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| **BTEC L3 Extended Diploma QCF** | | |
| **Assignment no:** 02  **Assessment Title: Designing and Building an OO Program** | | |
| Assessor: Trevor Till | Student: | Group: S/W Dev Yr2 |
| Unit Number: Unit 15 | Unit Title: Object Oriented Programming | |
| Hand out date: 22/11/19  Resubmission authorised by:(BTEC only) | Hand in date: 18/12/19  Resubmission hand in date: | Date handed in:  Date handed in: |

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| **Scenario**  You are working as an object oriented programmer for a company developing bespoke software systems. You are to design and build a cinema ticket booking program using the C# console interface.  The program will present a series of showings to customers, have film details (name, length and age rating), the day and time it is shown and which screen it is on (note: that for the purpose of the development stage, booking is for only one day at a time, so the performances do not have to be for each day, only one day at a time).  Customers will select a showing from a list and will then be asked how many tickets they want for the performance, the system will see if that many tickets are available for that performance and then deduct those seats from those available for that screen.  Customers need to be able to choose from standard or VIP seats; the standard seats are £9.99 each and the VIP seats are £15.00 each.  Note: if there are not enough tickets available it will allow the user to choose another showing. It should then produce a virtual ticket on the screen showing the details of the booking (eg those highlighted above, including the number of tickets and the total cost).  The systems analyst for this project has identified that the program will probably need classes for (at least) film, screen, showing and purchase to enable its production. They also think that it will be necessary to read and write from a text file to be able to keep a record of the number of seats that have been allocated to previous ticket bookings.  **Tasks**  **Task 1 - Design**  Write a specification for the whole program and create the use case diagram. Draw a class diagram of the appropriate classes for the program and show any inheritance and association relationships between the classes with any class method signatures. Note any constructors that you think may be necessary (you may decide to have overloaded constructors).  **Task 2 - Build**  Code the classes required for a working program, ensuring that you have commented and laid out your code, and used proper naming conventions for your program elements (classes, fields/variables, properties, methods etc).  Create on-screen help for the program, explaining, for example, how the types of film differ or how to book tickets. Think about how this feature might best be implemented in an Object Oriented program.  **Task 3 – Use of CASE Tools**  Demonstrate how you used the tools and programming techniques to construct the program (programming techniques should be normal programming techniques and any techniques that are specific to object oriented programming); give reasons for the ones used in your program and support your explanations with relevant code snippets.  Specific object oriented techniques could include:   1. the IDE, www.draw.io (or other diagramming tool), how they help you design, code, find errors, etc (use annotated screenshots explaining their features) 2. explain how you have coded the classes that you have used, explain how the fields, properties and methods of the class contribute to how the program works. 3. Explain why any constructors that you have used are necessary for the way the program works 4. Explain why any messaging between objects that you have used helps to make the program work 5. Explain any pre-defined methods |

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| **What to hand in:**  1. Printouts of program specification, use case and class diagrams, showing relationships, properties, methods etc.;  2. Printouts of the source code for completed classes and main program. Source code and code snippets should be copied from Visual Studio and pasted into Word or other word processor – not screenshots of the code as images are hard to read and are not, therefore, good documentation;  3. Printouts of screenshots of the screen interface for all of the functionality of the program  3 Report demonstrating the tools and techniques of OOP and reasons for those tools and explanations of the programming techniques (explanations of programming techniques should make reference to relevant code snippets to support the explanations); | |
| **How to hand in your assessment**  This assessment must be handed into the library and uploaded to the VLE by the hand in date on the front of the assignment brief.  If you have a valid reason why you will not be able to hand in the work on time (up to 3 days later), you will need to fill out and hand in an AE form. |

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| **Student declaration:**  I have read the Assignment Submission Procedure. I agree that this is my own work or my own work and that of other members of my group. It has not been copied (plagiarised) from any other source e.g. the internet, a book, another student or group of students. I know that I may FAIL this assignment if the Head of School proves that this is not my own work. | | | |
| Student signature |  | Date: |  |

For staff use only.

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| **Internal Verification** | This assessment has been verified and form IV8 completed: | IV name: | IV signature: | Date: |

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| **SMOG index:** | 10.6 |

Test for readability on scenario and tasks only OR workbooks tasks. Appropriate scores are: L3 = 16; L2 = 13/14; L1 = 11/12; entry level = 9/10

Link here: <http://www.readabilityformulas.com/free-readability-formula-tests.php>

**Assessor marking grid**

**Student name:**

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| Grading criteria | Grading criteria | Achieved  Not submitted  Fail  Resubmission | Comments/Feedback | Target date  for resubmission  (BTEC FE only - within 15 working days of receipt of results of assessment) |
| P2 | demonstrate the use of object oriented tools and techniques |  |  |  |
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| P3 | design an object-oriented application to meet defined requirements |  |  |  |
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| P4 | implement a working object oriented application to meet defined requirements |  |  |  |
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| P6 | create on-screen help to assist the users of a computer program. |  |  |  |
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| M2 | give reasons for the tools and techniques used in the production of an object oriented application |  |  |  |
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| **General comments and feedback on English and maths**  This is for the overall comments and well dones.  This is for the comments on grammar, spelling and maths; what was done well and areas for improvement (– in line with the college marking strategy). |

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| ***Actual Grade*** | ***Grading criteria*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ***Achieved?*** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Please note that the grade that you have been awarded is subject to confirmation following internal verification and external sampling by the Awarding Body.

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| I certify that the evidence submitted for this assignment - either via the VLE or other method - is the learner’s own. The learner has clearly referenced any sources used in the work. I understand that false declaration is a form of malpractice. |

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| Assessor signature: | Date marked: |