

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

2 3 4

3 3 3]

Output: [0 0 0

2 3 0

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 $\diamond 1 + 2 + 4 + 5 + 10 + 11 + 20 + 22 + 44 + 55 + 110 = 284$

Factors of 284 $\diamond 1 + 2 + 4 + 71 + 142 = 220$