Analysis of the Credits and Grants of The International Development Association (IDA)

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DATA 230: Data Visualization

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CONTENTS

Github link: https://github.com/Vamshisjsu2324/Data-Visualization

Abstract

There are more than 200 countries in the world. Few of them are recognized as developed nations and others are developing nations. To overcome these problems and develop their infrastructure and standard of living, they need financial support from external sources. To help these countries, the World Bank decided to provide interest-free loans to these countries through The International Development Association (IDA). IDA is an affiliate and complimentary institution of the World Bank. It provides financial assistance to the projects being held in developing countries. There are more than 125 countries that have been benefited from the IDA since 1960. IDA has been providing loans in 9 regions of the world. 6965 Projects have been funded by the IDA till today.

In this project, I have analyzed the credits and grants of IDA with the help of visualizations. For that, I have used Tableau Desktop. It is a visualization tool that helps to create aesthetic graphs, maps, and charts that are easy to understand and analyze. The dataset used for this project is IDA Statement of Credits and Grants Historical Data provided by World Bank Group finances (WBG Finance). Using this dataset the most benefited Regions, Countries, Borrowers, and Projects have been Identified using visual analysis.

Project Goals and Motivation

The motive of this project is to analyze the credits and grants of the International Development Association. The goals of this project are to build several dashboards by dividing the important aspects of the dataset. Like, Building dashboards for, analyzing overall credits provided by the IDA, Country and Region wise beneficiary analysis, and project wise analysis and details of the most repeated projects in the world. Those dashboards are expected to be useful for the IDA, beneficiary countries, and the general public to analyze and understand the aspects and achievements of IDA World Bank. Also, that will be helpful in knowing the impact of the IDA World Bank in the developments of its beneficiary countries.

Objectives

- A total number of loans availed by individual countries.
- Total number of loans and the sum of principal amount sanctioned to each country.
- Total credits and grants provided by IDA till today
- Credit status of loans and original principal amount sanctioned.
- The trend of credit approvals by the IDA board
- Average term of a loan.
- Most benefited the region.
- Most benefited countries.
- Donut charts for Region-wise loan distribution
- % of Loan repaid to IDA Countrywise details
- Number of days it takes for disbursement of loan region wise
- Moratorium Period
- No. of Days for Board Approval
- No. of Days Takes for Disbursement of loan for a Country
- Number of days taken to Disburse the amount
- Top Projects Across The World
- Region wise Projects analysis
- Country wise Project analysis

Dataset Description

The dataset I will be using for this visual analysis is the "IDA Statement Of Credits and Grants - Historical Data" provided by the World Bank Group Finances (WBG Finances). It is a World Bank Group digital platform that provides its clients and partners access to public financial data and portfolio information from across all Group entities in one place.

The dataset has data from 1961 to 2021 that contains details of all countries. The dataset has 30 fields and 982,989 rows. Each row represents a credit or grant. The fields of the dataset are:

The dataset consists of the following fields:

End of Period: End of Period Date represents the date as of which balances are shown in the report.

Credit Number: This is the loan number for each loan or grant provided by the IDA. There are 9574 unique credit numbers in the dataset that means a total of 9574 credits and grants provided by the IDA as of October 19, 2021.

Region: World Bank Region to which the country and loan belong. There are a total 9 regions in the dataset.

Country Code: It indicates the code of the participant country. Total 128 unique country codes are there in the data.

Country: The name of the country. There are 132 unique values in this field that covers some of the countries and regions in the world.

Borrower: The representative of the borrower to which the Bank loan is made.

Credit Status: Status of the loan.

Service Charge Rate: Current Interest rate or service charge applied to loan.

Currency of Commitment: The currency in which a borrower's loan, credit or grant is denominated.

Project ID: A Bank project is referenced by a project ID. One Project ID can be associated with more than one loan, credit, or grant.

Project Name: A Short description of the project name.

Original Principal Amount: The original US dollar amount of the loan that is committed and approved.

Canceled Amount: The portion of the undisbursed balance that has been canceled.

Undisbursed Amount: The amount of a loan commitment that is still available to be drawn down.

Disbursed Amount: The amount that has been disbursed from a loan commitment in equivalent US dollars.

Repaid to IDA: Total principal amounts repaid to IDA in US dollars.

Due to IDA: Amount due and outstanding as of the End of Period date.

Exchange Adjustment: The increase (decrease) in value of disbursed and outstanding amount due to exchange rate fluctuations.

Borrower's Obligation: The Borrower Obligation is the outstanding balance for the loan as of the end of period date in US dollars equivalent.

Sold 3rd Party: Portion of loan sold to a third party.

Repaid 3rd Party: Amount repaid to a third party.

Due 3rd Party: Amount due to a third party.

Credits held: The sum of the disbursed and outstanding amounts (net of repayments, i.e. Due to IBRD/IDA) plus undisbursed available amounts.

First Repayment Date: The date on which principal repayment starts.

Last Repayment Date: The date specified in the loan/credit agreement (amended for any partial prepayments) on which the last principal installment must be repaid by the Borrower.

Agreement Signing Date: The date the borrower and the Bank sign the loan agreement.

Board Approval Date: The date the World Bank approves the loan.

Effective Date: The date on which a legal agreement becomes effective, or is expected to become effective.

Close Date (Most Recent): The date specified in the legal agreement (or extension) after which the Bank may, by notice to the borrower, terminate the right to make withdrawals from the loan account.

Last Disbursement Date: The date on which the last disbursement was made (prior to the end of period date).

Download

Data Collection and Preparation

The data preparation is a stage where data is cleaned, normalized, formatted, and transformed. I ensured the quality of the dataset to get accurate results from the analysis. Data Preparation has been done using the Tableau Prep Builder. It is an open-source software tool that helps to clean and format a large set of data. At this stage I have done the following preparation for the dataset: The Geographical role for the country field has been changed to country/region. A geographical role for the country code field has been changed to country/region. The date-time field has been changed to date because time is the same in all the records. I.e 12:00:00 AM. Exchange adjustment and Due 3rd party fields are removed because those have only zeros and nulls.

After that, I have checked for dummy values and removed them. Now the dataset is clean and ready for visualization. The sample of the raw and prepared dataset is provided below.

Figure 1

Sample of the raw dataset

End of Period	Credit Nu	Region	Country C	Country	Borrower	Credit Sta	Service Ch	Currency (	Project ID	Project Na	Original P	Cancelled	Undisburs	Disbursed	Repaid to	Due to IDA
05/31/2020 12:00:00 AM	IDA07770	LATIN AM	HN	Honduras	MINISTER	Fully Repa	0.75	USD	P007353	EDUCATIC	5000000	24276.41	0	4975724	4975724	0
05/31/2020 12:00:00 AM	IDA07780	SOUTH AS	AF	Afghanist	STATE PLA	Fully Repa	0.75	USD	P009314	KHANABA	22000000	21912427	0	87572.85	87572.85	0
05/31/2020 12:00:00 AM	IDA07790	SOUTH AS	AF	Afghanist	MINISTRY	Fully Repa	0.75	USD	P009315	FRUIT & V	18000000	16914196	0	1085804	1085804	0
05/31/2020 12:00:00 AM	IDA07800	MIDDLE E	JO	Jordan	MINISTRY	Repaying	0.75	USD	P005253	AMMAN V	14000000	0	0	14000000	10640000	3360000
05/31/2020 12:00:00 AM	IDA07810	AFRICA	SD	Sudan	Ministry o	Repaying	0.75	USD	P002575	PORT	22000000	0	0	22000000	1320000	20680000
05/31/2020 12:00:00 AM	IDA07820	AFRICA	SD	Sudan	Ministry o	Repaying	0.75	USD	P002573	LIVESTOCI	25000000	1458647	0	23541353	1530178	22011175
05/31/2020 12:00:00 AM	IDA07830	AFRICA	TD	Chad	Ministere	Fully Canc	0.75	USD	P000494	LIVESTOCI	11500000	11500000	0	0	0	0
05/31/2020 12:00:00 AM	IDA07840	AFRICA	CM	Cameroor	Ministry o	Fully Repa	0.75	USD	P000341	RURAL DE	13000000	0	0	13000000	13000000	0
05/31/2020 12:00:00 AM	IDA07850	EAST ASIA	ID	Indonesia	Ministry o	Repaying	0.75	USD	P003773	SMALL EN	40000000	0	0	40000000	34000000	6000000
05/31/2020 12:00:00 AM	IDA07860	AFRICA	LR	Liberia	Ministry o	Fully Repa	0.75	USD	P001428	RUBBER D	6000000	0	0	6000000	6000000	0
05/31/2020 12:00:00 AM	IDA07870	SOUTH AS	BD	Banglades	MINISTRY	Repaying	0.75	USD	P009385	FOODGRA	25000000	4641688	0	20358312	15472276	4886036
05/31/2020 12:00:00 AM	IDA07880	SOUTH AS	IN	India	CONTROLI	Repaying	0.75	USD	P009728	KARNATA	1.26E+08	8360317	0	1.18E+08	89406159	28233524
05/31/2020 12:00:00 AM	IDA07890	AFRICA	ET	Ethiopia	Ministry o	Fully Repa	0.75	USD	P000692	GRAIN ST(	24000000	0	0	24000000	24000000	0
05/31/2020 12:00:00 AM	IDA07900	EAST ASIA	PH	Philippine	Departme	Repaying	0.75	USD	P004454	RURAL INF	28000000	6481004	0	21518996	16354376	5164620
05/31/2020 12:00:00 AM	IDA07910	AFRICA	KE	Kenya	National T	Repaying	0.75	USD	P001261	URBAN DE	25000000	0	0	25000000	19000000	6000000
05/31/2020 12:00:00 AM	IDA07920	AFRICA	GM	Gambia, T	Ministry o	Fully Repa	0.75	USD	P000803	EDUCATIC	5500000	767.28	0	5499233	5499233	0
05/31/2020 12:00:00 AM	IDA07930	SOUTH AS	IN	India	CONTROLI	Repaying	0.75	USD	P009740	KORBA TH	2E+08	80973.09	0	2E+08	1.52E+08	47980587
05/31/2020 12:00:00 AM	IDA07940	MIDDLE E	RY	Yemen, R	Minister c	Repaying	0.75	USD	P005770	HIGHWAY	11500000	22578.65	0	11477421	8722824	2754597
05/31/2020 12:00:00 AM	IDA07950	AFRICA	LS	Lesotho	MINISTRY	Repaying	0.75	USD	P001379	RURAL DE	6000000	2076941	0	3923059	2981480	941579.3
05/31/2020 12:00:00 AM	IDA07960	AFRICA	ZR	Congo, De	MINISTER	Fully Repa	0.75	USD	P003027	OIL PALM	9000000	2558753	0	6441247	6441247	0
05/31/2020 12:00:00 AM	IDA07970	AFRICA	KE	Kenya	National T	Repaying	0.75	USD	P001260	EDUCATIC	23000000	3826486	0	19173514	14571828	4601686
05/31/2020 12:00:00 AM	IDA07980	AFRICA	ZM	Zambia	Ministry o	Fully Repa	0.75	USD	P003172	ROADS III	11250000	0	0	11250000	11250000	0

Figure 2

Data preparation flow chart and sample of the prepared dataset

Figure 3

Successful flow run figure after data preparation

Challenges Faced

Data collection process and understanding the data have taken a lot of time. The dataset has a lot of null values so dealing with the null values has taken a lot of time. Since the topic is related to the financial matter, understanding loan terms and data was a bit challenging.

