COM5012

System Analysis & Design

<u>Case Study Report</u>

Date for Submission: Please refer to the timetable on ilearn

(The submission portal on ilearn will close at 14:00 UK time on the date of submission)

Assignment Brief

As part of the formal assessment for the programme you are required to submit a **System Analysis & Design** assignment. Please refer to your Student Handbook for full details of the programme assessment scheme and general information on preparing and submitting assignments.

Learning Outcomes:

After completing the module, you should be able to:

1) Demonstrate an understanding of basic principles of software engineering and design methods.

2) Demonstrate knowledge and critical understanding of systems analysis & design techniques

3) Select and apply relevant systems analysis and design tools and techniques for a given scenario

4) Communicate effectively with stakeholders

Graduate attribute:
5) Professional Skills: Perform effectively within the professional environment. Demonstrate interpersonal skills such as effective listening, negotiating, persuading and presentation. Be flexible and adaptable to changes within the professional environment.

All learning outcomes must be met to pass the module.

Guidance

Your assignment should include: a title page containing your student number, the module name, the submission deadline and the exact word count of your submitted document; the appendices if relevant; and a reference list in AU Harvard system(s). You should address all the elements of the assignment task listed below. Please note that tutors will use the assessment criteria set out below in assessing your work.

You must not include your name in your submission because Arden University operates anonymous marking, which means that markers should not be aware of the identity of the student. However, please do not forget to include your STU number. **Maximum word count:** 4000 words

Please refer to the full word count policy which can be found in the Student Policies section here: Arden University | Regulatory Framework

Please note the following:

Students are required to indicate the exact word count on the title page of the assessment*.*

The word count includes everything in the main body of the assessment (including in text citations and references). The word count excludes *numerical data in tables*, *figures, diagrams, footnotes, reference list and appendices. ALL other printed words ARE included in the word count.*

Please note that exceeding the word count by over 10% will result in a 10-percentage point deduction*.*

Assignment Task
Case Study – HarmonyCare Limited

HarmonyCare Ltd Hospital operates within the private healthcare sector, providing a range of medical services, including consultations, diagnostics, surgeries, and postoperative care in the UK and Germany. The hospital, with around 1000 employees and 5 branches in the UK and one branch in Germany, faces challenges in efficiently managing patient records, appointments, and billing across multiple locations. The current market demands advanced healthcare solutions to enhance patient care, streamline operations, and ensure compliance with regulatory standards.

However, their existing system lacks of a centralized patient registration system which leads to inconsistent patient data across different departments and locations. Duplicate patient records are created, causing confusion and potential medical errors. Manual handling of patient registration process results in slower workflows and increased administrative burden. There are the reports of overbooking appointments, leading to longer waiting times and dissatisfaction among patients. There are the challenges in allocating resources such as doctors, rooms, and equipment optimally. Patients and healthcare providers face difficulties in receiving timely notifications and reminders about appointments. Their current billing processes increase the likelihood of errors in invoicing, leading to discrepancies in charges and potential financial issues for both patients and the healthcare facility as well as has resulted in delayed processing of bills, impacting the hospital's cash flow and financial stability. Their inventory tracking also makes it challenging to forecast demand accurately, leading to difficulties in planning timely reorder of supplies.

Now HarmonyCare has recognized the need to develop an optimised system to address these challenges by automating key processes, improving data accuracy, and providing a centralized platform for seamless information exchange between branches.

Tasks:

With reference to the case study and the new system under proposal:

- Analyse the business environment stating its current market, services, and problems as well as the benefits of the new system. Recommend an SDLC model for the new development, clearly stating, in relation to the case study, why this has been chosen over the other models.

(800 words)
(20 marks)
(LOs: 1)

- Present a requirements analysis that:
    - Lists the core functionalities of the proposed system solution (identification of actors and use cases).
    - Documents the detailed steps of 4 core functionalities of your choice in the format of a use case course of events table,
    - Defines core non-functional requirements and suggestions to optimise.

(1200 words)
(30 marks)
(LOs: 2)

- Using your requirements analysis that was conducted in the above task, design the proposed system to include the Data Flow Diagrams to represent levels 0, 1 and 2 for the chosen 4 core functionalities.

