**Assignment: Stories**

**Problem Statement:**

***The Management at lex Capital has assigned you a task to create few Charts and a Dashboard. Create a presentation as well using the Story Points feature.***

***Following are the tasks you need to perform:***

***1. Using the Population data set, create a Symbol Map at Country level where the size of the circle displays the population and the color represents the classification of Birth Rate. Since no field is available for classification, you will need to create a Calculated Field to classify the birth rate based on the following criteria:***

***Birth Rate below 1.5% is termed as “Below”***

***Birth Rate between 1.5%-3% is termed as “Moderate”***

***Birth Rate above 3% is termed as “Above”***

***2. Using the Health Data, create two Horizontal Bar charts in the same view where the first bar chart is for Average Health Exp % GDP at Country Level and the other one is for the Average Health Exp/Capita at Country Level.***

***Also, create a Parameter for Health Exp % GDP ranging from 1-15%. Use this for bifurcating the charts.***

***3. Using the Development data, create a dual-axis chart comparing Mobile phone usage against Internet usage at Year level.***

***4. Using the Development data, create two timelines, one for Average GDP and the other one for Average GDP divided by Average Population. The visualization should be bifurcated based on Country.***

***5. Create a Dashboard using Travel Data. The Dashboard should include the following visualizations:***

***• Create a Stacked Bar chart using Region, Tourism Inbound and Year.***

***• Create a Tree-Map using Tourism Outbound, Region and Country. Add Tourism Inbound as well without altering the visualization.***

***• Create a Dashboard and turn on the Action Filter for both the charts.***

***6. Using the Business data, create a Dashboard consisting of the following charts:***

***• Display correlation between Ease of Business and GDP per Capita at Country level. Add a Logarithmic Trend Line as well.***

***• Create a chart using Average Days to Start Business, Average Hours to do Tax and Average Tax Rate at the Country level.***

***• Create a Text table using Country, Business Tax Rate, Days to start Business, Ease of Business and Hours to do Tax.***

***• Finally create a Dashboard and turn on the Action Filter for all the charts***

***7. Create a Story using all the visualizations and dashboards.***

We have "LexC" csv dataset for this assignment.

**To connect to the data:**

Under "Connect" section, we need to click on "Text file" option and browse through the folder path where the dataset exist, then click on open to load dataset into tableau desktop.

**Initial Observation:**

The dataset consists of a single table with columns such as Country, GDP per Capita, Health Exp %, Infant Mortality Rate, Internet Usage etc.

**Task 1: Using the Population data set, create a Symbol Map at Country level where the size of the circle displays the population and the color represents the classification of Birth Rate. Since no field is available for classification, you will need to create a Calculated Field to classify the birth rate based on the following criteria:**

**Birth Rate below 1.5% is termed as “Below”**

**Birth Rate between 1.5%-3% is termed as “Moderate”**

**Birth Rate above 3% is termed as “Above”**

Lets first create "Birth Rate Classification" using calculated field.

step 1) Click on "Analysis" on the top section and click on "Create Calculated Field".

Give the field name as "Birth Rate Classification".

Give the formula as shown below:

**IF** ([Birth Rate]\*100) < 1.5 THEN "Below"

**ELSEIF** ([Birth Rate]\*100)>=1.5 **AND** ([Birth Rate]\*100)<=3 THEN "Moderate"

**ELSE** "Above"

**END**

Click on OK.

Since "Region" dimension is "String" datatype. Lets convert this dimension to "Geographic Role" datatype.

step 2) Right click on "Region" dimension then click on "Geographic Role" then click on "Create from" then select "Country" option.

A hierarchy "Region, Country" gets created. Rename the hierarchy as "Location"

step 3) Right click on "Country" dimension and click on "Add to Sheet".

A symbol map visual gets  displayed with Country names as symbols(dots).

Lets make the size of the circles represent population level of each country:

step 4) Drag and drop "Population Total" measure on to Size under Marks card.

We can see China and India circles looks bigger compared to other countries which indicates that China is leading in terms of population and India follows next.

