**BTEC Assignment Brief**

|  |  |  |
| --- | --- | --- |
| **Qualification** | | Pearson BTEC Level 3 National Foundation Diploma in Information Technology |
| **Unit number and title** | | **Unit 4: Programming** |
| **Learning aim(s)** (For NQF only) | | **B:** Design a software solution to meet client requirements  **C:** Develop a software solution to meet client requirements |
| **Assignment title** | | Posters R Us Programming Project |
| **Assessor** | | Steve Bollen |
| **Issue date** | | 09/05/2022 |
| **Hand in deadline** | | 12/06/2022 |
|  | | |
| **Vocational Scenario or Context** | | You are a junior employee at a small software development company. Your company recently visited a local college and delivered a guest lecture. The college were pleased with the outcome of the visit.  Your company believe you are ready to develop an application independently. You have been asked to develop an application that calculates order prices for a bespoke poster printing business “Posters R Us”.  The application at this stage is to be developed as an application to be run on PC and laptop.  Posters R Us offers a bespoke printing service (any size accepted) and price is based on:  **Size of poster in centimetres**  (length + width)  **Number of copies required**  There is a minimum order quantity of **10 copies**  (size \*3p) per poster for the first 10 copies  (size \* 0.0075p) per poster for all further copies  **Choice of paper**  (115gm – no extra charge)  (135gm – extra 5p per poster)  (PVC – extra 35p per poster)  **Inputs**  Poster size, quantity required and type of paper  Customer first name, surname, email address and phone number  **Outputs**  Customer details  Total price of the order  The program should use an event driven approach (in any suitable language) using appropriate inputs, calculations and outputs to determine the results of an order being made.  You will plan, design, develop, test, review and evaluate the application to meet defined requirements. |
| **Task 1** | | **B1 Software development life cycle**  Produce a short report discussing the software development life cycle stages such as(can be slightly different):   * Requirements * Specification * Design * Implementation * Testing * Debugging * Maintenance * Deployment * Post-mortem   Relate these stages to how you intend to develop the application and what you will do after completion |
| **Task 2** | | **B2 Software solutions design**  Create the following design documentation:  **Stage 1:**   * a problem definition statement * an assessment of the application requirements * a consideration of advantages and drawbacks of using certain programming languages and a justification of why you have chosen a particular one   **Stage 2:**   * diagrammatic illustrations such as a user interface showing inputs and outputs * an algorithm and/or flowchart * a data dictionary including constant and variable names/descriptions and data types * a test plan with supporting test data for the system to be tested against once development is complete   You should ensure that all of your diagrams and illustrations are relevant and accurately describe the application you intend to create. |
| **Task 3** | | **B2 Software solutions design**  Review your designs with others to obtain feedback and identify areas for improvement. You should analyse the design options for the application, considering the features of software you will create, and any technical and design constraints.  You should use feedback to improve the quality of the design solution for the problem. Then evaluate and justify your final design decisions. |
| **Task 4** | | **C1 Software solutions development**  Following the design, you will develop the poster printing application. You will implement the program to provide the functionality required by the software development company.  You will:   * demonstrate your use of a development environment and the chosen programming language * gather evidence of the development (see suggested checklist)   **C2 Testing software solutions**  You will test your current application in which you will:   * run your test plans from the design stage, ensuring that the program is thoroughly tested and that any errors found are documented with reasons why the error occurred and suggestions for repair * repair errors found during the testing process with clear documentation for how repairs were made and results of retesting * document errors that cannot be repaired, giving reasons why this is the case and suggest repairs for future reference |
| **Task 5** | | **C3 Improvement, refinement and optimisation of software applications**  You should obtain feedback from users to identify areas for improvement and optimisation and prioritise which improvements to make. Implement the improvements to refine and optimise the application.  Further evidencing of the optimising of the computer program against client requirements would help to support the achievement of BC.D2. |
| **Task 6** | | **C4 Review of software solutions**  You will produce an evaluation document that will:  Review the extent to which the application meets client requirements considering the feedback obtained.  Evaluate the final design and optimised software application against client requirements.  Evaluate your final product covering how the decisions from all stages of the design and development process have ensured that client requirements have been met.  You should consider how programming principles, constructs and techniques were used. What strengths and weaknesses are in the software solution? What improvements could be made?  You should compare to other possible solutions you had, including how your final solution results in fulfilling the client requirements.  Finally, you should reflect on the impact of using the design and development process to reach the outcome and how effective this was. |
| **Task 7** | | **C5 Skills, knowledge and behaviours**  You also need to show how you have taken individual responsibility and effectively managed yourself while completing this assignment.  For example, you need to show how you have:   * planned and managed your time and met targets. * reviewed and responded to outcomes including the use of feedback from others |
| **Suggested checklist of evidence required** | | You should include:   * a report discussing the software development life cycle and how it relates to this development * all of your design documents such as written tasks, algorithms and diagrams. * records of feedback from others about your designs * test plans (what will be tested and how?) * a justification of the final design decisions * copy of the program code * Screenshots of the finished application running * test logs (results of your tests) * error reports (what went wrong and how it was fixed) * feedback evidence * optimisation report (describe and show what was improved) * your evaluation of the development and the completed program * a document which demonstrates that you have shown individual responsibility and effective self-management (e.g. a diary) |
| **Criteria covered by this task:** | | |
| Unit/Criteria reference | To achieve the criteria you must show that you are able to: | |
| 4/BC.D3 | Demonstrate individual responsibility, creativity and effective self-management in the design, development and review of the computer program | |
| 4/BC.D2 | Evaluate the final design and optimised software application against client requirements | |
| 4/B.M2 | Justify design decisions, showing how the design will result in an effective solution | |
| 4/C.M3 | Optimise the computer program to meet client requirements | |
| 4/B.P4 | Produce a design for a computer program to meet client requirements | |
| 4/B.P5 | Review the design with others to identify and inform improvements to the proposed solution | |
| 4/C.P6 | Produce a computer program that meets client requirements | |
| 4/C.P7 | Review the extent to which the final computer program meets client requirements | |