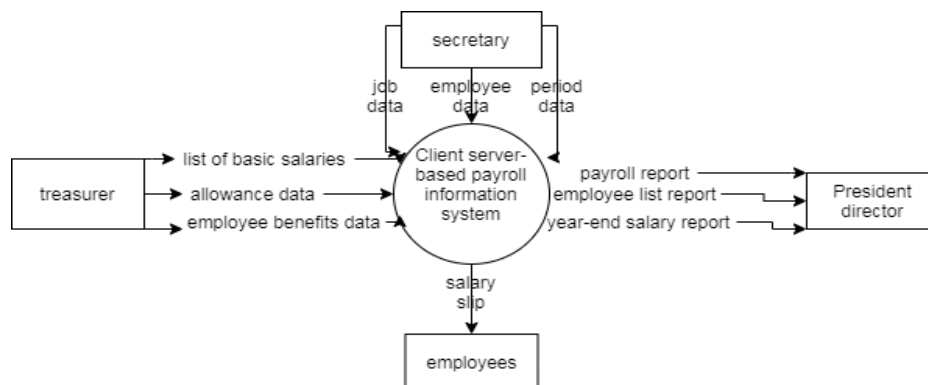


Fig. 3. Context Diagram

d. Data Flow Diagram (DFD) Level 0

Data Flow Diagram (DFD) Level 0 consists of eight processes, namely the Secretary Entity processes the job data stored in the position datastore, employee data is stored in the employee datastore, period data is stored in the period datastore and employee detail processes are obtained from the position datastore, employee datastore and stored period datastore in the employee_detail datastore.

The Treasury Entity processes the basic salary data stored in the payroll datastore, the allowance data is stored in the allowances datastore, the employee benefits data is stored in the employee_support datastore, and the payroll processes that are obtained from the payroll datastore, the allowance datastore, the employee_supportment data and the employee_sage_details are stored in the payroll datastore. The last process is a report process that produces employee

list reports, payroll reports, year-end salary reports given to the President Director entity and paycheck given to employees can be seen in Fig. 4.

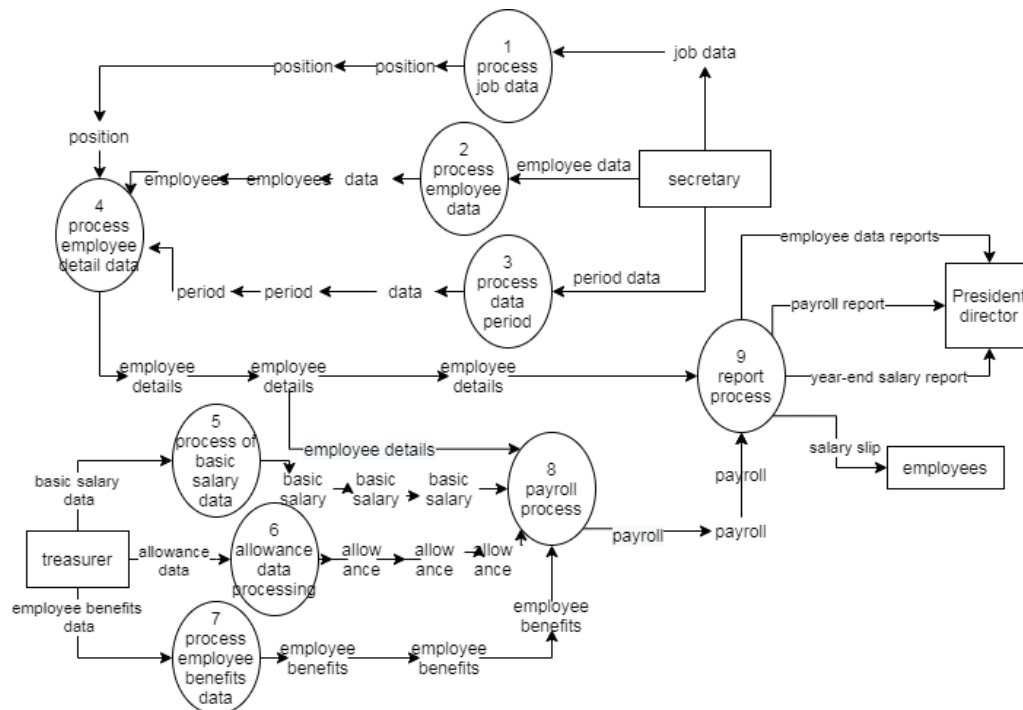


Fig. 4. Data Flow Diagram (DFD) Level 0

e. *Data Flow Diagram (DFD) Level 1*

The report process has 4 processes, namely, the employee list report process obtained from the employee_detail datastore produces a employee list report then is given to the President Director, the salary list report process obtained from the salary list datastore produces a payroll report then is given to the President Director, the final salary report process The year that is obtained from the salary_list datastore produces a year-end salary report then it is given to the President Director, and the last process of the paycheck obtained from the salary_list datastore produces a paycheck which is then given to the employees can be seen in Fig. 5

