**Assignment 1**

**Question 1**

**What will the code below output to the console and why ?**

**console.log(1 + "2" + "2");**

**console.log(1 + +"2" + "2");**

**console.log(1 + -"1" + "2");**

**console.log(+"1" + "1" + "2");**

**console.log( "A" - "B" + "2");**

**console.log( "A" - "B" + 2);**

**Ans.**

**Example 1:** **1 + "2" + "2"**

**Output: “122”**

**Explanation:** The first operation to be performed in 1 + “2”. Since one of the operands (“2”) is a string, JavaScript assumes it needs to perform string concatenation and therefore converts the type of 1 to “1”, 1 + “2” yields “12”. Then, “12” + “2” yields “122”.

**Example 2: 1 + +”2” + “2”**

**Output: “32”**

**Explanation:** Based on order of operations, the first operation to be performed is +”2” the extra + before the first “2” is treated as a unary operator. Thus, JavaScript converts the type of “2” to numeric and then applies the unary + sign to it i.e., treats it as a positive number. As a result, the next operation is now 1+2 which of course yields 3. But then, we have an operation between a number and a string i.e., 3 and “2”, so once again JavaScript converts the type of the numeric value to a string and performs string concatenation, yielding “32”

**Example 3:** 1 + -“1” + “2”

**Output: “02”**

**Explanation:** The explanation here is identical to the prior example, except the unary operator is - rather than +. So “1” become 1, which then becomes -1 when the - is applied, which is then added to 1 yielding 0, which is then converted to a string and concatenated with the final “2” operand, yielding “02”.

**Example 4:** +”1” + “1” + “2”

**Output:**  “112”

**Explanation:** Although the first “1” operand is typecast to a numeric value based on the unary + operator that precedes it, it is then immediately converted back to a string when it is concatenated with the second “1” operand, which is then concatenated with the final “2”operand, yielding the string “112”.

**Example 5:**  “A” – “B” + “2”

**Output:**  “NaN2”

**Explanation:** Since the - operator cannot be applied to strings, and since neither “A” nor “B” can be converted to numeric values, “A” – “B” yields NaN which is then concatenated with the string “2” to yield “NaN2”.

**Example 6:**  “A” - “B” + 2

**Output:**  NaN

**Explanation:** As exlained in the previous example, “A” – “B” yields NaN. But any operator applied to NaN with any other numeric operand will still yield NaN.