**BTEC Assignment Brief**

|  |  |
| --- | --- |
| **Qualification** | Pearson BTEC Higher Nationals in Digital Technologies |
| **Unit number and title** | Unit 4: Programming |
| **Learning aim(s)** | By the end of this unit, students will be able to:  **LO1** Define basic algorithms to carry out an operation and outline the process of programming an application.  **LO2** Explain the characteristics of procedural, object-orientated, and event-driven programming.  **LO3** Implement basic algorithms in code using an IDE.  **LO4** Determine the debugging process and explain the importance of a coding standard. |
| **Assignment title** | Retails Ordering System |
| **Assessor** | Abul Ala Nauman |
| **Issue date** | December 02, 2024 |
| **Hand in deadline** |  |

|  |  |
| --- | --- |
| **Scenario or Context** | **Assignment Title: Retails Ordering System**  **Scenario:**  NewEra Cash & Carry is fictitious retail grocery shop located in somewhere in Tashkent with 5000 of customer base. It sells several grocery items to the customers such as bakery, beverage, pharmacy, meat, sea food and etc. Currently, the shop uses manual system to handle day-to-day transactions of the shop. Which leads to several drawbacks such as inaccuracy, inefficiency, unreliability and data redundancy. The business management wants to improve the processes by computer-based database system for handling day-to-day transactions of the shop. You have been contacted to assist NewEra Cash & Carry in automating their Retail Ordering system. Following is the main business process scenario: The above system must be capable of handling the order process of the customer who wants to order grocery items through the system. There should be administrator privilege who can add, modify remove information from the system. At the same time customer must be able to check their order status through their login. Make sure the Ordering System having below functionalities   1. Administration Login    1. Add/modify/remove Products & price details    2. View customer order 2. Customer login    1. View the Product List    2. Order the Product (Customer can order more than one grocery items & the quantity can be also increase) 3. View the total payment   **Note:** Students are free to choose Database  **PART 1**   1. Make a presentation to the management in which you define an algorithm in detail and describe the steps involved in creating an application. Determining an algorithm for the scenario, too. 2. Prepare a report Determine the steps taken from writing code to execution. Making a flowchart for the scenario in question.   **PART 2**   1. Give explanations of what procedural and object-orientated paradigms are; their characteristics and the relationship between them in manner which can be understood by programmers that have just switched the industry domains 2. You should produce a report that analyze the common features that a developer has access to in an IDE by describing the most popular IDEs and their features, this may not be specific to a programming language. Give an explanation of the IDE you used for your development as well as its benefits. Justify your decision.   In this report include code that will critically evaluate the implementation of the programming paradigms, in terms of the code structure and characteristics. It is recommended to write the same functionality in different paradigms to show how each paradigm solves the problem and implements algorithm  **PART 3**   1. Develop a fully functional console-based application for the given scenario above. Use comments and describe the application development in a report with extracts of important code snippets that you have coded. Use IDE for the development. 2. Evaluate the use of an IDE for development of applications contrasted with not using an IDE   **PART 4**   1. You are to select the debugging process by doing research about the relevant debugging process and explain the debugging facilities available in the IDE in relation to the IDE that you have selected 2. To choose a coding standard for the programming language you have chosen, you must research the pertinent coding standards currently in use in the industry. Outline the coding standard you have used in your code. 3. Prepare a report by including followings:    1. Evaluate how the debugging process can be used to help develop more secure, robust applications.    2. Critically evaluate why a coding standard is necessary in a team as well as for the individual |
|  |  |

Learning Outcomes and Assessment Criteria

|  |  |  |
| --- | --- | --- |
| **Pass** | **Merit** | **Distinction** |
| **LO1** Define basic algorithms to carry out an operation  and outline the process of programming an application | | **D1** Evaluate the  implementation of an  algorithm in a suitable  language and the relationship  between the written  algorithm and the code  variant. |
| **P1** Provide a definition of  what an algorithm is and  outline the process in  building an application. | **M1** Determine the steps  taken from writing code to  execution. |
| **LO2** Explain the characteristics of procedural, object-  orientated and event-driven programming | | **D2** Critically evaluate the source code of an application which implements the procedural, object-orientated and event driven paradigms, in terms of the code structure and characteristics. |
| **P2** Give explanations of what procedural, object-orientated and event-driven paradigms are; their characteristics and the relationship between them. | **M2** Compare and contrast  the procedural, object orientated and event driven paradigms used in given source code of an application |
| **LO3** Implement basic algorithms in code using an IDE | | **D3** Evaluate the use of an IDE for development of applications contrasted with not using an IDE. |
| **P3** Write a program that implements an algorithm using an IDE. | **M3** Use the IDE to manage the development process of the program. |
| **LO4** Determine the debugging process and explain the importance of a coding standard | | **D4** Critically evaluate why a coding standard is necessary in a team as well as for the individual. |
| **P4** Explain the debugging process and debugging facilities available in the IDE. | **M4** Evaluate how the debugging process can be used to help develop more secure, robust applications. |
| **P5** Outline the coding standard you have used in your code. |

|  |  |
| --- | --- |
| **Sources of information to support you with this Assignment** | **Submission Requirements:**   * Written reports for P1, P2, P4, P5, M1, M2, M3, M4, D1, D2, D3, D4. * Flowcharts or diagrams for M1. * Source code files for the Retail Ordering System. * A development journal documenting the challenges, learning outcomes, and reflections on the project.   **Books:**  Dennis, A. and Haley, W. (2009) *Systems Analysis and Design*. John Wiley & Sons Ltd.  Ferguson, J. (2014) *BDD in Action: Behavior-driven development for the whole software lifecycle*. Manning.  Lejk, M. and Deeks, D. (2002) *An Introduction to System Analysis Techniques*. 2nd Ed. Addison-Wesley.  Murch, R. (2012) *The Software Development Lifecycle: A Complete Guide*. Kindle. |