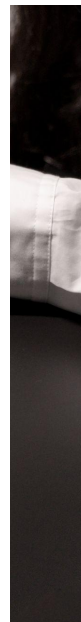


World DashBoard

Web Development

Chuchu Wu
Master at CMU

Presented to Deloitte





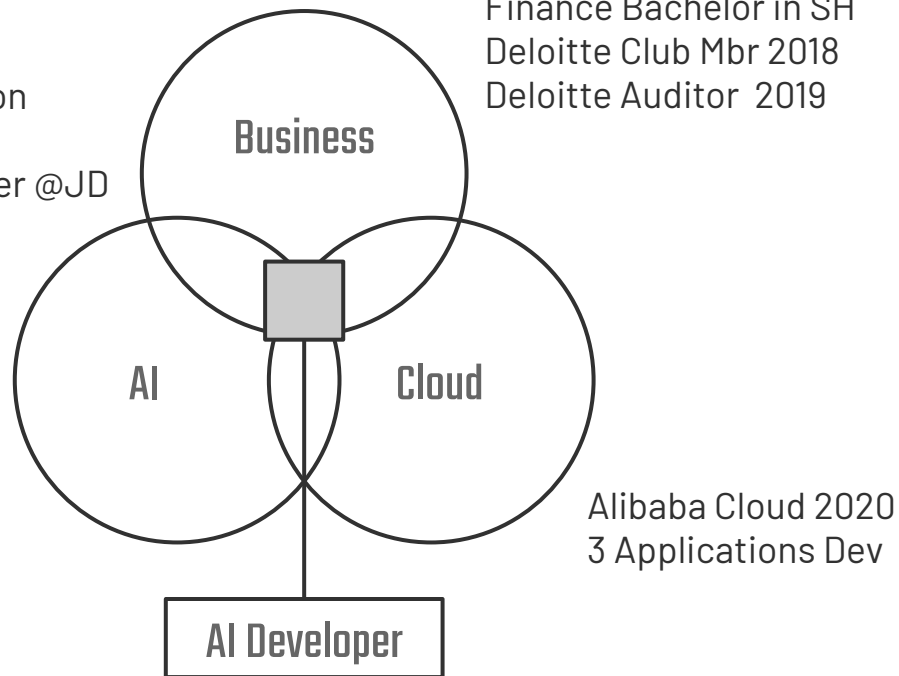
Developer Introduction



Chuchu Wu

Movie
Recommendation
System 2021
Big Data engineer @JD
2021

Finance Bachelor in SH
Deloitte Club Mbr 2018
Deloitte Auditor 2019



Alibaba Cloud 2020
3 Applications Dev





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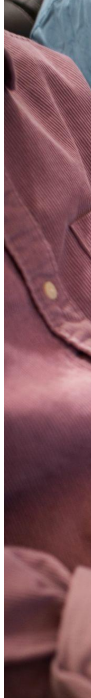
Possible Solutions and
Comparison
Design for Scalability