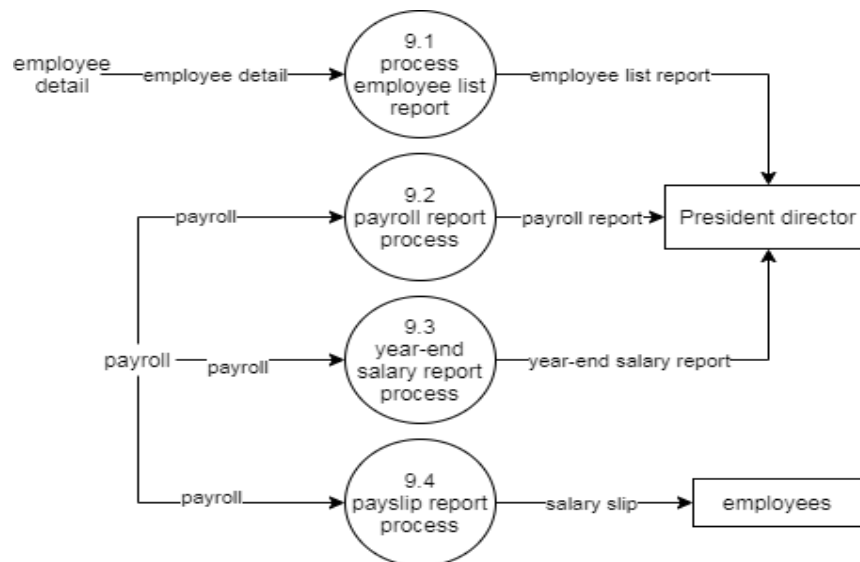


Fig. 5. Data Flow Diagram (DFD) Level 1

f. *Hierarchy Plus Input-Process-Output (HIPO)*

Hierarchy Plus Input-Process-Output (HIPO) in Indeks Media Teknologi Inc.'s Employee Payroll Information System consists of employee data input, employee detail data, job data, basic salary data, allowance data, employee allowance data and period data. The process consists of a payroll process. The output consists of employee list reports, payroll reports, year-end salary reports and payroll reports which can be seen in Fig. 6.

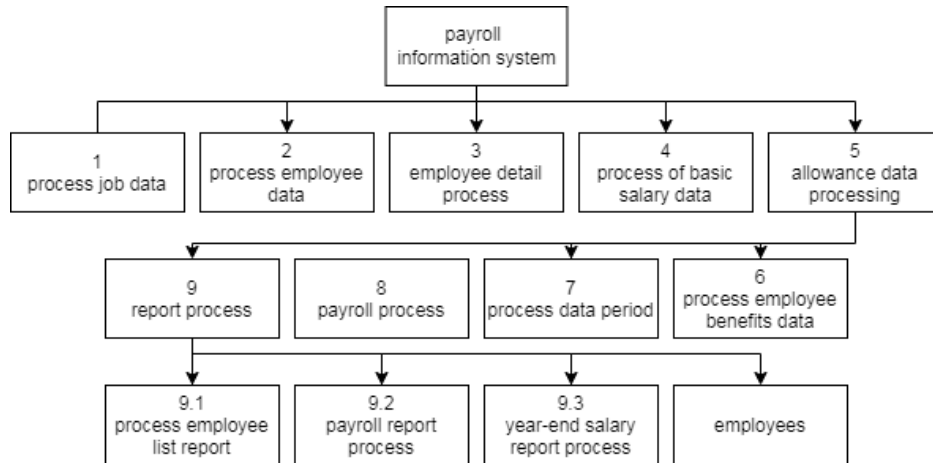


Fig. 6.Hierarchy Plus Input-Process-Output (HIPO)

g. Database

It can be seen in Table 1 that the employee table functions save the employee data.

