



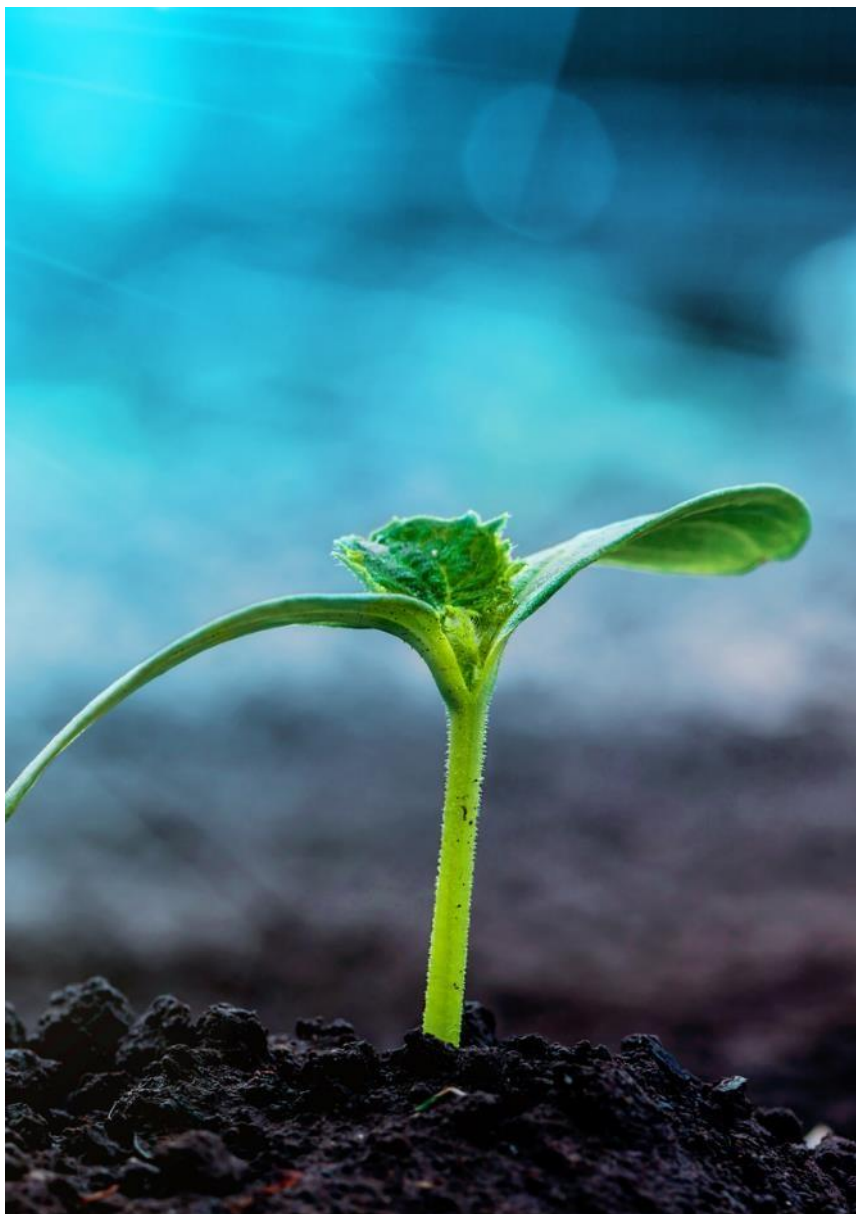
**SAPLING**  
FINANCIAL CONSULTANTS

# DATA ANALYTICS: LEVERAGING THE STRATEGIC FUNCTION OF THE FINANCE DIVISION

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PRESENTED BY: Rob Hong, Founder  
Sapling Financial Consultants Inc.





# 01

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OVERVIEW OF  
DATA ANALYTICS  
AS A FINANCE  
DISCIPLINE



# WEBINAR OVERVIEW

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- 01 Overview of Data Analytics as a Finance Discipline
- 02 Survey of Products on the Market
- 03 Key Considerations in Using Dashboarding Products
- 04 Dashboard Use Cases
- 05 Q&A



Rob Hong  
Founder at Sapling Financial  
Consultants Inc.



# ABOUT SAPLING

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Sapling Financial Consultants is a boutique consultancy specializing in financial modelling and data analytics services for midmarket businesses and scaleups.

Whether you're a midmarket company executive or scaleup founder, we empower you to make financial decisions with clarity and confidence through the use of professional tools tailored to your business.



BUSINESS INTERIORS





# END STATE

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Very brief demo



# OVERVIEW OF DATA ANALYTICS AS A FINANCE DISCIPLINE

Historically, Finance has been “bean counting” – an important part of the business, but not necessarily driving expense reductions, and certainly not revenue increases



Finance has also been entrusted with IT, and to some extent strategy, and these demands are growing in high performing organizations

As a result, to fulfill the two additional hats of IT and Strategy, Data Analytics is a critical area of focus for CFOs

Data Analytics is intimidating because it makes use of technologies that are not historically core training for accountants and CFOs – programming especially (programming languages, SQL databases)



# AUDIENCE QUESTION

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What are you doing right now to display and digest KPIs?



# 02

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## SURVEY OF PRODUCTS ON THE MARKET





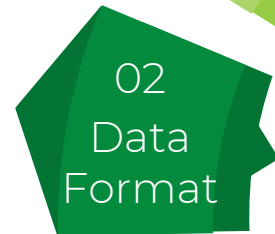
# SURVEY OF PRODUCTS ON THE MARKET

Not all Dashboard and Data Visualization tools are created equal. Find a solution that meets your needs through:

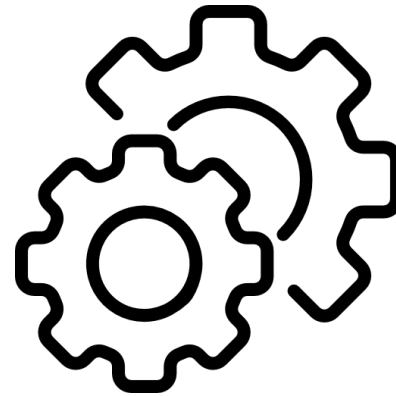
Understanding the type of data the organization collects and how it's likely to be consumed



Finding out the data format the query tool supports



Testing the degree of drill down in the source data, and if live data visualization is available



Researching if audit trail is present for compliance reasons



Discovering exporting formats: graphics, webpages, and other applications



Testing the most complex algorithm will show if the processing capability is sufficient



