

<b>COMP1632 (2018/19)</b>	<b>Systems Development Project</b>	<b>Faculty Header ID: 300479</b>	<b>Contribution: 50% of course</b>
<b>Course Leader: Dr Elena Irena Popa</b>	<b>COURSEWORK 2</b>		<b>Deadline Date: Monday 01/04/2019</b>
<p>This coursework should take an average student who is up-to-date with tutorial work approximately 50 hours</p> <p>Feedback and grades are normally made available within 15 working days of the coursework deadline</p>			
<b>Learning Outcomes:</b> B,C			

Plagiarism is presenting somebody else's work as your own. It includes: copying information directly from the Web or books without referencing the material; submitting joint coursework as an individual effort; copying another student's coursework; stealing coursework from another student and submitting it as your own work. Suspected plagiarism will be investigated and if found to have occurred will be dealt with according to the procedures set down by the University. Please see your student handbook for further details of what is / isn't plagiarism.

**All material copied or amended from any source (e.g. internet, books) must be referenced correctly according to the reference style you are using.**

**Your work will be submitted for plagiarism checking. Any attempt to bypass our plagiarism detection systems will be treated as a severe Assessment Offence.**

### Coursework Submission Requirements

- **An electronic copy of your work for this coursework must be fully uploaded on the Deadline Date of Monday 01/04/2019 using the link on the coursework Moodle page for COMP1632.**
- **For this coursework you must submit a single PDF document. In general, any text in the document must not be an image (i.e. must not be scanned) and would normally be generated from other documents (e.g. MS Office using "Save As .. PDF"). An exception to this is hand written mathematical notation, but when scanning do ensure the file size is not excessive.**
- **For this coursework you must also upload a single ZIP file containing supporting evidence.**

- **There are limits on the file size (see the relevant course Moodle page).**
- **Make sure that any files you upload are virus-free and not protected by a password or corrupted otherwise they will be treated as null submissions.**
- **Your work will not be printed in colour. Please ensure that any pages with colour are acceptable when printed in Black and White.**
- **You must NOT submit a paper copy of this coursework.**
- **All courseworks must be submitted as above. Under no circumstances can they be accepted by academic staff**

The University website has details of the current Coursework Regulations, including details of penalties for late submission, procedures for Extenuating Circumstances, and penalties for Assessment Offences. See <http://www2.gre.ac.uk/current-students/regs>

## **Case study: The Greenwich Community Theatre (GCT)**

The Greenwich Community Theatre is a local theatre located in south-east London. It is a mid-scale venue adapted from a Victorian building. Since 2000 the theatre has forged a commitment to, and a reputation for, high quality accessible performances for all. With its beautiful stage and intimate auditorium, Greenwich Community Theatre is ideally suited to the presentation of various types of performances such as musicals, dramas, comedies and tragedies.

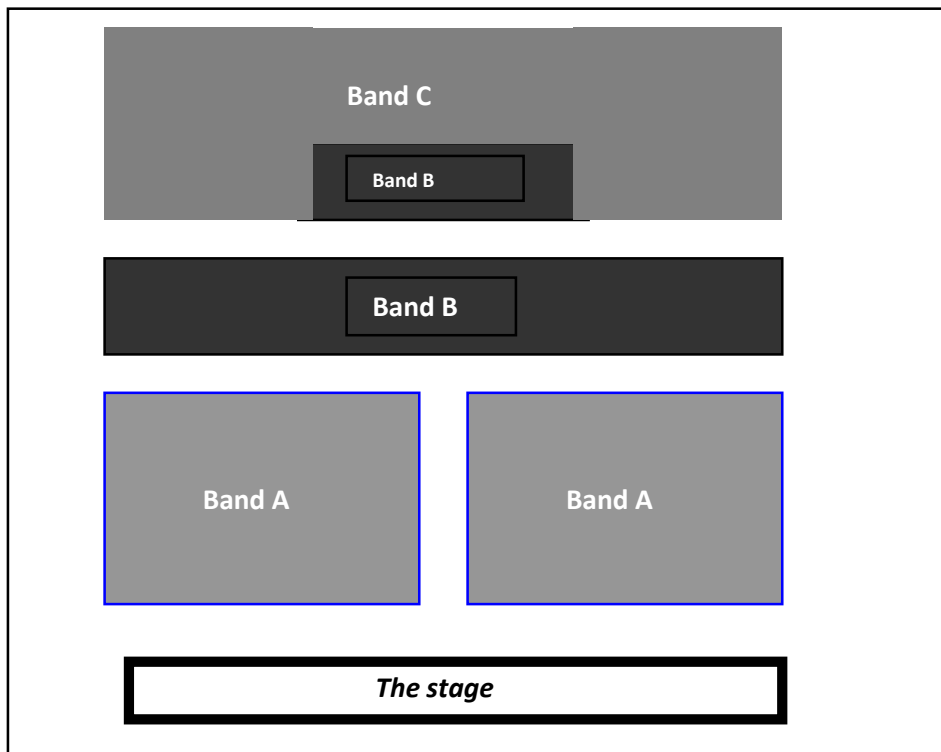
The theatre runs daily scheduled evening performances except Sundays and has an additional scheduled matinee (afternoon) performance on Saturdays. From time to time, there are additional special matinee performances of plays, mainly for children. Children and OAPs (Old Age Pensioners) are given a 25% reduction.

