HeadSpin Assignment

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1. 5x5 Soduku Solution Checking

* **Platforms used**
* Windows 10
* Python 3.6.8
* No extra packages required
* **To run the program**
* Open cmd and locate to the program root directory
* Run: python sudoku.py
* Input the elements of sudoku one by one followed by hitting Enter after each entry till it displays the complete 5x5 sudoku
* **How does the algorithm works**
* First it checks for the sum in each row if found that any of the rows doesn’t satisfy the condition of being sum equals to 15 it breaks the loop and return False.
* If the above step goes fine, it then checks for the same condition of the sum equals 15 but for column.
* After verifying the sum, the program then checks whether there is any repeating element along the rows. The same procedure does for a column if there is no repetition along the rows.
* What is here to notice is that the program goes to the subsequent steps only if the just previous step is satisfied, otherwise the program exits and returns False.
* If every step goes fine, then the program returns True ensuring that the 5x5 sudoku solution is a valid one.

1. Addition of element to the nth position

* **Platforms used**
* Windows 10
* Python 3.6.8
* **To run the program**
* Open cmd and locate to the program root directory
* Run: python element\_add.py
* First it asks for the position, so give the visible position of the list to which the new element has to be inserted
* When it asks for the element give the inserting element
* **How does the algorithm works**
* The program works with the basic idea of python list slicing
* First it checks whether user input position is beyond the list range or not, if yes, it displays a warning information
* Else, It creates two halves of the list, the first half consisting of the elements before the position and the second half with the elements after the position
* After that program adds the element to the last position of the first half and then combine with the second half to generate a new output list
* Output is a print function which displays the new list

1. Count the occurrence of words inside a text file

* **Platforms used**
* Windows 10
* Python 3.6.8
* **To run the program**
* Open cmd and locate to the program root directory
* Run: python count\_words.py
* Ensure that the text file is in the program root directory itself, if not, give the entire path of the text file
* **How does the algorithm works**
* First it segregates each word by separating the lines followed by space
* If uses a dictionary for storing the word and the number of its occurrence inside the file as key-value pair
* For each repetition of a specific word rather it increments the number of occurrences associated with it
* The output is a print function which displays each word and its number of occurrences