Neural Networks & Deep Learning ICP-1

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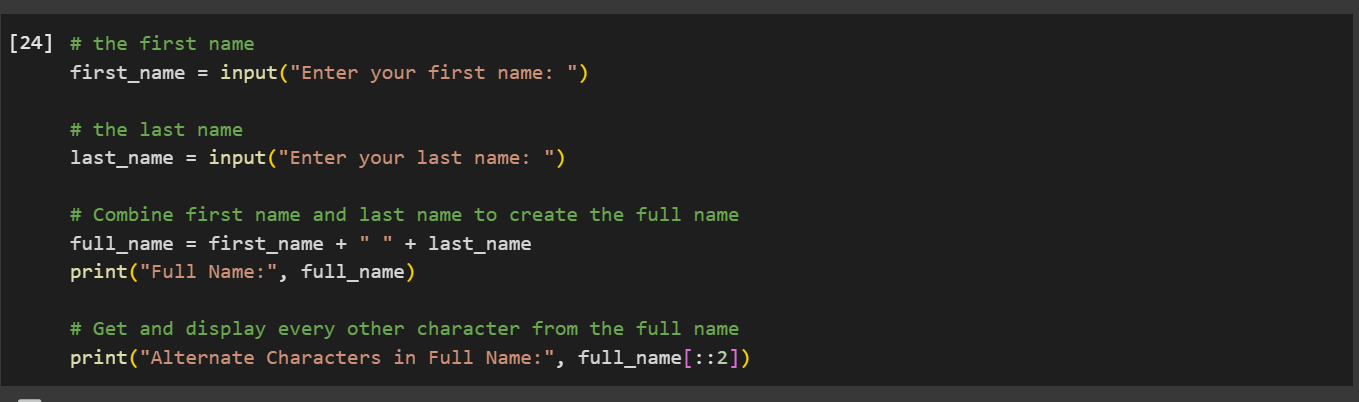
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GitHub link: <https://github.com/Praneetha65/neural1/upload/main>

Video Link:

<https://drive.google.com/file/d/1xIlA5XWaOzvEe94ZXnwDTM6e4yS3ZDRd/view?usp=sharing>

**Question 1:**

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**Explanation:**

1. Input :

* Here we import first name (first\_name) and last name (last\_name) using the input() function.

2. Full Name Creation:

* Combines first\_name and last\_name with a space in between using string concatenation (+).
* Stores the resulting string in the variable full\_name.

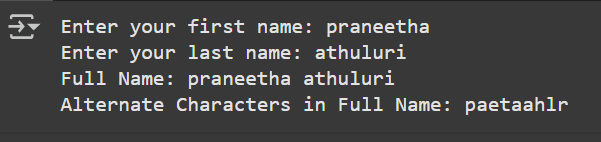
3. Output Full Name:

* Displays the full\_name using the print() function.

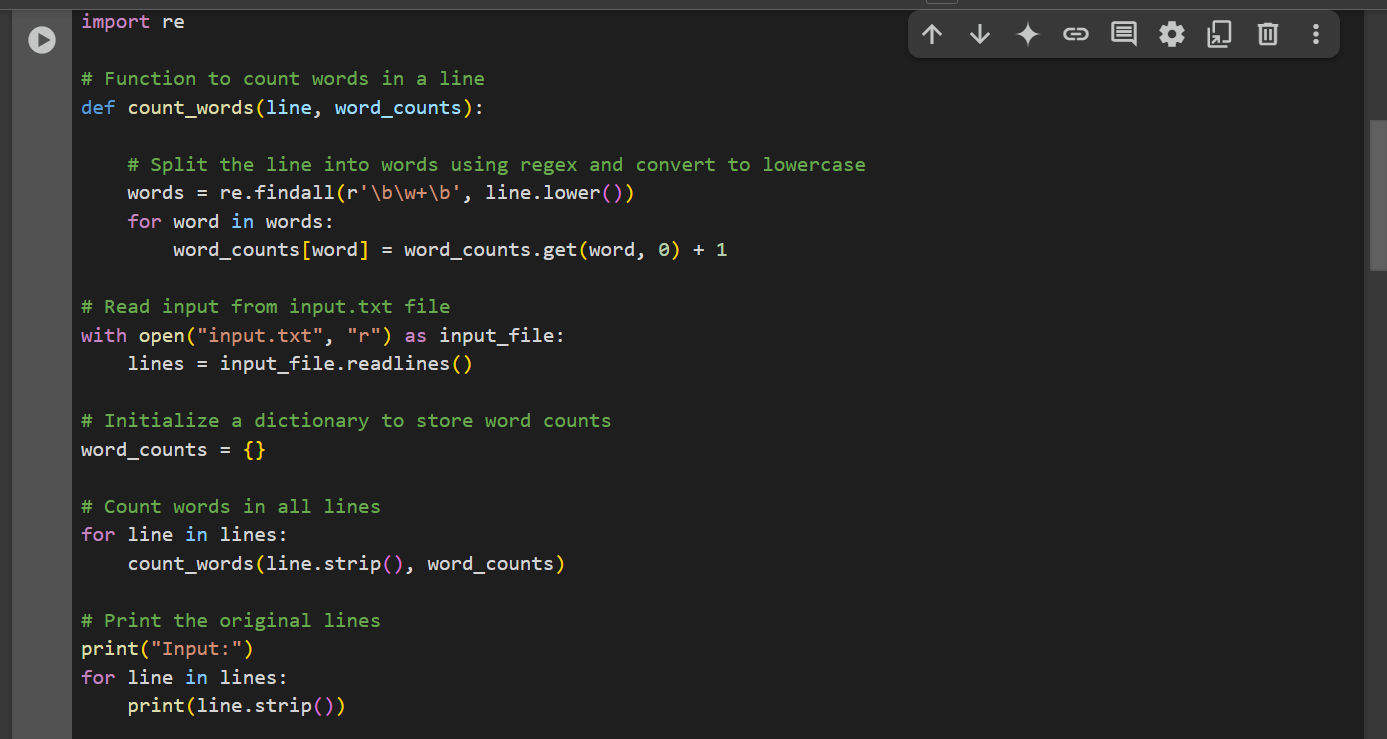
4. Alternate Characters:

