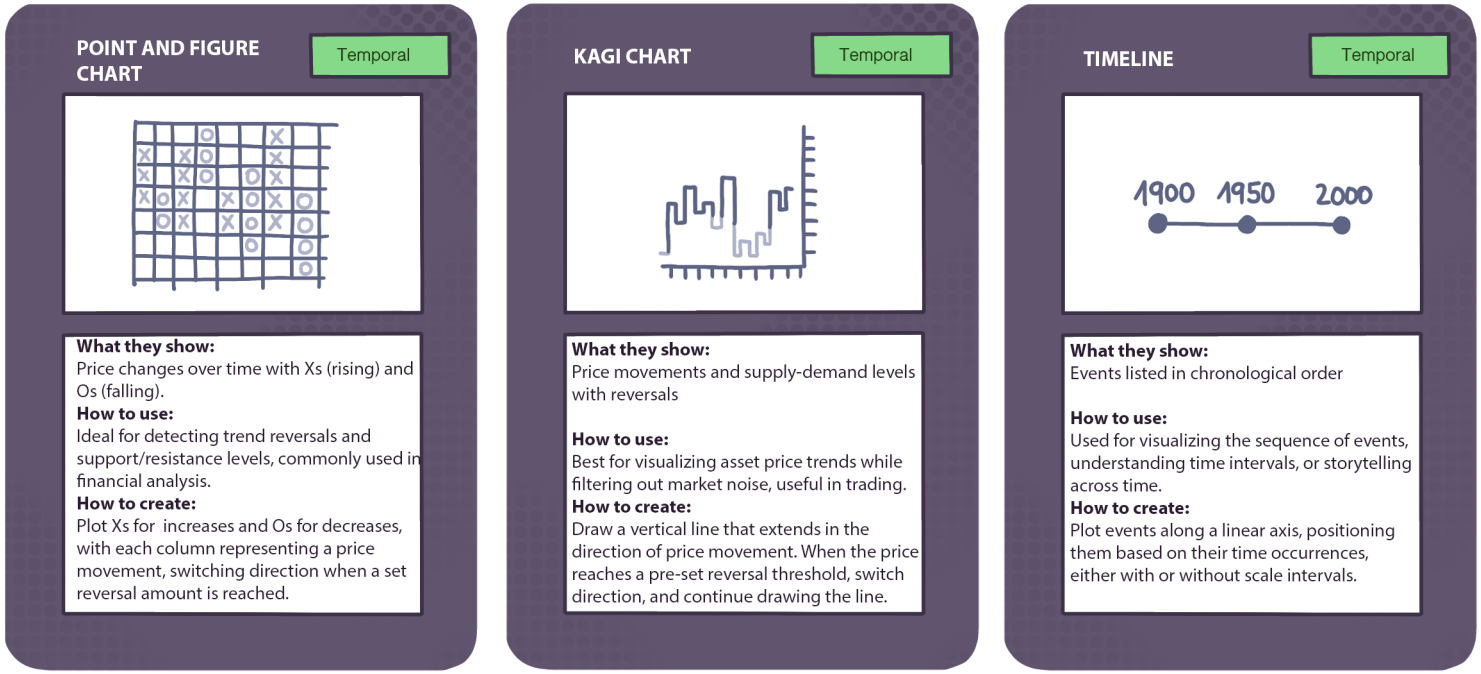
Vizionaire Supplemental Material

The following pages include the materials needed to play the game Vizionaire.

The first pages (including this one) feature the Visualization cards, each of these needs to be printed three times for the Visualization card deck.

Starting with page 5, there are the Scenario cards. These need to be printed once. The corresponding front- and backsides of each scenario need to be glued together (those with the same title). We advise to laminate them for easier play.

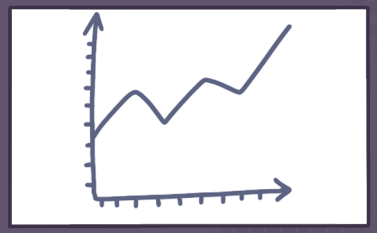
The last page features the rulebook which is needed at least once for each game set.



Vizionaire - Visualization Card

LINE GRAPH

Temporal



What they show:
Trends or changes over time.

How to use:
Useful for showing time-series data and comparing a few data series

How to create:
Plot data points on an x-y grid and connect them with lines.

