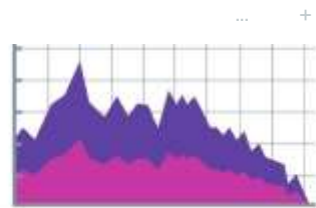Drag from top and touch the back
button to exit full screen.

Data Visua l ization

•Data visualization is the practice of translating
information into a visual context, such as a map
or graph, to make data easier for the human brain to
understand and pull insights from.

•The main goal of data visualization is to make it
easier to identif y patterns, trends and outliers in
large data sets.

The term is often used interchangeably with others,
•including information graphics,
information visualization and statistical graphics.

Drag from top and touch the back
button to exit full screen.

Data Visua l ization

•Data visualization is one of the steps of the data
science process, which states that after data has been
collected, processed and modeled, it must be
visualized for conclusions to be made.

•Data visualization is also an element of the broader
data presentation architectu re (DPA) discipline,
which aims to identif y, locate,
manipulate, format and deliver data in the most
efficient way possible.

Drag from top and touch the back button to exit full screen.

Why is data visualization important?

- Data visualization provides a quick and effective way to communicate information in a universal manner using visual information.

- The practice can also help businesses identif y which factors affect customer behavior;

- Pinpoint areas that need to be improved or need more attention;

- Make data more memorable for stakeholders;

  Understand when and where to place specific
- products; and predict sales volumes.

Drag from top and touch the back
button to exit full screen.

Benefits of data visualization

- The ability to absorb information quickly, improve insights and make faster decisions;

- An increased understanding of the next steps that must be taken to improve the organization;

- An improved ability to maintain the audience's interest with information they can understand;

Drag from top and touch the back
button to exit full screen.

Benefits of data visualization

- An easy distribution of information that increases the opportunity to share insights with everyone involved;

- Eliminate the need for data scientists since data is more accessible and understandable;

- An increased ability to act on findings quickly and, therefore, achieve success with greater speed and less mistakes.

Examples of data visual ization

In the early days of visualization, the most common visualization technique was using a Microsoft Excel spreadsheet to transform the information into a table, bar graph or pie chart. While these visualization methods are still commonly used, more intricate techniques are now available, including the following:

lnfographics

•Bubble clouds

•Bullet graphs

•Heat maps Fver

•charts

•Time series charts

•

Some other popula r tech niques are as follows.

•Line charts.This is one of the most basic and common techniquesused. Line charts display how variables can changmvertime.

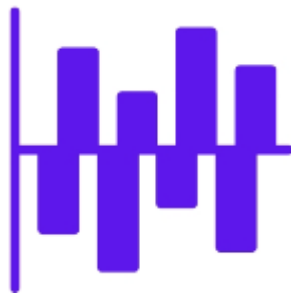•Areacharts.Thisvisualizatiomethods a va riatiomf a line chart; it displaysmultiplevalues in a time series or a sequenceof data collectedat consecutivequallyspaced pointsin time.
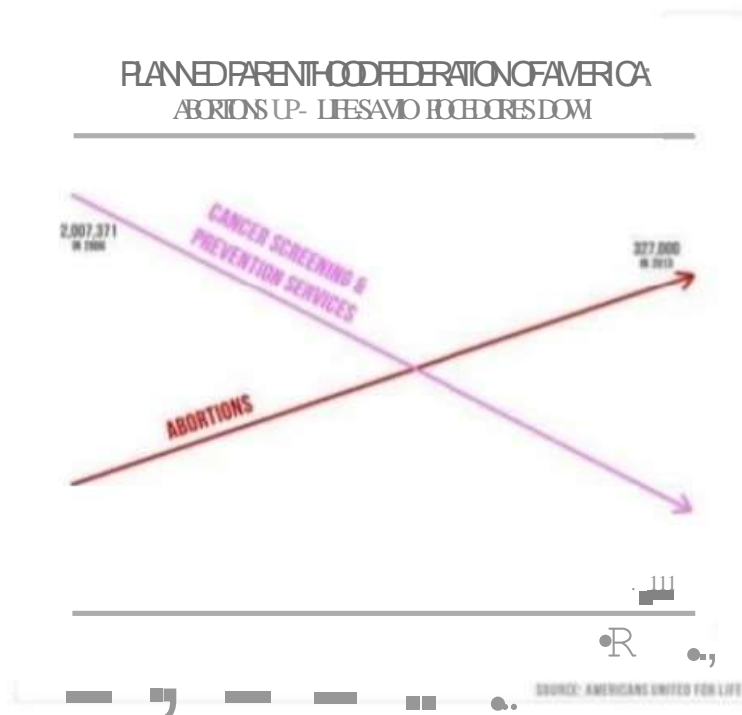
Some other popula r tech niques are as follows.