04

BUSINESS IMPACT

Future Features
Impact for Growth





01

Project Overview



Project Definition

A Country Info Dashboard

1. Population by country chart
2. Country info table
3. Population density table

Blitz Day 2020 Dev Case

Chart: Population By Country

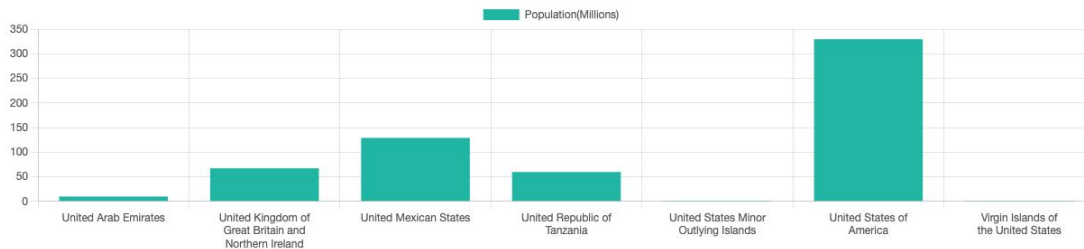


Table 1: Country Basic Info

Code	Country Name	Capital	Population	Currency	Latitude	Longitude
784	United Arab Emirates	Abu Dhabi	9,890,400	AED	24	54
826	United Kingdom of Great Britain and North...	London	67,215,293	GBP	54	-2
484	United Mexican States	Mexico City	128,932,753	MXN	23	-102
834	United Republic of Tanzania	Dodoma	59,734,213	TZS	-6	35
581	United States Minor Outlying Islands	Washington DC	300	USD	19.3	166.633333
840	United States of America	Washington, D.C.	329,484,123	USD	38	-97

Table 2: Population Density

Country Name	Population Density
United Arab Emirates	118.31
United Kingdom of Great Br...	276.72
United Mexican States	65.64
United Republic of Tanzania	63.20
United States Minor Outlyin...	8.77
United States of America	35.15