# SURVEY OF PRODUCTS ON THE MARKET (CONT.)

Item	Microsoft Power BI	Tableau Desktop	Looker	IBM Watson Analytics
Data Type and Input	Familiar & intuitive design as other Microsoft products, ease to start	Loading and extracting easily	Proficient in both SQL and Web-based data	Straightforward; can shape and cleanse data prior to uploading
Data Format	A standout number of connectors, e.g., SQL, MailChimp, Salesforce	Plenty of connectors and can choose to work with the data live or load into Tableau Desktop	Supports 25 different variations, including Google BigQuery, Hive, Spark, and Vertica	32 connects including spreadsheets, Eventbrite, OneDrive, Paypal, and Twitter
Drill-down	Easy drill-down through clicks on visualizations	A little trickier as have to find the right pull-down menu	Focus on data structures and relationships from SQL command	Developed functions that may need some tutorials or demo
Audit Trail	Desktop and web versions may divide data prep	Granular collaboration features but need experience and knowledge	Three access roles: Administrator, Developer, and ordinary User; Can track changes to SQL code base	Typical collaboration functions
Export	Graphic outputs and reports and visualizations created for targets like emails or social media posts	Mature exporting features	Support Webhooks to use Looker data objects as part of third-party workflows, like those created with Zapier	Typical exporting features
Processing	Hourly data refresh cycles, and 1M rows per hour streaming data consumption; Ability to integrate Big Data directly in web service, and to run large-scale analytics workloads in the cloud	Can perform complex queries fast	Allow users to spend less time fiddling with the tool and more time exploring data; No actual limits on physical size of the data set	Stellar natural language querying platform with machine learning and artificial intelligence backed; Works well with natural language; data can be refreshed as often as 5 seconds
Other Features	Gallery with free templates and visualization ideas	Lack of prompts or quick Help links may require training	Can import outside visuals with Javascript	Can depersonalize personally identifiable information



# 03

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KEY CONSIDERATIONS  
IN USING  
DASHBOARDING  
PRODUCTS



# SET UP OF DASHBOARDS

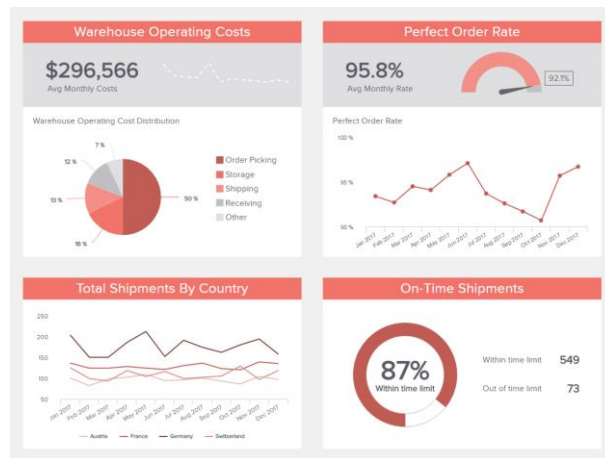
There are a couple of considerations to create meaningful dashboards:

Who is the audience?

Tell a story on one screen

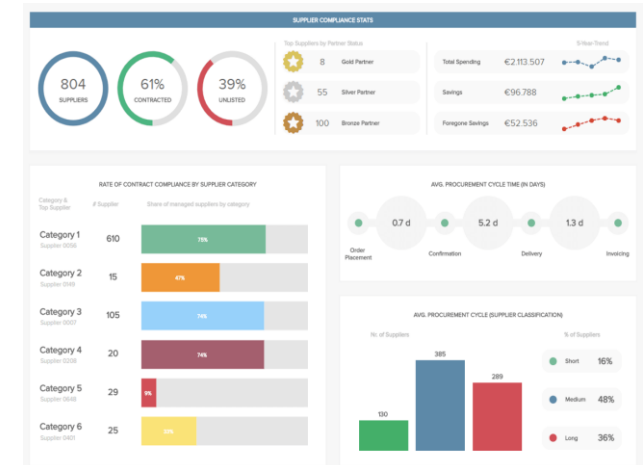
Accent the most important info

Use the right visualizations



Keep consistent formatting for the same data type or group

Avoid over-crowded layout and utilize drill-downs

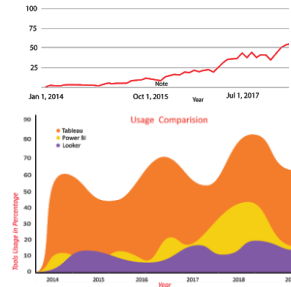




# SET UP OF DASHBOARDS (CONT.)

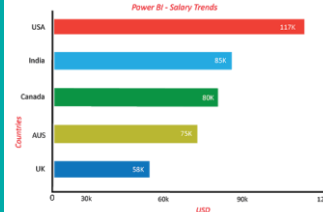
Choosing the right visualization can save a thousand words. Some of the top used visualizations are introduced here:

Line/Area Chart



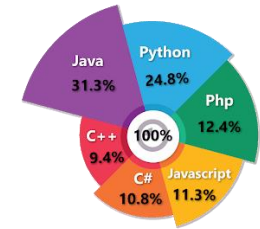
Shows trend changes over time

Bar/Column Chart



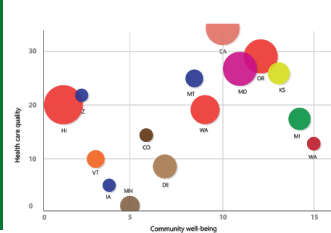
Compares the display data easily

Pie/Doughnut Chart



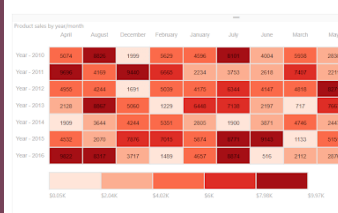
Represents percentages

Scatter/Bubble Chart



Shows relationship between two variables

Heat Map/Matrix Chart



Visualizes relationship with hierarchy

Regional/Point /Flow Map



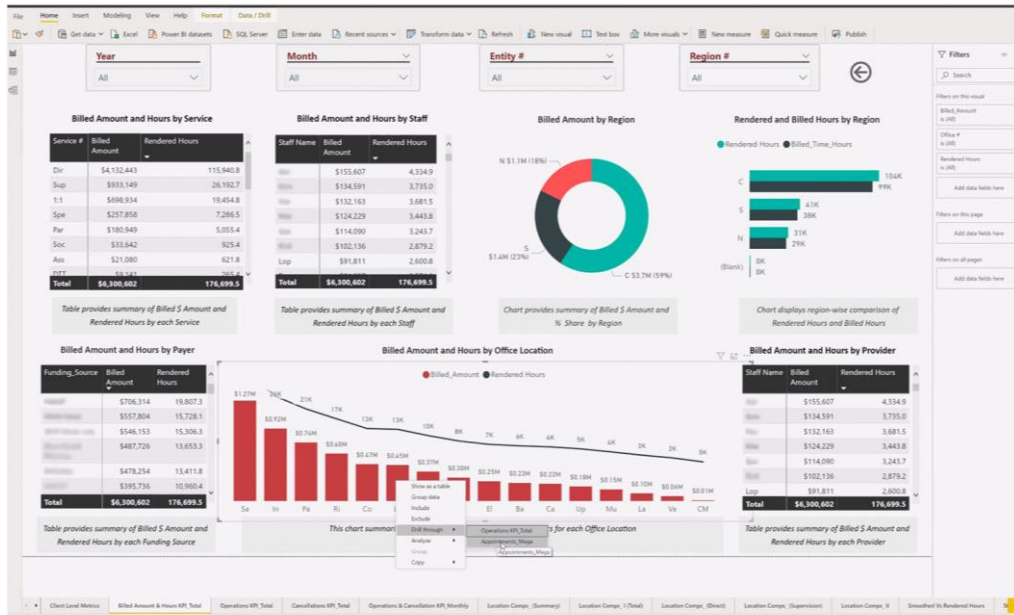
Displays geographical locations by distributions of specific values





# SET UP OF DATABASE / "BACK-END"

The primary differentiator between valuable dashboards and those of limited value is the quality of the data and the structure of the database ("data warehouse" or "data lake") from which the dashboard draws. The right data will allow the user to *drill down*, or to *transform* summary information to detailed data by choosing an area of focus.