Theatre tickets can be booked in one of the following ways:

1. Customers can phone up to book tickets with their credit cards, paying on booking. The operator then provides them with a confirmation id. On the day of the performance the customers can collect their tickets from the special collection booths, using their credit cards.
2. Customers can go to the ticket office during working hours and buy the tickets with cash, cheque or credit card. In the last hour before the start of a performance, this method incurs a 10% discount on the full price.
3. Agencies and social clubs can phone to book tickets. These are charged directly to accounts they hold with the theatre. There is a discount of at least 5% on the nominal price. This is increased by a further 5% for bookings of more than 20 tickets for a single performance.

Ticket prices vary depending on the performance and the location of the seats. The seating plan (figure 1) identifies three different price bands A through to C.

For each band, there is a different price for each performance.



**Figure 1. Layout of the GCT**

The Greenwich Community Theatre is at the moment controlled by the Greenwich Cultural Centre Authority. The Board of Directors of the Greenwich Cultural Centre Authority have decided that it is now time for the **development of a software system which will facilitate the automatic booking of tickets for performances**. They believe that having such an automated system will save them time and money as the sales staff at the counters will not have to manually be filtering such information and thus they will be able to serve more customers.

However, the sales staff are not particularly keen on the development of a computerised system. Most of them have been working there for years and therefore they prefer sticking to their old way of working rather than having to deal with computers. They are reluctant to go through training and they don't see the value of automating the process of booking tickets.

The Board of Directors still believe this will speed up work. Their vision is to attract more customers and they believe that this new system has a great potential in helping them to achieve that.

They are also thinking to provide customers with cheaper options of theatre ticket bookings such as booking theatre packages (book for 4 plays and get one ticket free), or the weekday's special offers (watch a play any day between Monday and Thursday with a 10% discount).

The Board of directors believe that one of the keys to increase sales is to expand their services by housing plays that might appeal more the younger audience. The sales staff, however, feel that promoting such plays might risk their reputation of providing high quality performances.

With the theatre industry affected by the economic crisis, the Board of Directors believe that by expanding their services and providing other options for customers to book tickets, such as by allowing those to browse their online plays list and place orders online at a discounted price will enable them to attract new customers and increase market share. They also feel that by allowing customers to share/write their honest views about a play and their experience at the GCT online, will have a positive impact on their reputation.

A new option the system shall support is therefore for Customers to write reviews and also order tickets online using conventional electronic "shopping basket" and "check out" functionality.

All online payments will be by credit card. The checking of credit card details will be done by the theatre's bank, through a link to a system known as VISACheck. The VISACheck system acts as an interface between the theatre and their bank's credit check services.

Customers will have the option to choose from several different shipping methods and rates based on a formula related to the urgency of an order, or collect their tickets on the day of the performance from the special collection booths, using their credit card.

During the process of booking, the system should allow the operator, or the customer (if this happens online) to select the seats to be booked on a graphical representation of a seating plan, mark them as booked, calculate the individual and total prices and issue a reservation slip. When processing a payment, the system will print the tickets and produce a receipt showing a breakdown of the total payment.