(Equivalent 1600 words)
(40 marks)
(LOs: 3)

- Recommend an implementation plan which should also outline any system testing and training that may be required. Identify how these should be communicated to stakeholders taking into consideration that different communication channels and methods may be required based on stakeholder experience, knowledge, and relevancy.

(400 words)
(10 marks)
(LOs: 4)

Ensure to underpin your critical evaluation with relevant and appropriate literature.

End of questions

Formative Feedback

You have the opportunity to submit a part of your work equivalent to 30% to receive formative feedback.

The feedback is designed to help you develop areas of your work and it helps you develop your skills as an independent learner.

If you are a distance learning student, you should submit your work, by email, to your tutor, no later than 2 weeks before the actual submission deadline. If you are a blended learning student, your tutor will give you a deadline for formative feedback and further details.

Formative feedback will not be given to work submitted after the above date or the date specified by your tutor - if a blended learning student.

Referencing Guidance

You **MUST** underpin your analysis and evaluation of the key issues with appropriate and wide ranging academic research and ensure this is referenced using the AU Harvard system(s).

Follow this link to find the referencing guides for your subject: Arden Library

Submission Guidance

Assignments submitted late will not be accepted and will be marked as a 0% fail.

Your assessment can be submitted as a single Word (MS Word) or PDF file, or, as multiple files.

If you chose to submit multiple files, you must name each document as the question/part you are answering along with your student number ie Q1 Section A STUXXXX. **If you wish to overwrite your submission or one of your submissions, you must ensure that your new submission is named exactly the same as the previous in order for the system to overwrite it.**

You must ensure that the submitted assignment is all your own work and that all sources used are correctly attributed. Penalties apply to assignments which show evidence of academic unfair practice. (See the Student Handbook which is available on the A-Z key information on iLearn.)

Assessment Criteria (Learning objectives covered - all)

Level 5 reflects the continuing development in knowledge, understanding and skills from Level 4. At Level 5, students are not expected to be fully autonomous but are able to take responsibility for their own learning with appropriate guidance and direction. Students are expected to further develop their theoretical knowledge within a more intellectual context and to demonstrate this through more complex forms of expression which move beyond the descriptive or imitative domain. Students are expected to demonstrate skills of analysis in both problem-solving and resolution.

Grade	Mark Bands	Generic Assessment Criteria
First (1)	80%+	An outstanding information base exploring and analysing the discipline, its theory and any associated ethical considerations. There is sophisticated use and management of learning resources and a high degree of autonomy is demonstrated. Writing is outstandingly well-structured and accurately referenced throughout. Where appropriate, outstanding professional skills are demonstrated. The work is original and with some additional effort could be considered for internal publication.
	70-79%	An excellent knowledge base within which the discipline is explored and analysed. There is a degree of originality in the approach. The work demonstrates confidence and autonomy and extends to consider ethical issues. Learning resources have been managed confidently. Writing is exceptionally well structured and accurately referenced throughout. Where appropriate, an excellent level of professional skills are demonstrated and the work demonstrates a high level of intellectual and academic skills.
Upper second (2:1)	60-69%	A very good knowledge base which explores and analyses the discipline, its theory and any associated ethical issues. There is evidence of some originality and independence of thought. A very good range of learning resources underpin the work and there is evidence of growing confidence and self-direction. The work demonstrates the ability to analyse the subject and apply theory with good academic and intellectual skills. Academic writing skills are very good, expression is accurate overall and the work is consistently referenced throughout.
Lower second (2:2)	50-59%	A good understanding of the discipline which begins to analyse the subject and apply some underpinning theory. There may be reference to some of the ethical considerations. The work shows a sound level of competence in managing basic sources and materials. Academic writing skills are good and accurate overall and the work is planned and structured with some thought. Professional skills are good (where appropriate). The work lacks original thought, but academic and intellectual skills are moving into the critical domain. The work is referenced throughout.

