Exercise6: Visual Perception (20 points)

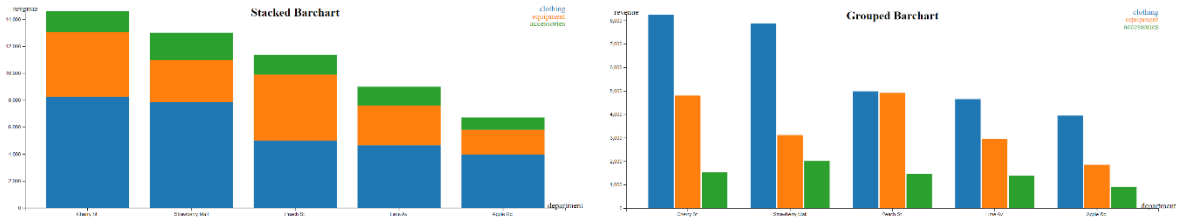
Due: 19.06.2022 8AM

Please state the name of both, collaborating students.
Name of author 1:
Name of author 2:

Task 1: Visual Comparison (12 points)

Task 1a) **(8 points)**

Your task is to implement a stacked barchart **and** a grouped barchart for the given dataset.



The provided data can be found in **data.js** and consists of revenue numbers for different stores, split up in different departments.

The barcharts shall include:

- A Title, displaying either *"Stacked Barchart"* or *"Grouped Barchart"*
- X & Y Scales, including labels
- Colored bars for each department
- A *legend* for the color scale
- A Tooltip showing the store, the department, and the revenue value

Task 1b) **(4 points)**

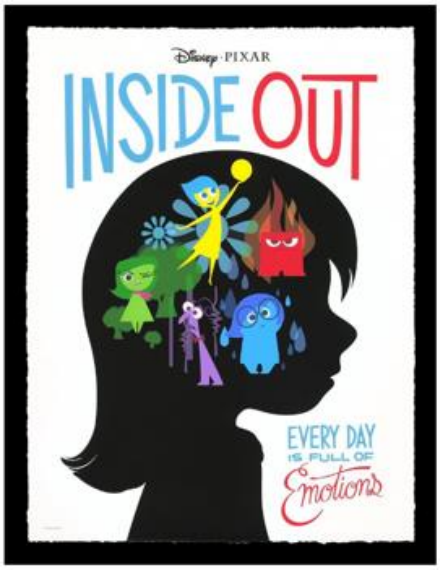
Which of the barchart implementations in Task 1a) would you choose regarding the following tasks? Explain why it is more suitable compared to the other one.

- Reading absolute revenue values
- Comparing department revenue values

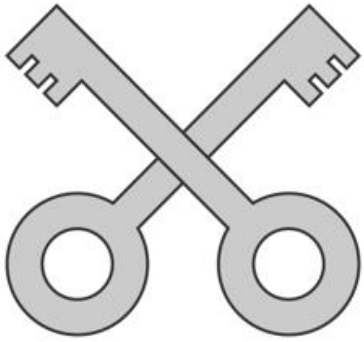
In terms of scalability (having more stores and more departments), which other visualization might be a better choice? Please justify your answer.

Task 2: Gestalt Laws **(8 points)**

In the following, eight images are presented. Allocate one Gestalt Law to each image and justify your answer shortly. Multiple answer could be correct.



a)

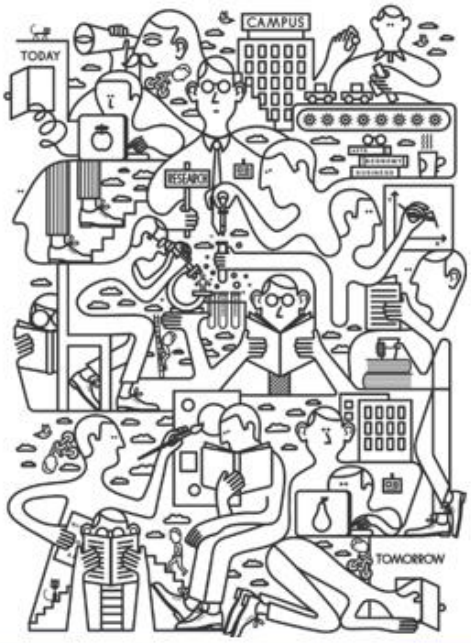


b)

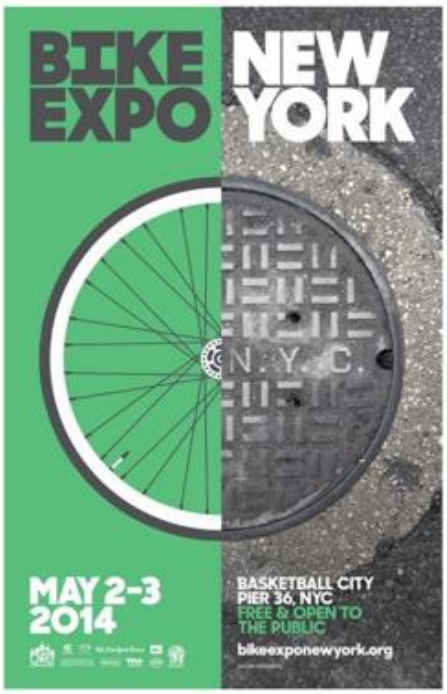
c)

d)

e)


TODAY
CAMPUS
RESEARCH
TOMORROW

f)


BIKE EXPO
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g)

h)

Answer:

Task 1b:

When making a choice for the visualization technique, the end goal has to be kept in mind.

- Reading absolute revenue values: When reading absolute revenue values it makes more sense to use the stacked bar charts because if grouped bar chart was used it would require some calculation to figure out the absolute revenue value of a store and it looks less intuitive for this task.
- Comparing department revenue values: When the goal is to compare revenue from different departments it makes more sense to used the grouped bar chart because in a stacked bar chart the common ground is not very apparent which makes it difficult to judge the values for each department, this is not a problem in grouped bar chart.

When scaling to high numbers of departments and stores it might make more sense to use a stacked bar chart because, because after a certain point it will become very difficult to distinguish when departments for one store is finished and for the next one is started and it might be difficult to read such a chart.

Task 2:

a) Enclosed Region: All the characters of the movie are enclosed in one region i.e., the silhouette of the girl, which might be representing some significance in the movie.

b) Continuity: The key on the behind is still perceived as a single key even though there is a break in its lines due to the above key. This is possible because of continuity.

c) Proximity: The proximity of the triangular chips to each other give them an appearance of a mouth i.e., they form the upper jaw and lower jaw

d) Similarity: Even though all the different pictures are of completely different color scheme it is very apparent that they are of the same person because of the similarity in the shapes that make up the image, in all the pictures

e) Closure: Even though there is no defined shape in the image we are able to fill in the breaks in the contour and figure out that it is a panda.

f) Connectedness: This is a collection of images of different activities, everything looks connected to each other through lines which gives a sense that all this is related, it represents a what a day looks like for some person from morning to night.

g) Symmetry: The bicycle wheel and the sewer cover are put in a symmetrical way next to each other which gives a perception that they are one object.

h) Closure: Between the letters E and X an arrow is perceived, while it is not explicitly present our mind can fill in the blanks and helps us see the arrow.

After completing your answers, export the docx-File to PDF and upload it alongside the source code files.

Submission: Zipped *barchart* folder including all files (index.html, index.js, index.css, data.js, d3.js) and a PDF of the completed written exercise.

Please form a group of **2 Students**. Only 1 member of the group must submit the exercise in ILIAS. Please state the collaborators in the beginning of the document.