Deliverables

The most important deliverable of this project is to provide 4 important dashboards for overall distributed analysis. A project presentation is also given. And the Final Project report will be submitted. All the data processing and visualization codes will be provided.

Scope of work

Since the IDA provides loans to only developing nations, the geo data does not consist of all the countries in the World. And there are no details of the states of those countries where the beneficiary projects have been conducted.

Calculated fields

EFD-ASD_days = ([Effective Date (Most Recent)]-[Agreement Signing Date])

It is the difference between effective loan date i.e also called disbursement date and agreement sign date.

Term of loan = -([First Repayment Date]-[Last Repayment Date])/365

It is calculated using the first repayment subtracted from the last repayment date.

FRD-ASD_years = ([First Repayment Date]-[Agreement Signing Date])/365

It is calculated to find out the Moratorium period. By subtracting the Agreement Signing Date from the First Repayment Date.

BAD-EFD_days = ([Effective Date (Most Recent)]-[Board Approval Date])

FRD-EFD_Yrs = ([First Repayment Date]-[Effective Date (Most Recent)])/365

% of Repayment = ([Disbursed Amount]-[Repaid to IDA])*100/[Disbursed Amount]

ASD-BAD_days = ([Agreement Signing Date]-[Board Approval Date])

Charts

Figure 4

1. Scorecard

Total Regions	Countries	Borrowers	Projects	Total Credits	Original Principal	Disbursed Amount	Undisbursed Amount	Due to IDA	Repaid to IDA	Avg. Term of loan
9	125	333	6,965	9,441	$38,984.08B	$31,887.98B	$6,753.85B	$17,850.71B	$11,412.31B	30

Figure 4 is the scorecard for the IDA dataset, It consists information of Total Regions, Countries, Borrowers, Projects, Total Credits, Original Principal, Disbursed Amount, Undisbursed Amount, Due to IDA, Repaid to IDA and Avg. Term of loan. There are total 9 regions in the dataset. 125 countries have availed loans from the IDA, 6965 projects have been benefited from the IDA credits and grants, for those projects IDA has given 9441 loans, Total sanctioned principal loan amount is 38,984.08 Billion Dollars , out of that 31,887.98 Billion Dollars has been disbursed, 6753.85 Billion Dollars still has to be disbursed, $17,850.71 Billion Dollars is due by the countries to IDA, and 11,412.31 Billion Dollars is repaid to IDA by countries. The average loan term for the credit provided by IDA is 30 Years. This has been calculated using the calculated fields on Tableau Desktop by subtracting First Repayment Date from the Last Repayment Date.

Formula used to calculate the *Term of loan is = ([Last Repayment Date]-[First Repayment Date])/365*

Figure 5

## 2. Table Project Details

Year..	Project Name	Project ID	Original Prin..	Avg. Term of..
1964	EDUCATION	P009299	$441M	40
1969	HIGHWAY MAINTENAN..	P009300	$5M	40
1970	AGRICULTURAL BANK I	P009301	$5M	40
1971	KHANABAD IRRIGATION	P009302	$5M	40
1973	2ND RD IMPROVEMENT..	P009306	$1,449M	40
	AVIATION	P009305	$315M	40
	IDBA I (DFC)	P009304	$252M	40
	LIVESTOCK I	P009303	$1,134M	40
1975	AGRICULTURAL BANK II	P009307	$1,638M	40
	W/S & SANITATION (KA..	P009308	$1,134M	40
1976	KHANABAD IRRIGATION	P009302	$1,260M	40
	LIVESTOCK II-RURAL DE..	P009310	$1,890M	40
	POWER I	P009311	$1,260M	40
1977	AGRICULTURAL BANK III	P009312	$1,512M	40
	EDUCATION II	P009313	$756M	40
1978	FRUIT & VEGETABLE EX..	P009315	$2,268M	40
	KHANABAD IRRIGATIO..	P009314	$2,772M	40
	WATER SUPPLY & SEWE..	P009319	$2,079M	40
1979	EDUCATION III	P009317	$2,646M	40
	ROADS III	P009318	$2,218M	40
	RURAL DEVT. I	P009316	$2,079M	40
2002	1AF-Emergency Public ..	P077417	$360M	
	1AF-Emergency Public ..	P077417	$900M	
	Emergency Community ..	P077533	$1,512M	
	Emergency Community ..	P077533	$3,780M	
	Emergency Educa. Reha..	P077896	$1,890M	
	Emergency Infrastructu..	P077779	$1,188M	
	Emergency Infrastructu..	P077779	$2,970M	
2003	AF: Emergency Commun..	P083720	$792M	27
	AF: Emergency Commun..	P083720	$1,980M	28
	Afghanistan Health Sec..	P078324	$2,146M	
	Afghanistan Health Sec..	P078324	$5,364M	
	Emergency Transport R..	P078284	$13,608M	28

Score Card | **Project Details** | Time Series | Beneficiary Countries | ⊞ Overview Of the IDA achivem... | Region | Country wise Credit status | % of Loan repaid to IDA | ⊞ Region Wise Analysis | Disbursement Day

Figure 5 gives the information regarding the details of the list of Projects along with their year on which loan has been taken, Project ID, Original Principal amount sanctioned by IDA and Average Term of loan. The data is filtered on Country, which keeps Afghanistan. For this I have used the multiple dropdown list filter so that we can see details of any one or set of countries. ++

Figure 6

3. Trend Line
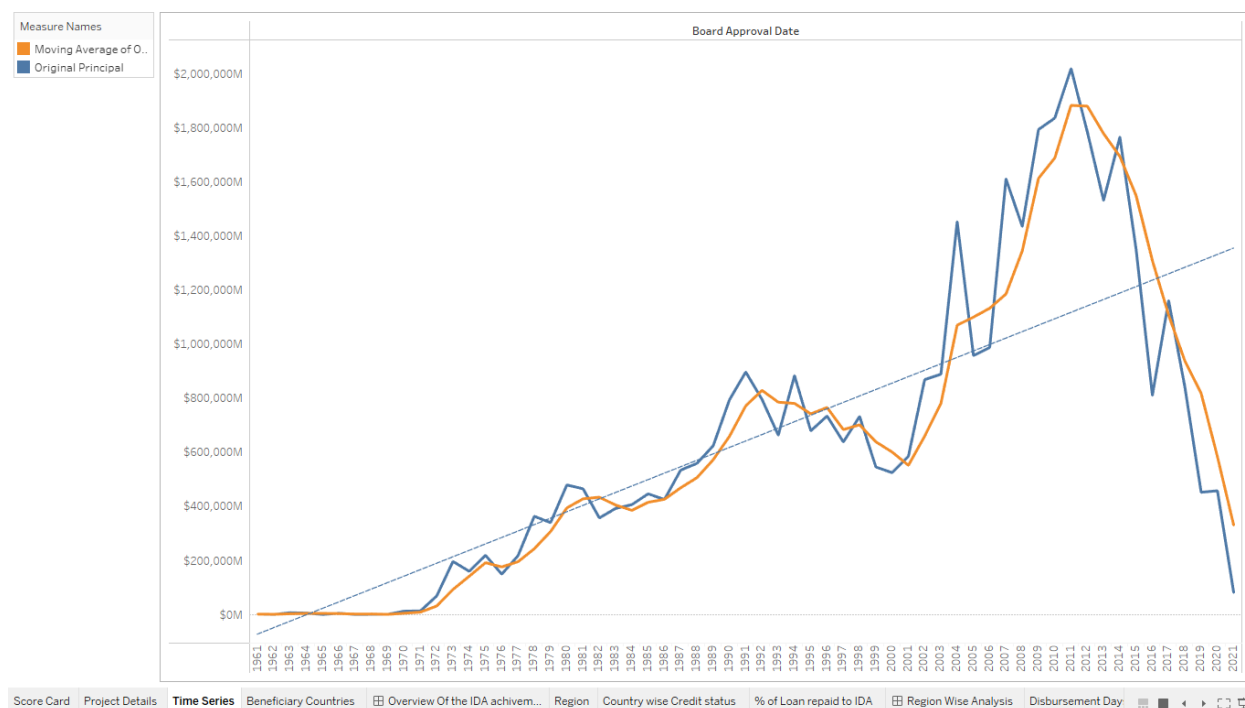
A trend line represents the trend of the parameter over the stipulated period of time, it is very useful in identifying the fall and rise in the parameter used. The figure 6 represents the trend of loans sanctioned or provided by the IDA to its beneficiary countries from the year 1961 to 2021, So it shows the trend line of 60 years. Blue color represents the Original Principal amount and Orange color represents Moving
Average of Original Principal Amount which is calculated using the previous 2 to the next 0 Original Principal amount along the Table.