Lets make the color of circles represent birth rate classification:

step 5) Drag and drop "Birth Rate Classification" dimension on to Color under Marks card.

Lets assign colors to this classification dimension:

Right click on "Birth Rate Classification" color legend and click on "Edit Colors".

Assign Blue color to "Above", Red color to "Below" and Green color to "Moderate".

step 6) Drag and drop "Country" dimension on to Label under Marks card.

Increase the size of circles by dragging Size slider under Marks card.

Now, we can see the map visual as shown below:

Map

Description automatically generated

Symbol Map where circle size represents population and color represents birth rate classification.

**Insights:**

 China is leading in terms of population and as per the data, birth rate is below.

 India stands in second position in terms of population and as per the data, birth rate is moderate.

**Task 2: Using the Health Data, create two Horizontal Bar charts in the same view where the first bar chart is for Average Health Exp % GDP at Country Level and the other one is for the Average Health Exp/Capita at Country Level.**

**Also, create a Parameter for Health Exp % GDP ranging from 1-15%. Use this for bifurcating the charts.**

step 1) Drag and drop "Country" dimension on to Rows shelf.

step 2) Drag and drop "Health Exp % GDP" measure and "Health Exp/Capita" measure on to Columns shelf.

step 3) Right click on  "SUM(Health Exp % GDP)" green pill of Columns shelf and change Measure type from Sum to Average.

step 4) Right click on "SUM(Health Exp/Capita)" green pill of Columns shelf and change Measure type from Sum to Average.

Remove left and right axis headers.

step 5) Right click on "AVG(Health Exp % GDP)" axis and make it reverse.

Lets create a parameter for Health Exp % GDP ranging from 1-15%:

step 1) Click on the downward arrow icon beside search bar as show below:

Graphical user interface, text, application

Description automatically generated

and click on "Create Parameter" .

Then a "Create Parameter" window pop ups.

Give the name as "Range".

Keep the datatype as Float, Current value as 0.01.

Change Display format to "Percentage" with decimal places to 0.

Select "Allowable values" as Range.

Tick mark all the three checkboxes under "Range of values"

Give the Minimum as 0, Maximum as 0.15 and Step size as 0.01

Here we gave the step size as 0.01 that means we can increment value by 1% as per the requirement every time.

Click on OK.

Now Parameters section gets created with "Range" parameter.

step 2) Right click on the "Range" parameter and click on "Show Parameter".

Lets create action for this parameter using calculated field:

step 3) Click on Analysis on the top section and click on "Create calculated field" option.

Give the name to this field as "Growth".

Give the expression in the field as shown below:

**CASE [Choose Chart]**

**WHEN 'Avg. Health Exp % GDP' THEN AVG([Health Exp % GDP])\*(1+[Range])**

**WHEN 'Avg. Health Exp/Capita' THEN AVG([Health Exp/Capita])\*(1+[Range])**

**END**

Click on OK.

Now, we can see "Growth" measure gets created.

step 4) Drag and drop "Growth" measure on to Rows shelf beside "AVG(Health Exp/Capita)" green pill.

step 5) Click on "AGG(growth)" Marks card and change the Mark type to Bar

Lets create another parameter to choose growth rate between two charts:

step 1) Beside search bar, click on "Create Parameter"

In the pop up window,

Give the name as "Choose Chart".

Select Datatype as String.

Change Allowable Values as list.

Under List of Values, Give both "Avg. Health Exp % GDP" and "Avg. Health Exp/Capita" measures.

Click on OK.

"Choose Chart" parameter gets created under Parameters. Click on it and select Show Parameter.

Now, we can select the Chart and Range to see the Growth of specific chart.

The visual looks like below:

Chart

Description automatically generated

**Task 3: Using the Development data, create a dual-axis chart comparing Mobile phone usage against Internet usage at Year level.**

step 1) Hold ctrl and select "Year" dimension and "Mobile Phone Usage" measure then select horizontal bar chart from "Show Me" section.

step 2) Press Ctrl+W to swap rows and columns.

step 3) Drag and drop "Internet Usage" measure on to Rows shelf.

