**LINE / LINE Fukuoka Corporation**

**Pre-Test**

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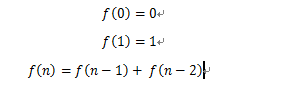
Thank you for applying to LINE/LINE Fukuoka Co., Ltd.  
When considering applicants for engineering positions, we strive to place an emphasis on their true technical skill, which cannot be determined by their educational background or previous work experience alone. That is why we ask that you take this pre-test after confirming the following notices.

[1] Please answer directly in the body of this file.   
[2] Please avoid using the Internet, literary references, etc. to answer the questions.  
[3] Please do not disclose the content of this test to others.

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**Q1**

Where n is a positive integer, the function satisfies the following.



1. Please create a program to find. (You can write in any language that you are good at.)

The below program is written using Python. I naively tried with a recursion solution. But I realized that whenever n grows finding f(n) will take more time. This is why I tried it with a dictionary. Storing every single f(n) up to n in the dictionary, and then returning f(n).

class Solution(object):

def find\_n(self, n):

assert n>=0, “N should be positive.”

dictF = {0:0, 1:1}

i = 2

while i < n+1 :

dictF[i] = dictF[i-1] + dict[i-2]

i += 1

return dictF[n]

1. Use the program you created in (1) to find .

F(8181) = 239001090710360059034248200673803309562195124933438825088385870209105768309267224930066773271004303009695857056812050426322722227488483596969330539198412751609689113829755775066752844437629935556689908621747058520170917953833076673228939285877150494526386620300621280749499924952199516712960736433814553231958282333619656314497995824452475174641352224677997408976231194557854106641619031011172157654286916061043356523159334857136487352779804235483277506977454306460042287968212874761824582897118739286429568840003151050106146828835563160817912048376040050029809912293013734791567749471727392937824065261113177259783202662957881148637632338195187490758787735996699022778723575367214258563034452504094360966531897568256418608645465915444745840473934322871426418866598642747848660145342643755366760919516317387477526541252807114293921792114970905075434450564838742451198888345673434700068960962172644679947794329807611771708249033661865248799511661306285140477533559743999464574932871122125066107105911374614630965320293086278694399936369060752395531165804412176996135810584035128447884802662630006754418904791563798389799016017336123177492245220148295507234160487497059285034564989541608419857951981398972834439558266427410836592525389894745439937417033358839088886819050208294080514041113275997534122520735761635971975621605403703050984275628628811283403426936742851082726036123336764016240562071825096262121405587203818756266733130406345518134166312225673215071500009165695469591411166981267241101113735558997083171850461315680070428706983814819412637005375477590183910679020180492817106735246177201410250973608332090435177967936901320342366183865669056306257798108871942566285065496557591483743343454453933506

**Q2**

Please implement a program that lists the nodes of a random binary tree by nodes at the same depth.

Actually, it is my first time with binary trees. I tried to implement the program using arrays and the three common ways to walk through a tree (In order traversal, Preorder traversal, Post order traversal). Obviously, it did not work. At the end of the day, I knew that I should use Level order traversal with other data structures, but unfortunately, I couldn’t make it.

**Q3**

**(1)** Imagine you are playing a board game. You roll a 6-faced dice and move forward the same number of spaces that you rolled. If the finishing point is “n” spaces away from the starting point, please implement a program that calculates how many possible ways there are to arrive exactly at the finishing point.

**(2)** If n=610, how many possible ways are there to arrive exactly at the finishing point?

**Q4**

Please tell us about the technologies you frequently use.