<https://dimpledthoughtfulidentifier.chuchuwu.repl.co/>

Project Structure

Back-End



Send API request
Save and Query Data

Send Request



Json Response



Front-End



Deal with Response
Page Display



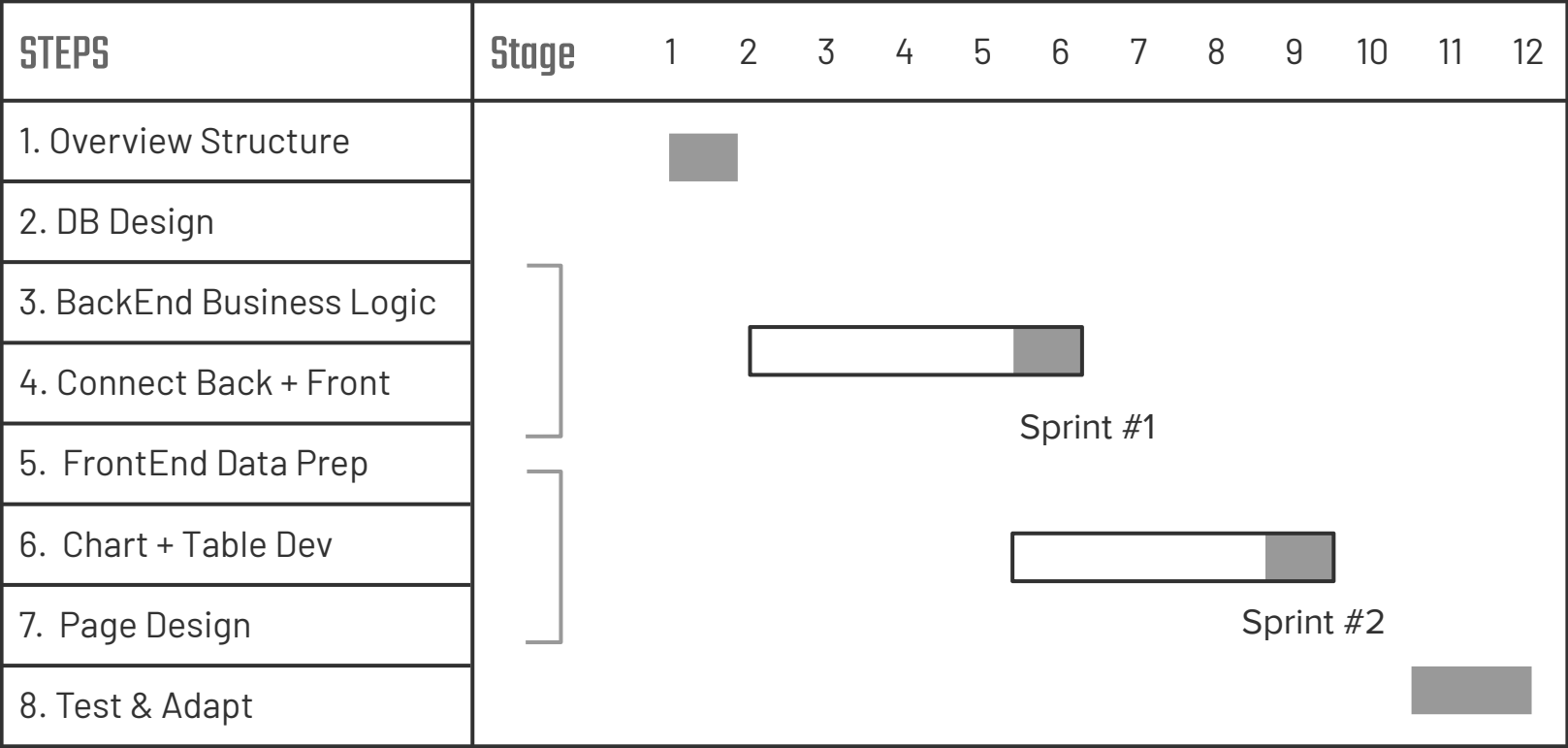
