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Assignment Title – Creating a Software Solution

Introduction

North Lincolnshire Judo requires a program to manage athlete information, training plans, costs, and weight comparison for competition categories. The program aims to streamline data entry, provide cost breakdowns, and aid in decision-making regarding training and competition participation.

User Requirements and General Flow of the Developed Solution

The developed solution for North Lincolnshire Judo will be a program that allows users to enter specific information about athletes and then generates relevant output based on the input provided. The user requirements for the program include capturing the following details for each athlete:

1.Athlete Name.

2.Training Plan.

3.Current Weight in Kilograms (kg).

4.Competition Weight Category.

5.Number of Competitions Entered This Month.

6.Option to Add the Number of Hours of Private Coaching.

Once the user has entered this information, the program will output the following details for each athlete:

1.Athlete’s Name.

2.Itemized list of all costs for the month.

3.Total cost of training and competitions for the month.

4.Comparison of the athlete’s current weight to their competition weight category.

The general flow of the developed solution will involve a user interface where the user can input the required information for each athlete. The program will then process this data and calculate the costs associated with training, competitions, and private coaching for each athlete. Finally, it will display the output with the necessary comparisons and summaries.

Explanation of How the Application Works

This application is designed to be user-friendly, guiding users through the process of entering athlete information step by step. Upon launching the program, users will be prompted to input details such as athlete name, training plan, current weight, competition weight category, number of competitions entered, and optional private coaching hours.

Once all necessary information is provided, the program will calculate the costs associated with training and competitions based on predefined rates or formulas. It will then compare the athlete’s current weight to their competition weight category to provide insights into their progress and it will then ask if the user want to register a new athlete or want to end the program if yes then it starts all over again and if no the program ends, I used a loop mechanism allowing multiple athlete registrations without restarting the program.

Justifications for Decisions Made During Development

User Interface Design: The application will feature a clean and organized interface to ensure ease of use for individuals inputting athlete data.

Cost Calculation Method: The decision to calculate costs based on predefined rates or formulas ensures consistency and accuracy in determining expenses related to training and competitions.

Weight Category Comparison: Including a comparison of current weight to competition weight category provides valuable feedback to athletes and coaches regarding their physical readiness for competitions.

Output Generation: The program will display the generated reports for each athlete, including their name, total costs, comparison of weights, and an itemized list of costs. This will provide users with a clear understanding of each athlete’s performance and expenses, allowing them to make informed decisions about their training and competition plans.

Input Validation: To ensure accurate data processing, input validation is implemented to prompt users to correct any mistakes, this reduces errors in cost calculation and weight comparison, enhancing the reliability of the program.

Future Modifications and Evaluation of the Solution

In future iterations of the application, enhancements could be made to include features such as:

1.Tracking historical data for athletes

2.Generating reports on performance trends

3.Integrating scheduling capabilities for training sessions and competitions

4. Integration of a database to store athlete information for long-term tracking and analysis.

Evaluation of the Solution

1. Regular user feedback sessions to identify areas for improvement and gather suggestions for new features.

2. Performance testing to ensure the program operates efficiently with large datasets and complex calculations.

3. Comparative analysis with similar solutions in the market to benchmark functionality and user experience.

Challenges faced during the development.

1.Understanding the requirement: Translating requirements into technical specifications is one of my biggest problems, I had to break down the requirement into smaller tasks, understanding the requirement of any problem is one of the most import and time-consuming step.

2.Syntax Errors: syntax errors are one of the biggest problems I faced while working on this project which can cause problems in the entire program by omitting colons, placing parentheses incorrectly, or making indentation mistakes.

3.Error handling: this is also another problem I faced while writing this code, because it is very important the code handles errors gracefully and provides meaningful error messages to user, this is why I choose to use to use try – except block to Catches errors related to input types and any unexpected errors, ensuring the program doesn't crash and provide meaningful error messages to the user.

Moscow Principles

|  |  |
| --- | --- |
| Must Have | Should Have |
| - Allow users to enter athlete name, training plan, current weight in kilograms (kg), competition weight category, number of competitions entered this month.  - Output athlete's name, itemized list of all costs for the month, total cost of training and competitions for the month, and comparison of current weight to competition weight category. | - Option to add the number of hours private coaching.  - Allow to register additional athlete beyond index of six  - implementation of input validation to ensure correct data entry. |
| Could Have | Won’t Have |
| -Implement a user-friendly interface for data entry. | - Integration of a database to store athlete information for long-term tracking and analysis.  - Addition of features such as performance tracking, goal setting, and scheduling for comprehensive athlete management. |