# Evaluation Rubric :

|  |  |  |
| --- | --- | --- |
| **Evaluation parameter** | **Does not meet specifications** | **Meets specifications** |
| **Problem statement** |  | **2** |
| Problem Statement must be clearly defined |  | **√** |
| Expected input and output formats must be described |  | **√** |
| Explain the problem statement with an example(if applicable) |  | **√** |
| **Expected input & output** |  | **3** |
| Minimum of 5 test cases (if applicable) |  | **√** |
| Coverage |  | **√** |
| Border condition |  | **√** |
| Unexpected inputs |  | **√** |
| **Solution** |  | **5** |
| The correctness of the solution. |  | **√** |
| Check for all the elements (tokens) of the problem (Assignment, Arithmetic, conditional, relational, input, output etc) |  | **√** |
| **Trace Table :** |  | **5** |
| Columns are variables, conditions, print statements |  | **√** |
| Order |  | **√** |
| Trace table for each function(If applicable) |  | **√** |
| labeling the columns |  | **√** |
| Coverage (conditions, iterations... etc) |  | **√** |
| **Final Result** |  | **2** |
| Executable File Submission |  | **√** |
| **Executable File** |  | **3** |
| Check with all test cases |  | **√** |

## 

**Problem Statement**: **(2 Marks)**

Toggle all characters in a string: You need to change the case of each alphabet in this String. That is, all the uppercase letters should be converted to lowercase and all the lowercase letters should be converted to uppercase.

**Test cases: (3 Marks)**

|  |  |
| --- | --- |
| **Expected Input** | **Expected Output** |
| LoL | lOl |
| To | tO |
| A | a |

**Solution**: **(5 Marks)**

Step 1:START

Step 2: Let String str be “HelloAbc”

Step 3: n= Length of string , ie: 8

Step 4: Set i=1

Step 4.1: Check if(i<=n) true=goto step 4.2 else goto step 4.3

Step 4.2: Check if ( str[i]>='a') AND (str[i] <= 'z')) goto true= step 4.3

Step 4.3 : str[i] = uppercase(str[i]) goto Step 4.1

Step 4.4: Check if ( str[i]>='A') AND (str[i] <= 'Z')) goto true= step 4.5

Step 4.5: str[i] = LOWERCASE(str[i]) goto Step 4.1

//Repeat until Step 4.1 is false

Step 5: Print the string O/p tostring(str)

Step 6: End

**Pseudocode:**

**QUERY 'str', str**

**str1 = "HelloAbc"**

**str=TOCHARACTERS(str)**

**ln = length(str)**

**FOR i = 1 TO ln STEP 1 DO**

**IF ((str[i] >= 'a') AND (str[i] <= 'z')) THEN**

**str[i] = uppercase(str[i])**

**ELSE**

**IF str[i]>='A' AND str[i]<='Z' THEN**

**str[i] = LOWERCASE(str[i])**

**ENDIF**

**ENDIF**

**ENDFOR**

**WRITE tostring(str)**

**END**

**START**

**QUERY 'str', str**

**str1 = "HelloAbc"**

**str=TOCHARACTERS(str)**

**ln = length(str)**

**FOR i = 1 TO ln STEP 1 DO**

**IF ((str[i] >= 'a') AND (str[i] <= 'z')) THEN**

**str[i] = uppercase(str[i])**

**ELSE**

**IF str[i]>='A' AND str[i]<='Z' THEN**

**str[i] = LOWERCASE(str[i])**

**ENDIF**

**ENDIF**

**ENDFOR**

**WRITE tostring(str)**

**END**

**Trace Table** : **(5 Marks)**

Test case 1: String s=LoL

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| str | n | i | (str[i] >= 'a') AND (str[i] <= 'z' | str[i]>='A' AND str[i]<='Z' |  |
| LoL | 3 | 1 | 0 | 1 | l |
|  |  | 2 | 1 | 0 | O |
|  |  | 3 | 0 | 1 | l |
|  |  |  |  |  | lOl |

Test case 2: String s=To

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| str | n | i | (str[i] >= 'a') AND (str[i] <= 'z' | str[i]>='A' AND str[i]<='Z' |  |
| To | 2 | 1 | 0 | 1 | t |
|  |  | 2 | 1 | 0 | O |
|  |  |  |  |  | tO |

Test case 3: String s=A

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| str | n | i | (str[i] >= 'a') AND (str[i] <= 'z' | str[i]>='A' AND str[i]<='Z' |  |
| A | 1 | 1 | 0 | 1 | a |
|  |  |  |  |  | a |

**Final Result :** **(2 Marks)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Expected input** | **Expected output** | **Actual output** | **Test result** |
| LoL | lOl | lOl | 1 |
| To | tO | tO | 1 |
| A | a | a | 1 |