Basic Coding Knowledge – Fizz Buzz
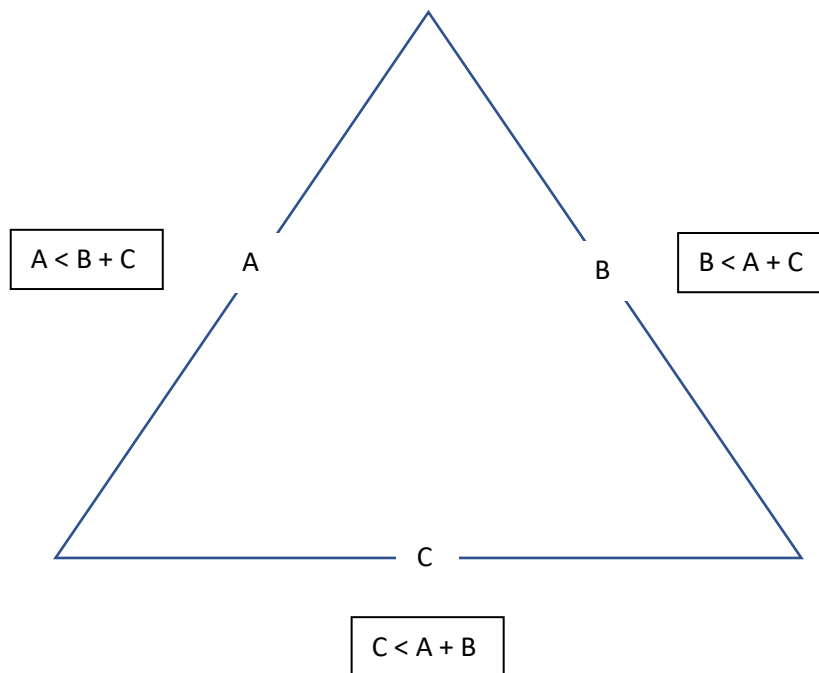
Write a program that prints the numbers from 1 to 100.

But for multiples of three output "Fizz" instead of the number and for the multiples of five output "Buzz".

For numbers which are multiples of both three and five output "FizzBuzz".

Is a triangle valid?

A < B + C

A

B

B < A + C

C

C < A + B

Requirements:

An app that clearly states what it does (checks if the lengths are would form a valid triangle) and how to use the app.

Use the above information to check if what they enter is valid or not (all side lengths will be less than the combined length of the other 2 sides).

Your choice of how it is written, designed, and run.

SQL Altering

Take this query:

```sql
SELECT top 10
    c.Id,
    c.IncId,
    c.Name,
    c.AddressLine1,
    c.AddressLine2,
    c.Area,
    c.Postcode,
    c.Balance,
    c.EstimatedDiscount,
    c.Balance + c.EstimatedDiscount AS TotalToPay,
    c.Nature,
    COUNT(DISTINCT tm.TeamMemberId) AS TeamMembers,
    COUNT(DISTINCT ad.Id) AS active_adverts,
    c.RegistrationDate,
    c.EstimatedDiscount,
    c.IsEnabled
FROM Companies c
LEFT JOIN TeamMembers tm ON tm.CompanyId = c.Id
LEFT JOIN BusinessUnits bu ON bu.CompanyId = c.Id
LEFT JOIN AdvertData ad ON ad.BusinessUnitId = bu.Id AND ad.CurrentStatus = 2
LEFT JOIN AdvertAdvancedSearchData aasd ON aasd.AdvertId = ad.AdvertId AND
aasd.ExpiryDate > GETDATE()
GROUP BY
    c.Id,
    c.IncId,
    c.Name,
    c.AddressLine1,
    c.AddressLine2,
    c.Area,
    c.Postcode,
    c.Nature,
    c.IsEnabled,
    c.RegistrationDate,
    c.Balance,
    c.EstimatedDiscount,
    c.IsEnabled
ORDER BY c.Name
```

There are two fields that need to be added to the query that are both in the Companies table:

```
MonthlyClicks
MonthlyApplications
```

Alter the query above to add these fields to the query

Laravel Test - Create an Admin panel to manage companies

Basically, create a project to manage companies and their employees. Mini-CRM.

Basic Laravel Auth: ability to log in as administrator

Use database seeds to create first user with email admin@admin.com and password "password"

CRUD functionality (Create / Read / Update / Delete) for two menu items: Companies and Employees.