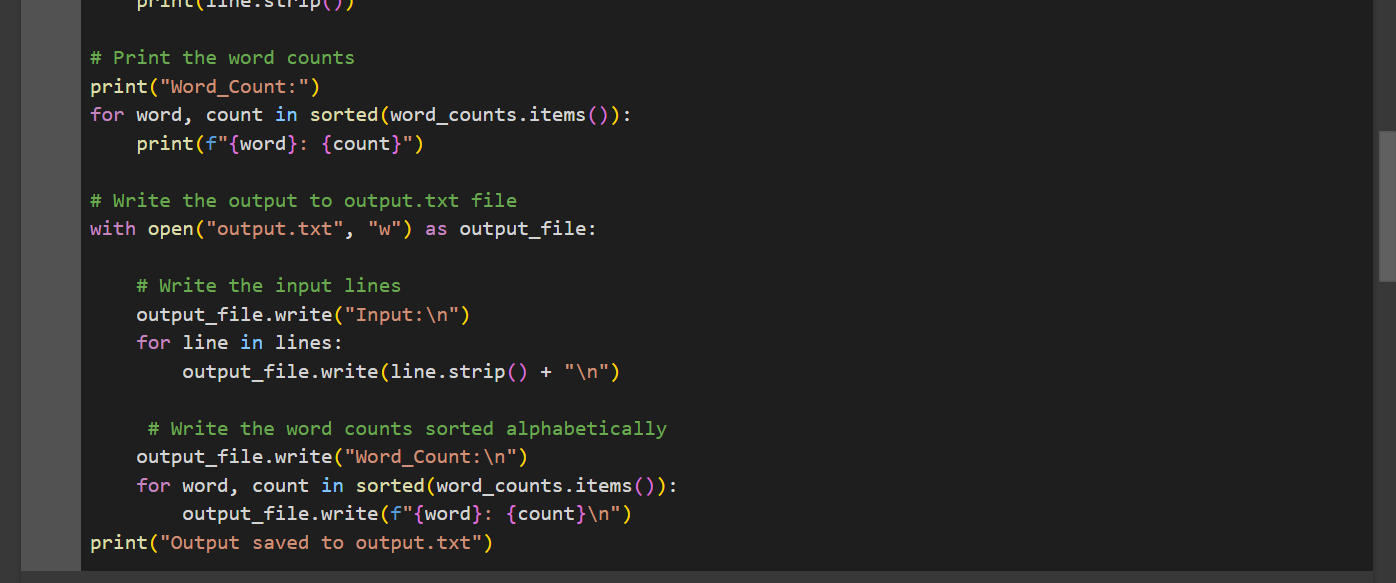
* Retrieves every other character from the full\_name using string slicing (full\_name[::2]).
* Displays the result as "Alternate Characters in Full Name."