•Scatter plots. This technique displays the   relationship betweertwovariablesA scatterplot takestheformof anx andy-axig,vithdotsto represent:tatapoints.

TreemapsJ"hismethodshowshierarchicaUata in a nested
•format.The sizeof the rectangles.1sed   for each categorys
proportionato its percentage of the whole. Treemapsare best used
when   multiplecategoriesare   present,   and   the   goaisto
compandifferenpartsof a whole.

Example 1 - Lying with data

PLANNED PARENTHOOD FEDERATION OF AMERICA:
ABORTIONS UP - LIFE-SAVING PROCEDURES DOWN

2,007,371
IN 2006

CANCER SCREENING & PREVENTION SERVICES

327,000
IN 2013

ABORTIONS

SOURCE: AMERICANS UNITED FOR LIFE

what is it?

| Chart shown by Rep Jason Chaffetz during Planned Parenthood hearing
| Watch it here - http://bit.ly/1UhTYoU

what's wrong with it?

| No Y axis
| Multi-axis not declared and labelled
| X-axis spans 8 years, but chart only includes 2 years (2006 and 2013)

Example 1- Lying with data
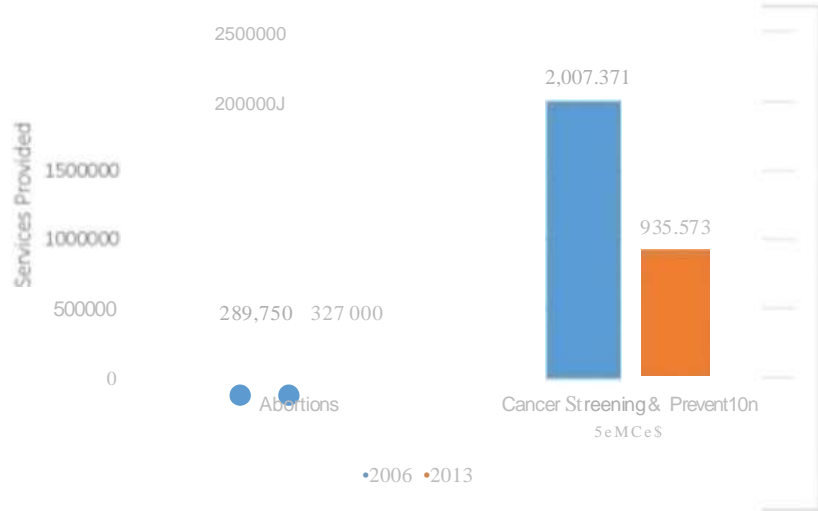
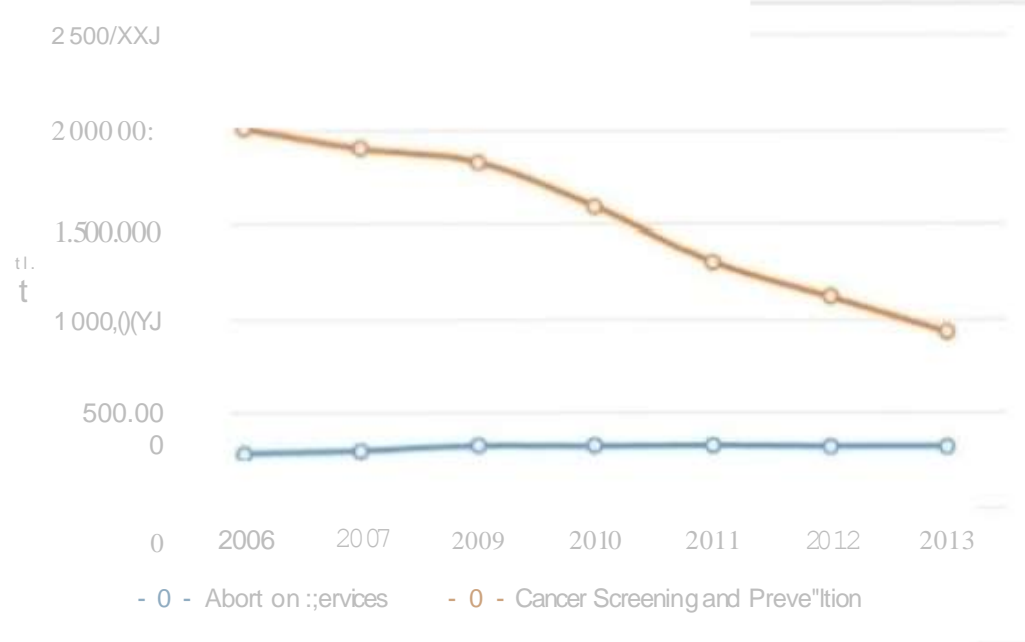Planned Parenthood -Abortions vs Cancer Screening Services