Dimensions used for this chart is Year and Metrics used for this chart is Original Principal

Figure 7

## 4. Choropleth map for Beneficiary countries
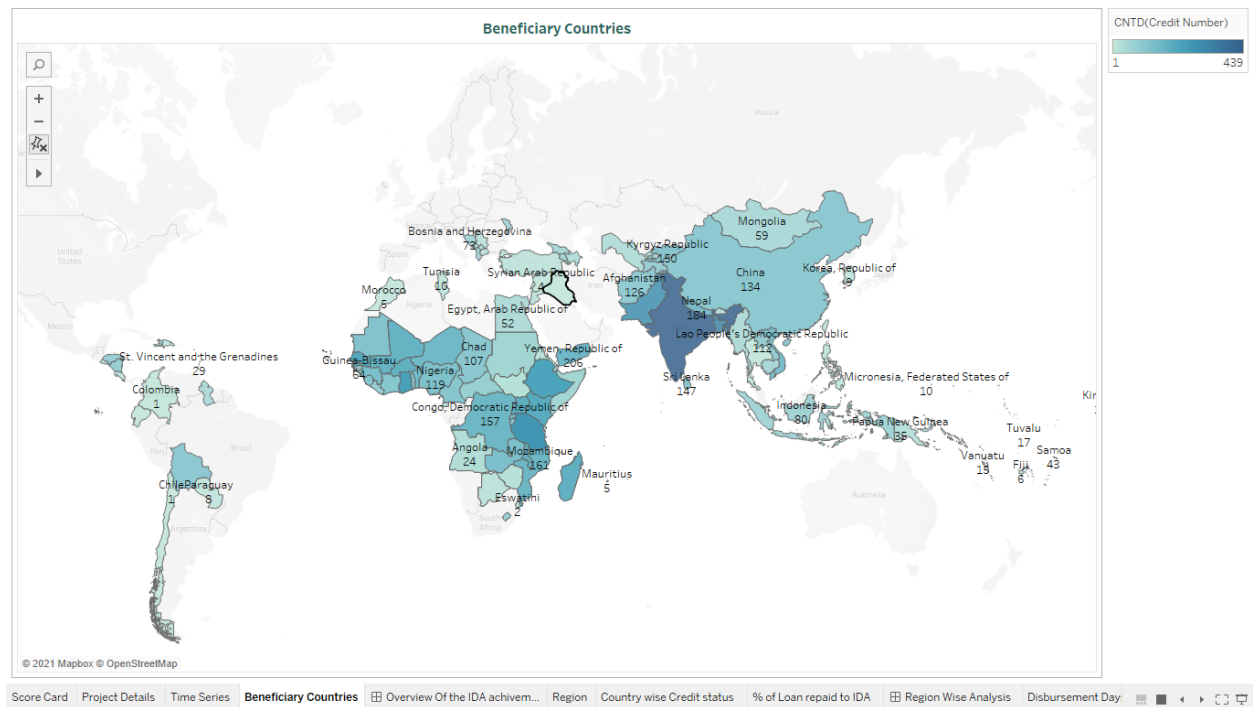
Choropleth map represents the most to least loans availed countries, by the darkness of the color, The darker the color represents the high number of loans and lighter color represents the least number of loans availed country. So it indicates that India has taken the highest number of Credits from IDA, The map is based on Longitude (generated) and Latitude (generated) of countries.

Figure 8

5. Donut charts for Region-wise loan distribution


Color Legend
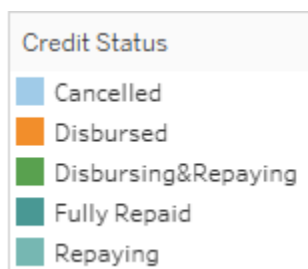
Donut chart in the figure 8 represents the different Regions in the dataset, by the distribution of their Credit status. The different Credit Status are like Cancelled, Disbursed, Disbursing & Repaying, Fully Repaid, and Repaying. The marks in the middle of donuts are labeled by sum of Original Principal Amount.

The information provided by this chart is that the South Asian followed by the African Region has taken the highest Credits from the IDA. Most of these Regions are under Repaying status.

Figure 9

## 6. Stacked Bar chart Countrywise credit status
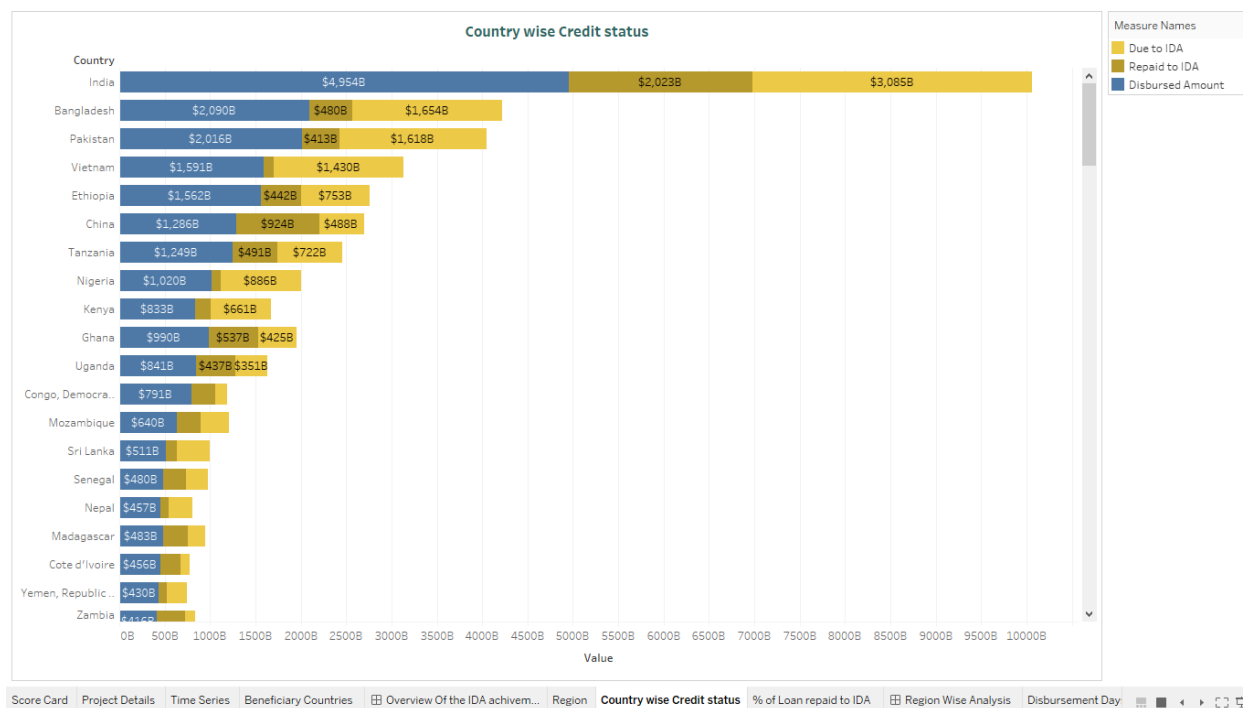
The stacked bar chart in the figure 9 illustrates the credit status of all the countries availed loans from the IDA. The yellow Color shows details about Due to IDA, The gold Color shows details about Repaid to IDA, and The blue Color shows details about Disbursed Amount. The data is filtered on Action (Country), Action (Country,Region) and Action (Credit Status,Region). The data is filtered on Country.

Using this stacked bar chart we can filter any set of countries and analyse the credit status of the loans.

Figure 10

## 7. Bubble Map for % of Loan repaid to IDA Countrywise details
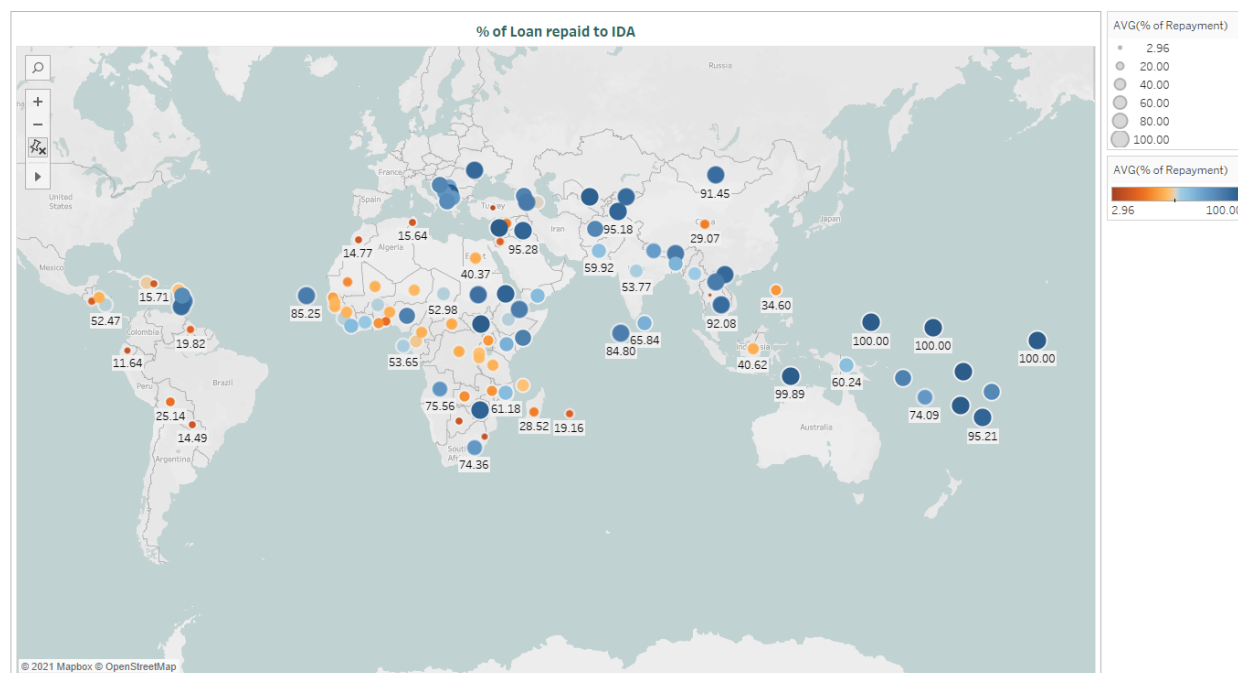
Dot map in the figure 10 is drawn based on Longitude (generated) and Latitude (generated) of countries. Color shows average % of Repayment. Blue color represents the highest repayment done by those countries and the orange color represents the low repayment done. The marks are labeled by Country Code and average of % of Repayment. The data is filtered on Region, using this chart filtering a specified region can be useful to analyse the status in that particular region.

