

## DAILY ONLINE ACTIVITIES SUMMARY

Date:	03/06/2020	Name:	Pramod R
Sem & Sec	4 <sup>th</sup> sem B section	USN:	4AL18CS059
<b>Online Test Summary</b>			
Subject	Object Oriented Concepts		
Max. Marks	30	Score	16
<b>Certification Course Summary</b>			
Course	Blockchain Basics		
Certificate Provider	Coursera	Duration	4 weeks
<b>Coding Challenges</b>			
<p><b>Problem Statement:</b> You are given two integer numbers, the base a (number of digits d, such that <math>1 \leq d \leq 1000</math>) and the index b (<math>0 \leq b \leq 922 \cdot 10^{15}</math>). You have to find the last digit of <math>a^b</math>. Examples: Input : 3 10 Output : 9 Input : 6 2 Output : 6 Algorithm : Since number are very large we store them as a string. Take last digit in base a. Now calculate <math>b\%4</math>. Here b is very large. -&gt; If <math>b\%4==0</math> that means b is completely divisible by 4, so our exponent now will be <math>exp = 4</math> because by multiplying number 4 times, we get the last digit according to cycle table in above diagram. -&gt; If <math>b\%4 \neq 0</math> that means b is not completely divisible by 4, so our exponent now will be <math>exp=b\%4</math> because by multiplying number exponent times, we get the last digit according to cycle table in above diagram. -&gt; Now calculate <math>digit = pow(\text{last\_digit\_in\_base}, exp)</math>. -&gt; Last digit of <math>a^b</math> will be <math>ldigit\%10</math></p>			

<b>Status: Completed</b>	
<b>Uploaded the report in Github</b>	<b>YES</b>
<b>If yes Repository name</b>	<a href="https://github.com/alvas-education-foundation/Pramod_R">https://github.com/alvas-education-foundation/Pramod_R</a>
<b>Uploaded the report in slack</b>	<b>YES</b>

## Online Test Details: (Attach the snapshot and briefly write the report for the same)

**Challenge Over**  
by TechGig  
**OOC Test 3**

**MCQ**  
Your Highest Score: 16 | Max Score: 30  
**Question Summary** The objective of this round is to screen students on the basis of their domain proficiency  
[Start Test](#)

**Summary**  
Skills: Java  
Ends On: 03 Jun

**Details** | Winners | FAQs | My Submission

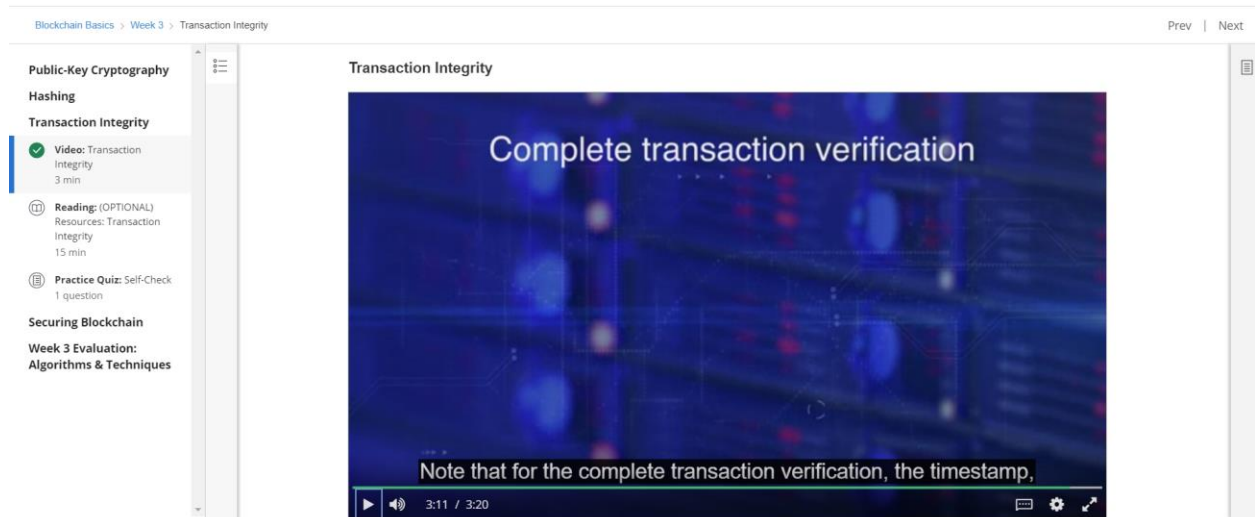
**Rules**

- Any participant can attempt the assessment only 1 times, Only your best score counts!!
- There will be no negative marking.
- Time duration is 45 minutes.
- In case your session expires before finishing the test, you can re-take the test. Your test will resume from where you left off, and the total time will reduce by the duration of your previous attempt.

**Object Oriented Concepts** internals was conducted. A total of 30 questions were there in which all the 30 of them were Multiple Choice Questions.