Chart.js



Table & Chart visualization

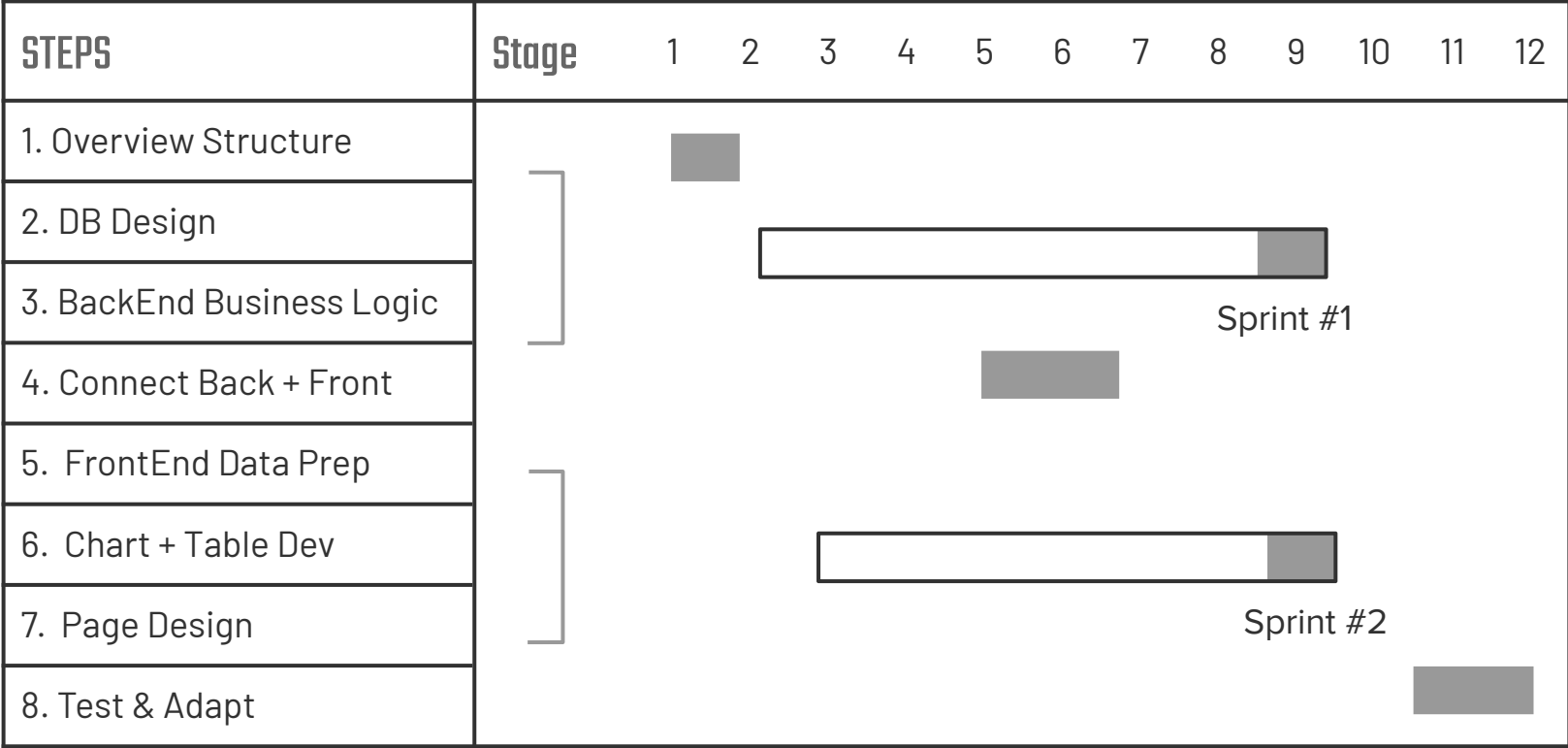


Project Planning





Project Planning (Larger Scale)





02

Solution Details

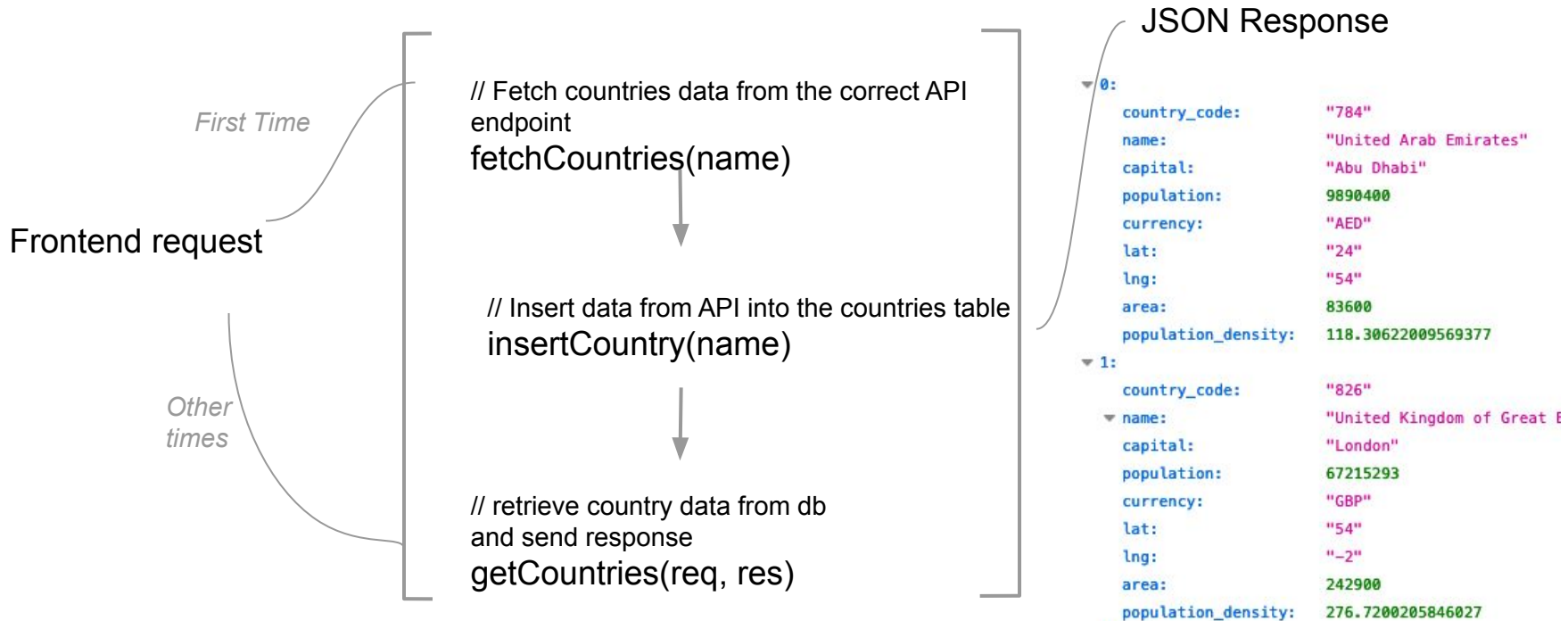
Design Decisions
Possible Problems
Suggestions