The chart illustrates that most of the Middle east, South Asia, Asia region countries have been repaying well, whereas most African countries still have much to repay to IDA.
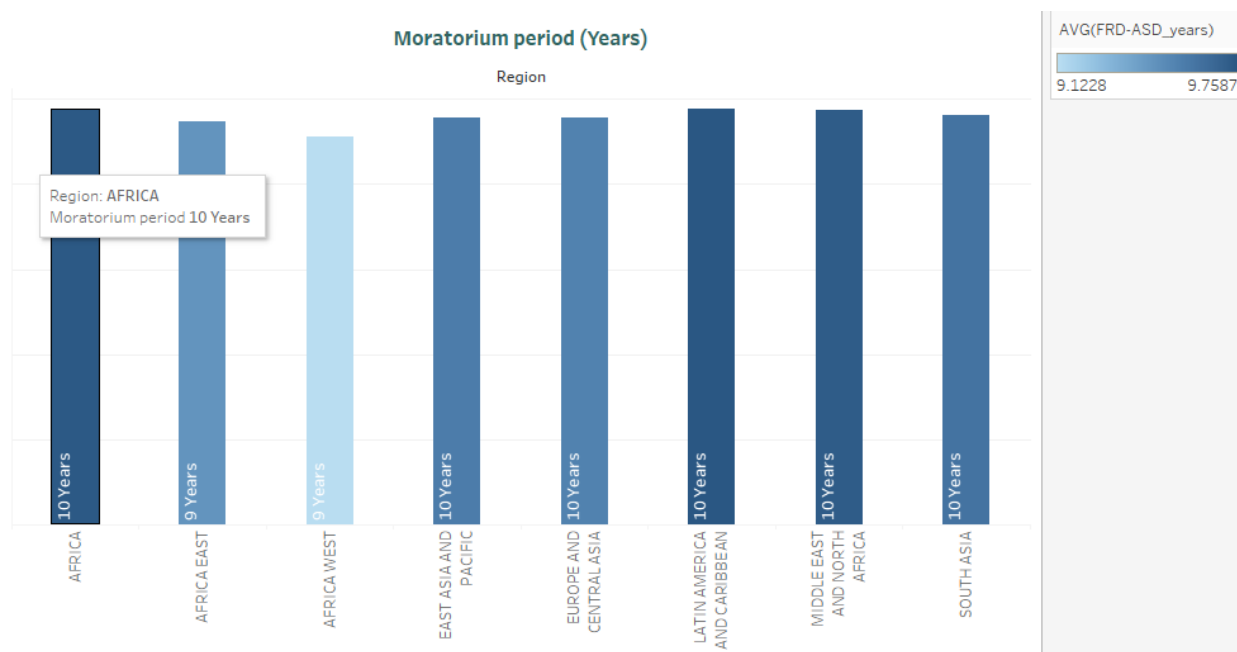
Figure 11

8. Bar chart for Number of days it takes for disbursement of loan region wise
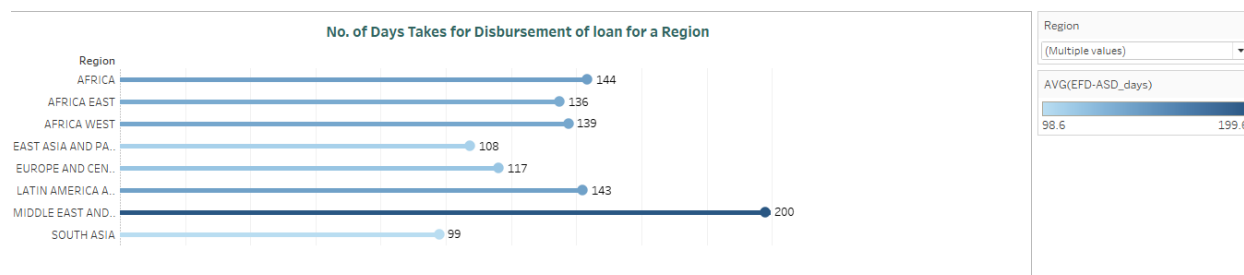
The bar chart shown in the figure 11 represents the Number of days it takes for disbursement of loan by region wise. It is the difference between Effective Loan date i.e also called disbursement date and Agreement Sign date. It states how many days it takes for IDA to release the sanctioned amount to the countries averaged for regions.It takes around 200 days for Middle East and North Africa to get their loan amount from IDA after approval that is the highest for all regions. Whereas South Asia needs an average of 99 days to get their approved loan amount.
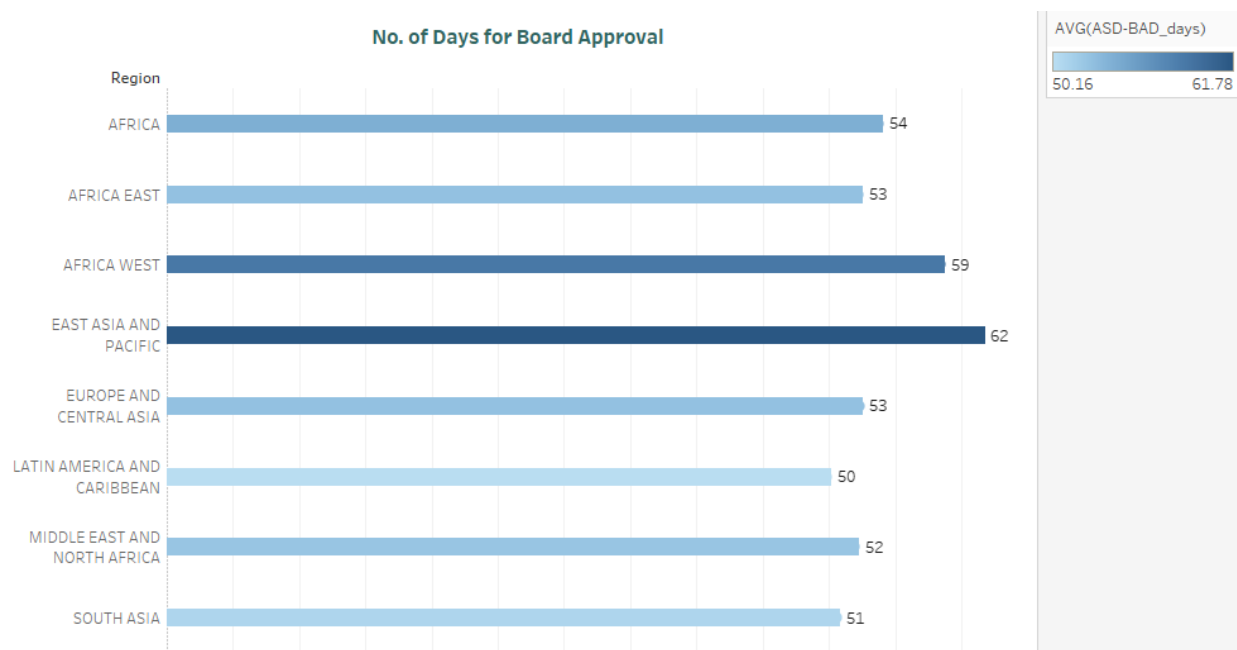
Figure 12

9. Bar Chart for Moratorium Period

The bar chart shown in the figure 12 represents the region wise Moratorium period. After loan disbursement the countries need not pay their installments immediately. This field was calculated by subtracting the Agreement Signing Date from the First Repayment Date.It gives an important information that on an average there is a 10 years of Moratorium period for IDA's loan repayment across all regions.
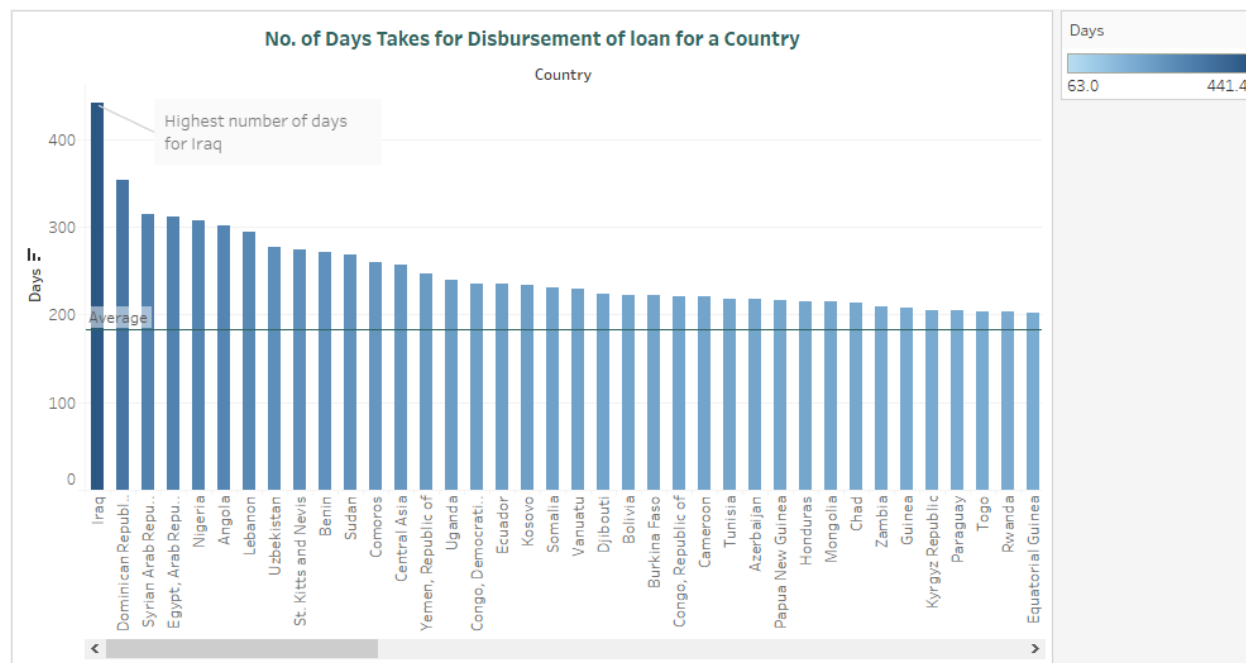
Figure 13