You are consultants called in to assist the Greenwich Community Theatre with the analysis, design and development of their new hybrid system. They have a tight deadline of 6 months for the system to go live, staff should be trained within 2 weeks and the analysis, design and development of the new system should be within the budget of 40.000 pounds as decided by the Board of Directors.

## IMPORTANT NOTES:

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Initially you were required to do the requirements analysis and produce a first draft of the proposed system design for your first coursework. For this coursework, you will need to build upon previous iterations of the development process given in your first semester coursework (which is based on the same case study). The iterations for this coursework will be completed as a **group coursework**.

**A Group consists of FOUR OR FIVE people. You can only form groups from students within your tutorial group. You are expected to submit 2 outputs on the Moodle submission link. Each group member should upload ONE document, which will include the group report as well as the student's individual report, which should be attached as an appendix to the group report. Each group member should also upload the zip file with the code of the system which you will have created as a group.**

Your group acts as a software house. You decided **to design and build the required system** using object-oriented methodologies, in order to allow for more flexible design/build iterations and re-use of design and code.

As a first task, you need to discuss within the team the first draft solution. Based on feedback received from your first coursework, it is probable that modifications to your initial design are necessary.

# Deliverables

***Deliverable 1: A Report is to be submitted by EACH member of your group and it should include:***

## **Part A: The final group report**

1. The title page - include the names and ID's of all students in your group.
2. Design artefacts.
  1. An UML Use Case diagram (a revised version of the one included in SDP Coursework1) - identifying all actors and the Use Cases they are involved with.
  2. Interaction Diagrams. Using UML sequence (interaction) diagrams perform an analysis of all main Use Case scenarios (first level use cases) – at least 3.
  3. State chart diagrams. One diagram for each major class (at least 3).
  4. Design UML Class Diagrams – Show the attributes, all methods and associations (aggregation/composition and generalisation where appropriate) for all classes. The design class diagram should also reflect the design patterns that you considered to use. The design class diagram needs to have design detail.
3. A section showing the use of Design Patterns in your design, with examples (please do not write about design patterns in general). You are expected to introduce patterns in your design, have a discussion about how these are used and consequently show how these are implemented in your code.
4. A section with any design/implementation problems encountered and how you solved them.
5. An evaluation of HCI factors (including screen shots). This HCI discussion should revolve around the usability of your system and how you took into consideration the various HCI factors when designing your system. You should provide screenshots of your interface as a part of this section as well.
6. A completed copy of the work breakdown form on the last page of this document.

**As a group** you will fill in and attach to the report a pro-forma (from the end of this document) that will enumerate all the tasks that your group tackled and completed as part of this coursework, and the involvement of each member of the group in each task. This will be used in part to establish the level of planning and group work within your group and the individual contribution of each member of the group. **The pro-forma must be agreed and signed by all members of the group.**
7. An appendix with:
  - Listings of any code
  - Minutes of team meetings should be included

## Part B: A final individual report

**This report is to be submitted by every student. This should be attached as a second appendix to the group report.** Each member therefore should upload 1 document consisting of the group work and his/her individual report. **The final individual report** itself should include:

1. Title page containing your name and ID plus the names and ID's of all students in your group.
2. A review (400-500 words). This review should include two parts:
  - Part1: Discuss how the course affected you, reflecting on what you have achieved. Please include in your report what went well; any design/implementation problems encountered and how you solved them.
  - Part2: Team work is an integral part of the Software Development Project course and Personal Development. The teamwork mark is awarded to each team member individually. In this review, you should write on your personal experience of teamwork and how the group dynamics worked in the group coursework. You are asked to assess yourself and each of the other members of your team in terms of:
    - a. Contributing to the planning of the work.
    - b. Contributing to the leadership and management of the work of the team as it progressed.
    - c. Contributing to the final products.
  - A completed copy of the work breakdown form on the last page of this document as agreed by all members of the group.

## Deliverable 2: PROTOTYPE SYSTEM demonstration

**A presentation of the prototype system** you have built.

**You** must arrange a demonstration of your product **as a group** with **your** Tutor. In the demonstration you will need to present your team and yourselves. You should “**sell**” your system to the **user** (your tutor), explaining why your system is better than your competitors in terms of both **design** and **implementation** (not cost).