Third (3)	40-49%	Satisfactory level of performance in which there are some omissions in understanding the subject, its underpinning theory and ethical considerations. There is little evidence of independent thought, and the work shows a basic use of sources and materials. Academic and intellectual skills are limited. The work may lack structure overall. There are some difficulties in developing professional skills (where appropriate). There is an attempt to reference the work.
Marginal Fail	30-39%	A limited piece of work in which there are clear gaps in understanding the subject, its underpinning theory and ethical considerations. The work shows a limited use of sources and materials. Academic and intellectual skills are weak and there are errors in expression and the work may lack structure overall. There are difficulties in developing professional skills (where appropriate). The work lacks original thought and is largely imitative.
Clear Fail	29% and below	A poor performance in which there are substantial gaps in knowledge and understanding, underpinning theory and ethical considerations. The work shows little evidence in the use of appropriate sources and materials. Academic writing skills are very weak and there are numerous errors in expression. The work lacks structure overall. Professional skills (where appropriate) are not developed. The work is imitative.

Marking Rubric
(100 marks)

Criteria and weighting	Outstanding 80% - 100%	Excellent 70% - 79%	Very Good 60% - 69%	Good 50% - 59%	Pass 40% - 49%	Poor 30 – 39%	Fail 0 – 29%
Business Analysis (20%)	An outstanding business analysis, which addresses all aspects and provides an outstanding rationale for the application, demonstrating practitioner level of process.	An excellent business analysis, which addresses all aspects and provides a strong rationale for the application.	A very good business analysis which addresses most aspects and provides a strong rationale for the application	A good business analysis, which addresses some aspects and provides some rationale for the application	A basic business analysis with weak outline of aspects and weak rationale for the application	An insufficient business analysis, which outlined no/few aspects and/or limited rationale for the application	A very limited or wholly absent level of analysis and rationale.
Requirement + Constraints Analysis (30%)	An outstanding level of analysis, which addresses all aspects of requirement analysis including any constraints/regulatory or compliance factors and identification of actors and use cases along with use case course of events table demonstrating a practitioner level of design techniques	An excellent level of analysis, which addresses all aspects of and requirement analysis including any constraints/regulatory or compliance factors and identification of actors and use cases along with use case course of events table demonstrating a strong application of design techniques.	A very good level of analysis, which addresses most aspects of requirements analysis including any constraints/regulatory or compliance factors and identification of actors and use cases along with use case course of events table demonstrating an application of a very good design techniques	A good level of analysis, which addresses some aspects of requirement specifications but there is scope for more depth. Demonstrates a foundational application of design techniques	A basic level of analysis, which addresses very few aspects of the specifications and/or has errors/omissions demonstrating little application of design techniques	A basic level of analysis, which addresses limited aspects of the specification. Demonstrates an insufficient level of understanding in the application of design techniques	A very limited or wholly absent level of analysis and application of design techniques

Criteria and weighting	Outstanding 80% - 100%	Excellent 70% - 79%	Very Good 60% - 69%	Good 50% - 59%	Pass 40% - 49%	Poor 30 – 39%	Fail 0 – 29%
Modelling (40%)	An outstanding use of diagrams, which address all aspects of the specification and the design process and demonstrates a practitioner level of understanding.	An excellent use of diagrams, which addresses all aspects of the specification and the design process and demonstrates an excellent level of understanding of the design process.	A very good use of diagrams, which addresses most aspects of the specification and the design process, with some minor omissions or errors and demonstrates an very good level of understanding of the design process.	A good use of diagrams, which addresses some aspects of the specification and the design process but there is scope for more depth and/or there are some errors or omissions. Demonstrates a good level of understanding of the design process.	A basic use of diagram, which addresses some aspects of the specification and the design process but there is scope for much more depth and/or there are a number of errors or omissions. Demonstrates a basic level of understanding of the design process	An insufficient use of diagrams, addressing limited aspects of the specification, and the design process Demonstrates a insufficient level of understanding of the design process.	A very limited or wholly absent use of diagrams and understanding of the design process.
Implementation (10%)	An outstanding level of implementation planning that includes all aspects and clearly defines appropriate communication methods for different stakeholders.	An excellent level of implementation planning that includes all aspects and defines appropriate communication methods for different stakeholders	A very good level of implementation planning that includes most aspects and considers appropriate communication methods for stakeholders.	A good level of implementation planning that includes some aspects and/or does not define appropriate communication methods for different stakeholders	A basic level of implementation planning that omits aspects and/or does not consider communication methods for different stakeholders	An insufficient level of implementation planning and/or consideration given to communication methods for different stakeholders	A very limited or wholly absent level of implementation planning or communication considerations.