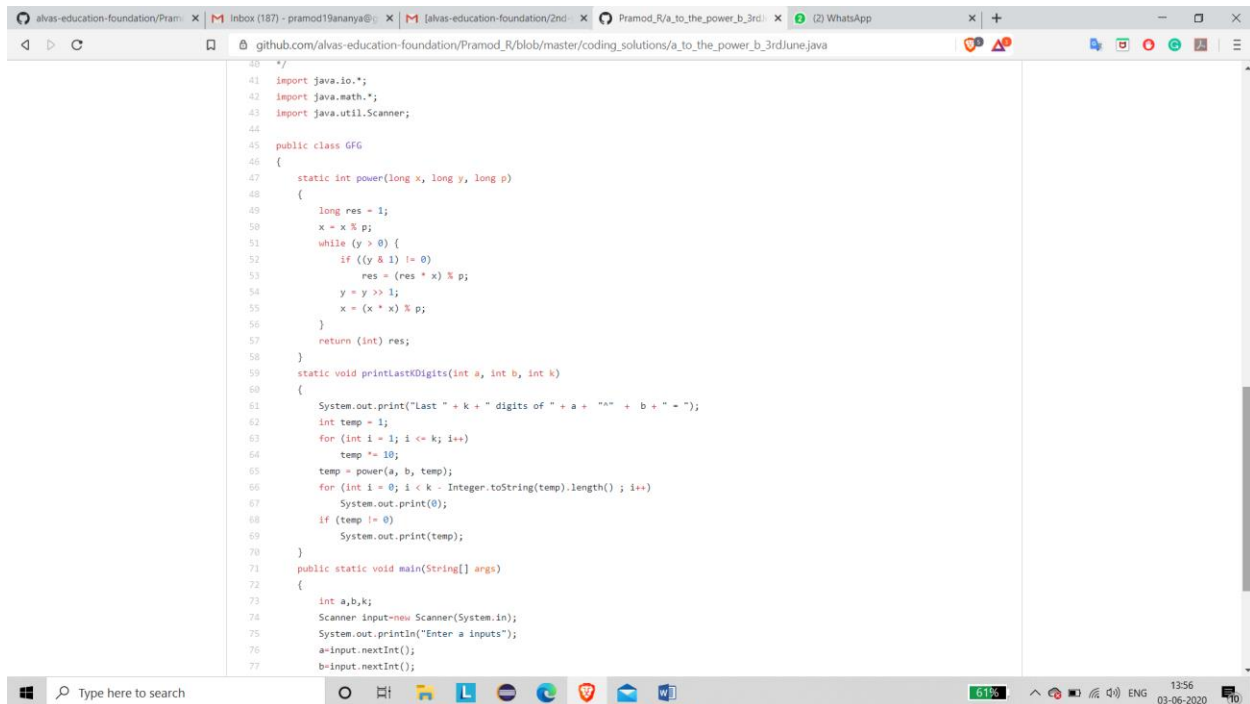
The above snapshot is the result sheet which was mailed to us by the Techgig team.

**Certification Course Details: (Attach the snapshot and briefly write the report for the same)**



The course I have chosen during the lockdown period is Blockchain basics. Since I had previously knew few topics about bitcoin I am continuing this course. Since Blockchain is gaining a lot interest in the IT Sector I have preferred to choose this course.

## Coding Challenges Details: (Attach the snapshot and briefly write the report for the following)



```
10 //
11 import java.io.*;
12 import java.math.*;
13 import java.util.Scanner;
14
15 public class GFG
16 {
17     static int power(long x, long y, long p)
18     {
19         long res = 1;
20         x = x % p;
21         while (y > 0) {
22             if ((y & 1) != 0)
23                 res = (res * x) % p;
24             y = y >> 1;
25             x = (x * x) % p;
26         }
27         return (int) res;
28     }
29     static void printLastKDigits(int a, int b, int k)
30     {
31         System.out.print("Last " + k + " digits of " + a + " ^ " + b + " = ");
32         int temp = 1;
33         for (int i = 1; i <= k; i++)
34             temp *= 10;
35         temp = power(a, b, temp);
36         for (int i = 0; i < k - Integer.toString(temp).length(); i++)
37             System.out.print(0);
38         if (temp != 0)
39             System.out.print(temp);
40     }
41     public static void main(String[] args)
42     {
43         int a, b, k;
44         Scanner input = new Scanner(System.in);
45         System.out.println("Enter a inputs");
46         a = input.nextInt();
47         b = input.nextInt();
48     }
49 }
```

The question I took to code is:

You are given two integer numbers, the base a (number of digits d, such that  $1 \leq d \leq 1000$ ) and the index b ( $0 \leq b \leq 922 \cdot 10^{15}$ ). You have to find the last digit of  $a^b$ .

Examples:

Input : 3 10

Output : 9

Input : 6 2

Output : 6

Algorithm :

Since number are very large we store them as a string.

Take last digit in base a.

Now calculate  $b\%4$ . Here b is very large.

-> If  $b\%4==0$  that means b is completely divisible by 4, so our exponent now will be  $\text{exp} = 4$

because by multiplying number 4 times, we get the last digit according to cycle table in

above diagram.

-> If  $b\%4!=0$  that means b is not completely divisible by 4, so our exponent now will be

$\text{exp}=b\%4$  because by multiplying number exponent times, we get the last digit according to

cycle table in above diagram.

-> Now calculate  $\text{digit} = \text{pow}(\text{last\_digit\_in\_base}, \text{exp})$ .

-> Last digit of  $a^b$  will be  $\text{ldigit}\%10$

**Solution:** The above snapshot is the code which I have uploaded in my Github repository