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| **Assignment Brief UCY** | | | |
| Programme Name: **FdSc Computing** | | | |
| Unit Name and level: **Programming 2 Level I** | | Unit Leader: **Ed Nicholson** | |
| Approved for Issue by: Rob Wood | | Word Count: N/A | |
| Issue Date: 07/07/2017 | | Return Date (this is the final date to submit, it can be earlier): 30/08/2017 | |
| Assignment Title: **ABC Motors** | Assignment weighting (100 % of total coursework) | | |
| Assignment Details:  **Detailed brief attached.**  Intended Learning Outcomes (list those covered by this assignment):   1. Demonstrate a detailed understanding of the syntax of object oriented programming 2. Design an algorithm for a given problem scenario, including interface design 3. Design an object model for a given algorithm 4. Implement a program corresponding to a given implementation object model 5. Develop and apply a relevant testing strategy to a given program. | | | |
| **How the Assignment will be Assessed (tasks), this gives an indication of the importance of different aspects of the assignment. These may relate directly to the ILOS or may be more generic.**  **Assessment Criteria *(****please refer to your handbook for generic assessment criteria and Merit and Distinction criteria.)* | | | **Marks Allocated** |
| 1. **Coding demonstrates understanding of Java syntax.** | | | **20** |
| 1. **Algorithms developed to meet the processing needs of the application** | | | **20** |
| 1. **The object model is convincing and correctly documented** | | | **20** |
| 1. **The implementation is syntactically correct and uses advanced features of the language** | | | **20** |
| 1. **Testing is convincing and covers all boundaries.** | | | **20** |

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| The list below indicates aspects which you should seek to address in **written** assignments. It is not exhaustive and staff may wish to add to these. The emphasis placed on these will vary with the particular assignment and its level. Staff may wish to indicate the emphasis placed on these areas below. |
| Relevance to assignment title Evidence of reading |
| Structure Presentation / illustration |
| Critical analysis Spelling and grammar |
| Original ideas Referencing & Bibliography |

**Remember to ensure that your work is original and does not breach the UCY regulations regarding plagiarism. Submission of this assignment will be taken as confirmation that it is your own work.**

**FdSc Computing – Programming 2**

**Scenario**

The sales team at ABC Motors need a system for managing car purchases and sales, profit achieved and commission paid.

Vehicle models are categorised by type, such as Vans, Saloons, Convertibles and Off-Road Vehicles etc. It is possible for a vehicle model to belong to more than one category.

When a new vehicle is purchased it shall be registered on system with Licence Plate and Vehicle Identification Number details together with details of the seller. The vehicle should be recorded against those categories to which it belongs, e.g. Off-road and Convertible.

All vehicle purchases in the UK incur VAT at 20% of the purchase price and sales also include VAT at 20% of the sales price. Profit is sale price less cost price / cost price. Profit should be expressed as a monetary value in GBP and also as a % of the cost price.

When a vehicle is sold, it should no longer appear on the system inventory.

The system should allow the team to record vehicle purchases and sales and the sales team should be able to view their own sales and commission which they have earned (at 5% of the sale price). Totals for Costs, Sales and Commission should be displayed.

The sales team manager should be able to view sales achieved across the team and should also be able to quickly identify the top and worst performing members of the team. He/she should be able to examine sales achieved by the team over the past week, the past month, or the past quarter.

The team manager should be able to record details for new members of the sales team and archive those individuals who have left.

You have been asked to design and test a suitable Object Model, and a suitable GUI in Java. A Java application with GUI is to be produced and fully tested and documented.

**Task 1**

Using the above description, prepare a draft Object-Model. Document this as a class diagram.

**Task 2**

Create classes in Java to match your design, using appropriate data types to achieve associations, aggregations and inheritance. Where necessary, include method headers but leave the detailed coding for later.

**Task 3**

Design and create a GUI using JAVA SWING or JAVA FX, implementing any navigation between forms that is necessary.

**Task 4**

Complete the programming of the solution. Record any testing carried out during implementation.

**Task 5**

Prepare a detailed test plan and implement. You must use typical, erroneous and boundary data as appropriate.