Bar Chart | Single Axis | Vertical

how to fix it?

▎ if you are comparing data between 2 non-adjacent years a bar chart would be a better choice

▎ here's the same data in a bar chart, and on a single axis

Example 1 - Lying with data

| | 2006 | 2007 | 2009 | 2010 | 2011 | 2012 | 2013 |

- O - Abort on :;ervices   - O - Cancer Screening and Preve"ltion

Planned Parenthood - Abortions vs Cancer Screening Services

line Chart | Single Axis

how to fix it?

| Better yet, if you retrieve the data for the missing years you can use a line chart to show the change over time

| here's the same data in a line chart with the missing years (2007 – 2012) included.
*Note, 2008 is missing as I couldn't find the report for that year
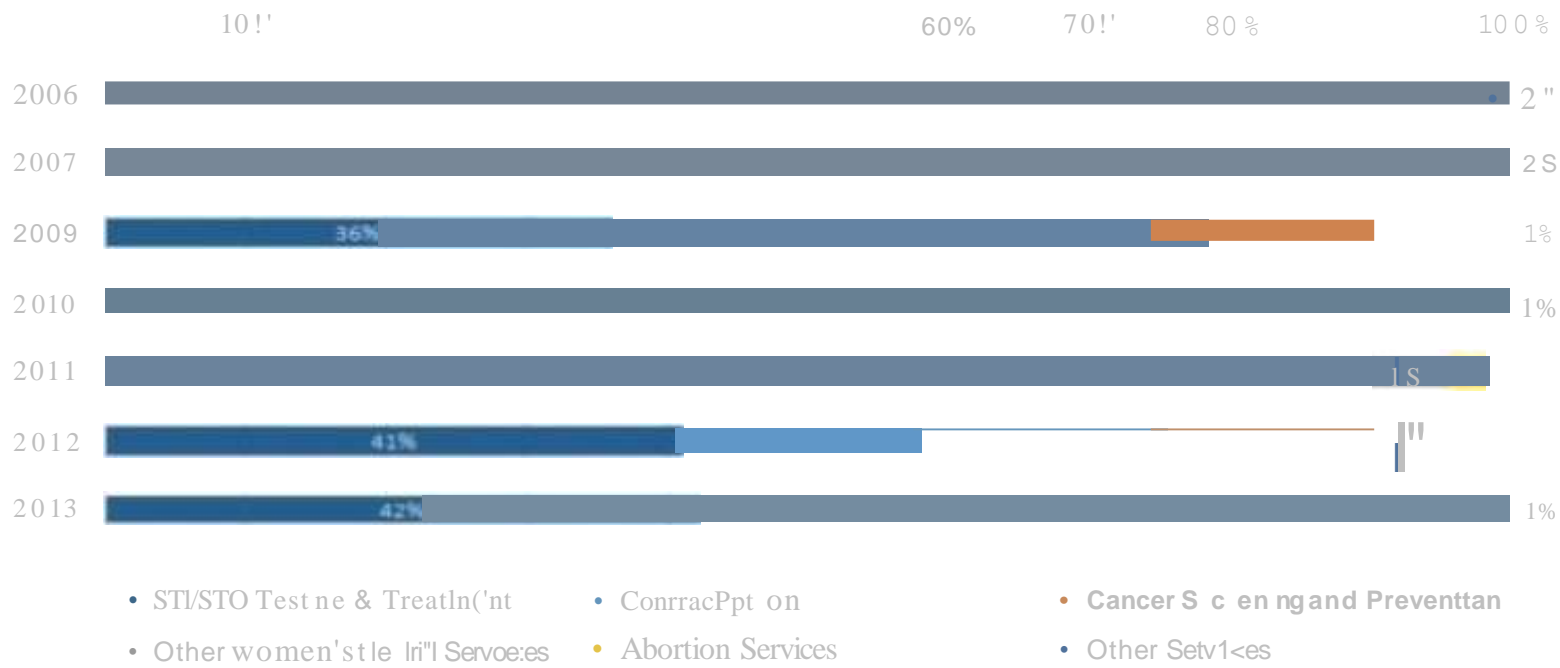
Example 1- Lying with data

Planned Parenthood - Abortions vs Cancer Screening Services
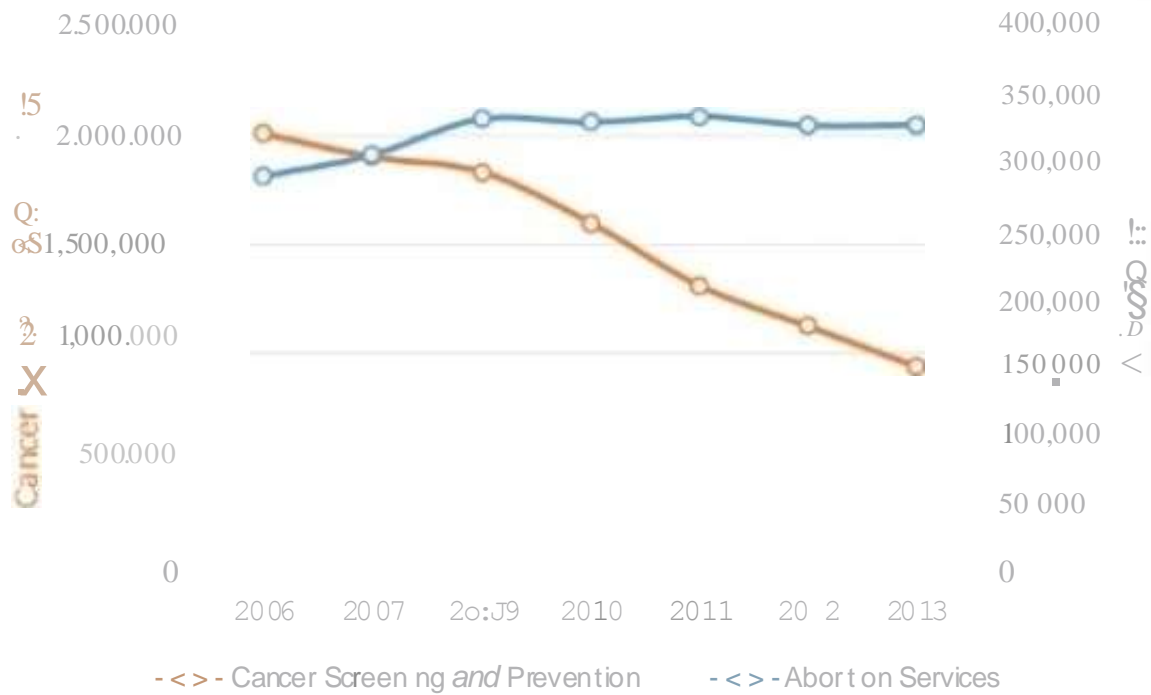
Line Chart | Multi Axis
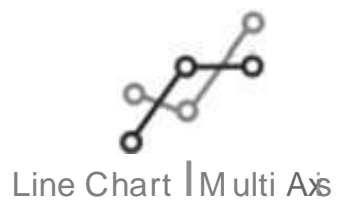
how to fix it?