ARC DIAGRAM

Comparison / Relations

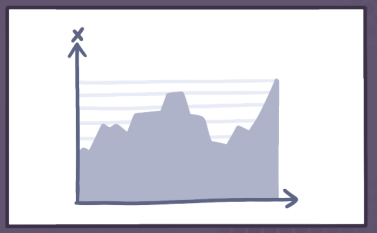
What they show:
Connections or relationships between nodes.

How to use:
Ideal for identifying repeating patterns or clusters in relational data.

How to create:
Place nodes along a line and draw arcs to show links.

AREA GRAPH

Temporal



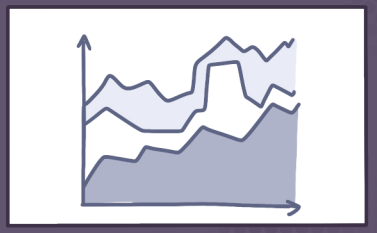
What they show:
Quantitative changes over time.

How to use:
Emphasizes total volume or cumulative values.

How to create:
Plot lines over time and fill the area beneath them.

STACKED AREA GRAPH

Temporal



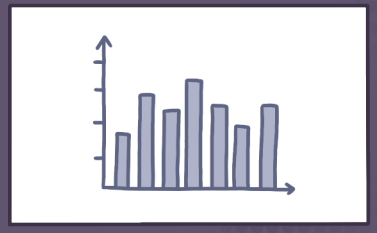
What they show:
Parts of a whole over time.

How to use:
Good for showing cumulative changes across multiple series.

How to create:
Stack area layers for each category along a time axis.

BAR CHART

Comparison / Relations



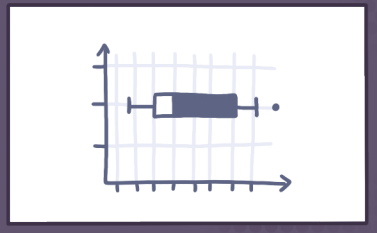
What they show:
Categorical comparisons.

How to use:
Ideal for showing differences between discrete categories.

How to create:
Draw bars in a coordinate system for each category with lengths based on values.

BOX AND WHISKER PLOT

Distribution



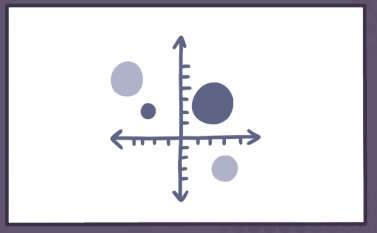
What they show:
Data distribution and variability.

How to use:
Great for comparing medians, ranges, and outliers across groups.

How to create:
Draw boxes for interquartile ranges with lines for medians and whiskers.

BUBBLE CHART

Comparison / Relations



What they show:
Relationships between three variables.

How to use:
Great for comparing values using position and bubble size.

How to create:
Use x and y for two variables; size bubbles based on a third.

CONNECTION MAP

Geographic

What they show:
Geographic relationships or flows.

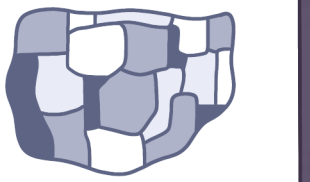
How to use:
Best for visualizing movements or links between places.

How to create:
Plot locations on a map and draw lines between them.

Vizionaire - Visualization Card

CHOROPLETH MAP

Geographic



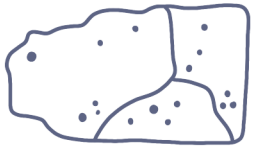
What they show:
Geographical distribution.

How to use:
Useful for regional comparisons like population, income, or rates.

How to create:
Shade map regions based on data values.

DOT MAP

Geographic



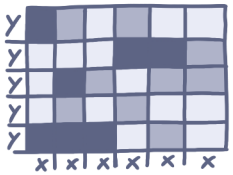
What they show:
Geographic distribution using dots to represent quantity.

How to use:
Best for showing volume and location together.

How to create:
Place dots on a map where each represents a set value.

HEATMAP

Geographic



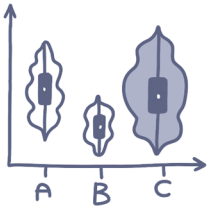
What they show:
Intensity of values in a matrix format.

How to use:
Ideal for spotting patterns or correlations in data in a table.

How to create:
Color cells in a grid based on data magnitude.