AppointmentID	Office #	Service #	Appointment_Status	Client_Name	Staff Name	Job Title Code	Staff_Top_Degree	Service_Code	Sub_Code	Modifier	Diagnosis_Code	Appt_Start_Time	Appt_End_Time
184489	Lo	Dir	Client Cancellation (At door/No Show)		Beh		H2019	HH	F84.0			01/12/2019 8:00:00 AM	01/12/2019 10:30:00 AM
185650	Lo	Dir	Client Cancellation (At door/No Show)		Beh	Bachelor's Degree	H2019	HM	F84.0			02/12/2019 3:00:00 PM	02/12/2019 5:00:00 PM
194460	Lo	Dir	Client Cancellation (At door/No Show)		Beh	High School Diploma	H2019	HH	F84.0			04/12/2019 3:30:00 PM	04/12/2019 5:30:00 PM
194636	Lo	Par	Client Cancellation (At door/No Show)		Pro	Master's Degree	S5111	HC	F84.0			04/12/2019 11:30:00 AM	04/12/2019 1:30:00 PM
202639	Lo	Dir	Client Cancellation (At door/No Show)		Beh		H2019	HM	F84.0			06/12/2019 6:15:00 PM	06/12/2019 8:15:00 PM
208132	Lo	Sup	Client Cancellation (At door/No Show)		Cli		H0031	HP	F84.0			09/12/2019 6:30:00 PM	09/12/2019 8:30:00 PM
212277	Lo	Dir	Client Cancellation (At door/No Show)		Beh	Bachelor's Degree	H2019	HN	F84.0			10/12/2019 6:30:00 PM	10/12/2019 8:30:00 PM
212298	Lo	Dir	Client Cancellation (At door/No Show)		Beh	Bachelor's Degree	H2019	HM	F84.0			10/12/2019 7:10:00 PM	10/12/2019 9:10:00 PM
216550	Lo	Dir	Client Cancellation (At door/No Show)		Beh	Bachelor's Degree	H2019		F84.0			11/12/2019 6:30:00 PM	11/12/2019 8:30:00 PM
216611	Lo	Dir	Client Cancellation (At door/No Show)		Beh	Associate's Degree	H2019	HH	F84.0			11/12/2019 3:30:00 PM	11/12/2019 5:30:00 PM
216762	Lo	Dir	Client Cancellation (At door/No Show)		Beh	High School Diploma	H2019	HH	F84.0			11/12/2019 3:30:00 PM	11/12/2019 5:30:00 PM
220977	Lo	Dir	Client Cancellation (At door/No Show)		Pro	Bachelor's Degree	H2019	HH	F84.0			12/12/2019 2:00:00 PM	12/12/2019 4:00:00 PM
223914	Lo	1:1	Client Cancellation (At door/No Show)		Beh	High School Diploma	Bill		F84.0			13/12/2019 12:00:00 PM	13/12/2019 2:00:00 PM
223915	Lo	1:1	Client Cancellation (At door/No Show)		Beh	High School Diploma	Bill		F84.0			13/12/2019 9:00:00 AM	13/12/2019 11:00:00 AM
228372	Lo	Dir	Client Cancellation (At door/No Show)		Beh	Bachelor's Degree	H2019		F84.0			15/12/2019 9:00:00 AM	15/12/2019 11:00:00 AM
228381	Lo	Dir	Client Cancellation (At door/No Show)		Beh		H2019	HH	F84.0			15/12/2019 8:00:00 AM	15/12/2019 10:30:00 AM
228397	Lo	Dir	Client Cancellation (At door/No Show)		Beh	Bachelor's Degree	H2019	HM	F84.0			15/12/2019 12:30:00 PM	15/12/2019 3:00:00 PM
230536	Lo	Dir	Client Cancellation (At door/No Show)		Beh	Associate's Degree	H2019	HH	F84.0			16/12/2019 7:00:00 PM	16/12/2019 8:30:00 PM
230683	Lo	Dir	Client Cancellation (At door/No Show)		Beh	Bachelor's Degree	H2019		F84.0			16/12/2019 5:30:00 PM	16/12/2019 7:00:00 PM
235021	Lo	Dir	Client Cancellation (At door/No Show)		Beh	Bachelor's Degree	H2019		F84.0			17/12/2019 1:30:00 PM	17/12/2019 4:30:00 PM
235082	Lo	Dir	Client Cancellation (At door/No Show)		Beh	High School Diploma	H2019		F84.0			17/12/2019 4:00:00 PM	17/12/2019 6:00:00 PM
239351	Lo	Dir	Client Cancellation (At door/No Show)		Beh	Bachelor's Degree	H2019		F84.0			18/12/2019 2:15:00 PM	18/12/2019 5:15:00 PM
239437	Lo	Dir	Client Cancellation (At door/No Show)		Beh	Bachelor's Degree	H2019	HM	F84.0			18/12/2019 2:45:00 PM	18/12/2019 5:00:00 PM
247450	Lo	Sup	Client Cancellation (At door/No Show)		Pro	Master's Degree	H0046	HN	F84.0			20/12/2019 2:00:00 PM	20/12/2019 4:00:00 PM
247834	Lo	Dir	Client Cancellation (At door/No Show)		Beh	High School Diploma	H2019		F84.0			20/12/2019 4:00:00 PM	20/12/2019 6:00:00 PM
252846	Lo	Dir	Client Cancellation (At door/No Show)		Beh	High School Diploma	H2019	HM	F84.0			23/12/2019 1:00:00 PM	23/12/2019 4:00:00 PM
252863	Lo	Dir	Client Cancellation (At door/No Show)		Beh	Bachelor's Degree	H2019	HM	F84.0			23/12/2019 4:00:00 PM	23/12/2019 7:00:00 PM
252883	Lo	Dir	Client Cancellation (At door/No Show)		Beh	Bachelor's Degree	H2019	HM	F84.0			23/12/2019 4:00:00 PM	23/12/2019 6:30:00 PM
253053	Lo	Dir	Client Cancellation (At door/No Show)		Beh	Bachelor's Degree	H2019		F84.0			23/12/2019 9:00:00 AM	23/12/2019 11:15:00 AM
255954	Lo	Dir	Client Cancellation (At door/No Show)		Beh	High School Diploma	H2019		F84.0			24/12/2019 9:30:00 AM	24/12/2019 11:30:00 AM
256050	Lo	Dir	Client Cancellation (At door/No Show)		Beh	Bachelor's Degree	H2019		F84.0			24/12/2019 9:30:00 AM	24/12/2019 11:30:00 AM
256063	Lo	Dir	Client Cancellation (At door/No Show)		Beh	Bachelor's Degree	H2019	HM	F84.0			24/12/2019 3:40:00 PM	24/12/2019 4:40:00 PM
256096	Lo	Dir	Client Cancellation (At door/No Show)		Beh	High School Diploma	H2019		F84.0			24/12/2019 9:15:00 AM	24/12/2019 12:30:00 PM
256103	Lo	Dir	Client Cancellation (At door/No Show)		Beh	High School Diploma	H2019	HM	F84.0			24/12/2019 12:45:00 PM	24/12/2019 4:15:00 PM
256123	Lo	Dir	Client Cancellation (At door/No Show)		Beh	Bachelor's Degree	H2019	HM	F84.0			24/12/2019 1:30:00 PM	24/12/2019 3:30:00 PM
261481	Lo	Dir	Client Cancellation (At door/No Show)		Beh	Bachelor's Degree	H2019	HH	F84.0			27/12/2019 3:00:00 PM	27/12/2019 5:00:00 PM
261875	Lo	Dir	Client Cancellation (At door/No Show)		Beh	High School Diploma	H2019	HM	F84.0			27/12/2019 9:30:00 AM	27/12/2019 12:30:00 PM