10. Bar Chart for No. of Days for Board Approval

The bar chart in figure 13 gives the information about the average Number of Days a loan takes to get IDA's Board Approval for a region. On an average it takes minimum 51 days to maximum 62 days for board approval.
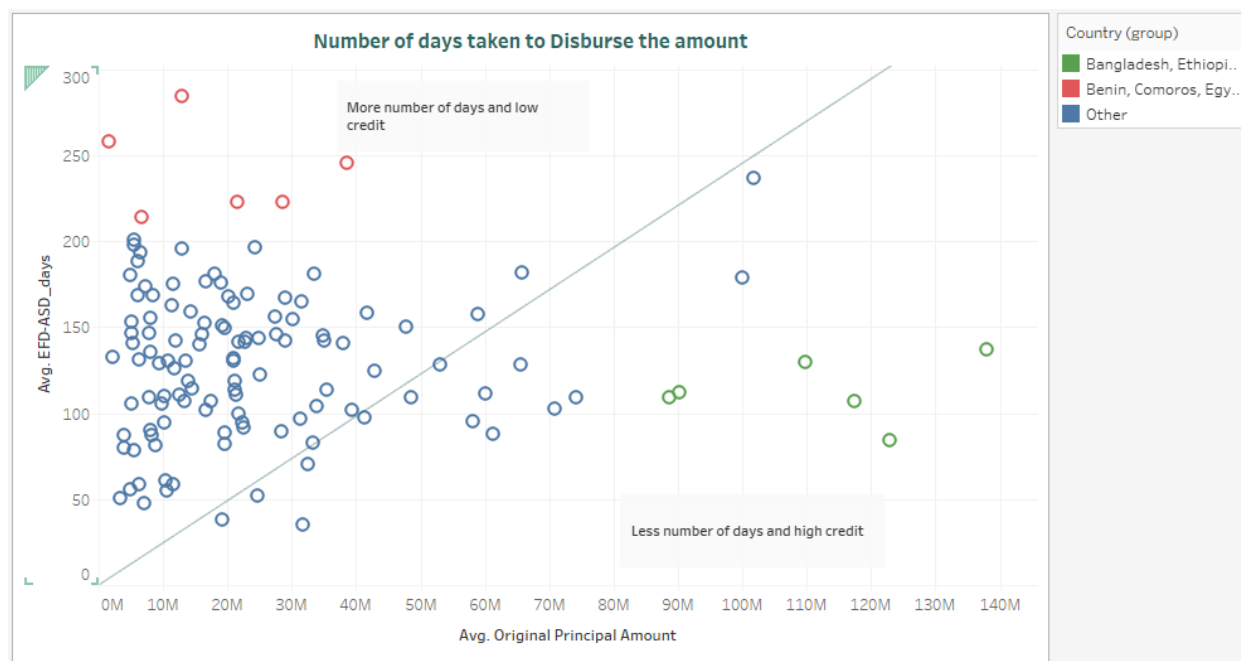
Figure 14

11. No. of Days Takes for Disbursement of loan for a Country

The bar chart shown in the figure 14 represents the country wise average number of Days IDA takes for Disbursement of loan. It illustrates that Iraq needs to wait the highest number of days of 441. The color represents the days for higher the number of days darker the color. This bar chart gives information about all the countries.
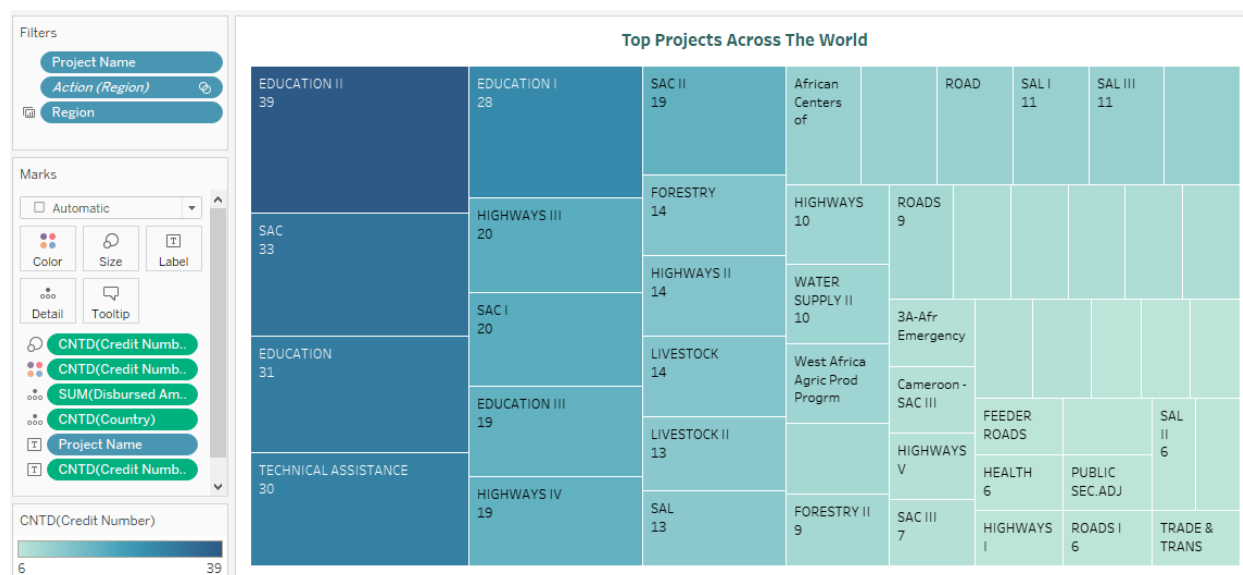
Figure 15

12. Scatter Plot for Number of days taken to Disburse the amount

The scatter plot in the figure 15 is drawn between the Average of Original Principal Amount and average number of days it takes for disbursement of loan. Color shows details about Country (group). Details are shown for the Country. The Country filter keeps 125 members. And Region filter keeps 9 regions. From this chart we can find the relation between the number of days it takes for the disbursement of a loan for a country and the principal amount. The red colour circles group represents the group of countries for which IDA takes more days even for small loan amounts. On the other hand, green colored circles represents the group of countries for which IDA takes less number of days to disburse the amount even for the high loan amount.
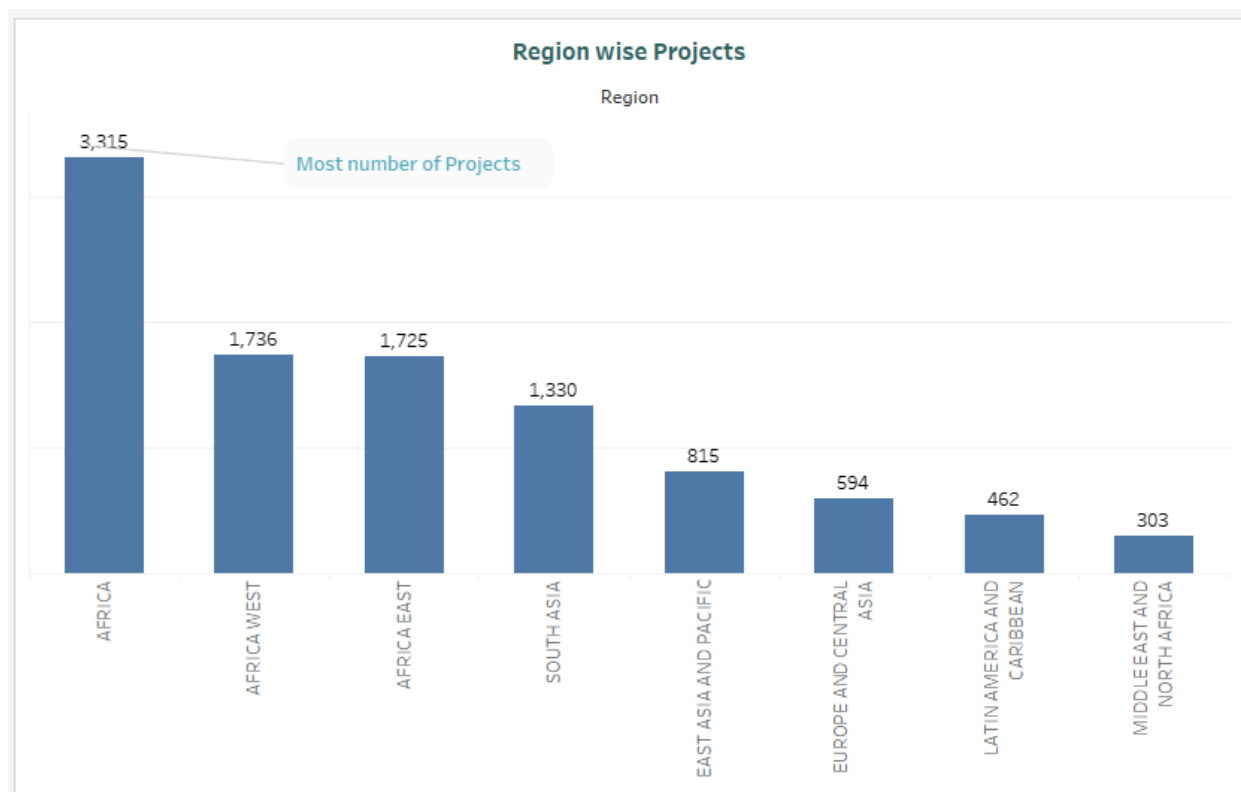
Figure 16

    13. Tree chart for Top Projects Across The World

The tree chart in the figure illustrates the projects held across the globe using the funds from IDA. Each rectangular box represents a project name, similar projects have been grouped by distinct count. Highest number of countries have taken loans for a project shown on the largest rectangle. The tree chart also gives information about the total Loan amount sanctioned for that project grouping all countries. So, Education is the most popular project conducted using the IDA credits following the SAC project.
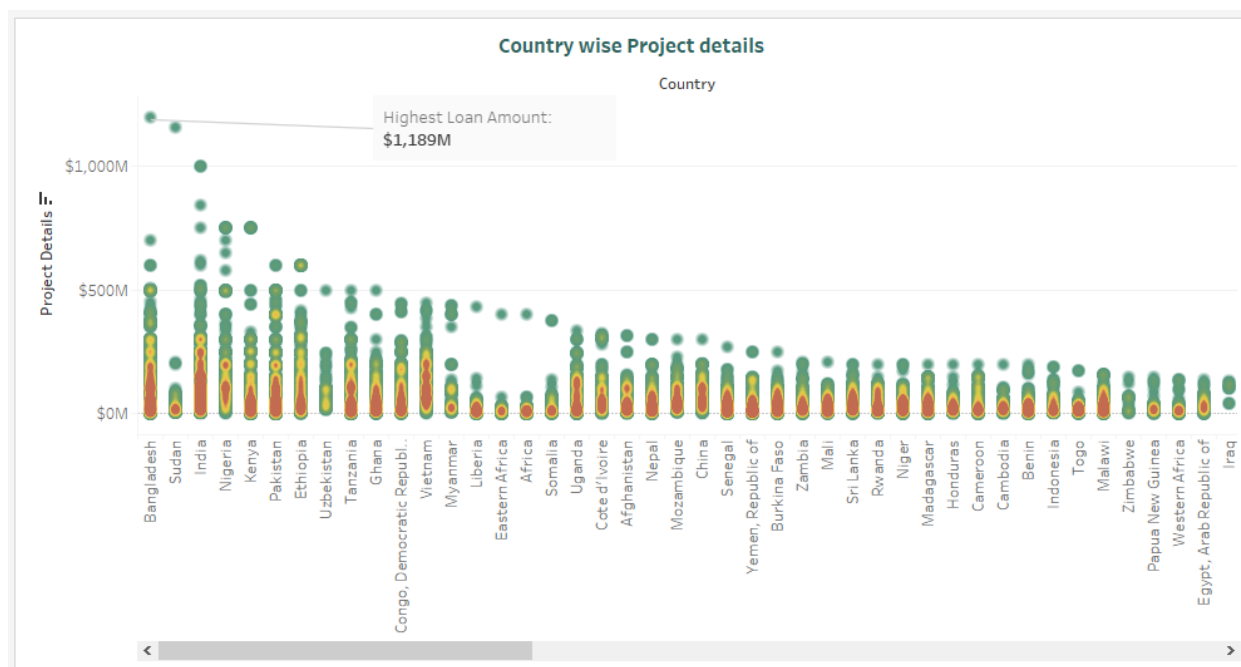
Figure 17