Table 1. Employees Table Design

No.	Field Name	Type	Size	Information
1	ID	Varchar	20	Employee ID number
2	Name	Varchar	100	Employee name
3	Gender	Enum	L, P	Employee gender
4	Born	Varchar	100	Place of birth of the employee
5	Birthdate	Date	-	Employee's date of birth
6	Religion	Varchar	45	Employee Religion
7	Address	Text	-	Employee Address
8	Marital status	Varchar	45	Marital status
9	Number of children	Integer	4	Number of children
10	Phone	Varchar	17	Phone number
11	Job title	Integer	3	Position code
12	Photo	Varchar	100	Employee Photos
13	Username	Varchar	100	Employee login username
14	Password	Varchar	100	Employee login password
15	Active	Enum	Y, N	Employee active status
16	Basic salary	Integer	11	Employee basic salary

Can be seen in Table 2 is a functioning payroll table save payroll data.

Table 2. Payroll Table Design

No.	Field Name	Type	Size	Information
1	payroll	Varchar	11	Payroll code
2	Basic salary	Integer	11	Employee basic salary
3	piece	Integer	11	Salary cuts
4	attendance	Integer	11	the number of employee absences
5	status	Varchar	20	Employee status
6	Period id	Varchar	10	Period code
7	ID	Varchar	20	Employee ID number
11	Received date	Date		Salary receidate
12	Time_received	Time		Hours of receiving wages

Can be seen in Table 3 is a functioning employee_support table store employee benefits data.

Table 3. Employee Benefits Table Design

No.	Field Name	Type	size	information
1	Employee_support IDs	Integer	11	Support code
2	ID	varchar	20	Employee ID number
3	id allowance	Integer	11	Support code
4	amount	Integer	11	Amount of allowance

Can be seen in Table 4 is a table of allowances which functions to store the name of employee benefits.

Table 4. Allowance Table Design

No.	Field Name	type	size	information
1	id allowance	integer	11	Support code
2	allowance	varchar	45	Name of benefit

Can be seen in Table 5 is a table of positions which functions to store data on the names of employees' positions.

Table 5. Position Table Design

no	Field Name	type	size	information
1	id position	integer	3	Position code
2	position	varchar	45	Position name

It can be seen in Table 6 that the period table functions to store data for the period of the payroll month.

Table 6. Period Table Design

no	Field Name	type	size	information
1	id period	integer	3	Period code
2	Month	varchar	25	Month name
3	year	varchar	4	Year number
4	active	enum	Y, N	Period active status

It can be seen in Table 7 that the users table functions to store user data.

Table 7. Users Table Design

No.	Field Name	Type	Size	Information
1	iduser	integer	11	Users code
2	username	varchar	100	Username login
3	password	varchar	100	User login password
4	name	varchar	45	Username
5	phone	varchar	17	User's phone number

Can be seen in Table 8 is a detail employee table which functions to store all detail employee data.

Table 8. employee_detail Table Design

No.	Field Name	Type	Size	Information
1	employee_detail id	Varchar	20	Detail Employee ID
2	Job title	Integer	3	Position code
3	ID	Varchar	20	Employee ID number
4	Name	Varchar	100	Employee name
5	Marital status	Varchar	45	Marital status
6	Number of children	Integer	4	Number of children
7	Information	Varchar	20	Information
8	Detailed_note	Text	-	Fill in the description
9	Status_data	Integer	2	Data Status

Can be seen in Table 9 is a payroll table that functions to store detailed salary list data.

Table 9. List of salaries Table design

No.	Field Name	Type	Size	Information
1	ID_salary	Varchar	20	No Circular Salary
2	month	Varchar	12	Month
3	year	Varchar	4	Year
4	ket_gaji	Varchar	12	Information

h. Network Architecture

At this stage, the implementation of a computer network installation at Indeks Media Teknologi Inc. is carried out with the network topology used is a star topology can be seen in Fig. 7.

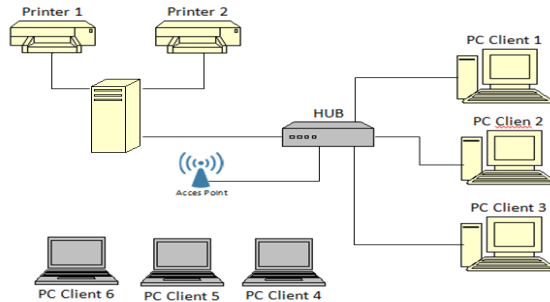


Fig. 7. Network Architecture

3. Results and Discussion

3.1 Login View

The login display that can be seen in Fig. 8 is a login page display on the design of the employee salary data processing system at Indeks Media Teknologi Inc.. The login page contains a username, password and user level form. Username is filled in according to the user that has been registered previously, the password is filled in according to the user who will log in and the level is selected according to the user's access rights.

```

graph TD
    subgraph LoginForm [Login Form]
        direction TB
        U[Username]
        P>Password
        L>Login
    end
    
```