# SET UP OF DATABASE / “BACK-END” (CONT.)

The steps to capturing valuable data and the development of a strong database “back-end” can be divided into:



## Understanding the Business

- List desired KPIs
- Determine fundamental unit of analysis
- Examine where data is housed and what reports can be created to pull from it
- Assess what ancillary tables/data pulls are required



## Setting Up the Table Structure

- Translate understanding of business needs to table structure



## Populating the Database

- Ideally through use of direct connection/integration
- If not available, through APIs
- If not available, through web scraping
- Last resort is manual upload (e.g., CSV)



# UNDERSTANDING THE BUSINESS

For the purposes of creating a dashboard “back-end”, understanding a business is composed of:

## Gathering Desired KPIs

- Strong KPIs will evaluate the success of organization or of a particular activity (e.g., a project, program, product and other initiative)

## Determining Fundamental Unit of Analysis

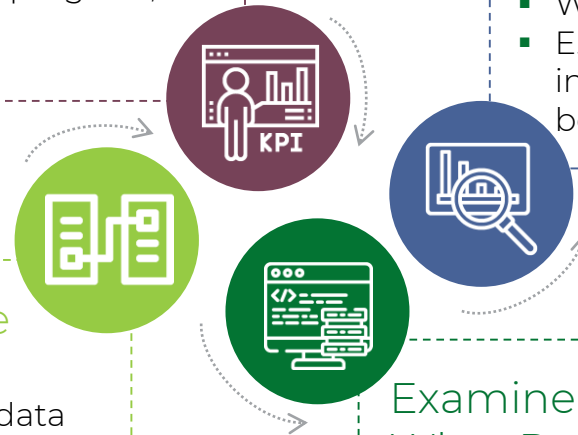
- What you wish to analyze
- E.g., within the healthcare industry, this could be individual appointments. For a distributor, this would be invoice line items

## What Ancillary Tables/ Data Pulls are Required

- For the healthcare industry, payroll and CRM data tracking marketing spend and conversions would be considered ancillary levels of analysis

## Examine Where Data is Housed and What Reports to Create

- Are typically several systems at the heart of operations
- Want to generate reports that will support *not only* the KPIs that we are building out *today*, but ideally, those that we anticipate showing in the future