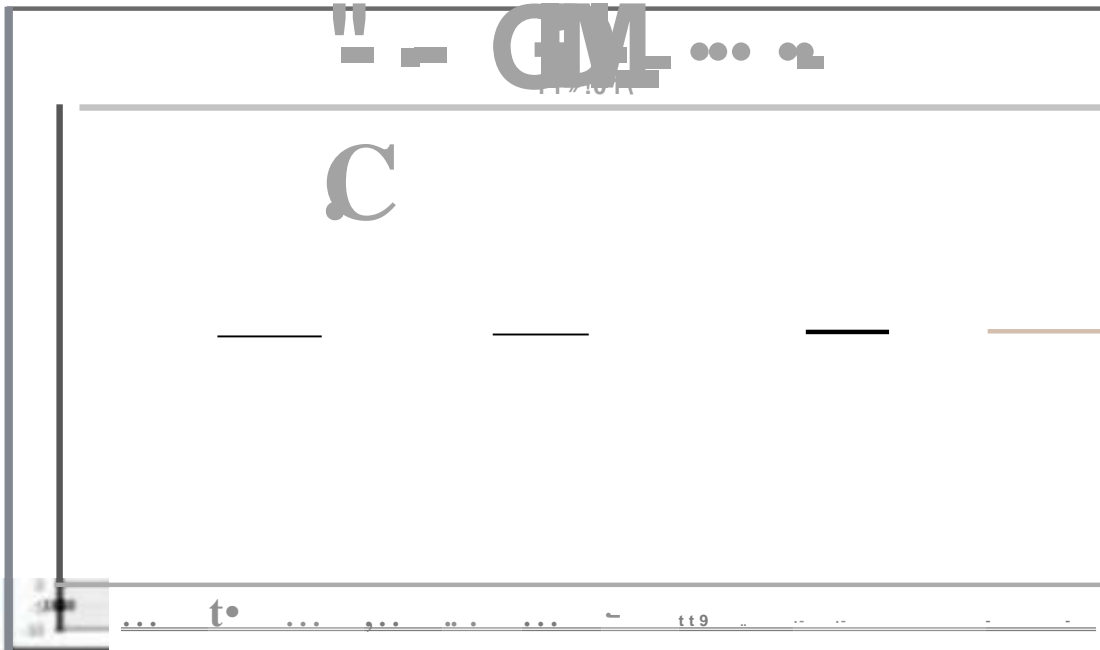And for good measure, here's the same data represented using a multi axis chart, and with the axis' properly labelled

Example 1- Lying with data

Stacked Bar Chart | Horizontal

Example 2 - Lying with data

Average Global Temperature (Fahrenheit)

Line Chart | Single Axis

what is it?

national review (@ NRO) chart depicting change in global average temperature over time

See it here -

what's wrong with it?

