**AVNOS Golang Dev**

**Simple algorithm challenge**

1. Max Binary Gap :

Create simple GO program that accept Number, the program will calculate and find max gap for Input Number’s Binary, i.e :

* 9 == 1001 (binary) hence the max gap is 2
* 529 == 1000010001 hence the max gap is 4
* 15 == 1111 hence the result should be 0
* 32 == 10000 hence the result should be 0, no gap found

1. Reverse Number

Create a GO program that will reverse Number without converting it into string, slice, etc

Rule First Number > 0. i.e :

* 321, result : 123
* 43, result : 34
* 3, result :3

1. Find Tree in Array

Create a GO program that will find Numbers of Tree in Array, the parameters should be an array consisted of source - destination or Parent – Child like relation.

i.e of input : {0, 1}, {0, 2}, {3, 4}

output : 2

explanation :

0 3

/ \ \

1 2 4

1. Pair of Sum

Create a GO program that will find firstpair of sum n in an array

print pair if found, print not found if not found

i.e : [1, 3, 2]

find sum = 5. first pair should be 3 and 2 or 2 and 3

find sum = 10. should be not found

**REST API Sample**

Please create REST API sample apps with using as much stdlib as possible (although it is still okay if using 3rd party packages using dep). The API should be represent of simple auth and CRUD. So API endpoint should consist of :

* Login
* Logout
* Register / Add user
* Edit User
* Delete User
* View Users with Filter

Explanation :

Users can login using their email or username and password should be encrypted. Users struct / fields are : email, username, password, fullname, address.

**Result**

All of the result can be upload to Github or bitbucket, as long as can be accessed by us should be okay. Time limit of the Challenge is 4 days (considering 3 days for making the REST API sample and 1 day for the algorithm challenge).