** Assignment Brief **

**BTEC Level 4-5 HNC/HND Diploma (QCF)**

**To be filled by the Student**

Name of the Student :

Edexcel No : Registration No: Batch No:

**Unit Assessment Information**

Qualification : **Higher National Diploma in Computing and Systems Development**

Unit Code & Title : Unit 42 - Programming in .NET

Assessment Title & No’s : Online Examination Management System (OEMS) - (**.NET – 16 – 001)**

Learning outcomes and grading opportunities:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| LO 01: Understand the principles of programming using a .NET framework | | | | | | | |
| Learning Outcomes | LO1.1 | LO1.2 | LO1.3 |  |  |  |  | |
| LO 02: Be able to design .NET solutions | | | | | | | |
| Learning Outcomes | LO2.1 | LO2.2 | LO2.3 |  |  |  |  | |
| LO 03: Be able to implement .NET solutions | | | | | | | |
| Learning Outcomes | LO3.1 | LO3.2 | LO3.3 | LO3 |  |  |  | |
| LO 04: Be able to test and document .NET solutions | | | | | | | |
| Learning Outcomes | LO4.1 | LO4.2 | LO4.3 | LO4.4 | LO4.5 |  |  | |

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| ***Merit and Distinction Descriptor*** | | | | | | | | | |
| M1 | M2 | M3 | D1 | D2 | D3 |  |  |  |  |

**Date Issued : Date Due :**

**Date of Submission:**

**Assessor : Date Assessed:**

**Internal Verifier (IV): Date of IV:**

**Statement of Originality and Student Declaration**

I hereby, declare that I know what plagiarism entails, namely to use another’s work and to present it as my own without attributing the sources in the correct way. I further understand what it means to copy another’s work.

1. I know that plagiarism is a punishable offence because it constitutes theft.
2. I understand the plagiarism and copying policy of the Edexcel UK.
3. I know what the consequences will be if I plagiaries or copy another’s work in any of the assignments for this program.
4. I declare therefore that all work presented by me for every aspect of my program, will be my own, and where I have made use of another’s work, I will attribute the source in the correct way.
5. I acknowledge that the attachment of this document signed or not, constitutes a binding agreement between myself and Edexcel UK.
6. I understand that my assignment will not be considered as submitted if this document is not attached to the attached.

**Student’s Signature: …………………………… Date:.………………**

**Assignment Brief**

The institute of XYZ is a leading computer school which offers IT Education Island wide. Knowledge of the students registered in the institute are assessed through exams. The top management of the institute has decided to use an Online Examination Management System (OEMS) for this process. OEMS is a term to manage the exam system in terms of student registered for exam. Each and every student registered in the system for a particular course will get a username and password to login to the OEMS.

A student should face an exam for each module of the course he enrolls in, where a course is consisted of multiple modules. Each module exam is consisting of 15 multiple choice questions; each question has four choices with only one correct answer. Exam questions should be taken randomly from a pool of questions related to the module. A student has only three attempts for an exam and he should score more than 50% of the correct answers in each and every module exam to complete the course successfully. The system should also facilitate students to view their exam scores and the overall average score.

Admin will manage the OEMS and should have full access to the system where lecturer has a limited access to the system.

Following are the functionalities that should be performed by the lecturer.

1. Login to the OEMS
2. Manage Questions

* View a list of all questions
* Edit and Update Questions
* Delete the exiting questions

1. View Student grades

Following are the functionalities that should be performed by the admin users.

1. Login as Admin
2. Manage Lectures

* Register new lecturers
* Edit exiting lecturer details
* View profile of a lectures
* View a list of all lecturers

1. Manage Students

* Register new students
* Edit exiting student details
* View a list of all students
* Search Students
* View student grades

1. Manage Questions

* View a list of all questions
* Edit and Update Questions
* Delete the exiting questions
* Filter Questions

1. Manage Courses

* Add new courses
* Edit / delete existing courses
* Add or remove modules to the course
* Listing of all courses

1. Manage Subjects (modules)

* Add new modules
* Listing of all modules
* Filter modules

Assume that you are hired by the Institute of XYZ as the developer of the OEMS and design and implement a suitable solution for the above scenario using .Net framework. You are free to add more functionalities to the system while maintaining the mentioned functionality of the system.

1. **Understand the principles of programming using a .NET framework**
   1. .Net is a framework which consists of powerful features, characteristics and principles.

Discuss the principles, characteristics and features of programming using a .NET framework. (Interoperability, common runtime engine, language independence, base class library, deployment, security, portability etc.) (LO 1.1)

* 1. Critically compare different types of .NET framework architectures versions and select the best suitable version to implement the Examination Management System. (LO 1.2)
  2. Identify the supportive components of .NET framework and critically evaluate the identified components. (LO 1.3).

1. **Design the Online Examination Management System**
   1. Provide evidences for the designed system (Your answer may include User interface design, Class Diagram, ER Diagram, Activity Diagrams etc.) (LO 2.1)
   2. Explain the components and data and file structures required to implement a given design. (LO 2.2)

**Hint:** You can use a component diagram to explain the components to be implemented in the system, Arrays can be used a data structure and if you are using files to store any data explain the structure of the files and data is stored.

