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		
Vending Machine			60%													40%		

Title

RENT A CAR

Section A: Program Specification

You are required to build a software system for Rent@Car company which will be used for the company staff to manage car rental business.

- The main purpose of this system is to allow company staff to register the customers and cars to be rented with the required details.
- Based on the customer's choice and requirements, company staff should be able to calculate total charges and upon full payment, should be able to rent-out a car to the customer.
- Company staff should also be able to generate a weekly/monthly sales report.

The following characteristics are important to be included in your system:

- The system will ask the user to enter the necessary details for the customers.
- The system will ask the user to enter the necessary details for the cars with the rental cost per day.
- The system must allow to perform the core functions such as add, modify, search, delete for the customer and car data
- Customer and Car details must be saved in files – Java text files
- The system must allow to perform car rental transaction when a customer wants to rent a car. The details of transaction must be saved into a text file. Also, the system must be able to print/display (on screen) a receipt of payment with the necessary transaction details.
- Unique GUIs should be done for all interactions between users and the system.
- The system should be running continuously unless an exit command is issued.

The program submitted should compile and be executed without errors. Besides, validation should be done for each entry from the users in order to avoid logical errors.

Section B: Deliverables

This is an individual assignment. Each individual is required to submit:

1. A softcopy of the program coded in Java – submitted in a CD. 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, polymorphism, etc.
    - Advanced concepts/knowledge in Java such as interfaces, packages, abstract classes, event handling, exception handling, and other object-oriented concepts.
    - 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
    - Sample code to discuss the OO concepts and Java features used in your system
    - Additional features which have been incorporated in the solution in terms of Java codes
    - Assumptions
    - All references must be made using the Harvard Naming Convention

    The documentation should be comb-bound with the CD attached.

Submission deadline: **September 14th 2020, 5:00 PM**

Section C: Component Weighting

Program Listing [C3, PLO2] : 60%

Program Documentation [C3, PLO2] : 25%

Report Format [A3, PLO5] : 5%

Presentation [A3, PLO5] : 10%

Plagiarism is a serious offence and will be dealt with according to APIIT and Staffordshire University 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 advanced concepts of Java such as interfaces, packages, and abstract classes. 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.