# Assignment AN-A1

**Point to Note**

a) The code should be properly indented.

b) The names of the variables and functions should be appropriate.

c) There should be no unnecessary code.

d) Test the code properly. Test cases have been provided with each task. The expected output has been provided for the initial test cases, where as the expected output for the rest have not been provided. Ensure that you have run each test case and checked that the output it as expected.

e) The submission should have

    I. The code for each task in a .js file along with the .html file.

    II. A .txt file with all the test cases and their outputs. Each test case should be run and the output clearly stated. Also, if the output is incorrect, state that it is incorrect.

    III. An audio, explaining each of your solutions. Note that there should be only 1 audio in which all the solutions are explained.

f) Each problem carries 5 marks. 10 marks are for the test cases and 10 marks are for the audio explanations. So, the maximum marks for the assignment is 50 marks.

g) Total time is 2 hrs.

| Task 1 | Given a String str, create a string in which a certain number of x are put after each character in the input as shown below. Print the string on the console. | |
|---|---|---|
| **Test Cases** | **Input** | **Expected Output** |
| | AbC | AxbxxCxxx |
| | HUMAN | HxUxxMxxxAxxxxNxxxxx |
| | R | Rx |
| | MNOP | MxNxxOxxxPxxxx |
| | DDDDD | DxDxxDxxxDxxxxDxxxxx |
| | X | Xx |
| | 123456 | 1x2xx3xxx4xxxx5xxxxx6xxxxxx |

| Task 2 | Given the marks of 4 subjects Maths, English, Computers and Science as input. On the console print the marks in each subject along with its grade. Grades are defined as >=80 is A, <80 and >=60 is B and <60 and >=40 is C and <40 is D. Also print the subject in which the highest was scored. | |
|---|---|---|
| **Test Cases** | **Input** | **Expected Output** |
| | 82, 70, 66, 84 | Maths : 82 : A<br>English : 70 : B<br>Computers : 66 : B<br>Science : 84 : A<br>Highest marks : Science |
| | 55, 58, 71, 62 | Maths : 55 : C<br>English : 58 : C<br>Computers : 71 : B<br>Science : 62 : B<br>Highest marks: Computers |
| | 37, 33, 32, 36 | Maths : 37 : D<br>English : 33 : D<br>Computers : 32 : D<br>55 Science : 36 : D<br>Highest marks: Maths |
| | 71, 85, 53, 39 | Maths : 71 : B |

| | | English : 85 : A<br>Computers : 53 : C<br>Science : 39 : D<br>Highest marks: English |
|---|---|---|
| | 80, 60, 40, 50 | Maths : 80 : A<br>English : 60 : B<br>Computers : 40 : C<br>Science : 50 : C<br>Highest marks: Maths |

| Task 3 | Given two Strings str1 and str2 which represent positive numbers, find which string represents the larger number and print it on the console. If they are equal, print Equal on the console.<br>Note that the values in the strings can be so large that they cannot be converted into numbers. So, compare them in their string formats only to determine the larger. |
|---|---|

| | Input | Expected Output |
|---|---|---|
| | str1 = 456789456789456<br>str2 = 456780009899765 | 456789456789456 |
| | str1 = 987654321987654321<br>str2 = 1234567890123456789 | 1234567890123456789 |
| | str1 = 987654321987654321<br>str2 = 987654321987654321 | Equal |
| **Test Cases** | str1 = 1234<br>str2 = 1235 | 1235 |
| | str1 = 22334455667788<br>str2 = 22334455777788 | 22334455777788 |
| | str1 = 198765432198765<br>str2 = 2987654321987 | 198765432198765 |
| | str1 = 99988877766655500<br>str2 = 99988877766655500 | Equal |

| Task 4 | Given a string, determine whether the string represents a proper email id. A proper email id is of the form s1@s2.com where s1 and s2 are non empty strings. If it is a proper email id, print on the console that the entered text is a proper email id. |
|---|---|

| | Input | Expected Output |
|---|---|---|
| | hello@gmail.com | Proper |
| | a1234@q.com | Proper |
| | 231@8.com | Proper |
| | @wer.com | Not Proper |
| **Test Cases** | asdf@.com | |
| | m2@m3.xyz | |
| | hello.gmail.com | |
| | jack@email.com | |
| | jack@gmailcom | |

| Task 5 | Given a string that represents an equation in y, find the value of y. The form of the equation is cy + d = m or cy - d = m where c, d and m represent positive numbers. |
|---|---|

| | Input | Expected Output |
|---|---|---|
| | 5y + 10 = 40 | y = 6 |
| | 25y - 30 = 1070 | y = 44 |
| | 3y + 7 = 1 | y = -2 |
| **Test Cases** | 100y - 101 = 2399 | y = 25 |
| | 6y + 20 = 20 | |
| | 7y - 250 = 9 | |
| | 1234y + 1000 = 2234 | |
| | 2y - 3 = 1 | |

| Task 6 | Given a String str, count the number of different characters in it. | - |
|---|---|---|

| Test Cases | Input | Expected Output |
|---|---|---|
| | AbC | 3 |
| | heshethemthey | 6 |
| | 12341234123411223344 | 4 |
| | AAAAAAAAA | 1 |
| | Abcdefgh | 8 |
| | AAABBBABAB | 2 |
| | X | 1 |
| | a+b+c+d+e | 6 |