VIOLIN PLOT

Distribution



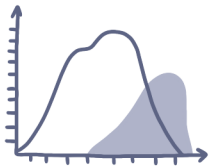
What they show:
Distribution and variability of data.

How to use:
Helpful for comparing the spread and shape of data across multiple groups.

How to create:
Mirror the shape of the data's distribution on both sides of a central axis, with a box plot overlaid to show median and quartiles.

DENSITY PLOT

Distribution



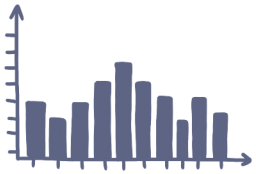
What they show:
Data distribution as a smooth curve.

How to use:
Great for comparing multiple distributions.

How to create:
Apply a smoothing function over a histogram.

HISTOGRAM

Distribution



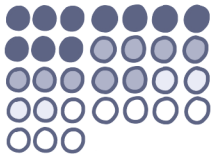
What they show:
Frequency distribution of numerical data.

How to use:
Use to observe shape, spread, and central tendency.

How to create:
Group data into intervals and draw bars to show counts.

DOT MATRIX CHART

Distribution



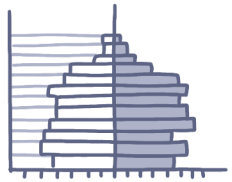
What they show:
Data quantities or categories represented as dots

How to use:
Used to compare quantities across categories in a compact grid.

How to create:
Place dots in a grid, each representing a value or unit.

POPULATION PYRAMID

Distribution



What they show:
Age and gender distribution.

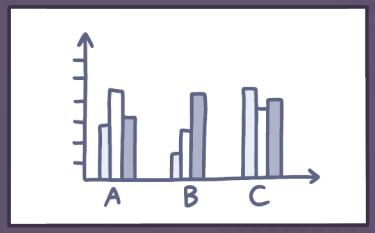
How to use:
Used for demographic analysis, often comparing two groups.

How to create:
Draw back-to-back horizontal bar charts, grouped by age.

Vizionaire - Visualization Card

MULTI-SET BAR CHART

Comparison / Relations



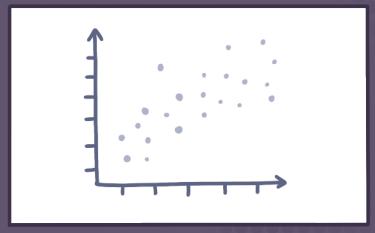
What they show:
Multiple data series within single categories

How to use:
Effective for comparing sub-categories within larger parent categories.

How to create:
Bars grouped by parent category with each color representing a subcategory.

SCATTER PLOT

Comparison / Relations



What they show:
Correlations between two continuous variables

How to use:
Perfect for detecting correlations (positive, negative, or none) and trends between two variables.

How to create:
Plot points on a Cartesian coordinate system, with one variable on the x-axis and the other on the y-axis.

RADAR CHART

Comparison / Relations

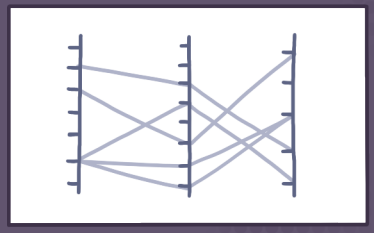
What they show:
Multiple quantitative variables on a circular plot.

How to use:
Ideal for comparing performance or characteristics across several variables.

How to create:
Plot each variable along a separate axis radiating from a central point, and connect the points to form a polygon.

PARALLEL COODINATES PLOT

Comparison / Relations



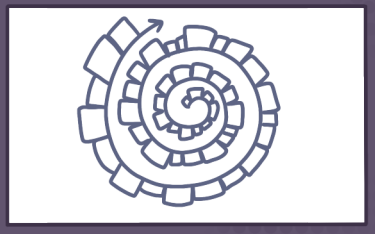
What they show:
Multiple quantitative variables.

How to use:
Useful for comparing many variables and detecting patterns or correlations between them.

How to create:
Plot data points as lines across parallel axes, each representing a variable. The axes can be normalized or have different scales.

SPIRAL PLOT

Temporal



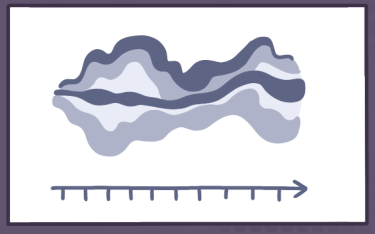
What they show:
Time-based data along an Archimedean spiral

How to use:
Ideal for showing periodic patterns and trends across a long time period.