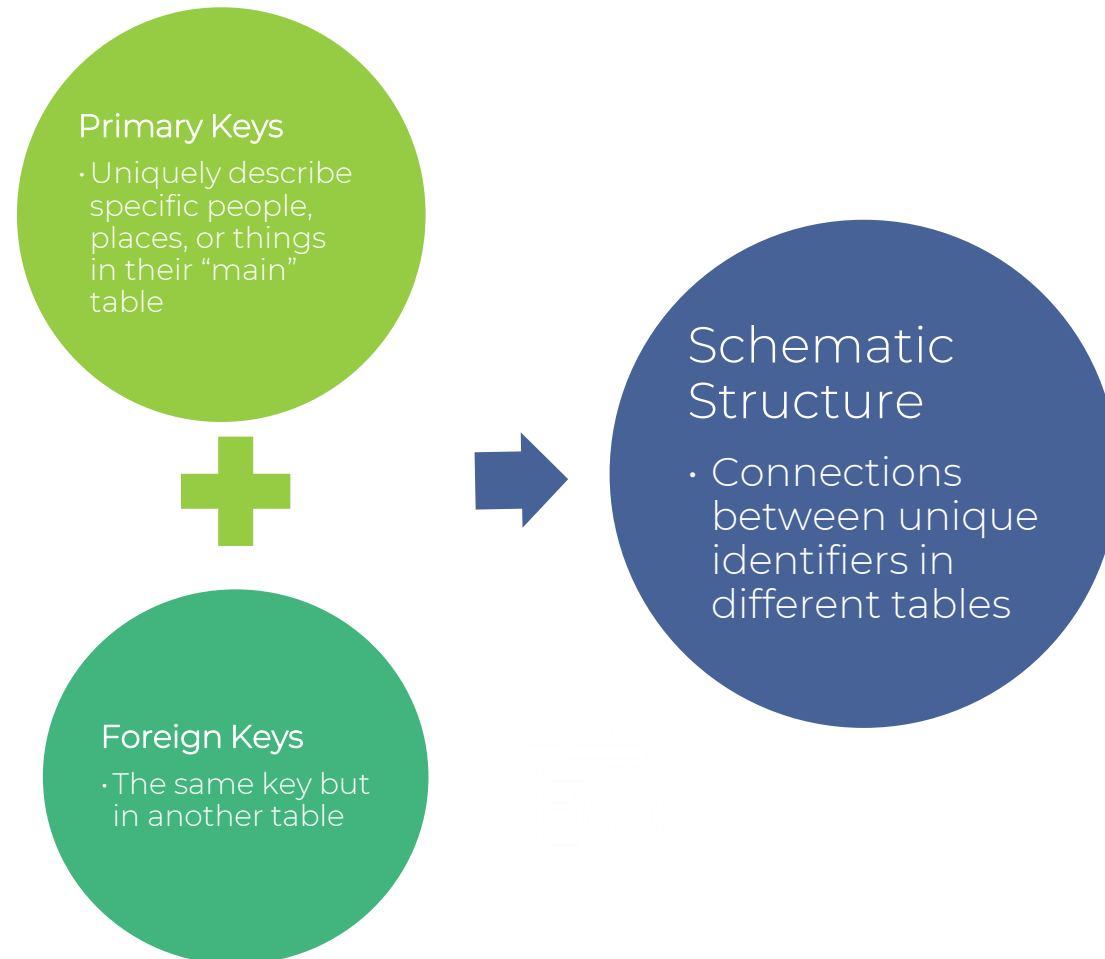






# SETTING UP THE TABLE STRUCTURE

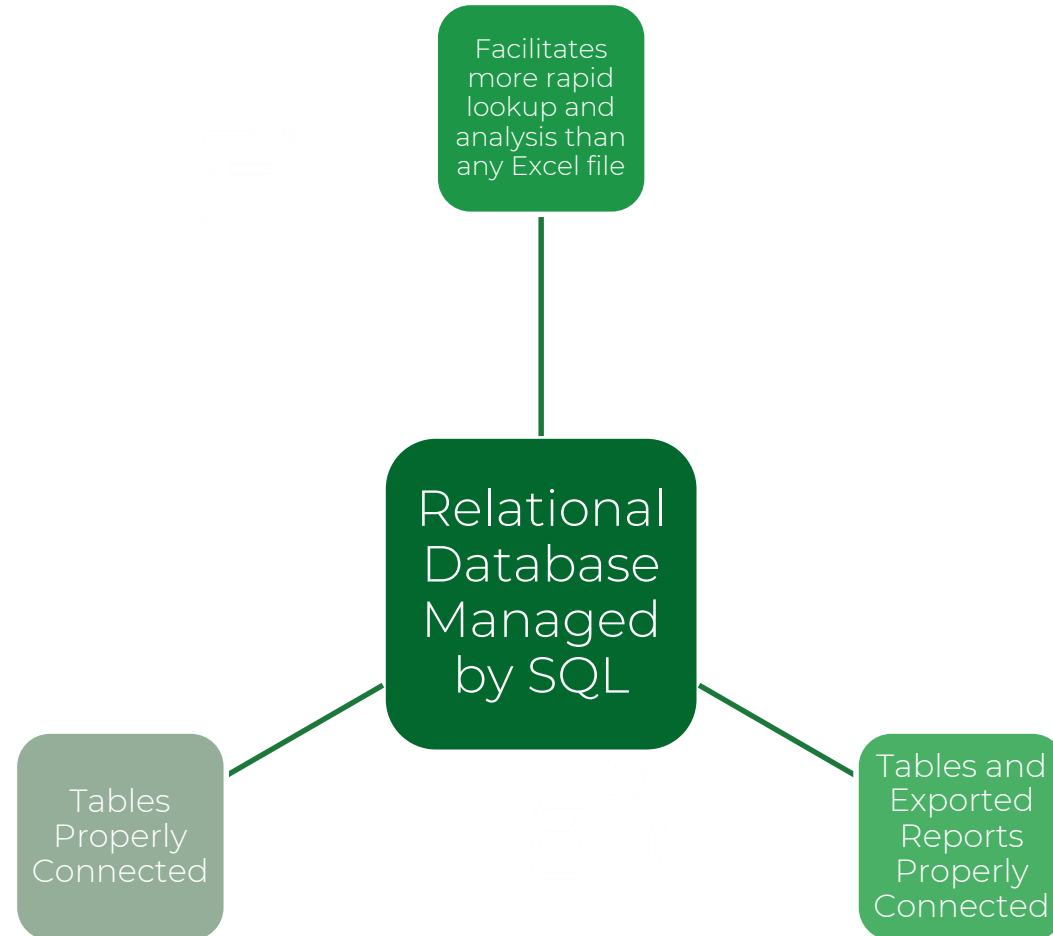
Once you choose a database service, your data will be housed in multiple tables, and relationships between these tables are essential to accurately calculate results and display the correct information





# SETTING UP THE TABLE STRUCTURE (CONT.)

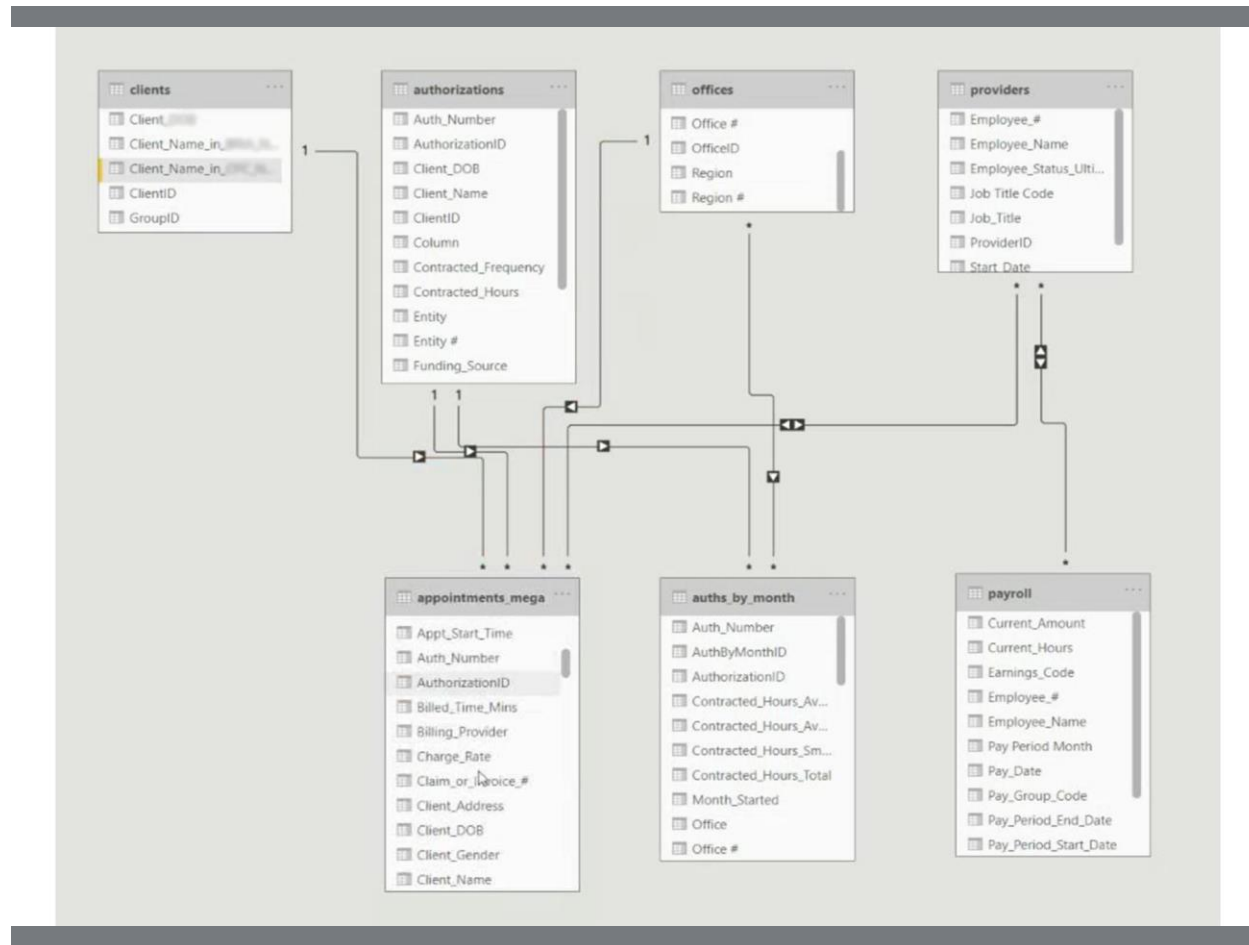
Proper connections will lead to a relational database, which is a structured collection of transactional data that is logically related and stored to minimize duplication and facilitate rapid retrieval





# SETTING UP THE TABLE STRUCTURE (CONT.)

Each table is contained within a database object container called a **schema**, and the properties that are assigned to each table and the columns it contains will control the allowed data types and data ranges that the table accepts:





# POPULATING THE DATABASE

After identifying and creating the right reports in the individual systems, the next step is to fetch these reports and house and organize them in a SQL (or equivalent) “data warehouse” database. Options include:

## Microsoft Access

Easiest way to learn about dashboards, but not an enterprise-quality database solution.