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| **Levels of competency** | **Name of programming Language(Year of experience)**  **Example: Java (3years)** |
| Most Proficient  (Please give one answer only) | Python (1 year) |
| Familiar with | JavaScript (less than a year) |
| Minimal experience | Java (3 months) |

|  |  |
| --- | --- |
| **Question** | **Answer** |
| On which platform do you have **the most development experience** (e.g. iOS apps, Android apps, Linux server, Windows server, etc.)? | **Windows** |
| On which platforms are you **interested in** developing (regardless of experience) (e.g. iOS apps, Android apps, Linux server, Windows server, etc.)? | **Winodows and Linux** |

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| **Category** | **Example** | **Your Experience** |
| Object Containers | EJB, 　Spring Framework, 　Guice, 　Seasar2 | Django, FastAPI |
| MVC | Spring MVC, 　Struts 2, 　Play, 　Grails | Django MVT |
| ORM | MyBatis, 　Hibernate | Django ORM, SQLAlchemy |
| Testing | JUnit, 　TestNG, 　Cucumber,  Selenium, 　WebDriver |  |
| IDE/Editor | Eclipse, 　IntelliJ IDEA, 　vim, 　Emacs, 　Sublime Text,  Atom, 　Visual Studio, 　Netbeans | Visual Studio, Netbeans, Eclipse, InteliJ IDEA, Sublime Text |
| UML/Diagram | Enterprise Architect, 　Rational XDE, 　LucidChart | Entreprise Architect |
| SCM | CVS, 　Subversion, 　Git, 　Mercurial,  Perforce, 　Visual SourceSafe | Git |
| Builds | Ant, 　Maven, 　Gradle, 　Ivy, 　sbt |  |
| CI/Quality | Jenkins, 　Bamboo, 　Sonar,  CircleCI |  |
| Java Profilers | Eclipse TPTP, 　YourKit, 　JProfiler |  |
| Web Applications | JMeter, 　Grinder |  |
| Performance Profilers |
| Issue Trackers | JIRA, 　Redmine, 　Bugzilla, 　Trello | Trello |
| Agile Processes | Scrum, 　XP, 　Kanban | Scrum |
| Social Coding | GitHub, 　Bitbucket, 　Stash,  Crucible/FishEye | Github, Bitbucket |
| Code Review |

**Q5**

Please answer the questions below.

|  |  |
| --- | --- |
| **Question** | **Answer** |
| What specifically do you want to achieve at LINE Fukuoka? | As far as I know, LINE is one of the most famous companies in JAPAN. Being in such a place will help me grow both professionally and personally. In order to do so, I will completely try my best every single day to finish my tasks on time. Additionally, learning from the seniors and other team members is an opportunity that I will not let it pass me by. Specifically, mastering the backend and the server-side technologies is what I want to achieve at LINE Fukuoka. |
| What kind of Web or smartphone applications are you interested in?  \* Please name at least one app that you always use, and at least one that you have found out about within the last year. | Social media apps.  The one that I always use is Twitter.  The one that I have found about within the last year is LINE. |
| List up to 3 kinds of technology you have gotten interested in recently, and why you are interested in them. | * DATA SCIENCE(especially data visualization, because a well visualized data can lead to better decisions) |
| 1. What is the most technically difficult or interesting thing you have experienced in development or programming so far? 2. Why did you find it difficult / interesting? 3. What was your solution, and how did you implement it? (Please answer in as much detail as possible) | 1. I was working once on a task at my previous company. The task was to generate a csv from the database and instead of saving it locally, it should be saved in a google drive folder. 2. I found it interesting because I had to use a third-party API (google drive API). 3. I was using Django, and ended up using the python module io, StringIO to be specific.   Passing bytes as the argument to the pandas method “to\_csv”. And then, googleapiclient library(MediaIoBaseUpload moule) to upload it to the cloud. |
| Public repository URLs (e.g.: GitHub, Bitbucket, etc.) | <https://bitbucket.org/MM_Bouh/sihha/src/master/>  <https://bitbucket.org/MM_Bouh/sihha_front/src/master/> |
| Public social accounts (if applicable; e.g.: Twitter, Facebook, etc.) | www.linkedin.com/in/mohamed-mehfoud-bouh |
| Which 3 technical books or articles have made a big impact on you? | Recently, I got cracking the coding interview book. I found it useful. |

Thank you for your time!