**Output:**



**Question 2:**



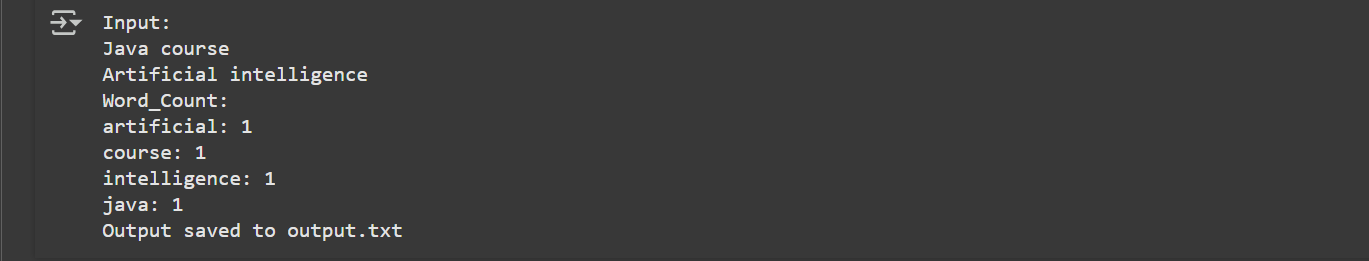


**Explanation:**

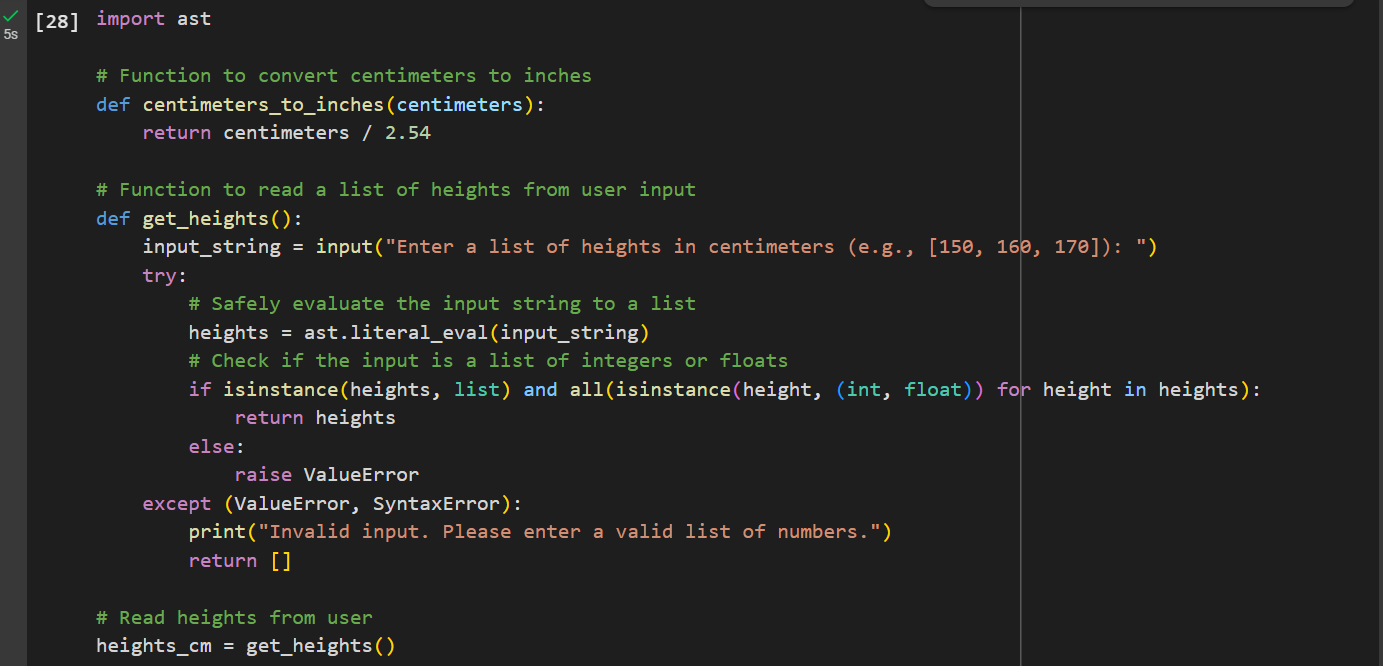
1.This script reads text from an input.txt file, counts the occurrences of each word , and writes both the original text and word counts to an output.txt file.