## SQL Server by Microsoft

More versatile and robust than MySQL, but also more expensive.



## MySQL

Has long been considered an industry standard due to its high performance, security, and ease of use.



Choosing  
a  
Database  
Solution



# POPULATING THE DATABASE (CONT.)

In order to get data into your data warehouse, you must determine a method of populating the database:

1

## Direct Connection/ integration

- Connects the system directly into the dashboarding product, but often not available

2

## APIs

- Enables you to directly access data the system's programmers have made available to outside users through coding

3

## Web Scraping

- Mimics a user that can copy and paste data from web pages into a CSV or Excel file

4

## Upload Data Manually

- Involves coding an upload script and GUI (graphical user interface) to upload a CSV or other file



# POPULATING THE DATABASE (CONT.)

Example of a report writer with export capabilities:

The screenshot shows a Salesforce report interface. At the top, there is a search bar and navigation tabs for Sales, Home, Accounts, Contacts, Leads, Opportunities, Tasks, Calendar, Reports, Dashboards, Groups, Notes, and More. The report is titled "Report: Tasks and Events Activities by Salesperson" and shows a total of 281 records. The report table has columns for Assigned, Subject, Priority, Task, Company / Account, Contact, and Lead. The first row is for Rob Hong (148) and lists several email tasks. A context menu is open over the table, with the "Export" option highlighted in a red box. Other options in the menu include "Edit (Salesforce Classic)", "Save As", "Save", "Subscribe", "Delete", and "Add to Dashboard". At the bottom, there are checkboxes for "Row Counts", "Detail Rows", "Subtotals", and "Grand Total".

The screenshot shows a Salesforce report interface with an "Export" dialog box open. The report is titled "Report: Leads WP Customizations" and shows a total of 231 records. The report table has columns for First Name, Last Name, and Company / Account. The dialog box has two options: "Formatted Report" (selected) and "Details Only". The "Formatted Report" option includes the report header, groupings, and filter settings. The "Details Only" option includes only the detail rows for further calculations or uploading. The "Format" dropdown is set to "Excel Format .xlsx". There are "Cancel" and "Export" buttons at the bottom of the dialog box. The background report table shows a list of leads with their names and company names.



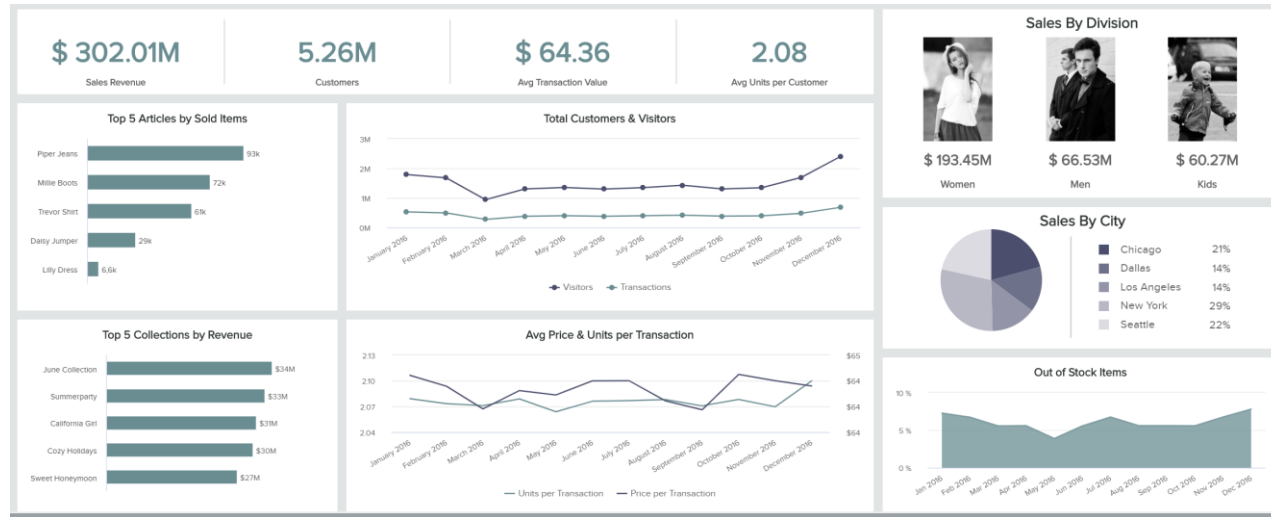
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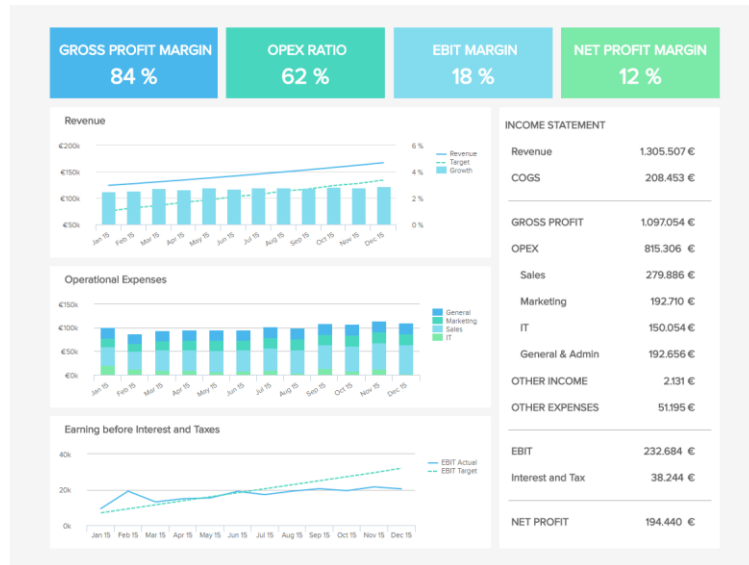
DASHBOARD  
USE CASES