Y axis inflated, removes reade,'s ability to see meaningful change in data

Chart does not convey context. The increase in global average temp of just 2 degrees can have significant effects on our planet, so using 120 point scale removes important context and makes this chart impossible to read
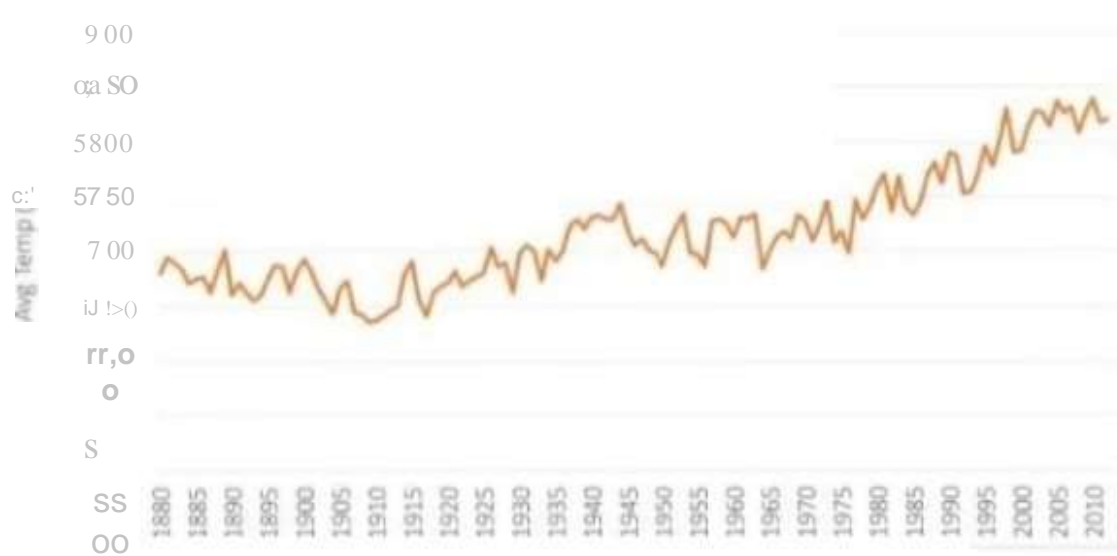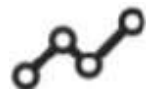
Example 2 - Lying with data

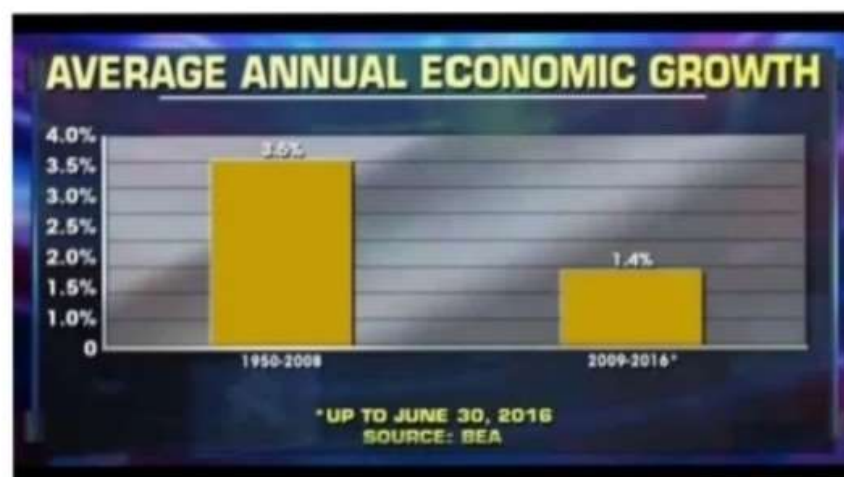Figure S. Average Global Temperature (Fahrenheit) relative scale

Line Chart | Single Axis

how to fix it?

| Adjust the y-axis so it shows the full context of the data.

