Assignment

Learning Outcomes:

On conclusion students should be able to:

LO1: Explain Java Programming language and oops concepts (C2, PLO1)

LO2: Build a moderate to advanced stand-alone GUI applications using java concepts (C3,PL02)

LO3: Demonstrate the use of java concepts and their functionalities in the existing system (A3,PL05)

Programme Outcomes (PO):

PLO1: Gain and apply computing & technology knowledge for IT applications

PLO2: Demonstrate logical and analytical thinking skills to develop innovative software solutions for various applications

PLO5: Communicate effectively and professionally with peers, clients, superiors and society at large both in written and spoken form.

No.	Learning Outcome	Assessment
1	Explain Java Programming language and oops concepts (C2,PLO1)	Class Test
2	Build a moderate to advanced stand-alone GUI applications using java concepts (C3,PL02)	Assignment
3	Demonstrate the use of java concepts and their functionalities in the existing system (A3,PL05)	Assignment

Assignment Question	Cognitive Level						Psychomotor Level							Affective Level				
	1	2	3	4	5	6	1	2	3	4	5	6	7	1	2	3	4	5
			60M													**40M**		
Human Resource Management System			**60%**													**40%**		

Title

Human Resource Management System (HRMS)

Section A: System Specification

A human resource manager decided to improve and streamline their human resource management process by having a system to handle their increasing number of employees and to speed up their monthly payroll processing. As a system developer, you are assigned to develop a human resource management system by using Java programming to simulate the business rules and use cases below.

User Management

- Allow System Administrator to create, retrieve, update and delete/disable users
- There are five user roles in the HRMS which are **System Administrator**, **Human Resource Officer, Department Manager, Payroll Officer**, and **Employee**
- Allow all user to reset their own individual password
- Account will be locked after 3 failed password attempts and only System Administrator can unlock the account

Employee Profile Management

- Allow Human Resource officer to create, retrieve, update employee profile
- Allow employee to retrieve and view their own individual profile
- The profile should consist of the following details:
    - Personal information
    - Emergency contact
    - Working experience
    - Role, position, and department
    - History of salary increment and change of position
    - Overview of leave entitlement (annual leave, medical leave, unpaid leave, and maternity leave)
    - Monthly gross salary

Leave, Absence and Holiday Management

- There are four types of leaves which are annual leave, medical leave, unpaid leave, and maternity leave (only applicable for female employee)
- Allow employee to apply leave and cancel the applied leave
- Allow employee to check the status of the leave application which should be either pending for approval, approved, or rejected
- Department Manager can view, approve, or reject the leave application

Payroll Management

- Allow Payroll Officer to create, retrieve and update monthly payroll transaction for each employee
- Allow Payroll Officer to generate monthly payslip to employees
- Assuming the rates are fixed, and the monthly payslip should consist of the following information:

Components	Employer Contribution	Employee Contribution
EPF	13.0%	11.0%
SOCSO	1.8%	0.5%
EIS	0.2%	0.2%
Annual tax	0.0%	5.0%

- Net salary is the deductions of employee contribution from Gross salary:
  $\mathbf{Net\ Salary = Gross\ Salary - EPF - SOCSO - EIS - PCB}$
  where
  $\mathbf{PCB = Annual\ tax\ /12}$

Time Attendance Management

- Allow employee to clock in and clock out
- Late attendance will be given if the employee clock in 30 minutes late
- Employee with late attendance of three days and above in a month will be penalized with RM100 deductions from gross salary
- Allow employee to check monthly and annual attendance report

Besides, your system should include the following requirement:

- The system should be running continuously unless an exit command is issued
- The system should have a user-friendly GUI that allows interaction between user and the system
- All details must be saved in text files, either in txt, csv, JSON, or XML files

The program submitted should be compiled in class files and executed without errors. In addition, validation should be done for each entry from the users to avoid logical errors.

Section B: Deliverables

This is a group assignment. Each group with no more than **5 (Five) members** is required to submit:

1. A softcopy of the program coded in Java – submitted online on Moodle. The program should include the following:

- Basic Java concepts such as displaying and reading of text, variables, and assignment of values, comments – to explain various parts of the program, selection control and iteration structures, and arrays – single/double scripted.
- Object-oriented concepts incorporated using Java such as definition of classes, creation of objects / arrays of objects, constructors, method overloading, method overriding, etc.
- Any other aspects of Java.

2. A documentation of the system, that incorporates basic documentation standards such as header and footer, page numbering, and which includes:
   - Cover page
   - Table of contents
   - Sample outputs when the program is executed with some explanation of the outputs/sections of the program
   - OO concepts with Sample code for explanation and Java features used in your system.
   - Additional features which have been incorporated in the solution in terms of Java codes
   - All references must be made using APA referencing Convention.

The documentation along with the project files should be submitted on Moodle Folder.

Submission deadline: **19th August 2024, 11:59:00 PM**

Section C: Component Weighting

Program Listing [C3, PLO2]	: 35/60
Program Documentation [C3, PLO2]	: 15/60
Presentation [A3, PLO5]	: 10/60

Plagiarism is a serious offence and will be dealt with according to APU regulations on plagiarism.

Section D: Performance Criteria

Distinction

- This grade will be assigned to work which solution meets more than 75% of the basic requirements.
- The program should compile and run with no errors.
- Clear evidence of appropriate usage of Java advance concepts. Work at this level has to show appropriate use of basic programming concepts with appropriate use of features not presented in class.
- Program must be a unique solution.

- All documentation requirements must be met professionally with referencing done appropriately.
- During presentation, the student should be able to open and execute the program. Student should also be able to demonstrate and rationalize the need for certain codes. Also be able to answer the questions correctly with detailed explanation.

Credit

- This grade will be assigned to work which solution meets more than 65% of the basic requirements.
- The program should compile and run with no errors.
- Clear evidence of appropriate usage of basic programming concepts such as looping, control structure, and array.
- Program must be a unique solution.
- All basic documentation requirements met. Referencing was done but with errors.
- During presentation, the student should be able to open and execute the program. Student should also be able to explain most of the work produced. Also be able to answer the questions correctly.

Pass

- This grade will be assigned to work which is considered to be of average standard and which meets more than 50% of the basic requirements listed above.
- The program should compile with no errors or run when executed but with some errors.
- Work at this level must provide clear evidence of appropriate usage of basic programming concepts such as looping, control structure, and arrays.
- Referencing was done but with errors.
- During presentation, the student should be able to open and execute the program. Student should also be able to explain the work produced. Also be able to answer most questions correctly.

Marginal Fail

- Work at this level will generally be of low standard where it may even fail to meet less than 50% of the basic requirements listed above.
- The program should compile with no errors and run when executed but with some major errors.
- Work at this level must provide clear evidence of some usage of basic programming concepts such as looping, control structure, and arrays.
- No referencing was done.
- During presentation, the student should be able to open and execute the program. Student barely able to explain the work produced and could not answer most questions correctly.

Fail

- Work at this level will generally be of low standard where it may even fail to meet less than 40% of the basic requirements listed above.
- The program does not compile and/or run when executed but with some major errors.
- Work at this level must show at least little usage of basic programming concepts such as looping, control structure, and arrays.
- Barely any documentation done.
- During presentation, the student not able to open and execute the program. Student also not able to explain the work produced and could not answer any of the questions asked.