Fig. 8. Login Page Views

3.2 Input page

a. Period Pages

The period page view that can be seen in Fig. 9 is a period input page display on the design of the employee payroll information system at Indeks Media Teknologi Inc.. This page functions to add payroll periods to Indeks Media Teknologi Inc..

```

graph TD
    subgraph Header
        Logo[PT. INDEKS MEDIA TEKNOLOGI]
        Address[Jl. Gunung Belah No. 6 Tenggara - Kalimantan Timur 75511, Telp. 0541 - 662329, E-Mail : gasa@gmail.com]
    end
    subgraph MainForm [Penambahan Masa Periode Penggajian]
        direction TB
        B[Bulan : Masukkan Bulan]
        T[Tahun : Masukkan Tahun]
        S[Status : Masukkan Status]
    end
    B --- T --- S
    S --- Simpan[Simpan]
    
```

Fig. 9. Period input page

b. Position page

The job page display that can be seen in Fig. 10 is a page display of the Position input in designing an employee payroll information system at Indeks Media Teknologi Inc.. This page functions to add job data at Indeks Media Teknologi Inc..

Fig. 10. Position page

c. Employee Page

The employee page display that can be seen in Fig. 11 is a display of the Employee input page in designing an employee payroll information system at Indeks Media Teknologi Inc.. This page functions to add a list of employees at Indeks Media Teknologi Inc..

Fig. 11. Employee Input page

d. Employee Benefits page

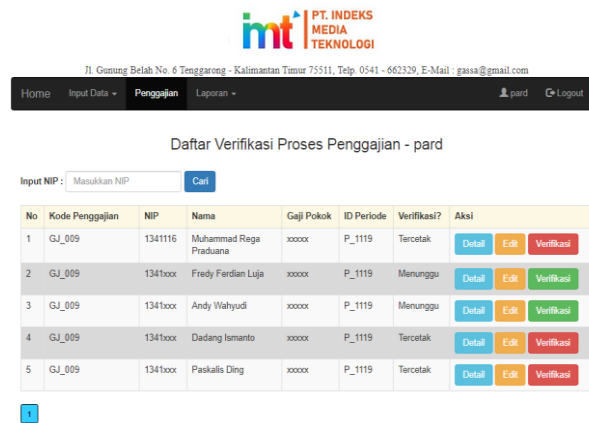
The appearance of the employee benefits page which can be seen in Fig. 12 is a page display of employee benefits input in designing an employee payroll information system at Indeks Media Teknologi Inc.. This page serves to add a list of employee benefits at Indeks Media Teknologi Inc..

Fig. 12. Employee Benefits Input page

3.3 Process page

a. Payroll page

The payroll page display that can be seen in Fig. 13 is a display of the payroll page in designing an employee payroll information system at Indeks Media Teknologi Inc.. This page contains a list of employees and also salaries based on absenteeism, benefits, and deductions which can be viewed by selecting the detailed options on the website.



Daftar Verifikasi Proses Penggajian - pard

Input NIP: Masukkan NIP

No	Kode Penggajian	NIP	Nama	Gaji Pokok	ID Periode	Verifikasi?	Aksi
1	GJ_009	1341116	Muhammad Riga Praduana	xxxxxx	P_1119	Tercetak	<input type="button" value="Detail"/> <input type="button" value="Edit"/> <input type="button" value="Verifikasi"/>
2	GJ_009	1341xxx	Fredy Ferdian Luja	xxxxxx	P_1119	Menunggu	<input type="button" value="Detail"/> <input type="button" value="Edit"/> <input type="button" value="Verifikasi"/>
3	GJ_009	1341xxx	Andy Wahyudi	xxxxxx	P_1119	Menunggu	<input type="button" value="Detail"/> <input type="button" value="Edit"/> <input type="button" value="Verifikasi"/>
4	GJ_009	1341xxx	Dadang Ismanto	xxxxxx	P_1119	Tercetak	<input type="button" value="Detail"/> <input type="button" value="Edit"/> <input type="button" value="Verifikasi"/>
5	GJ_009	1341xxx	Paskalis Ding	xxxxxx	P_1119	Tercetak	<input type="button" value="Detail"/> <input type="button" value="Edit"/> <input type="button" value="Verifikasi"/>

Fig. 13. Payroll Processing Verification page

3.4 Output Report

a. Employee List Report page

The employee list report display which can be seen in Fig. 14 is a display of the employee list report at Indeks Media Teknologi Inc. which is obtained from the results of previous employee data input on the employee input page.

