Programming Assignment

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dist_function.**distance**(*s*, *parameters*)

This function takes three arguments: A string 's' consisting of colors of cars separated by the space character A string 'parameters' consisting of two colors (A,B) separated by a comma

The function returns the shortest distance between all pairs of cars of colours A and B in the input string.

The function assumes that two lines of input will be provided. The first line of the input contains a string of colors And the second line of the input contains a pair of colors (A,B)

Parameters

- **s** (*String*) – A string of car colors

- **parameters** (*String*) – Pair of car colors

Returns dist – Minimum distance between pair of car colors

Return type integer

Examples

```
>>> s = "blue yellow violet red green red"
>>> parameters = "blue, red"
>>> print(distance(s,parameters))
>>> 3
```

```
>>> s = "blue yellow red"
>>> parameters = "red, blue"
>>> print(distance(s,parameters))
>>> 2
```

```
>>> s = "red red blue red"
>>> parameters = "red, blue"
>>> print(distance(s,parameters))
>>> 1
```

```
>>> s = "yellow yellow blue yellow yellow red"
>>> parameters = "red, blue"
>>> print(distance(s,parameters))
>>> 3
```

dist_function.**main**()

Main function to accept input and return the distance between two colors

dist_function.**time_analysis**()

Time and Complexity Analysis

This function is to analyze the time and space complexity of the dist_function The dist_function has a time complexity of $O(n)$ as it consists of programming statements with a complexity of constant time ($O(1)$) and a for loop and a while loop, both of which have a complexity of $O(n)$.