How to create:
Plot data points along the spiral. Data can be shown with bars, points, or lines.

STREAM GRAPH

Temporal



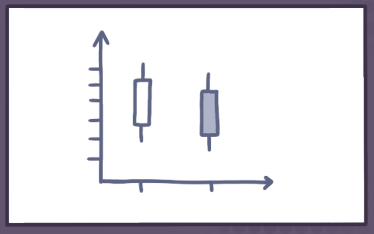
What they show:
Different data displayed as flowing shapes

How to use:
Good for high-volume datasets, particularly when visualizing trends and patterns over time across multiple categories.

How to create:
Plot data with flowing, layered lines or shapes that shift in size and color over time, with each layer representing a different category or variable.

CANDLESTICK CHART

Temporal



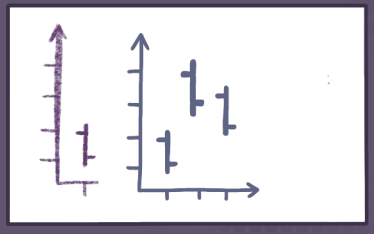
What they show:
Price movement over time

How to use:
Used to track price movement and market sentiment (bullish or bearish) over specific periods.

How to create:
Plot vertical lines for price range (high to low) with rectangular bodies for open and close prices. Color the body based on price movement.

OPEN-HIGH-LOW-CLOSE CHART

Temporal



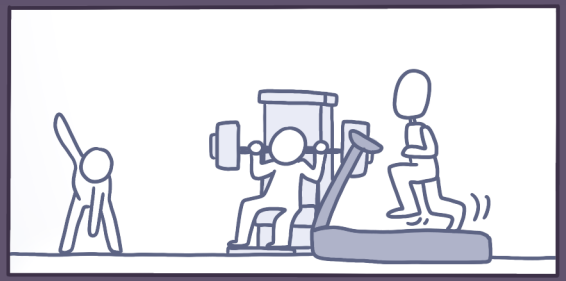
What they show:
Price changes over time

How to use:
Used for visualizing stock prices and trading behavior over set periods.

How to create:
Plot vertical lines for the range (high to low), with tick marks for open (left) and close (right) prices.

Vizionaire - Scenario Card

EXERCISE FREQUENCY

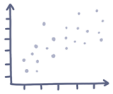


A public health researcher is analyzing the relationship between BMI (Body Mass Index) and weekly exercise frequency across different age groups. The goal is to determine whether there is a clear correlation between physical activity and BMI among young adults. This insight can help inform public health campaigns.

TARGET GROUP	Public health researchers
DATA SET	BMI and weekly exercise
REQUIRE-MENT	Clearly show distribution and potential correlation

EXERCISE FREQUENCY

3



Scatterplot

Scatterplots are excellent for showing the relationship between two continuous variables. They highlight correlations and patterns, making it easy to understand how exercise frequency and BMI are related across different age groups.

2

- Bubble Chart
- Violin Plot
- Density Plot
- Box and Whisker Plot

1

Comparison / Relations

STARTUP PERFORMANCE

3

Kagi Chart

The **Kagi chart** is excellent for filtering out noise and identifying meaningful trend shifts.

2

- Candlestick Chart
- Line Graph
- OHLC Chart

1

Temporal

Vizionaire - Scenario Card

STOCK MARKET SIGNAL TRENDS

A financial analyst is monitoring stock performance across multiple companies and wants to identify trend reversals and price breakouts for long-term investments.
The visualization needs to show price movement patterns over time and indicate where a trend change may have occurred.

TARGET GROUP Finance professionals

DATA SET Open, high, low, and close prices for 20 companies over the past 2 years

REQUIRE-MENT Must show trend reversals and support detailed pattern recognition

STOCK MARKET SIGNAL TRENDS

3

OHLC Chart

OHLC charts provide a comprehensive and detailed view of price movements by showing the open, high, low, and close values for each time period. This is ideal for identifying trend reversals and breakout points, as it clearly displays price volatility and shifts in market direction.