Example 3 - Deceptive
Visualization

what is it?

Chart shown by Fox News that shows Average Annual economic growth in the USA.

what's wrong with it?

Too much non-data ink

Poor chart labeling

Unequal time intervals

Example 3 -
Deceptive
Visualization

Remove
to improve
(the **data-Ink**   ,
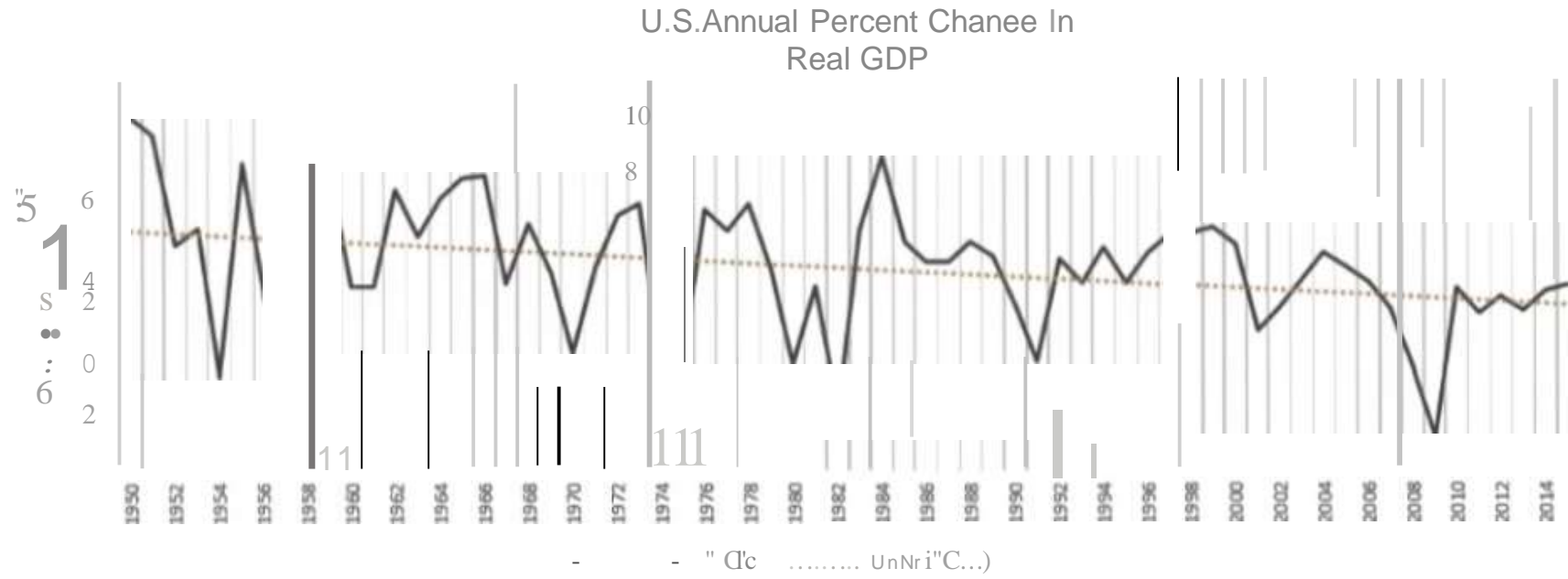
Created by **Darkhorse Analytics**   www.**darkhorseanalytics**.com

how to fix it?

▌ Strip away all unnecessary formatting (e.g. data ink)

▌ See more here - http://bit.ly/2eIpC18

Example 3 - Deceptive Visualization

U.S.Annual Percent Chanee In Real GDP

Example 3 - Deceptive Visualization