



# **SNS COLLEGE OF ENGINEERING**



**Kurumbapalayam(Po), Coimbatore – 641 919**

**Accredited by NAAC-UGC with 'A' Grade**

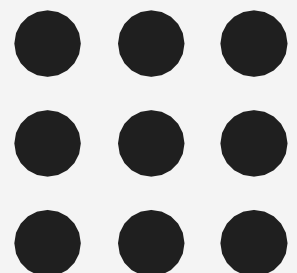
**Approved by AICTE, Recognized by UGC & Affiliated to Anna University, Chennai**

## **Department of Information Technology**

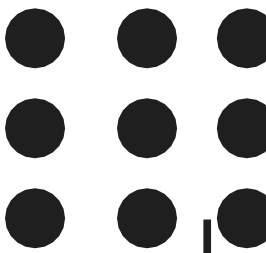
**III Year / V Semester**

**Unit 3–**

**Topic :preattentive attributes**



# Pre attentive attributes



in the image above, maybe you first notice the leftward cluster of tall bars on the top two graphs. These properties that we are drawn to notice almost immediately are called preattentive attributes of visual perception.



## Four categories



# Four categories of preattentive visual attributes:

- form
- color
- position
- motion.



## Preattentive Attribute #1: Form

The category of form generally encompasses the shape and dimensions of how your data is represented, both on their own and in relation to the rest of the data in your visualization.

The attributes of form include line length, line width, orientation, size, shape, curvature, enclosure, and blur.

