Please read the questions and instructions very carefully.

General Instructions

1. You will have 75 minutes from the time this email was received to send the response.
2. Use any language of your choice. Please type in the language name at the beginning.
3. Your responses will be reviewed by a human. We will not compile your program. However please write the program as completely as possible and do not use anything that is nonstandard in the language.
4. Please attach your answers as .txt file to the email.
5. Please send the response to hr@gritsoftwaresystems.com . Replying in indeed might not reach our inbox.

Question 1 - Convert an integer from decimal to binary

Ex: 8 - the answer should be 1000

Algorithm - Do not use bit manipulation. Instead keep dividing the number by 2 and saving the quotient. (If you don't know how to do it, google search how to convert decimal to binary using long division.)

Question 2 - Given 2 strings, string1 and string2, find if string1 is present in string2 eg - string 1 - fox , string2 - thisisfox, the answer is true. If string1 is cat and string2 is thisisfox the answer is false.

do not use any in built substring methods.

use only the following properties/method of the string class

string1[i] = gives the character at position i in string1

string1.len - gives the length of the string.

Question 3 - Create a class (or similarly encapsulated data type in your language of choice), that represents an array. It should provide two methods:
 * Rotate(n) - Rotate the elements in the array n times in clockwise direction.
 * GetAt(n) - Returns the element at position n, counting from 0.

E.g., if the original array is 1,2,3 and Rotate(1) the new order of elements will be 2,3,1 (the first element goes to the last place and every other element moves up)

If the array is 2,3,1 then GetAt(1) returns 3.

Note that above methods need to be very performant. It would be ideal to avoid data movements in rotate method and do both methods in O(1) time. I.e., They should perform at the same speed no matter how large the array is or by what amount it is rotated. You may implement Rotate and GetAt however you please so long as GetAt(n) always returns the correct element and both methods meet the time requirements.

Thanks!