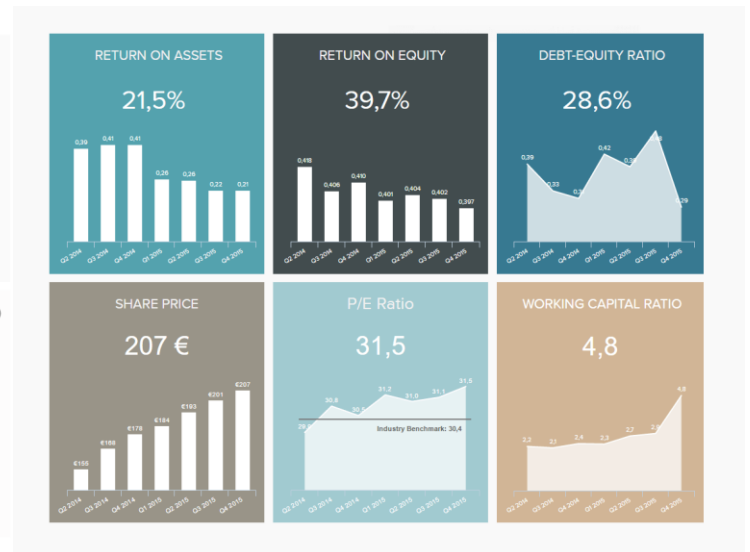
# DASHBOARD USE CASES



- Retail Dashboard provides clear visuals on customer spending pattern and sales volumes by division or city.
- Individual Dashboards provide insights for the CFO, COO, and investors.



## Revenue and Customer Overview - Q1 2016







# DASHBOARD USE CASES (CONT.)

Sapling's past experience on Dashboards:

Year  
All

Month  
All

Entity  
All

Region  
All



Billed Amount and Hours by Service

Service_Name	Billed Amount	Rendered Hours
...	...	...
...	...	...
...	...	...
...	...	...
...	...	...
...	...	...
...	...	...
...	...	...
...	...	...
...	...	...

Table provides summary of Billed \$ Amount and Rendered Hours by each Service

Billed Amount and Hours by Staff

Staff_Name	Billed Amount	Rendered Hours
...	...	...
...	...	...
...	...	...
...	...	...
...	...	...
...	...	...
...	...	...
...	...	...
...	...	...
...	...	...

Table provides summary of Billed \$ Amount and Rendered Hours by each Staff

Billed Amount by Region

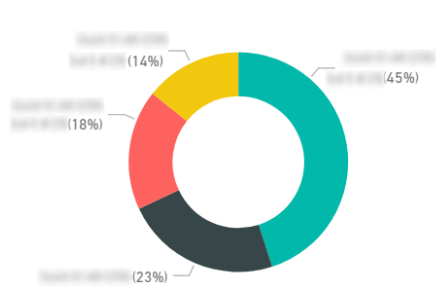


Chart provides summary of Billed \$ Amount and % Share by Region

Rendered and Billed Hours by Region

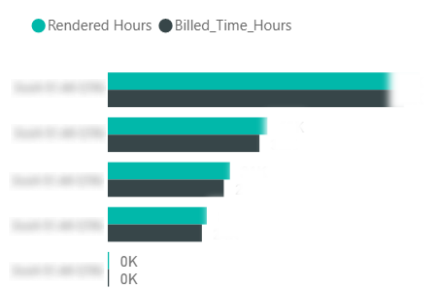


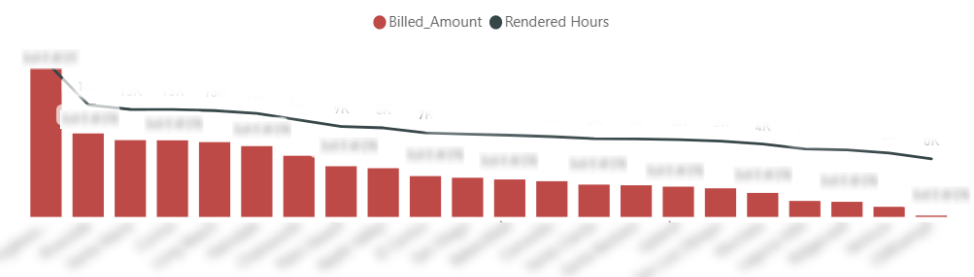
Chart displays region-wise comparison of Rendered Hours and Billed Hours

Billed Amount and Hours by Payer

Funding_Source	Billed Amount	Rendered Hours
...	...	...
...	...	...
...	...	...
...	...	...
...	...	...
...	...	...
...	...	...
...	...	...
...	...	...
...	...	...

Table provides summary of Billed \$ Amount and Rendered Hours by each Funding Source

Billed Amount and Hours by Office Location



This chart summarizes total Billed \$ Amount and Rendered Hours for each Office Location

Billed Amount and Hours by Provider

Provider	Billed Amount	Rendered Hours
...	...	...
...	...	...
...	...	...
...	...	...
...	...	...
...	...	...
...	...	...
...	...	...
...	...	...
...	...	...

Table provides summary of Billed \$ Amount and Rendered Hours by each Provider



# DASHBOARD USE CASES (CONT.)

Sapling's past experience on Dashboards:

Year: All | Month: All | Entity: All | Region: All

Total Cancellations # and Split by Category

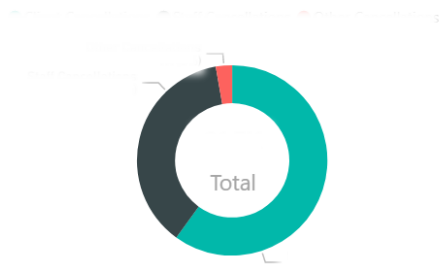


Chart displays total cancellations by category of cancellation

Cancellations by Region

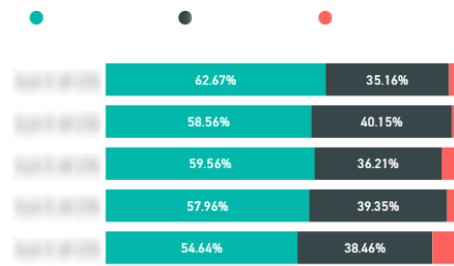


Chart shows cancellations by category for each Region

Cancellations by Job Title

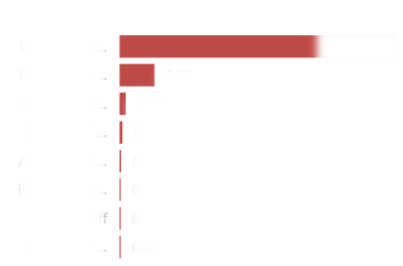


Chart displays total cancellations for each job title

Cancellations by Office Location

Office	Total	Client	Staff	Other
...	...	...	...	...

Table displays cancellations for each location by category

Cancellations by Service

Service	Total	Client	Staff	Other
...	...	...	...	...

Table displays cancellations for each service by category

Cancellations by Client

ClientID	Total	Client	Staff	Other
...	...	...	...	...

Table displays cancellations for each client by category

Cancellations by Staff

Staff_Name	Total	Client	Staff	Other
...	...	...	...	...

