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| **50 Years of Computing Logo.jpg** | Department of Computing |

# COSE60636 Engineering and Integrating Large Scale Systems

**Please note whilst this is an individual piece of coursework, no part of the submission should be the work of another student/individual without correct accreditation. Failure to accredit other contributions correctly is academic dishonesty and your work will be referred for plagiarism.**

**See University Regulations at** http://www.staffs.ac.uk/assets/Procedure%20for%20Dealing%20with%20Breaches%20of%20Assessment%20Regulations-Academic%20Misconduct%202016-17%20v1\_tcm44-91272.pdf

**Coursework Overall – worth 70%**

Addressing Module Learning Outcomes as follows:

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| **Learning Outcome** | |
| 2. CRITICALLY EVALUATE HOW SOFTWARE ENGINEERING TOOLS AND TECHNIQUES ARE DEPLOYED WHEN INTEGRATING SYSTEMS. | Enquiry |
| 3. PLAN, IMPLEMENT AND EVALUATE THE INTEGRATION OF A SOFTWARE SYSTEM INTO AN EXISTING NON-TRIVIAL ENVIRONMENT TAKING INTO ACCOUNT SECURITY ISSUES. | Application |
| Problem Solving |
| 5. APPLY METHODS AND TECHNIQUES TO MANAGE THE TECHNICAL AND NON-TECHNICAL BUSINESS OF INTEGRATING SOFTWARE SYSTEMS IN THE CONTEXT OF A GLOBAL ENTERPRISE. | Analysis |
| Application |

The coursework is partitioned into 2 parts. Distribution and submission dates are as follows:

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| Component | Submission | Weighting |
| Part One | See Blackboard | 30% |
| Part Two | See Blackboard | 70% |

**Part One Brief**

Banger and Co are a small family owned vehicle hire company. At present everything is conducted using paper-based forms. A potential customer rings the garage and the desk clerk checks a diary to see if they have the vehicle requested for the time required. If they do then the booking is made (recorded in the diary) they take the customers details, explain what they will require the customer to bring in on the day; a photocard driving licence and 1 other form of identity from either a recent utility bill (within 3 months) or council tax statement.

Unfortunately, this way of running the business means that Banger cannot take bookings when the garage is closed, meaning they lose out to competition. They have asked you to develop a system for them that will allow customers to book vehicles online.

At present their fleet consists of:

2 x small town cars (1 hybrid, 1 petrol) £40.00 per day

2 x small family hatchback (1 diesel automatic, 1 petrol manual) £55.00 per day

1 x large family saloon £60.00 per day

1 x large family estate £75.00 per day

2 x medium vans £70.00 per day

Vehicles can be rented for a minimum of 5 hours (half a day’s rental) and a maximum of 2 weeks.

The garage opens at 8:00am and closes at 6pm therefore any booking must be collected and returned during this time unless the hirer has agreed with Banger for a late return in which case they can return the vehicle and drop the keys through office letterbox. Only repeat customers will be allowed to do this, it is not something they offer to first time customers.

Banger is not insured for drivers under the age of 25 for any vehicles other than the small town cars.

Any booking can be extended up to 4pm on the day of return if the vehicle has not been booked for rental on the following day.

No deposit is required on making booking; however, if someone has previously booked a vehicle and failed to collect it, that customer is blacklisted and may not book a vehicle again from Banger.

In addition to renting a vehicle Banger offers additional equipment such as SatNav (non of their vehicles have it as standard), baby seats and even a wine chiller. Customers can specify that they would like to add the specified equipment to their booking at any point up to and including collecting the vehicle. If one is available at the time of request for the period of the booking it is added to the booking.

**Task**

Develop a prototype system in a platform of your choice that provides the functionality required and be used in the context provided (i.e. supports the booking of a car for rental correctly).

You must undertake a demonstration of your solution during the dates specified.

**Assessment Submission**

Your code with any specific installation instructions via Blackboard.

You will be required to demonstrate your solution to the group in week 13 of semester 1 prior to the distribution of the second part of the assignment.

**Feedback**

You will be given verbal feedback on your application during the demonstration.

You are encouraged to discuss your feedback with the assessment team.

**Deadlines**

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| Due date for all submission requirements | See Blackboard |
| Demonstration | See Blackboard |

**Failure to successfully complete any of the components for this module will result in a mark of zero for that component.**

**Marking Scheme for Part One** (*Weighted at 30%*)

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| Criteria | Maximum Mark | Acquisition and application of requisite knowledge | | | | |
| **Novice** | **Beginner** | **Competent** | **Proficient** | **Expert** |
| *Suitability of the application* | 20 | Application is unsuitable for the required purpose. | Application meets some of the requirements but is substantially incomplete. | Application meets the base requirements but does not have complete functionality. | Application meets requirements but there are limitations such as incomplete searches or input options. | Application is wholly suitable, providing all functionality to a professional level. |
| *Presentation of data - degree to which individual data is presented effectively.* | 20 | Very poorly presented data inappropriate or wholly ineffective. | Significant issues with presentation off the feedback which undermines the appropriateness and efficacy. | Acceptable presentation of feedback though there are minor issues with appropriateness and efficacy. | No noticeable limitations though there are minor limitations in the appropriateness of the presented data. | Data is effectively presented making throughout. |
| *Professionalism of Application – quality of the application produced, its suitability, the quality of engineering.* | 20 | Application is limited in features, poorly engineered lacking robustness and extensibility. | Application has most of the required features evident though lacks thorough engineering leading to insufficient extensibility and/or robustness. | Acceptable solution though not thoroughly engineered which may limit extensibility and/or robustness. | Solution is well engineered with evidence of extensibility. There may be some minor lack of robustness and/or features. | Wholly professional approach with solution well-engineered, robust and extensible. |
| *Usability of the application* | 20 | Basic application usability with limited evidence of appropriate use of interface technology and major limitations in interactivity. | Limited but functional usability, not intuitive and lacking minor interactivity. | Acceptable usability though not fully exploiting the technology and thus detracting from the user experience. | Good, usable application though minor limitations in exploiting the potential of the technology. | Excellent, near professional quality interface and interactivity. |
| *Data manipulation and storage* | 20 | No persistence provided and/or queries not fully functional. | Limited persistence provided and/or minority of queries supported. | Persistence suitably provided and queries supported. | Persistence suitably provided with an extended query set provided. | Persistence suitably provided and advanced query management functionality provided. |