# Forms

## Form



Length



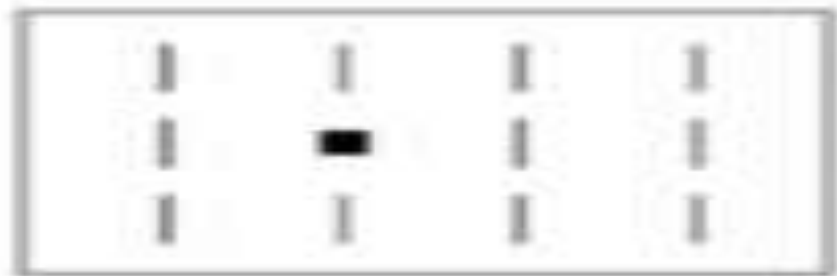
Width



Orientation



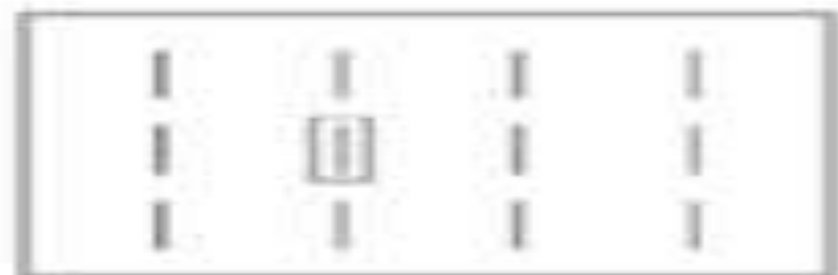
Size



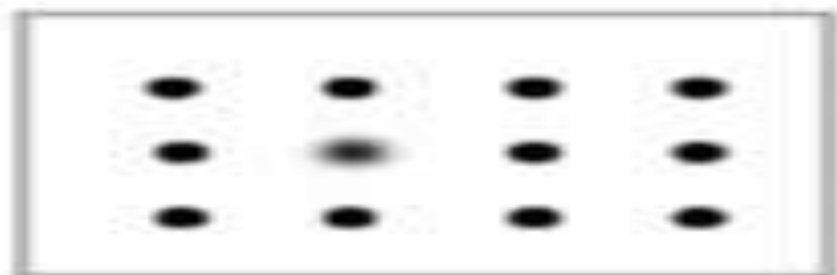
Shape



Curvature



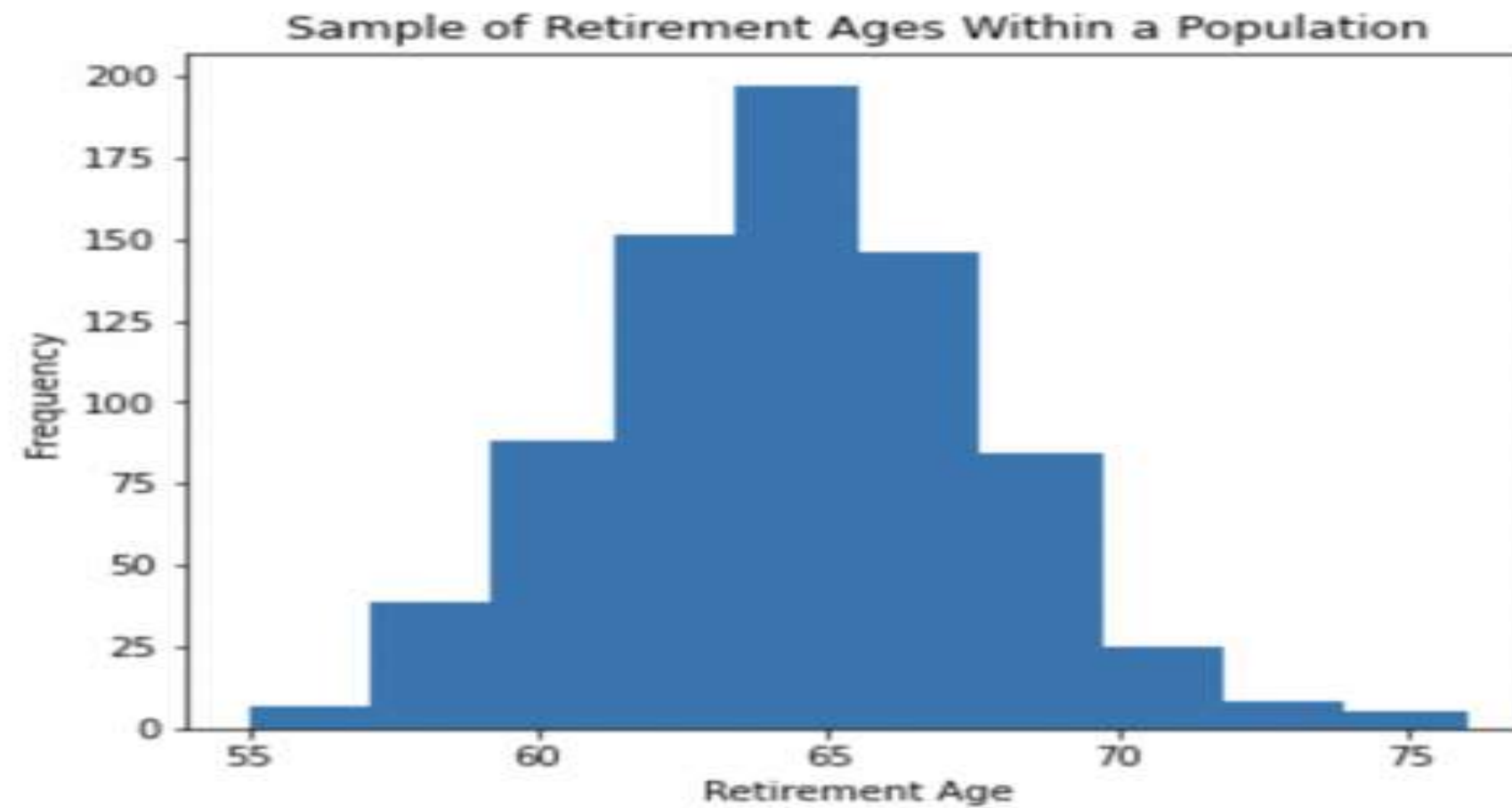
Enclosure



Blur

# Example

A histogram of some dummy data, graphing a sample of 750 data points of retirement ages in Matplotlib.