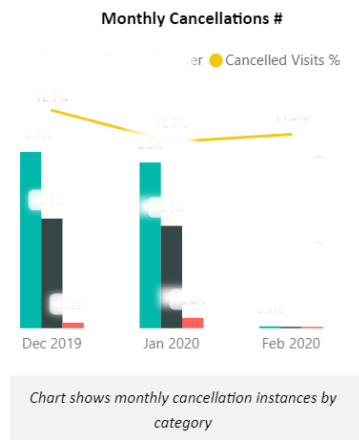
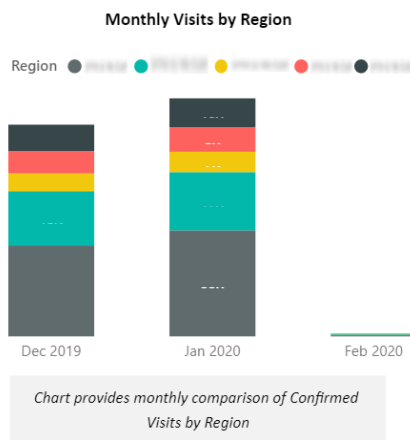
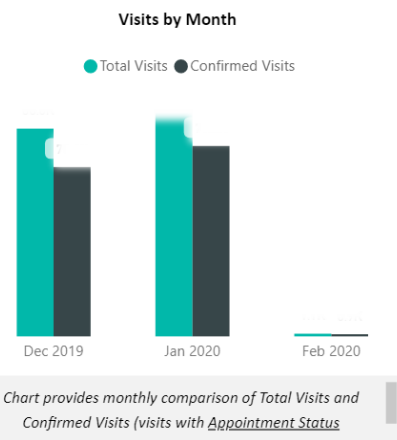
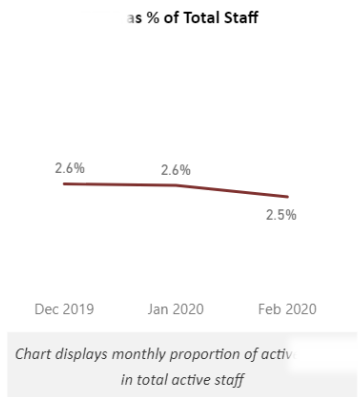
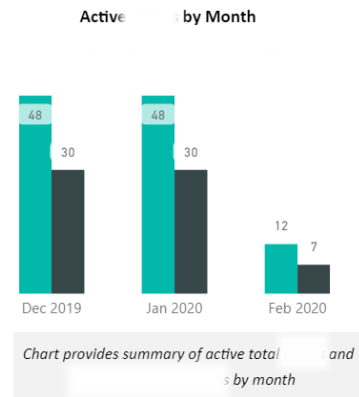
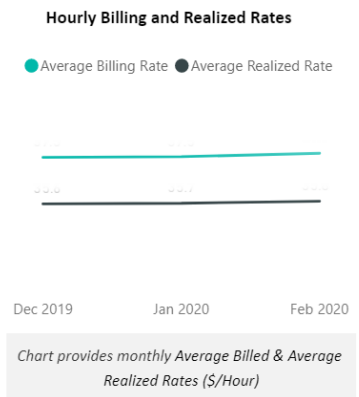
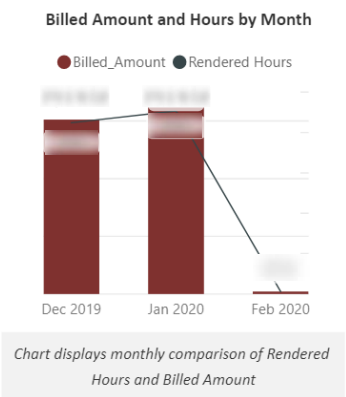
Table displays cancellations for each staff member by category

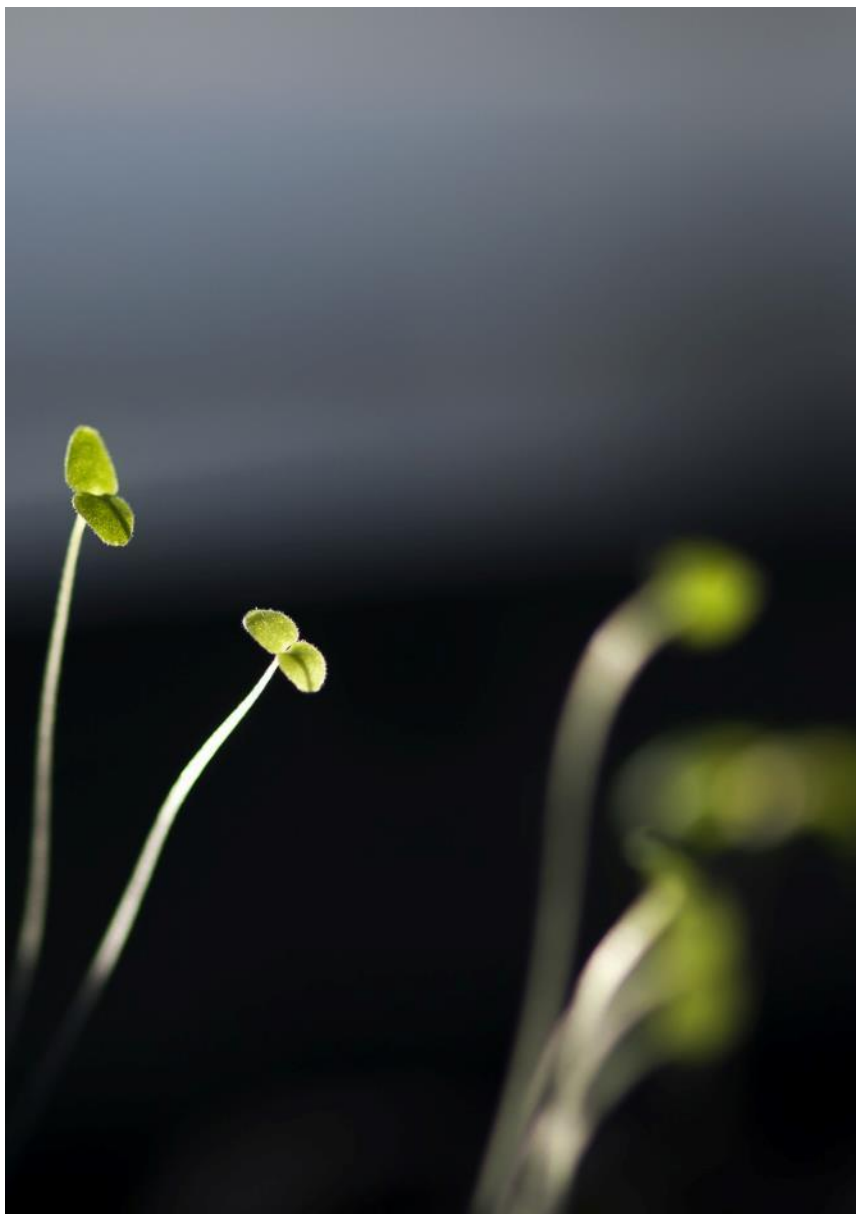


# DASHBOARD USE CASES (CONT.)

Sapling's past experience on Dashboards:

Entity: All | Region: All | Office: All





05

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Q&A



# CONTACT

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