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| **Assignment** | |
| **Learner ID** |  |
| **Learner Name** |  |
| **Academic Year** | 2024-25 |
| **Level** | 4 |
| **Qualification** | Extended Diploma in Computing |
| **Unit Number** | 2 |
| **Unit Title** | Programming and Scripting |
| **Assignment Title** | Smart Café Ordering System for “BrewTime” |
| **Issue Date** | 7.8.2025 |
| **Submission Date** | 7.9.2025 |
| **Assessor Name** | Dr. Mon Mon Thin |
| **Submission Format** | |
| You are required to submit a formal report presented on A4 sheets. The written responses must encompass discussions, relevant figures, and a references list. Ensure adherence to the following formatting guidelines:  Document size: A4  Font: Times New Roman  Font Size: 12  Alignment: Justify  Line Spacing: 1.5 points | |
| **Assignment Scenario** | |
| You have been working as a Python developer for the past five years at a local startup tech company called ByteBeans Ltd. A growing coffee chain, BrewTime, has approached your team to develop a smart ordering system to improve efficiency at their self-service cafés across the city.  Currently, customers queue to place orders at the counter, but the company plans to replace the manual system with an automated touchscreen kiosk that allows users to place orders, view prices, and customize their drinks. The goal is to reduce waiting times and improve user experience.  The café offers different categories of drinks (Coffee, Tea, Smoothies), with add-ons like syrups, milk types, and extra shots. Prices vary depending on drink size and add-ons.  **Task 1:**  To help newly hired junior developers settle in, your team leader has asked you to create a leaflet or blog post that includes:   * Explains key programming paradigms * Explains the language constructs to be used within a program * Explains the key differences between programming and scripting with examples   **Task 2:**  The BrewTime’s General Manager has shared a set of customer experience guidelines (Appendix 1), technical expectations (Appendix 2) and admin role (Appendix 3). Based on these, you must:  Prepare a series of presentation slides that documents your design, using a range of design tools and interface tools to include:   * The functionality of your proposed solution. * The design of the user interface.   **Extension 1**   * Justify your design decisions for both the functionality and the user interface.   **Task 3:**  The management at BrewTime has now approved your design and you need to code and test the solution. You should:   * Code the solution in line with the design to meet the needs of the client brief. * Demonstrate an understanding of appropriate coding standards in Python by applying these in your solution. * Apply validation to improve integrity of inputs. * Create a comprehensive test plan to test the program that has been developed ensuring that the functionality, logic, data structures and all functions are tested appropriately. * Analyse test results against expected results to identify discrepancies and corrective actions. * Carry out user testing.   **Extension 1**  The management at BrewTime wants you to provide additional coverage that:   * Create a version control primer consisting of common GIT commands and explaining their purpose. * Makes recommendations in relation to solution handover, explaining the role and importance of software documentation and giving guidance on integration, installation, deployment and maintenance (for example, the addition of Drink Categories).   **Extension 2**   * Evaluates the value of version control in the development of coded solutions. * Evaluates the solution against the original client brief. | |
| **Note to Learners** | |
| Before you begin this assignment, you should ensure that you have access to a Python interpreter. In addition, there are many IDEs that could be downloaded and installed. Which option you choose to use will depend on your operating system and platform. Here are some common examples:   * Python Releases for macOS | Python.org * Python Releases for Windows | Python.org * Visual Studio Python IDE - Python Development Tools for Windows (microsoft.com)   You tutor may instruct you to download whichever version you will be using during any formal classes as the interface can look quite different.  **Appendix 1 – Customer Flow Overview**  This appendix outlines the typical customer interaction with the BrewTime smart ordering kiosk:   1. **Welcome Screen** Displays a greeting and prompts the customer to begin their order. 2. **Menu Selection Screen**    * Categories: Coffee, Tea, Smoothies    * Each category has several items (e.g., Americano, Latte, Cappuccino under Coffee) 3. **Customization Screen**    * Choose drink **size**: Small, Medium, Large    * Select **add-ons** (checkboxes):      + Syrups: Vanilla, Caramel, Hazelnut      + Milk type: Regular, Skimmed, Soy, Almond      + Extra shot: Yes/No 4. **Order Summary & Price Calculation** Displays:    * Base price of the selected drink    * Cost of selected add-ons    * Final total price with breakdown 5. **Order Confirmation Voucher** A printed or on-screen receipt includes:    * Date and time of order    * Items ordered with sizes and add-ons    * Total amount   **Appendix 2 – Functional Requirements**  The BrewTime kiosk application should implement the following functionality:    **Core Functional Requirements**   * **Display menu categories**: Coffee, Tea, Smoothies * **Dynamic menu item list** for each category * Allow **customization of drinks**:   + Size: Small, Medium (50), Large (100)   + Add-ons with individual costs:     - Syrup: 300 CENTS per flavor     - Extra shot: 500 CENTS     - Milk substitution (Soy/Almond): 400 CENTS * **Price Calculation Logic**:   + Example base prices:     - Coffee: 2500 CENTS     - Tea: 1800 CENTS     - Smoothie: 3200 CENTS   + Add selected add-on costs per item and apply it to the quantity if ordering multiple * **Multiple item order support** * Generate a **summary voucher** displaying:   + Date and time   + List of items   + Cost breakdown   **Appendix 3 – Admin Role (Insert, Update, Delete Functionality)**  To support day-to-day management of the café’s digital menu and system data, the BrewTime ordering system includes an **Admin Panel** that enables privileged users (e.g., store managers or system admins) to perform **Insert**, **Update**, and **Delete** operations on menu items and configuration data. | |