Model - DB Design

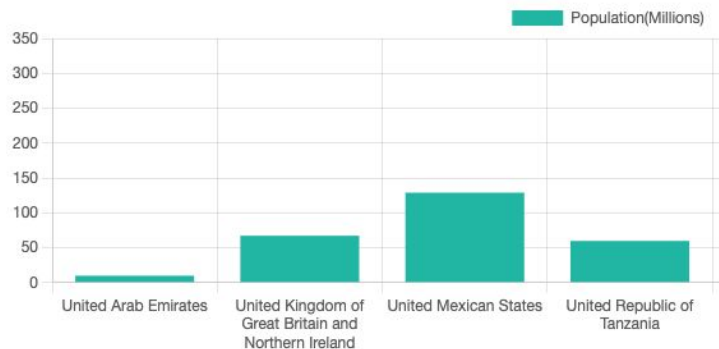
```
`CREATE TABLE countries (  
  country_code TEXT,  
  name TEXT,  
  capital TEXT,  
  population NUMERIC,  
  currency TEXT,  
  lat TEXT,  
  lng TEXT,  
  area NUMERIC,  
  population_density NUMERIC)`);
```

Backend API Design



View - Chart and Table Design

Chart: Population By Country



```
new Chart(chartPopulation,  
  {type: 'bar', data: data,...})
```

- Easy to import
- Data adjustment

Table 2: Population Density

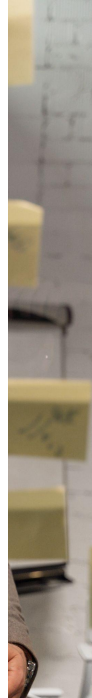
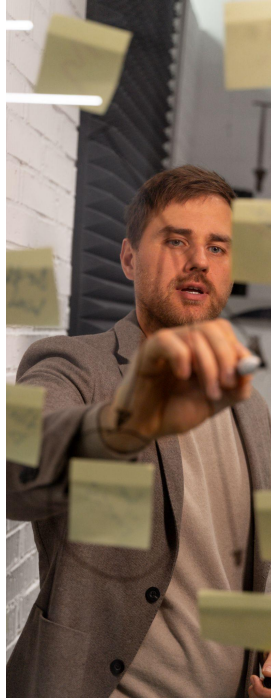
Country Name	Population Density
United Arab Emirates	118.31
United Kingdom of Great Br...	276.72
United Mexican States	65.64
United Republic of Tanzania	63.20
United States Minor Outlyin...	8.77
United States of America	35.15

```
new Tabulator("#table1",  
  {data: tabledata,...})
```

- Filtering
- Templates
- Ajax display

Possible Issues & Solution

- Connectivity
 - Frontend <-> Backend
 - Error Handling
 - After each fetch
 - Page Loading
 - DB reading takes time
 - Data Formatting
 - Frontend data formatting
 - Chart size
 - Responsive chart
 - Table template
 - Tabulator for different version
-