14. Bar Chart for Region wise Projects

The bar graph in the figure 18 illustrates the information about the total number of projects being conducted in the 9 regions by availing loans from the IDA. the highest number of projects are conducted in the Africa region with 3315.

Figure 18

## 15. Density Chart for Country wise Project details

The Density Chart in the figure 19 illustrates the information about the projects being conducted in all the countries by availing loans from the IDA. It consists of information about Country, Projects, Original Principal Amount for each project and Country. Details are shown for Project Name and Agreement Signing Year. The data can be filtered on Region. We can do region wise analysis by filtering particular regions, The maximum of the Original Principal Amount taken for any Project is $1,189 million for Padma Bridge in Bangladesh.

Dashboards

First Dashboard - Overview Of The IDA Achievements
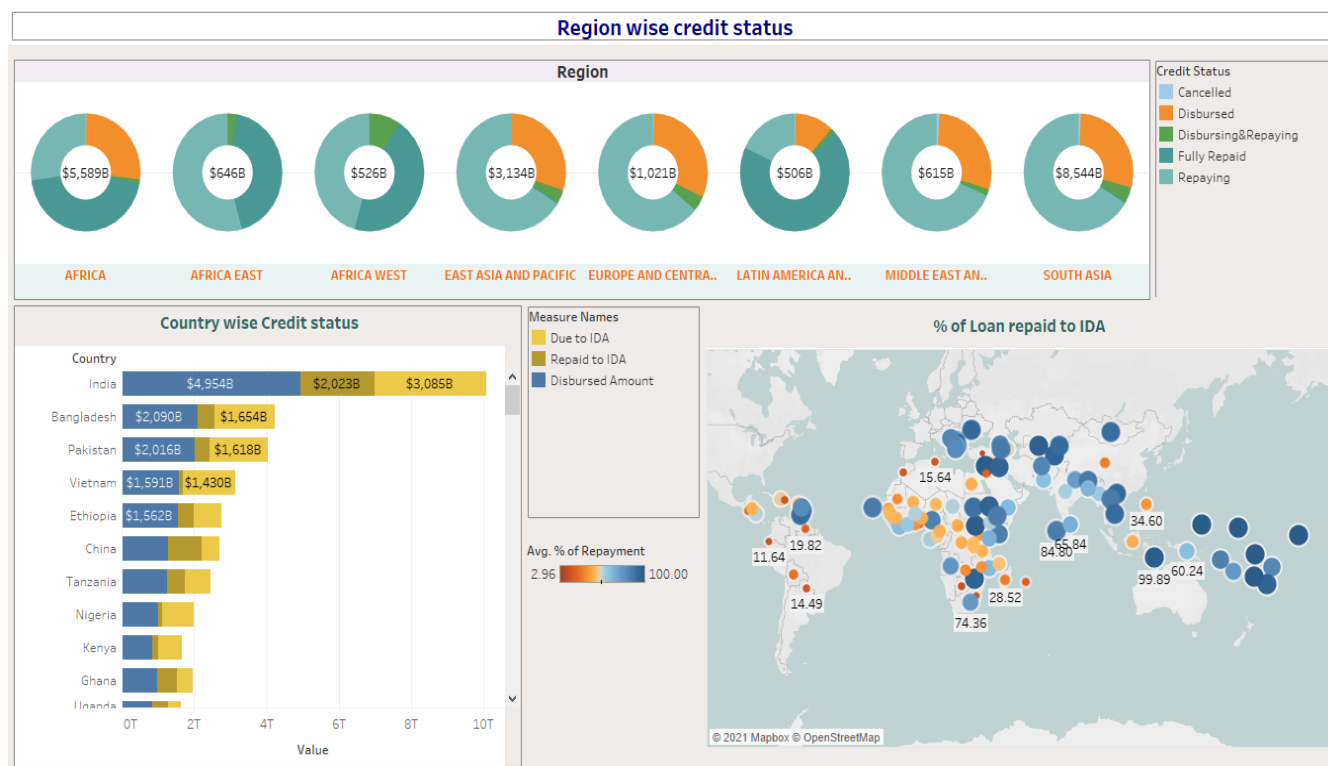
Figure 19
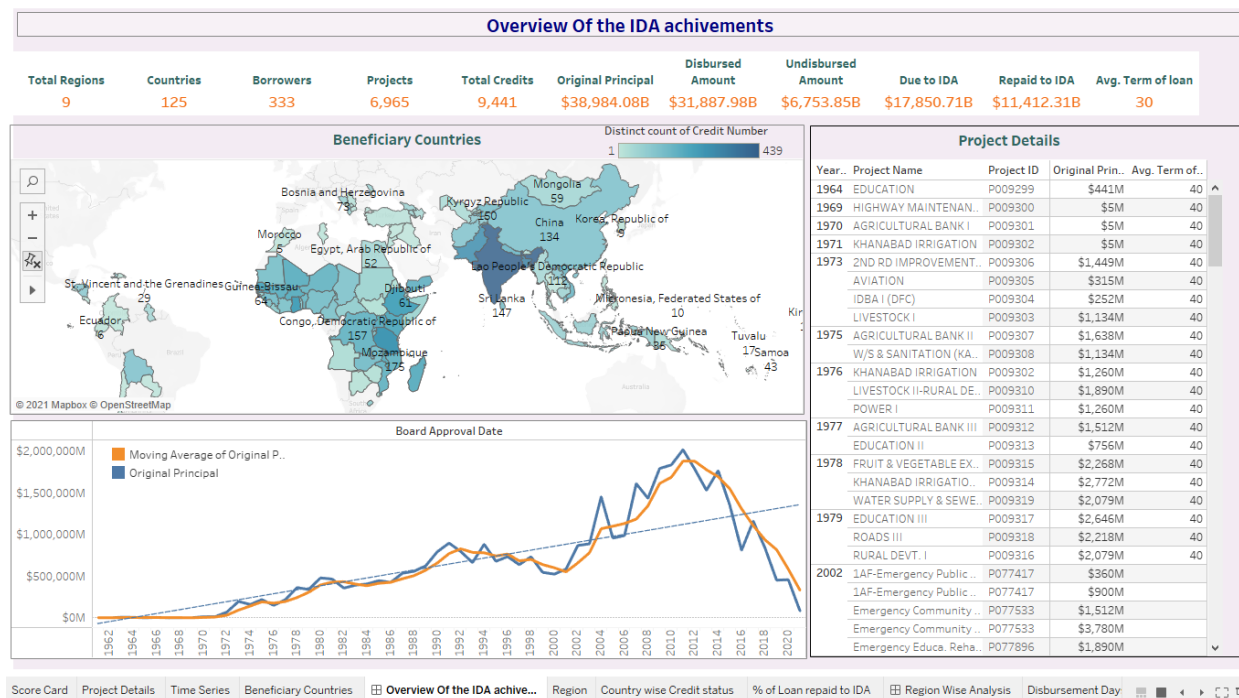
The first dashboard shown in the figure 19, is about the overview of the IDA achievements credits and grants, it consists of charts for

- Score card of IDA loans
- Beneficiary countries
- Project details for each country
- Trend line for Credits provided by IDA over the years.

It is an interactive dashboard, Country is applied as a filter for all the charts in the dashboard. By selecting a country we can see all the details and analysis about that country.

Second Dashboard - Region Wise Credit Status

Figure 20

The second dashboard shown in figure 20 represents the region wise credit status details for all the regions and countries. It consists of charts for

- Region wise credit status.
- Country wise credit status.
- Percentage of loan pending out of total loan amount by countries to the IDA.

It is an interactive dashboard, Region is applied as a filter for all the charts in the dashboard. By selecting a region we can see all the details and analysis about that region and all the countries in that region.

