**Python Project Group 26**

**Speed Typing Interface using Python**

**Members**

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**Libraries Used**

1. **Pandas:** For handling data from the .csv files as Data Frames and easy conversion of data into dictionaries.
2. **NumPy:** For calculating average values of accuracies and typing speeds from a large database and by converting certain fields to array for easy manipulation i.e. sorting etc.
3. **Matplotlib:** For visualizing complex and bulky data in the form of plots for easy understanding.
4. **csv:** For appending the data in csv files after calculations.
5. **Random:** For getting random values as and when needed.
6. **String:** For operating on strings while generating IDs.
7. **Time:** For getting the timed inputs for calculation of Typing Speeds.

**Problem Statement**

Our group have made a typing test interface which will take the timed inputs form the user according to his choice of precision and generate a final report for his performance among all other candidates through graph and percentile. It will also maintain files for 3 fastest typing instances in 3 separate files.

**Functions and Data Sets Used**

We have used modular approach for our Project by keeping maximum part of the code in functions. Hence besides of in-built functions of the python libraries we have utilized a lot of functions in our program.

Following is the list of functions that we have used in our program along with their functionality:

1. **Conversion Functions:**  In our Project in order to have full freedom of using whichever data type one wish to operate with few conversion functions are used that uses Pandas and CSV libraries to convert dictionaries to data frames and vice versa.
2. **Calculation Function:** We have used multiple small sentences instead of single large paragraph in order to have a balanced as well as precise result. To accommodate a single final result for a candidate we have to perform certain calculations to find average values of a formed data set using NumPy.
3. **Rank Maintaining Function:** In order to have details about top three fastest contenders in our database we have defined a function to keep track of the three contenders as Class Objects in three separate text files.
4. **Percentile Calculation:** From the database stored as .csv file we have calculated the final performance of the current contender using NumPy library and sorting the data.
5. **Data Sets:** We have used two .csv spreadsheets. First one named as “individual.csv” holds the data of the current candidate for the generation of final result. Second file is named “database.csv”, which holds the data of entire contenders who have taken the test so far.
6. **Text Files:** We have maintained 3 text files named “first.txt”, “second.txt” and “third.txt” to store the details of the top performers of our Typing test.
7. **Plot Generation:** A function has been included in the file for generating the graph of all the performances of a single contender in one round to show the rise and fall in the Typing speed of the performer.
8. **Key generator:** A function has been used to generate random strings serving as the unique id for any contender for his/her unique identification.
9. **Class:** A class has been used to store the details of top scorers of our contest temporarily.

**Conclusion**

We have used concepts of Object Oriented Programming by accommodating a class. Few libraries of Python are also used to make our task easier and convenient. And a few spreadsheets are used to store data in arranged fashion and few text files are used to store the data of top performers.

The presence of libraries in python truly multiplies the interest of using Python as a language to make any small project in a reasonably small time is the biggest strength of this language.

Our team do learn a lot of new things about multiple libraries of Python while making this project and truly enjoyed the successful completion of this project after hours of mood swinging sessions of debugging our codes.