**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.

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| **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** |

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| **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**

THE VENDING MACHINE

**Section A: Program Specification**

You are required to build a vending machine which will be used for customers to buy different items.

* The main purpose of this system is to simulate a vending machine for customers to select items they are interested and then pay accordingly.
* Besides, the company owns the machine staff can upload items into the machine.

A picture containing icon

Description automatically generated

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

* The system will ask the customers to choose items they are interested and then pay accordingly.
* The system should be running continuously unless an exit command is issued.
* Company staff can upload items into the system.
* All details must be saved in files – Java text files.
* Unique GUIs should be done for all interactions between users and the system.

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, etc.
* Any other aspects of Java.

1. 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: **16TH April 2021, 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 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.