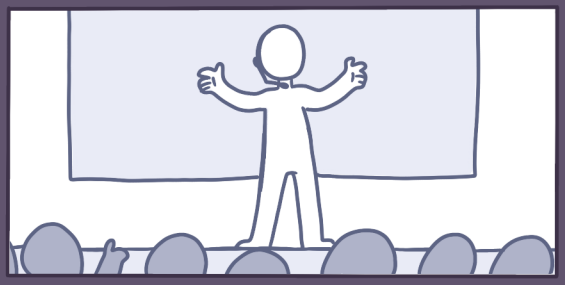
2

- Point and Figure Chart
- Candlestick Chart
- Kagi Chart
- Line Graph

1

Temporal

STARTUP PERFORMANCE



An investor is comparing stock movements of new tech companies over a year. They want to detect when a company changes direction in performance.
This visualization helps visualize volatile market trends and assists in identifying breakout moments.

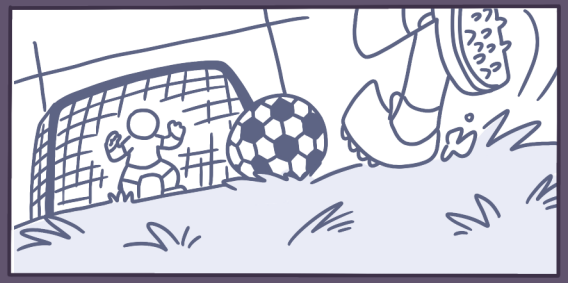
TARGET GROUP Startup investor

DATA SET Weekly stock closing prices

REQUIRE-MENT The mapping needs to be clear

Vizionaire - Scenario Card

SOCCER MATCHES



A youth soccer team want to create a visualization about their losses, wins and draws over the last year.
Each month they played ten games. They want to see if there are months were they are better at winning or losing.

TARGET GROUP 14 to 19 years old teenagers

DATA SET Game Statistics of the last year

REQUIRE-MENT Easy to read for teenagers with average education.

SOCCER MATCHES

3

Multi-Set Bar Chart

With **multi-set barcharts** the goals, losses and draws each month can be put next to each other.
This way the comparison between the months can easily be read.

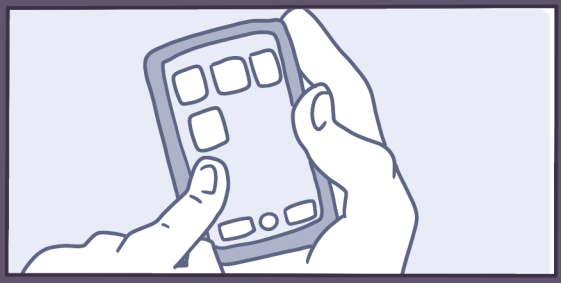
2

- Dot Matrix Chart
- Bar Chart
- Area Graph
- Line Graph

1

Temporal

APP USAGE



A mobile app development team is analyzing which features are used most frequently over 30 days. They want to understand user engagement and time-of-day patterns.
This visualization will help them prioritize which features to improve or remove.

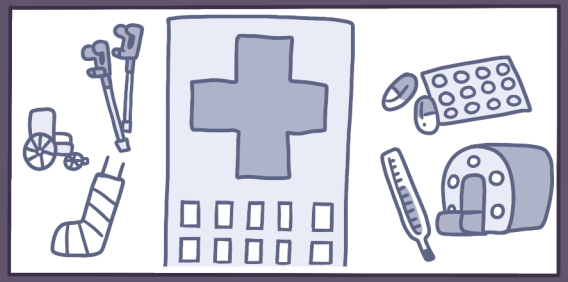
TARGET GROUP App Developers

DATA SET Feature usage logs by timestamp

REQUIRE-MENT Show clear time-of-day patterns and be visually simple for developers.

Vizionaire - Scenario Card

HEALTH INSURANCE CLAIMS



A health insurance company analyzes the number of claims over time, segmented by age group and type of treatment.

They want to see if there are trends or seasonal patterns in claim frequency. This will help optimize resource allocation.

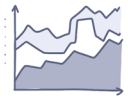
TARGET GROUP Health insurance analysts

DATA SET Claims data by age group, treatment type, and time

REQUIRE-MENT The chart must clearly differentiate between different treatment types

HEALTH INSURANCE CLAIMS

3



Stacked Area Graph

A **Stacked Area Graph** is ideal for showing how different treatment types contribute to the total number of claims over time. It can also effectively represent multiple age groups and show trends or seasonal patterns in the data.