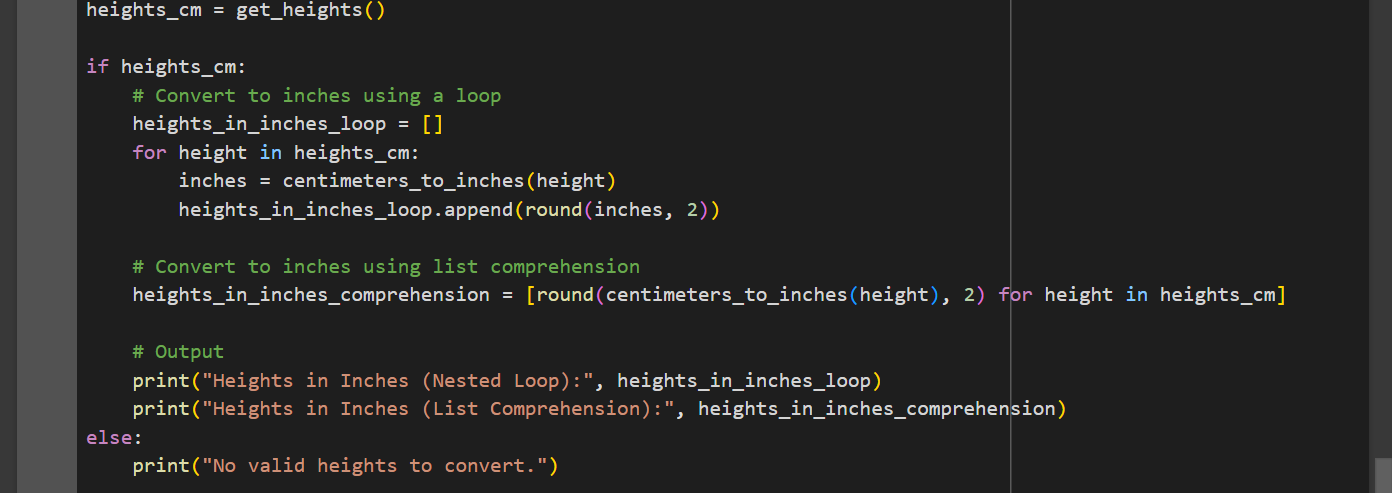
* The Word Counting Function:
  + The count\_words() function takes a line of text and a dictionary (word\_counts).
  + It uses a regular expression (re.findall()) to extract words, converts them to lowercase, and updates their count in the dictionary.
* Read Input File:
  + Opens input.txt in read mode and reads all lines into a lines.
* Count Words in All Lines:
  + Initializes an empty dictionary, word\_counts, to store the word counts.
  + Iterates over each line, removes spaces, and processes the line using the count\_words() function.
* Print the Input and Word Counts:
  + Displays the original lines from the file.
  + Displays the word counts sorted alphabetically.
* Write to Output File:
  + Opens output.txt in write mode.
  + Writes the original input lines under the "Input" section.
  + Writes the sorted word counts under the "Word\_Count" section.
* Output:
  + Writes the original text and sorted word counts to output.txt.

**Output:**

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**Question 3:**

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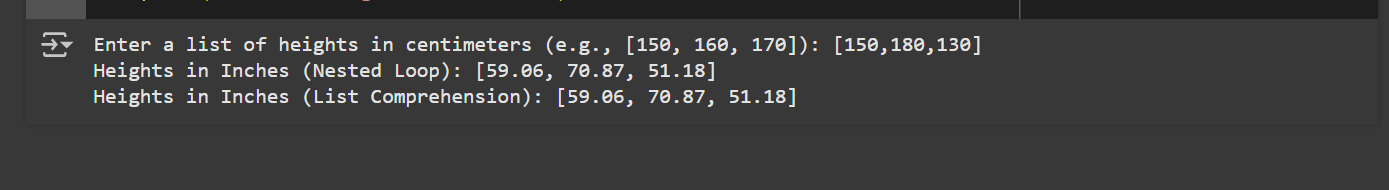
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**Explanation:**

Here we are converting a list of heights from centimetres to inches. It does this in two ways: using a regular loop and using a more compact list comprehension:

1. Converting Centimetres to Inches:  
   There's a function called centimeters\_to\_inches() that takes a height in centimetres and divides it by 2.54 to convert it into inches.
2. Getting User Input:  
   The get\_heights() function asks the user to enter a list of heights in centimetres (for example, [150, 160, 170]). The user needs to input this list in the correct format. The script then checks if the input is a valid list of numbers. If it's not, it will show an error and ask for a valid input.
3. Converting Heights: After getting the heights, the script converts each height from centimetres to inches in two ways:
   * Using a loop: It goes through each height, converts it to inches, and stores the results in a new list.
   * Using list comprehension: This is a shorter, more compact way to do the same thing in one line of code.
4. Displaying the Results:  
   Prints out the converted heights in inches for both methods .
5. Error Handling:  
   The script checks the user’s input to make sure it’s a list of numbers. If the user enters something wrong, it shows an error message and asks for the input again.

**Output:**

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