# RM Coding Task-Phase Worksheet 1

Date issued: 4/12/20

Date due: 7/12/20

1. Write a C++ program to sort a character array alphabetically using bubble sort. (lower case only).
   Eg: input: “worksheet”
   Output: “eehkorstw”

2. Write a C++ program to multiply two matrices and print the product. If the entered matrices are not compatible then print a message saying so.

3. In a given matrix for all zero elements the corresponding row and column must be replaced with zeroes. Write a C++ program to do that.

   Eg: Input: [ 1 2 0 Output: [ 0 0 0

   2 3 4 2 3 0

   3 3 3 ] 3 3 0 ]

4. Write a C++ program to print whether a number is a hill number or not.
   Note: Assume that a Hill Number is a natural number that has digits in ascending order followed by digits in descending order where consecutive digits are not the same i.e. the number has a peak and an ascending slope and a descending slope.
   Example:
   Hill Number: 147521, 23454
   Not Hill Number: 1, 12, 22, 12334, 123212321

5. Write a C++ program to input a decimal number and print its equivalent hexadecimal, octal and binary forms.
   (If you are unaware of different number systems then please learn about them).

6. Write a C++ program to find if two numbers are Amicable numbers.
   Note: Amicable numbers are two different numbers such that the sum of proper divisors of each is equal to the other number.

   e.g. 220 and 284
   Factors of 220 ◊1 + 2+ 4+ 5+ 10+ 11+20 +22+44+55+110 = 284
   Factors of 284 ◊1 + 2+ 4+ 71+142 = 220