03

System Design

Deployment and Design

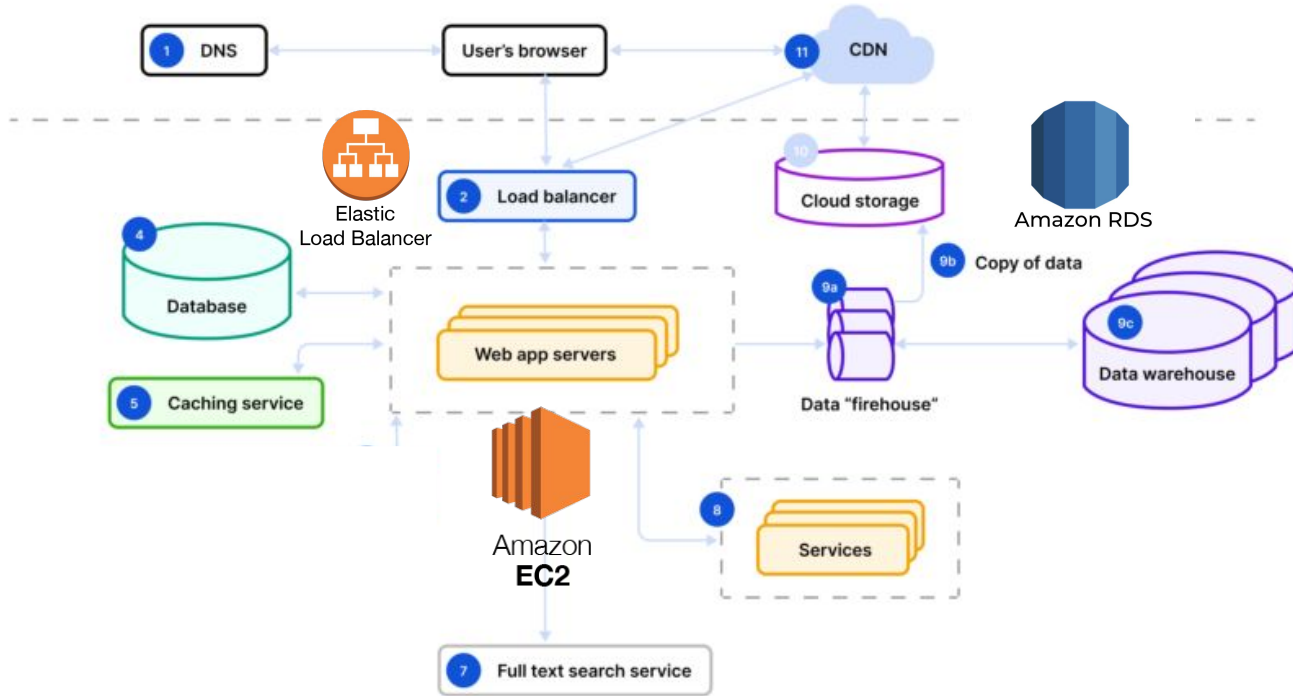


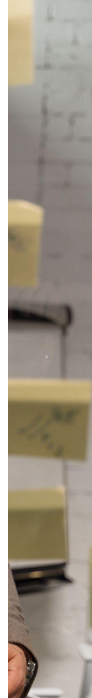
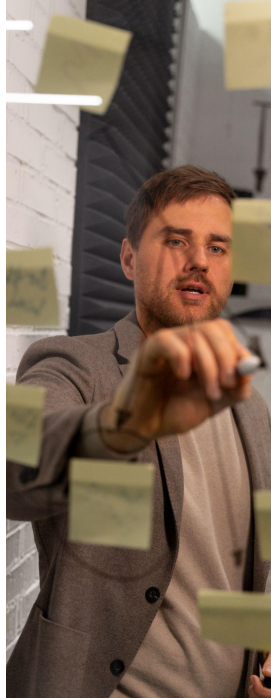
Back-End Solutions



Language	Framework	Pros	Cons
JS	NodeJS Express	<ul style="list-style-type: none">• a vast web community• used by many companies, PayPal, Sony, Uber, Walmart Inc.,	<ul style="list-style-type: none">• Not preferable for heavy applications or any complexity• Lacks MVC system
JAVA	Spring	<ul style="list-style-type: none">• Flexible nature• lightweight container and can deploy Tomcat servers quickly.• Easily collaborate with other programs	<ul style="list-style-type: none">• Its MVC is not based on the Java JEE standard.• Complex
Python	Django	<ul style="list-style-type: none">• MVC• Offers flexibility and scalability• Well documented	<ul style="list-style-type: none">• Too big software for small projects

Future Deployment Solution





04

Business Impacts



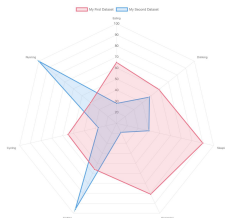


Possible Features

Country

Multiple

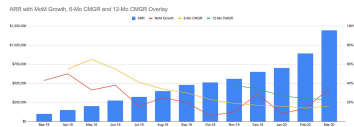
**Top Population
Density Board,
Country info
comparison**