* 1. The system can be implemented to be deployed in many environments such as mobile, handheld, web based, desktop, dedicated device, client server etc. Evaluate potential delivery environments and interaction of the designed system. (LO 2.3)

1. **Implement the designed examination system**
   1. Implement the designed system using .Net framework. Provide important code lines with proper comments and user interfaces filled with sample data. (LO 3.1) Include sample codes of implemented control structures. (LO 3.2)

**Note:** It is recommended to provide formatted codes in textbox without using screenshots and caption.

* 1. Identify and implement opportunities for error handling and reporting to minimize the errors that might occur. Provide evidences of the implemented techniques used to handle the errors. (LO 3.3)

**Note:** Using a try-catch block is one of them and there are many more.

* 1. Provide evidences of features of the selected Integrated Development Environment (IDE) used to implement the system effectively. (LO 3.4)

1. **Test the implemented examination management system**
   1. Critically review and test the implemented system and provide the identified discrepancies, if any, of the application through an analysis of actual test results against expected. (LO 4.1 & LO 4.2)

**Note:** Should provide test cases including screenshots of the actual results and mention how you fix the discrepancies identified.

* 1. Evaluate independent feedback of the users to identify the limitations of the implemented system and make recommendations for further improvements to overcome the limitations identified. (LO 4.3)

**Note:** Select the best suited fact finding method(s) to gather user feedbacks and should be justified the reason for the selection with own opinions and evidences.

* 1. Prepare a user documentation to properly guide the users of the implemented system and the technical documentation for the support and maintenance of the system. (LO 4.4 & LO 4.5)

**Note:** Documentations should be simple and understandable by anyone. Use screenshots and provide stepwise guidance.

**Observation Sheet**

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| --- | --- | --- | --- |
| **Activity**  **No** | **Activity** | **Learning Outcome (LO)** | **Feedback**  **(Pass/ Redo)** |
| **1** | Present and demonstrate the implemented program features to the audience. | LO 3.1 |  |
| **2** | Test run the application with sample data | LO 4.1 |  |
| **3** | Explain the discrepancies between actual test results and expected results during Activity 2. | LO 4.1 and LO 4.2 |  |
| **4** | Perform a minor modification to the source code to alter the functionality of the system. | LO 3.2 |  |
| **5** | System is fully functional; no semantic errors and System has proved with all required function. | D 3.4 |  |

Comments:

Assessor Name :………………………………………………………….

Date :………………………………………………

Assessor Signature :……………………………………………..

**Assessment Criteria**

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| --- | --- | --- | --- |
| **Outcomes/Criteria for PASS** | **Possible evidence** | **Page** | **Feedback** |
| **LO1 Understand the principles of programming using a .NET framework** | | | |
| 1.1 discuss the principles, characteristics and features of programming using a .NET framework | Task 1.1 |  |  |
| 1.2 critically compare different types of .NET framework architectures | Task 1.2 |  |  |
| 1.3 critically evaluate the components that support the .NET framework | Task 1.3 |  |  |

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| **LO2 Be able to design .NET solutions** | | | |
| 2.1 design a web application to meet a given requirement | Task 2.1 |  |  |
| 2.2 explain the components and data and file structures required to implement a given design | Task 2.2 |  |  |
| 2.3 evaluate potential delivery environments and interaction | Task 2.3 |  |  |

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| **LO3 Be able to implement .NET solutions** | | | |
| 3.1 implement a .NET programming solution based on a prepared design | Task 3.1 |  |  |
| 3.2 implement event handling using control structures to meet the design algorithms | Task 3.1 |  |  |
| 3.3 identify and implement opportunities for error handling and reporting | Task 3.2 |  |  |
| 3.4 make effective use of an Integrated Development Environment (IDE) including code and screen templates | Task 3.3 |  |  |

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| **LO4 Be able to test and document .NET solutions** | | | |
| 4.1 critically review and test a .NET programming solution | Task 4.1 |  |  |
| 4.2 analyse actual test results against expected results to identify discrepancies | Task 4.1 |  |  |
| 4.3 evaluate independent feedback on a developed .NET program solution and make recommendations for improvements | Task 4.2 |  |  |
| 4.4 create user documentation for the developed .NET program solution | Task 4.3 |  |  |
| 4.5 create technical documentation for the support and maintenance of a .NET program solution. | Task 4.3 |  |  |

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| **Grade Descriptor for MERIT** | **Possible evidence** | **Feedback** |
| 1. **Identify and apply strategies to find appropriate solutions**   M1.3an effective approach to study and research has been applied | * .Net framework features, advantages, versions and components have been identified and explained properly with examples in Task 1.1 |  |
| 1. **Select / design appropriate methods / techniques**   M2.3 a range of sources of information has been used | * Applied the Harvard referencing techniques. |  |
| 1. **Present and communicate appropriate findings**   M3.3 A range of methods of presentation have been used and technical language has been accurately used | * Well-structured documentation * Proper academic writing * Adhered to the documentation formatting guidelines. * Non-overlapping facts. * Accurate, reliable and consistent data. |  |

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| **Grade Descriptor for DISTINCTION** | **Possible evidence** | **Feedback** |
| 1. **Use critical reflection to evaluate own work and justify valid conclusions**   D1.1 conclusion have been arrived at through synthesis of ideas and have been justified | * Proper conclusions and justifications have been provided in task 2.2 |  |
| 1. **Take responsibility for managing and organizing activities**   D2.2 substantial activities, projects or investigations have been planned, managed and organized | * **On time submission** of the assignment. * Gantt chart is provided |  |
| 1. **Demonstrate convergent / lateral / creative thinking**   D 3.4 problems have been solved  D 3.5 innovation and creative thought have been applied | * Additional functions have been added * Security features have been added * Fully featured and error free solution has been submitted |  |

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| **Strengths:** | **Weaknesses:** |
| **Future Improvements & Assessor Comment:**  **Assessor: Signature: Date: \_\_\_\_/\_\_\_\_/\_\_\_\_\_\_** | |
| ***Internal Verifier’s Comments:***  **Internal Verifier: Signature: Date: \_\_\_\_/\_\_\_\_/\_\_\_\_\_\_** | |