REQUIREMENT AND TESTING DOCUMENT – TEAM ATM

Requirements:

R1: The calculator should accurately evaluate the input mathematical expression and display the output.

R2: The input expression should be in the form 🡪 (operand, operator,…) followed by ‘=’

R3: The input operands should fit in a 32-bit register

R4: The resulting output should fit in a 32-bit register

R5: The input expression should be evaluated from left to right.

R6: If there are multiple expressions, all the outputs should be displayed at once in the respective order.

Test Cases:

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| **Input** | **Output** | **Requirement** | **Conditions Being Tested** |
| 3\*2\*2= | 12 | R1 | Multiplication, 3 single-digit numbers, no errors |
| 4+A= | ERROR: Invalid character | R1 | Addition, an alphabet and a number, error |
| 4+\*3= | ERROR: Invalid expression | R2 | Addition, Multiplication, two numbers, error |
| 2147483648 - 20= | ERROR: Input overflow | R3 | Subtraction, input out of range of 32-bit register, error |
| 134217728 \* 9916= | ERROR: Output overflow | R4 | Multiplication, output out of range of 32-bit register, error |
| 2147483648 + 256= | ERROR: Input overflow | R3 | Addition, input out of range of 32-bit register, error |
| 23 @ 3= | ERROR: Unrecognized error code | R1 | Special character, two numbers, error |
| 23+9\*5-2= | 158 | R5 | Addition, multiplication, subtraction, order of evaluation from left to right, no error |
| 2\*3=5-2+4=5\*1= | 6  7  5 | R6 | Multiplication, Addition, Subtraction, output displayed in the respective order of evaluation, no error |

3\*2\*2000= 1000+1000+1000= 2++3= 134217728 \* 9916= 5\*1= 4+A= 2147483648 +2147483648=