The prototype should reflect the following:

1. It should be built in an Object Oriented way using any appropriate technology you are familiar with (*The prototype can be built as a .NET application (desktop or web), as a Java stand-alone application, C#, or any other application you are familiar with*).
2. The prototype system should have enough business and UI functionality to test the business life cycle of the main use cases from your use case diagram. Your system therefore should be working for your main use cases



3. Your system should **persistently** store details of sales. You can use any persistent storage or type of database you prefer, e.g. MySQL, SQL server, Oracle, Access etc. For this, you are also required to use boundary/interface classes that will manage the translation from the Object oriented design to the relational schema (ERD). To do so, you will need to produce a database based on the ERD and store all the necessary information. You are not required to include the ERD diagram as a part of your report, however if you would like to, please add this to your appendix.

***Please note that this assignment will require you to attend a scheduled session where you will demonstrate your work to your tutor/assessor. Failure to attend and deliver the demonstration will result in an overall mark of zero for this assessment.***

# Grading Criteria

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You will be assessed for the work put into the project by the group as a whole. Individual marks will then be adjusted according to your personal input into the group work, the presentation and references in minutes.

Marks will be awarded (directly or indirectly) for:

- A well-structured report clarifying ambiguities and clearly describing your design.
- Correct use of UML notation and techniques.
- Architecturally sound, understandable, quality, design that maps to the implementation.
- The 'Sale' and demonstration of the system by the team.
- Group dynamics with effective interaction and team cooperation and/or management.

## Assessment Criteria

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**In general the team marks (individual marks are distributed around this) are awarded as follows:**

- 70%+ Teams with very good dynamics that produce well documented work that follows the requirements both in design and implementation to a high standard and who show detailed critical understanding of relevant concepts with a very good report and presentation.
- 55%+ Teams with good dynamics that produce work that follows the requirements both in design and implementation reasonably well and who show good understanding of relevant concepts with a good report and presentation.
- 40%+ Teams that produce work displaying minimal functionality, and a generally correct use of notation and concepts with a reasonable report and presentation.
- 30%+ Teams that produce work displaying little or incorrect functionality, and a simplistic or partially incorrect use of notation and concepts with a poor report and/or presentation.
- <30% Teams that produce work displaying no functionality, and a simplistic and incorrect use of notation and concepts with a very poor report and presentation.

### Other relevant information for your report:

- Please include a table of contents
- **Please make sure that any assumptions made, need to be stated clearly in the report.**

# Group members work contribution form

**In percentage, please indicate the work contribution** of each member. This should be agreed by all group members. **The total of all members work must add to 100%**

You must **submit this form in your final report**. Put your initials in the signature columns.

**Each member must also bring a copy to the demonstration.** This copy must be signed by all members.

**Group/Team Name:** \_\_\_\_\_

Team member name	Student ID	individual overall work contribution (%)	Signature
Student:			
Student:			
Student:			
Student:			
Student:			
Student:			
<b>Total 100%</b>			

## COMP1632 Coursework2: Demonstration Sheet

Student Name: \_\_\_\_\_ Student ID: \_\_\_\_\_

Group/Team Name: \_\_\_\_\_

<i>Section for which mark is awarded:</i>		<i>Marks given and comments</i>
A UML Use Case diagram identifying all actors and the Use Cases they are involved with. Use <<includes>> and <<extends>> where appropriate.	5	
Interaction Diagrams. Using UML sequence (interaction) diagrams perform an analysis of all main Use Case scenarios (first level use cases) – at least 3.	15	
State chart diagrams. One diagram for each major class (at least 3).	10	
Design Class Diagrams – Show the attributes, all methods and associations for all classes. Use inheritance, aggregation and composition where needed. The design class diagram should also reflect the design patterns considered	15	
Design patterns discussion and Evaluation of HCI	15	
How well the design is reflected into code - the application should have the main use cases implemented	15	
Demonstration of the System Prototype – the code should run and the application should have the main use cases implemented	15	
Individual Report and accurate self-assessment	10	
<b>Total</b>	<b>100</b>	