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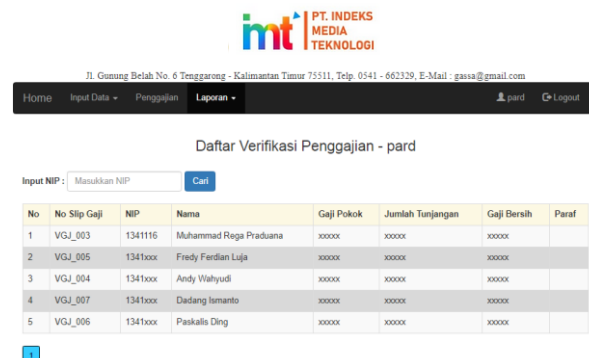
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Fig. 14. Employee list report page

b. Payroll Report page

The display of the payroll report or salary recap which can be seen in Fig. 15 is a display of the payroll report on Indeks Media Teknologi Inc.. This page contains detailed payroll results including paycheck number, ID, employee name, basic salary, amount of allowance, total net salary and the last column, namely initials filled in by employees who have received paycheck.



Daftar Verifikasi Penggajian - pard

Input NIP: Masukkan NIP

No	No Slip Gaji	NIP	Nama	Gaji Pokok	Jumlah Tunjangan	Gaji Bersih	Paraf
1	VGJ_003	1341116	Muhammad Riga Praduana	xxxxxx	xxxxxx	xxxxxx	
2	VGJ_005	1341xxx	Fredy Ferdian Luja	xxxxxx	xxxxxx	xxxxxx	
3	VGJ_004	1341xxx	Andy Wahyudi	xxxxxx	xxxxxx	xxxxxx	
4	VGJ_007	1341xxx	Dadang Ismanto	xxxxxx	xxxxxx	xxxxxx	
5	VGJ_006	1341xxx	Paskalis Ding	xxxxxx	xxxxxx	xxxxxx	

Fig. 15. Payroll Report page

c. Paycheck

The display of employee paycheck which can be seen in Fig. 16 is a display of employee paycheck at Indeks Media Teknologi Inc.. This page displays the form of employee paycheck which will be printed if it has been verified on the payroll process verification page.


Indeks Media Technology																									
Perum Grha Mandiri 2, Blk. U No.15, Samarinda																									
																									
Employee Paycheck																									
ID Paycheck :	Month Year of Salary :																								
ID :	Position :																								
Employee name :	Receive salary :																								
<table> <tr> <td>Basic salary</td> <td>:</td> <td>3,200,000</td> </tr> <tr> <td colspan="3">Allowance</td> </tr> <tr> <td>Consumption Allowance</td> <td>:</td> <td>900,000</td> </tr> <tr> <td>Transportation Allowance</td> <td>:</td> <td><u>100,000</u></td> </tr> <tr> <td></td> <td></td> <td>1,000,000</td> </tr> <tr> <td>BPJS Health deductions</td> <td>:</td> <td>49,000</td> </tr> <tr> <td>Discounts for BPJS Employment</td> <td>:</td> <td><u>190,000</u></td> </tr> <tr> <td>Net Salary</td> <td>:</td> <td>4,200,000</td> </tr> </table>		Basic salary	:	3,200,000	Allowance			Consumption Allowance	:	900,000	Transportation Allowance	:	<u>100,000</u>			1,000,000	BPJS Health deductions	:	49,000	Discounts for BPJS Employment	:	<u>190,000</u>	Net Salary	:	4,200,000
Basic salary	:	3,200,000																							
Allowance																									
Consumption Allowance	:	900,000																							
Transportation Allowance	:	<u>100,000</u>																							
		1,000,000																							
BPJS Health deductions	:	49,000																							
Discounts for BPJS Employment	:	<u>190,000</u>																							
Net Salary	:	4,200,000																							
Samarinda, 10 September 2020																									
Verified by																									
Financial Management																									
(name)																									
ID.																									

Fig. 16. Employee Paycheck

4. Conclusion

With the development of a client server-based employee payroll system, it can simplify the process of data entry, data search, data transactions and data reporting together through the network. In addition, it can also save time in making reports and printing paychecks. Avoid errors in calculating the payment of allowances. Data resulting from the system can be directly used by parties in need, in this case by the treasury section who uses this system. This design can be implemented and used in the company Indeks Media Teknologi Inc. and adapted to the needs of employees' payroll.

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