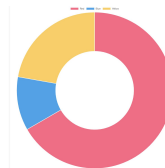
**Top Country Sales Board
Top Potential Market Board**

Single

**Country Deep Insight,
History
Trend**



**Country Revenue
distribution**



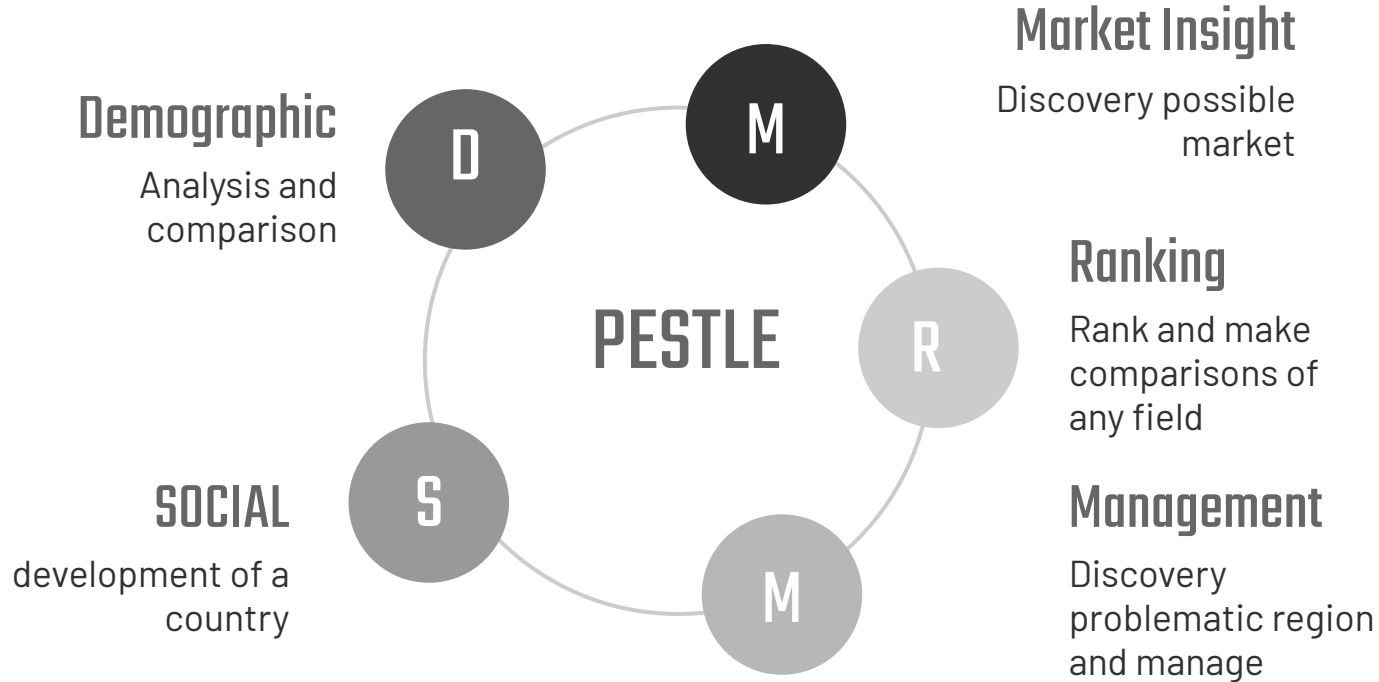
Country Info

Other Info (Sales, Health,
Manufacture, etc.)

Data



Strong Business Impact





References

Bootstrap

<https://getbootstrap.com/docs/3.4/css/>

Tabulator

<https://tabulator.info/docs/5.4/quickstart>

<https://tabulator.info/docs/5.4/install>

Chart JS

<https://www.chartjs.org/docs/latest/configuration/responsive.html>

<https://www.chartjs.org/docs/latest/axes/styling.html#tick-configuration>

Sqlite NodeJS

<https://lightrun.com/debugging/node-js-sqlite-tutorial/>





THANKS !



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