Third Dashboard - Number of Days IDA takes to Process and Disburse the Loan.
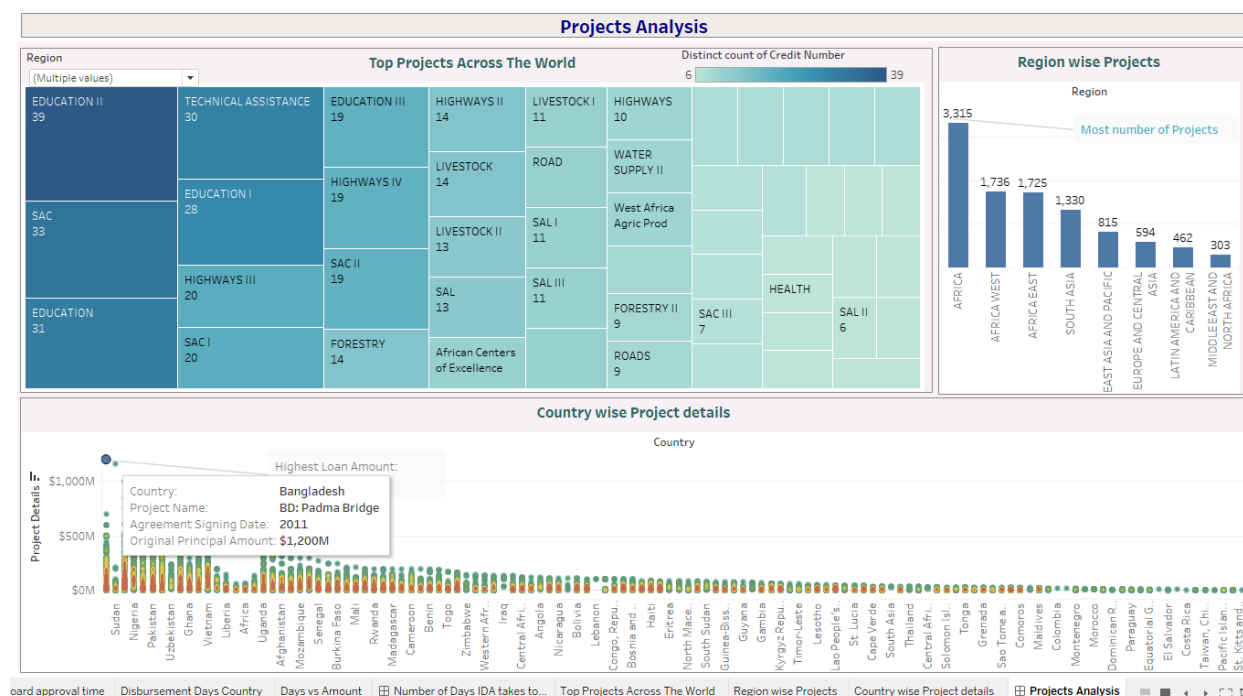
Figure 21
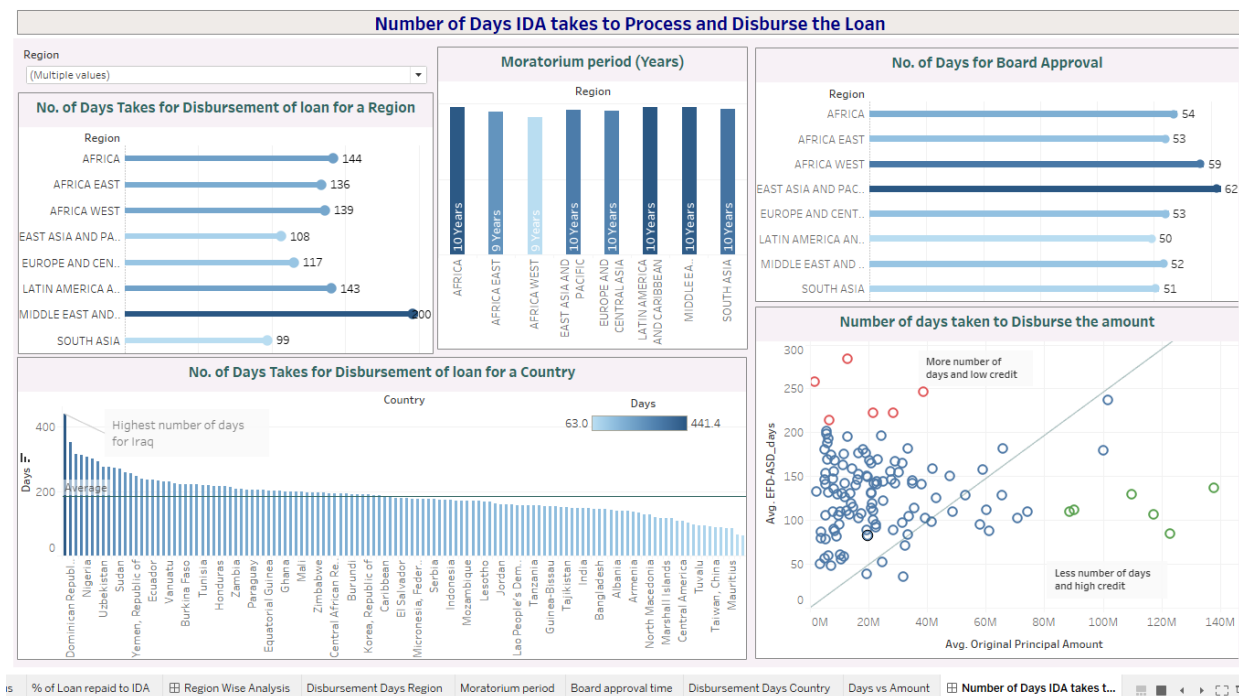
The third dashboard shown in figure 21 is about the Number of Days IDA takes to Process and Disburse the Loan. the charts in this dashboard illustrate

- No. of Days Takes for Disbursement of loan for a Region
- Moratorium period (Years)
- No. of Days for Board Approval
- No. of Days Takes for Disbursement of loan for a Country
- Number of days taken to Disburse the amount

It is an interactive dashboard, Region is applied as a filter for all the charts in the dashboard. By selecting a region we can see all the details and analysis about that region and all the countries in that region.

Fourth Dashboard - Project Analysis

Figure 22

The fourth and final dashboard shown in figure 21 is about the Project analysis. It provides details about the projects held in countries and regions across the globe with the help of IDA's credits and grants. The charts in this dashboard illustrate

- Top Projects Across The World
- Region wise Projects
- Country wise Project details

It is an interactive dashboard, Region is applied as a filter across the dashboard. By selecting a region we can see all the details and analysis of the projects being held in that region and all the countries in that region.

Story

Story 1 - About Overall Achievements Of The IDA Over The 60 Years

Story of Credits and Grants of The International Development Association (IDA)

Figure 23
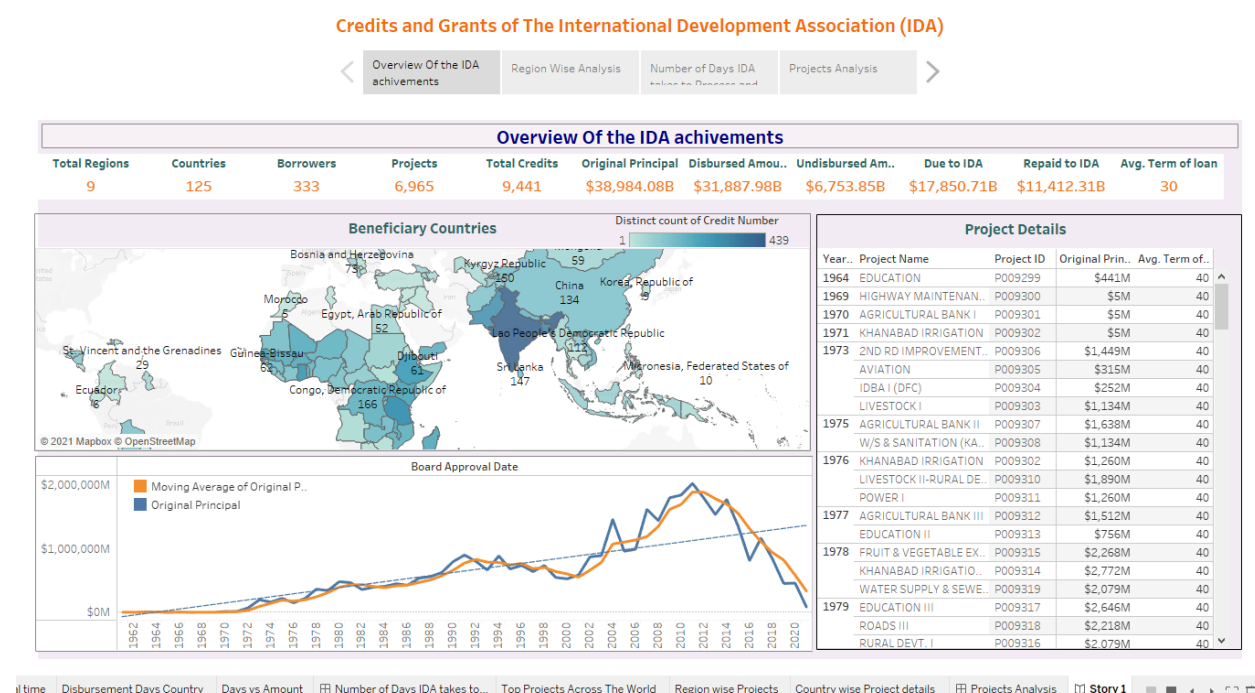
This is the first story of IDA's credits and Grants. It Tells about overall achievements of the IDA over the 60 years by telling total Sanctioned principal loan amount yearly.

- India has availed the highest number of credits and conducted highest number of Projects

- IDA started providing loans in 1961. The highest loan amount sanctioned in 2011 is approx $2017 Billion.

- There are a total 333 distinct borrowers who borrowed loans from IDA for 6965 projects in 125 countries of 9 regions.

- For 6965 projects IDA provided 9441 unique loans.

- IDA sanctioned a total of $38,984.08 Billion in 60 Years.

- 31,887.98 Billion Dollars has been disbursed as of September, 2021

- The average loan term for the credit provided by IDA is 30 Years.

