**Question**

A string is given as:  
Purity of Mind is Essential

Write a program in Java to enter the string. Count and display:

1. The character with lowest ASCII code in lower case
2. The character with highest ASCII code in lower case
3. The character with lowest ASCII code in upper case
4. The character with highest ASCII code in upper case

Sample Output:

The character with lowest ASCII code in lower case: a  
The character with highest ASCII code in lower case: y  
The character with lowest ASCII code in upper case: E  
The character with highest ASCII code in upper case: P

**Algorithm**

1. Start

2. Import the `Scanner` class from the `java.util` package.

3. Define a public class named `ASCII`.

4. Define the `main` method within the `ASCII` class.

5. Create a `Scanner` object named `in` to read input from the user.

6. Prompt the user to enter a string and store it in a variable named `str`.

7. Calculate the length of the string and store it in a variable named `len`.

8. Initialize four character variables:

- `lowerCaseLow` to 255 (the highest possible ASCII value for a character).

- `lowerCaseHigh` to 0.

- `upperCaseLow` to 255.

- `upperCaseHigh` to 0.

9. Use a `for` loop to iterate through each character in the string:

- Initialize a loop variable `i` to 0.

- Continue the loop while `i` is less than `len`.

- Increment `i` by 1 after each iteration.

10. Inside the loop, get the character at position `i` in the string and store it in a variable named `ch`.

11. Check if `ch` is a lower case letter using the `Character.isLowerCase` method:

- If `ch` is less than `lowerCaseLow`, update `lowerCaseLow` to `ch`.

- If `ch` is greater than `lowerCaseHigh`, update `lowerCaseHigh` to `ch`.

12. If `ch` is not a lower case letter, check if it is an upper case letter using the `Character.isUpperCase` method:

- If `ch` is less than `upperCaseLow`, update `upperCaseLow` to `ch`.

- If `ch` is greater than `upperCaseHigh`, update `upperCaseHigh` to `ch`.

13. After the loop ends, print the characters with the lowest and highest ASCII codes for both lower case and upper case letters:

- Print the character with the lowest ASCII code in lower case.

- Print the character with the highest ASCII code in lower case.

- Print the character with the lowest ASCII code in upper case.

- Print the character with the highest ASCII code in upper case.

14. End

**Variable Description**

|  |  |  |
| --- | --- | --- |
| **Variable** | **Data type** | **Purpose** |
| str | String | Stores string input provided by the user |
| len | int | Stores length of the string |
| lowerCaseLow | char | to check lowest ASCII lowercode characters |
| lowerCaseHigh | char | to check lowest ASCII uppercode characters |
| upperCaseLow | char | to check highest ASCII lowercode characters |
| upperCaseHigh | char | to check highest ASCII uppercode characters |
| ch | char | to store character at current index |
| i | int | Loop counter to iterate through each character |