**Python Slicing: Exercises**

Write a function called `middle\_characters` that takes a string as input and returns the middle characters of that string. If the length of the string is odd, return a single character in the middle. If the length of the string is even, return the two characters in the middle.

For example:

| print(middle\_characters("Hello")) *# Output: "l"* print(middle\_characters("Python")) *# Output: "th"* |
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Here's an implementation to get you started:

| def middle\_characters(string):  # Write your code  *# Test cases* print(middle\_characters("Hello")) *# Output: "l"* print(middle\_characters("Python")) *# Output: "th"* |
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In the above code, the `middle\_characters` function calculates the length of the input string and determines the middle index. If the length is even, it uses slicing to return the two characters in the middle. If the length is odd, it returns the single character in the middle.

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Write a function called `alternate\_characters` that takes a string as input and returns a new string containing every other character.

| print(alternate\_characters("Hello, World!")) *# Output: "Hlo ol!"* print(alternate\_characters("Python")) *# Output: "Pto"* |
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Write a function called `last\_n\_characters` that takes a string and an integer `n` as input, and returns the last `n` characters of the string.

| print(last\_n\_characters("Hello, World!", 5)) *# Output: "orld!"* print(last\_n\_characters("Python", 3)) *# Output: "hon"* |
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Write a function called `replace\_characters` that takes a string, a start index, an end index, and a replacement string as input, and returns a new string with the characters from the start index to the end index (inclusive) replaced by the replacement string.

| print(replace\_characters("Hello, World!", 7, 12, "Universe")) *# Output: "Hello, Universe!"* print(replace\_characters("Python is great", 7, 8, "not")) *# Output: "Python not great"* |
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