2

Heat Map

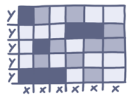
Line Graph

1

Temporal

APP USAGE

3



Heat Map

Heat Maps show usage intensity across time and features, making hotspots and low-use areas easy to identify.

2

Dot Matrix Chart

Radar Chart

1

Temporal

Vizionaire - Scenario Card

SATISFACTION SURVEY

An HR department collects job satisfaction scores from various teams. They want to compare results and identify areas for improvement.
The visualization should clearly display satisfaction levels and highlight problem areas.

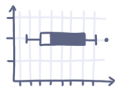
TARGET GROUP HR professionals

DATA SET Survey scores per department

REQUIRE-MENT Highlight teams with particularly low or high satisfaction

SATISFACTION SURVEY

3



Box & Whisker Plot

A Box and Whisker Plot visualizes distributions, medians, and outliers per team, making comparisons between teams easy.

2

Violin Plot

Histogram

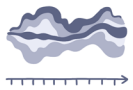
Density Plot

1

Distribution

MOVIE GENRE POPULARITY

3



Stream Graph

Stream graphs are ideal for detecting long-term shifts and trends across genres.

2

Multi-Set Bar Chart

Line Graph

Area Graph

1

Temporal

Vizionaire - Scenario Card

REGIONAL EDUCATION

A government study compares education levels across regions.
The goal is to reveal inequality patterns and compare regional disparities.
This data visualization will highlight significant regional differences.

TARGET GROUP Education Government

DATA SET Region-wise education index

REQUIRE-MENT The mapping needs to be clear

REGIONAL EDUCATION

3

Choropleth Map

Choropleth maps are ideal for displaying regional differences using color intensity, making it easy to spot inequality patterns.

2

Dot Map

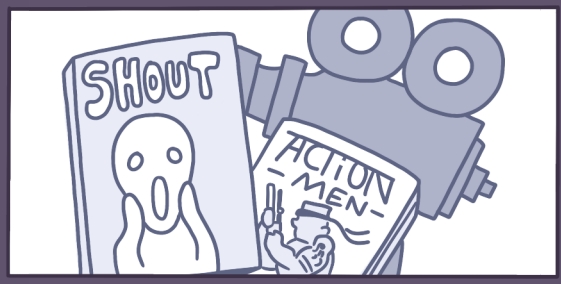
Heat Map

Bar Chart

1

Geographic

MOVIE GENRE POPULARITY



A streaming platform wants to visualize how interest in movie genres (e.g., horror, comedy, drama) has changed over the last decade.

This helps guide investment in new content.

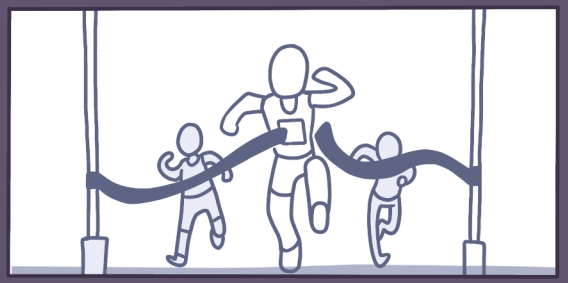
TARGET GROUP Content strategists

DATA SET Monthly views by genre

REQUIRE-MENT Make trends over years clear

Vizionaire - Scenario Card

MARATHON RUNNERS



A sports historian wants to display marathon participation growth since the 1980s. They also want to emphasize specific historical spikes.
Viewers should easily spot peak years or declines in participation.

TARGET GROUP Readers of sport magazines

DATA SET Yearly participation numbers

REQUIRE-MENT Should be easily readable

MARATHON RUNNERS

3

Spiral Plot

Histograms show the distribution of performance readings, making it easier to spot ranges of performance.

2

Histogram

Line Graph

1

Temporal

BIRD SIGHTINGS

3

Dot Map

Dot maps represent each bird sighting by its actual location, offering a clear spatial overview.