Now, we can see there are two Marks cards "SUM(Mobile Phone Usage)" and "SUM(Internet Usage)" created below All Marks card.

step 4) Under "Mobile Phone Usage" Marks card. Change the Color of bar chart.

step 5) Click on the "SUM(Internet Usage)" Marks card and select Mark type as "Line" chart. Click on the Label and tick mark "Show Mark Labels" checkbox. Change the Color of Line chart.

step 6) Right click on "SUM(Internet Usage)" green pill of Rows Shelf and click on "Quick Table Calculation" then select "Percentile" option.

step 7) Right click on the "SUM(Internet Usage)" green pill of Rows shelf and click on "Dual Axis" option.

step 8) Uncheck "Show Headers" for both left and right axis.

Now, we can see dual-axis chart comparing Mobile phone usage against Internet usage at Year level:

Chart, bar chart, histogram

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Insights:  
Mobile Phone and Internet Usage is gradually increasing with each year.

**Task 4: Using the Development data, create two timelines, one for Average GDP and the other one for Average GDP divided by Average Population. The visualization should be bifurcated based on Country.**

Lets first create a calculated field to get Avg. GDP divided by Avg. Population:

step 1) Click on "Analysis" on the top section and click on "Create Calculated Field" .

Rename this field as "Avg. GDP By Avg. Population". Give the below formula:

**AVG**([GDP])/**AVG**([Population Total])

Click on OK.

Then "Avg. GDP By Avg. Population" measure gets created.

step 2) Drag and drop  "Country" onto Rows shelf

step 3) Drag and drop "GDP" on to Rows shelf and change Measure type to Average.

step 4) Drag and drop "Avg. GDP By Avg. Population" on to Rows shelf

step 5) Drag and drop "Year" dimension to Columns shelf.

The visual looks like below:

Chart, table

Description automatically generated

**Task 5: Create a Dashboard using Travel Data. The Dashboard should include the following visualizations:**

**• Create a Stacked Bar chart using Region, Tourism Inbound and Year.**

step 1) Hold ctrl and select "Region" dimension, "Year" dimension and "Tourism Inbound" measure then select stacked bar chart visual from Show Me section.

step 2) Right click on "Tourism Inbound" measure and click on "Default Properties" and go to "Number Format" option then select Number(Custom) in which set decimal places to 0 and display units as Billions and add prefix as $.

We can add total sum figure on top of each bar using below step:

step 3) Right click on the Vertical Tourism Inbound Axis and click on "Add Reference Line"

Then do the changes as shown below:

Graphical user interface, application

Description automatically generated

**• Create a Tree-Map using Tourism Outbound, Region and Country. Add Tourism Inbound as well without altering the visualization.**

step 1) Hold ctrl and select "Region" dimension, "Country" dimension and "Tourism Outbound" measure then select tree map visual from Show Me section.

step 2) Right click on "Tourism Inbound" measure and click on "Default Properties" and go to "Number Format" option then select Number(Custom) in which set decimal places to 0 and display units as Billions and add prefix as $.

step 3) Right click on "Tourism Outbound" measure and click on "Default Properties" and go to "Number Format" option then select Number(Custom) in which set decimal places to 0 and display units as Billions and add prefix as $.

step 4) Drag and drop "Tourism Inbound" and "Tourism Outbound" measures on to Label under Marks card.

**• Create a Dashboard and turn on the Action Filter for both the charts.**

Click on new dashboard icon and rename the dashboard page with any name of your choice.

step 1) Change the "Size" as "Automatic" under Dashboard "Default" pane on the left side.

step 2) Under the same Dashboard "Default" pane, under Sheets, double click on each sheet name that will automatically fits into the dashboard.

step 3) We can change the appearance of each visual as Fit to "Entire View".

step 4) We can also adjust the visuals type as "Tiled" or "Floating".

Turning Action Filter on both the charts:

Click on the funnel icon on the both charts which enables 'select' action filter for both charts.