Companies DB table consists of these fields: Name (required), email, logo (minimum 100×100), website

Employees DB table consists of these fields: First name (required), last name (required), Company (foreign key to Companies), email, phone

Use database migrations to create those schemas above

Store companies logos in storage/app/public folder and make them accessible from public

Use basic Laravel resource controllers with default methods – index, create, store etc.

Use Laravel's validation function, using Request classes

Use Laravel's pagination for showing Companies/Employees list, 10 entries per page

Use Laravel make:auth as default Bootstrap-based design theme, but remove ability to register

Components of Cloud Telephony & Flow of Calls

1. Published phone number (Incoming)
   1. This can be a Mobile number or a Toll-Free number. This is the number where your customers call.
   2. Actually, both these numbers are virtual numbers. This number is used to just forward the incoming calls to one of the PRI lines in the data center (cloud).
   3. The third option can be a PRI number from the Cloud setup. However, this is very seldom used.
2. Cloud Telephony Servers with lots of PRI lines (process)
   1. These cloud-based servers are capable of Call recording, IVR, reporting, API and lots of other functionalities.
   2. This is typically hosted in some reliable Data-Centers. These data centers have good infrastructure and redundant connectivity.
   3. The calls to the published number actually get forwarded to these PRI lines.
   4. The Call distribution is done either based on some rules predefined or on the basis of Caller Input for the IVR.
   5. There can be one more way of call distribution which based on **real-time CRM** lookup.
      1. Eg: You have two separate teams for regular customers and platinum customers.
      2. When the calls come, Telephony server checks with your CRM whether the caller is a regular customer or Platinum customer.
      3. Calls are routed to the respective team accordingly.
3. Extensions or landing numbers or Agent Numbers (landing the calls)
   1. These are the numbers where the call actually lands. These are also called Agent Numbers.
   2. These numbers can be mobile numbers of your Team Members or your office land-line numbers.
   3. Cloud Telephony providers like Enjay also provide Hunting number facility. If one Agent is not available, the system will dial another number.

The flow of Incoming Calls.

1. Your customers calls on the Published Number.
2. The call is forwarded to the PRI lines on Cloud Telephony Server.
3. Servers will play the IVR if it is configured that way.
4. Then the Server calls Agents (or extensions), according to Call Distribution logic. Eg:
   1. According to selection in the IVR by the caller
   2. According to pre-set Call Distribution logic done on the cloud server.
5. Connects the Caller and the Agent.
6. While doing all these things:
   1. Call gets recorded
   2. Telephony API communicates with your CRM (if required).
   3. After the call, you get SMS notification.

The flow of Outgoing Calls.

Outgoing is less frequently used in Cloud Telephony. One of the reason is that it requires two calls. This makes it costly for outgoing calls. Secondly, it is little slower a process.
Further, Outgoing calls are generally done from a software like CRM (or a dialer).
1. Agent Clicks on the dial icon on the CRM software.
2. CRM software sends API signal to Cloud Telephony Servers.
3. The Server calls Agent first.
4. When Agent picks up the call, the server dials the Customer.
5. Both are bridged.

Benefits of Cloud Telephony

1. **Call Distribution**

   A. The incoming calls can be distributed based on skills, or round robin or based on free/busy.

2. **Multilevel IVR**

   A. Create a grand impression of your company by greeting your incoming callers with a meaningful IVR. This also helps in better call distribution based on the option selected by the caller.

3. **Call Recording**

   A. All the calls are recorded by default. Call recording has many advantages like Quality control, Training purpose, Proof of commitment, dispute resolution.

4. **Number Masking.**

   A. The number of the caller is not displayed to the Agent. The agent sees the number of Cloud Telephony provider.
   B. This makes sure that you always own the customer, no matter who is providing the service.

5. **No hardware required.**

   A. Absolutely ZERO installation at your place. Just subscribe to the service and start enjoying the benefits.

6. **Detailed reporting for all the calls.**

   A. Agents call reports. Calls held versus not held. Duration of calls. Agents with maximum calls and maximum call time. There is no limit to the kind of reporting that you can schedule as an email to yourself.

7. **Time-based call routing.**

   A. Office hours and after office hours can have different treatment for the calls. Eg: in office hours you route the calls to agents and after office hours you may just play an IVR and call that caller next day.
   B. Alternatively, different Agents can be defined for different time periods.

8. **Easy to setup**

   A. Instant setup and hassle-free configuration. Since Enjay offers everything unlimited, you don't need to worry about the bills.

9. **Scalable**

   A. You add more agents or add more branches. No problem, Cloud telephony can handle changes in scale with a breeze

10. **Reliable**

   A. Cloud Telephony is based on cloud services. As such chances of failure are far less as compared to in-house EPABX.