2

Choropleth Map

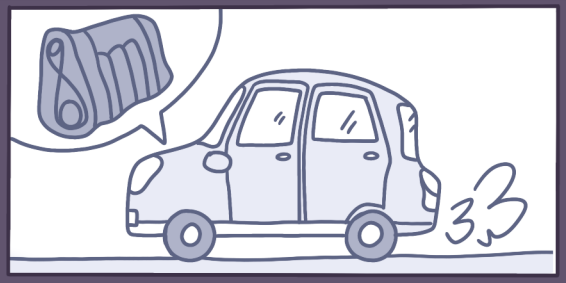
Connection Map

1

Geographic

Vizionaire - Scenario Card

ENGINE PERFORMANCE



Engineers test cars under different conditions to track power output and efficiency.
Data includes temperature, RPM, and torque. They want to understand performance ranges and identify areas for improvement.

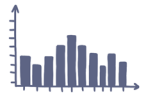
TARGET GROUP Engineers

DATA SET Power, temperature, efficiency readings

REQUIRE-MENT Must allow quick identification of performance outliers

ENGINE PERFORMANCE

3



Histogram

Histograms show the distribution of performance readings, making it easier to spot ranges of performance.

2

Density Plot

Box and Whisker Plot

Violin Plot

1

Distribution

BIRD SIGHTINGS

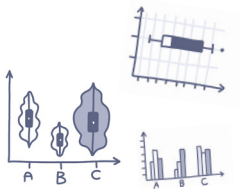
Ornithologists are mapping bird sightings to detect migration trends. They collect exact locations and timestamps.

They need a map that reflects the spatial spread accurately and allows for quick insights into migration patterns.

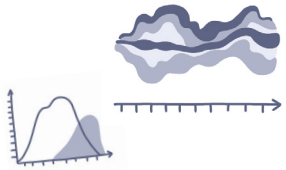
TARGET GROUP Environmental researchers

DATA SET GPS sightings by species

REQUIRE-MENT needs to be visually appealing and intuitive



Vizionaire



Vizionaire is a card game designed to help students explore and understand the wide range of data visualizations used to represent patterns in real life scenarios. Players match visualizations to specific situations, making learning both interactive and engaging.

THE THREE VERSIONS

Vizionaire can be played in three different versions:

One Single Team

If there are three or less players, then they can form one team to fight against the card game.

Their goal is to **reach 10 points** in the span of 5 rounds to beat the game.

Team VS Team

If there are more than four players, they form (as good as possible) even sized groups with each group having at least two players.

The winning team is the one that has reached the most points after 5 rounds.

Player VS Player

In this version, all the players play against each other.

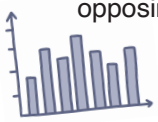
The winner of the game is the player who has reached the most points after 5 rounds.

SETUP

Shuffle both card decks. Place the Scenario card deck in its box with the description side facing up, ensuring that no player can see the scoring on the back.

Each player receives five Visualization cards, which they keep hidden from the other players.

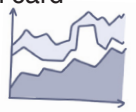
Finally, select one player to act as the card dealer. The dealer draws and presents the Scenario card for the round. After each round, a member of the opposing team takes over the dealer role.



Vizionaire is played in two main phases:

Scenario & Selection Phase – Teams or players draw a scenario and select a suitable visualization card.

Scoring Phase – Points are awarded based on how well the chosen card matches the scenario.



SCENARIO & SELECTION

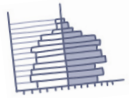
- At the start of each round, the card dealer draws a Scenario card and places it face-up in the center of the table, ensuring the back side (with scoring) remains hidden from all players.
- Players silently read the scenario. Once everyone is ready, the card dealer starts a two-minute timer.

During this time:

- In ***team play***, team members discuss which of their Visualization cards best fits the scenario. They may choose any card from their combined hands. To avoid revealing their ideas, teams should speak quietly or turn away from other groups.
- In ***Player vs Player*** mode, each player decides on their own without discussion.
- When a card is chosen, it must be placed face-down on the table before time runs out. Cards submitted after the timer ends are not counted in scoring.

SCORING

- When time is up, all selected Visualization cards and the Scenario card are turned face-up.
- Players read the scoring criteria on the back of the Scenario card and assign points to their selected Visualization card accordingly.
- Each team or player records their points, and the Scenario card is placed on a discard pile.
- If five rounds have been played, the team or player with the highest total score wins. Otherwise, a new round begins:



A new card dealer from the opposing team (or another player) is chosen.
Each player draws back up to five Visualization cards if needed.
The next round starts with Phase One.

- In the case of the ***one single team*** gameplay, the team has to reach ten points after the fifth round to win the game. If the goal has been reached before the fifth Scenario card has been played, the game can end early.