Then the dashboard looks like below:

Chart, treemap chart

Description automatically generated

Mobile, Internet and Tourism Analysis Dashboard

**Insights:**

 Europe is leading in terms of Tourism Inbound and Outbound from the years 2000 to 2012.

 Middle East, Oceania and Africa are performing low in terms of Tourism.

 The Americas and Asia regions shows better stability in terms of Tourism Inbound and Outbound.

**Task 6: Using the Business data, create a Dashboard consisting of the following charts:**

**• Display correlation between Ease of Business and GDP per Capita at Country level. Add a Logarithmic Trend Line as well.**

step 1) Drag and drop "GDP per Capita" measure on to Rows shelf.

step 2) Drag and drop "Ease of Business" measure on to Columns shelf.

step 3) Drag and drop "Ease of Business" measure on to Color under Marks card.

step 4) In Rows shelf, Right click on "SUM(GDP per Capita)" and change Measure type from Sum to Average.

step 5) In Columns shelf, Right click on "SUM(Ease of Business)" and change Measure type from Sum to Average.

step 6) Click on Analytics pane. Then drag and drop "Trend Line" on to "Logarithmic" type.

step 7) Right click on the trend line of the visual and click on "Edit All Trend Lines".

Then a pop up window gets displayed as shown below:

Graphical user interface, text, application

Description automatically generated

step 8) Uncheck "Allow a trend line per color" under Options and click on OK.

The visual looks like below:

Chart, scatter chart

Description automatically generated

Correlation b/w Ease of Business and GDP per capita with Logarithmic Trend Line

**Insights**:

 "Singapore" leads in terms of Ease of Business" .

 "Luxembourg" leads in terms of Average GDP per Capita.

 Denmark, Singapore, US competence can be seen on the logarithmic trend line.

**• Create a chart using Average Days to Start Business, Average Hours to do Tax and Average Tax Rate at the Country level.**

step 1) Drag and drop "Country" dimension to Rows shelf.

step 2) Drag and drop "Business Tax Rate" ,"Days to Start Business" and "Hours to do Tax" measures on to Columns shelf.

step 3) Change the Color of Each Card type to display bars in a more representative way.

The visual looks like below:

A picture containing bar chart

Description automatically generated

On sorting the bar charts, we can find the below insights:

**Insights:**

 "Congo, Dem. Rep" leads in terms of Average Business Tax Rate and the least position goes to "Vanuatu".

 "Suriname" leads in terms of Average Days to start Business and the least position goes to "Australia".

 "Brazil" leads in terms of Average Hours to do Tax and the least position goes to "United Arab Emirates".

**• Create a Text table using Country, Business Tax Rate, Days to start Business, Ease of Business and Hours to do Tax.**

step 1) Drag and drop "Country", "Business Tax Rate", "Days to start Business", "Ease of Business" and "Hours to do Tax" dimensions on to Rows shelf.

step 2) Create a blank calculated field with ' ' expression then drag and drop "blank" dimension on to Label under Marks card.

The visual looks like below:

Table

Description automatically generated

On sorting the text table , we can find the below insights:

**Insights:**

 "Congo, Dem. Rep" leads in terms of "Business Tax Rate" and the least position goes to "Macedonia, FYR".

 "Suriname" leads in terms of "Days to start Business" and the least position goes to "New Zealand".

 "Singapore" leads in terms of "Ease of Business" and the least position goes to "Chad".

 "Brazil" leads in terms of "Hours to do Tax" and the least position goes to "United Arab Emirates".

**• Finally create a Dashboard and turn on the Action Filter for all the charts**

[Click on this link to interact with the Dashboard on tableau public profile](https://public.tableau.com/views/Stories_Assignment/Dashboard?:language=en-GB&:display_count=y&:origin=viz_share_link)

**Task 7: Create a Story using all the visualizations and dashboards.**

[Click on this link to interact with the Story on tableau public profile](https://public.tableau.com/shared/SF5JT8SP2?:display_count=y&:origin=viz_share_link)