Story 2 - Overall Distribution Of Loans Among Regions And Countries And Their Status

Figure 24
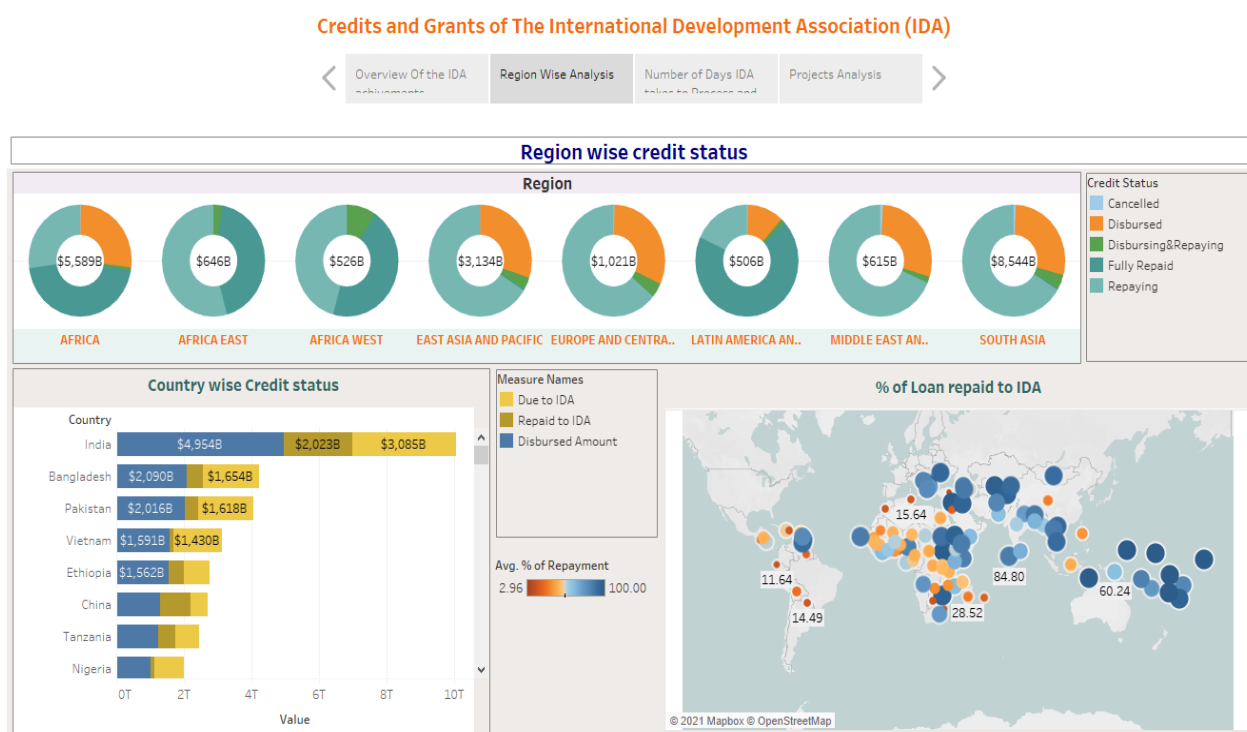
This is the Second Story of IDA's credits and Grants. It Tells about the overall distribution of loans region wise and country wise over the period of 60 years.

- South Asia has availed the highest loan amount.
- Second highest loan amount availed by Africa region
- Currently, most of the regions are repaying their loan
- India has availed the highest loan amount, Also repaid the highest amount to the IDA.
- Few countries have repaid 100% of the availed loan amount.

Story 3 - Number Of Days IDA Takes To Process And Disburse A Loan, And Moratorium Facility.

Figure 25
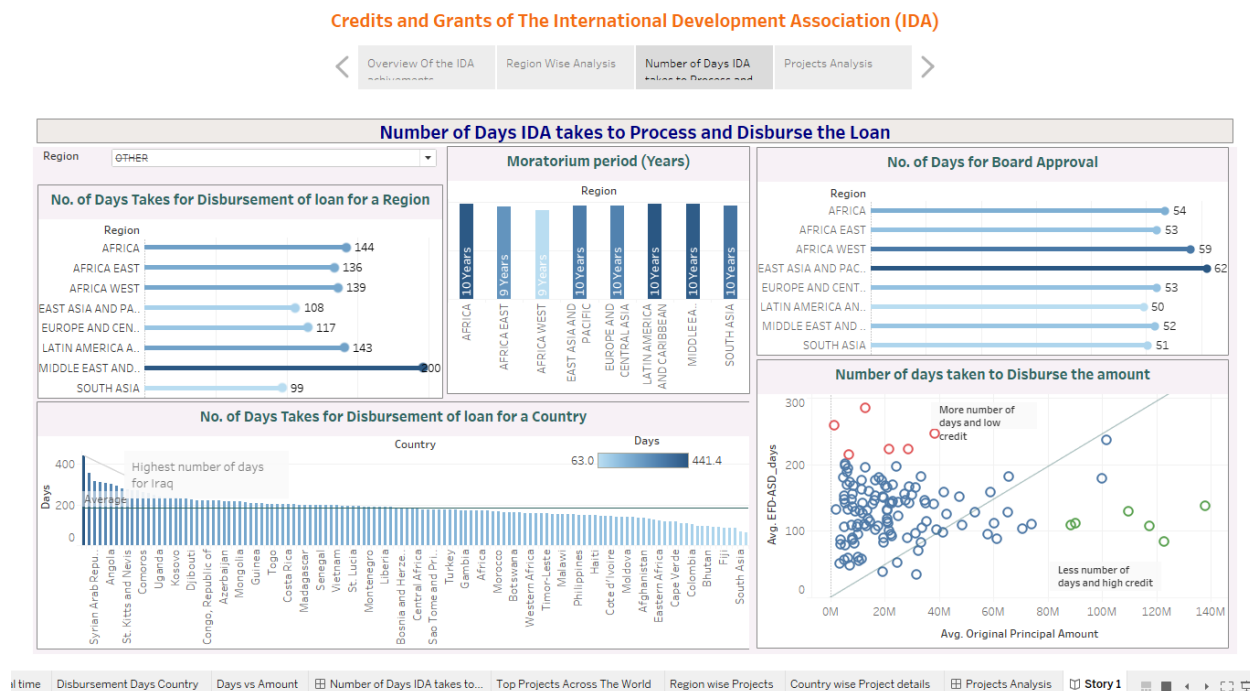
This is the Third Story of IDA's credits and Grants. It Tells about the number of days IDA takes for different stages to process and disburse a loan, Also it states about the moratorium period and loan length.

- Maximum 200 and minimum 99 days IDA takes to Disburse the sanctioned loan amount.
- IDA provides an average 10 Years of Moratorium Period.
- The Board of IDA takes an average of 54 days to approve the loan.
- To disburse the loan IDA takes a maximum of 441 days for Iraq and minimum of 63 days for Eswatini.
- There is a positive linear relationship between the number of days IDA takes to Disburse the amount and the Principal amount of a Loan.

Story 4 - About the Projects Conducted with the Help of IDA Loans

Figure 26
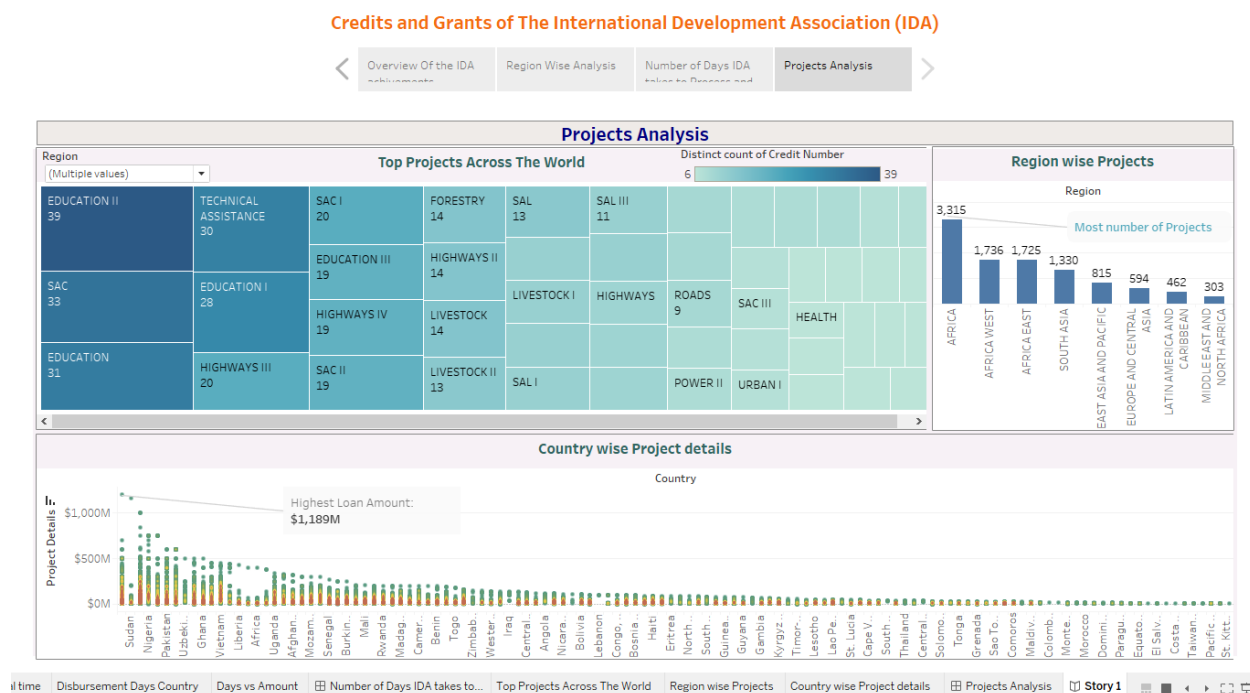
This is the Fourth Story of IDA's credits and Grants. It Tells about the Projects conducted with the help of IDA's Credits and Grants.

- Education is the most widely conducted project using IDA's Credits.
- Total 37 countries have been Spending loan amounts for Educational development under the second phase of the Education Project (Education II).
- There are a total 3 projects that are related to Educational development In the top 5 Projects.
- A total of 3315 projects have been conducted in the Africa region , that is approximately 50% of all projects funded by the IDA.
- Padma Bridge in Bangladesh is the highest funded project by IDA. i.e $1200 Million
- The second highest funded project by IDA is "Re Engagement of Reform DPF in Sudan. i.e $1160 Million

Conclusion

In this Project, I have used several User Interface tools (UI) for data preparation and Visualization.I have analyzed Credits and Grants of IDA from 1961 to 2021. It is an affiliate and complimentary institution of the World Bank. Very interesting facts have been noticed from this analysis, and created several dashboards. IDA provided interest free loans for the projects to the underdeveloped countries to develop their Education, Health Care, Transportation, Services, Import and Export, and many other sectors. It is a primary financial support for many countries in the African region, It is extremely dedicated and helpful in developing the Underdeveloped countries. There are thousands of Projects funded by the IDA across 125 countries in the World and Billions of people have benefited from IDA.

Future Work

In the future, I would like to analyze the financial statements of the IDA. It would be better to consider individual beneficiary project status and number of projects completed and number of people benefitted by these projects to understand how IDA makes people's lives better in those countries. Also build a machine learning model by collecting data of all projects to detect if there is any anomaly or predict delay in the project implementation in any of the countries who have taken credits from IDA.

References

WBG Finances. (n.d.). *Ida statement of credits and Grants - Historical Data: World Bank Group finances*. WBG Finances. Retrieved December 13, 2021, from https://finances.worldbank.org/Loans-and-Credits/IDA-Statement-Of-Credits-and-Grants-Historical-Dat/tdwh-3krx/data.