3D Viewing Pipeline/Nandakumar/IT/SNSCE

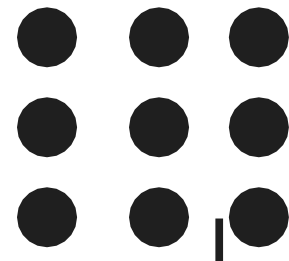


## Example

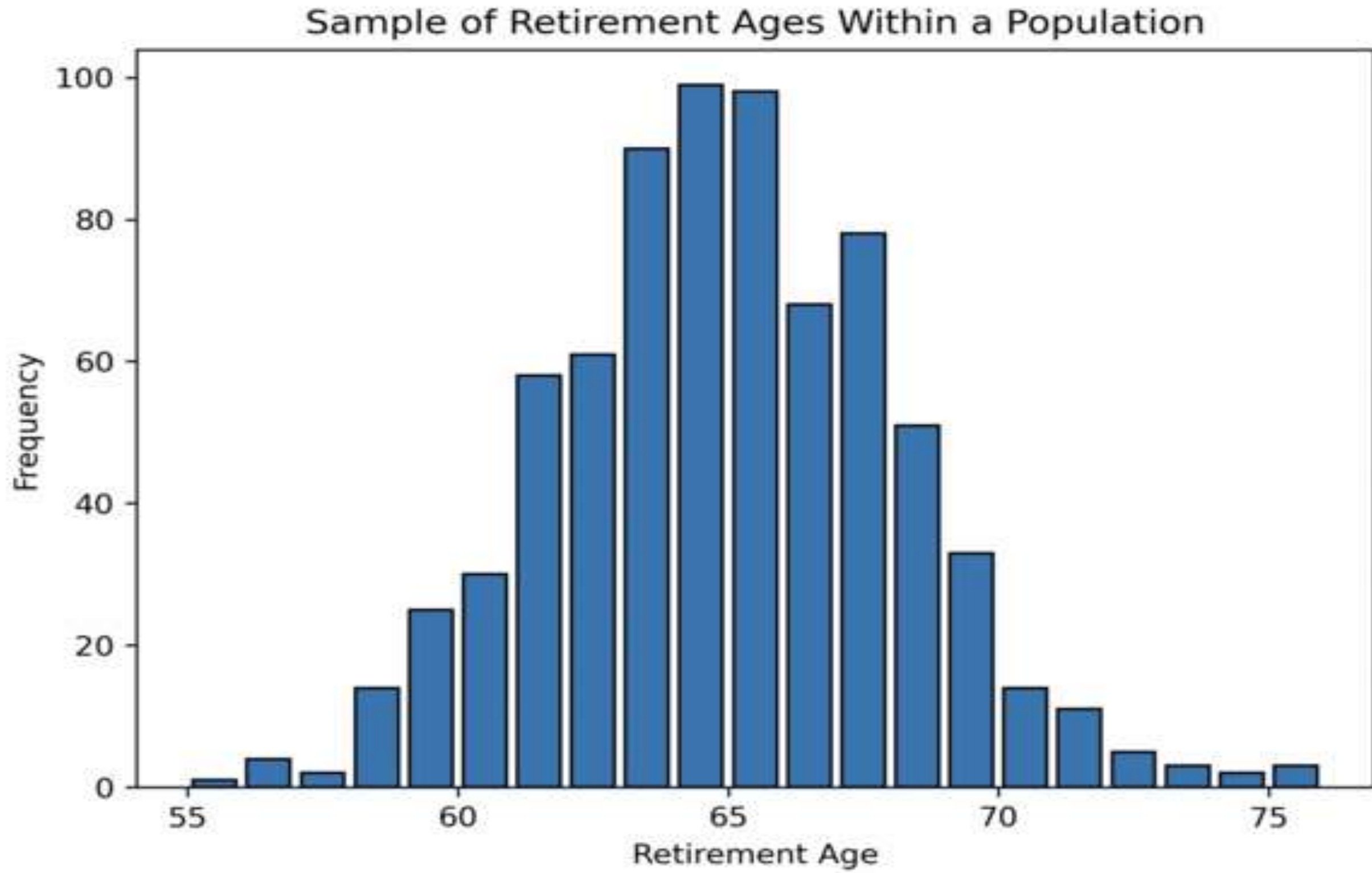


A few issues pop out:

- (1) the text is a bit blurry, which is distracting,
- (2) the lack of distinct borders or spacing between bars is unpleasant and makes it difficult to tell which age bracket each bar lines up to, and
- (3) the width of the bars do not properly line up to the age brackets themselves.

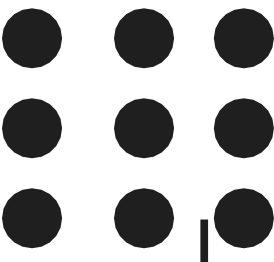


# Example



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## Example

In the new histogram below, the blur of the text is reduced, so it's no longer drawing our attention in a negative way. Enclosure and spacing are added to the bars, to make it easier to distinguish one bar from the next and see which age bracket each bar lines up to. Finally, the width of each bar has been reduced, making it possible to see more specifically where each grouping of data falls with respect to retirement age

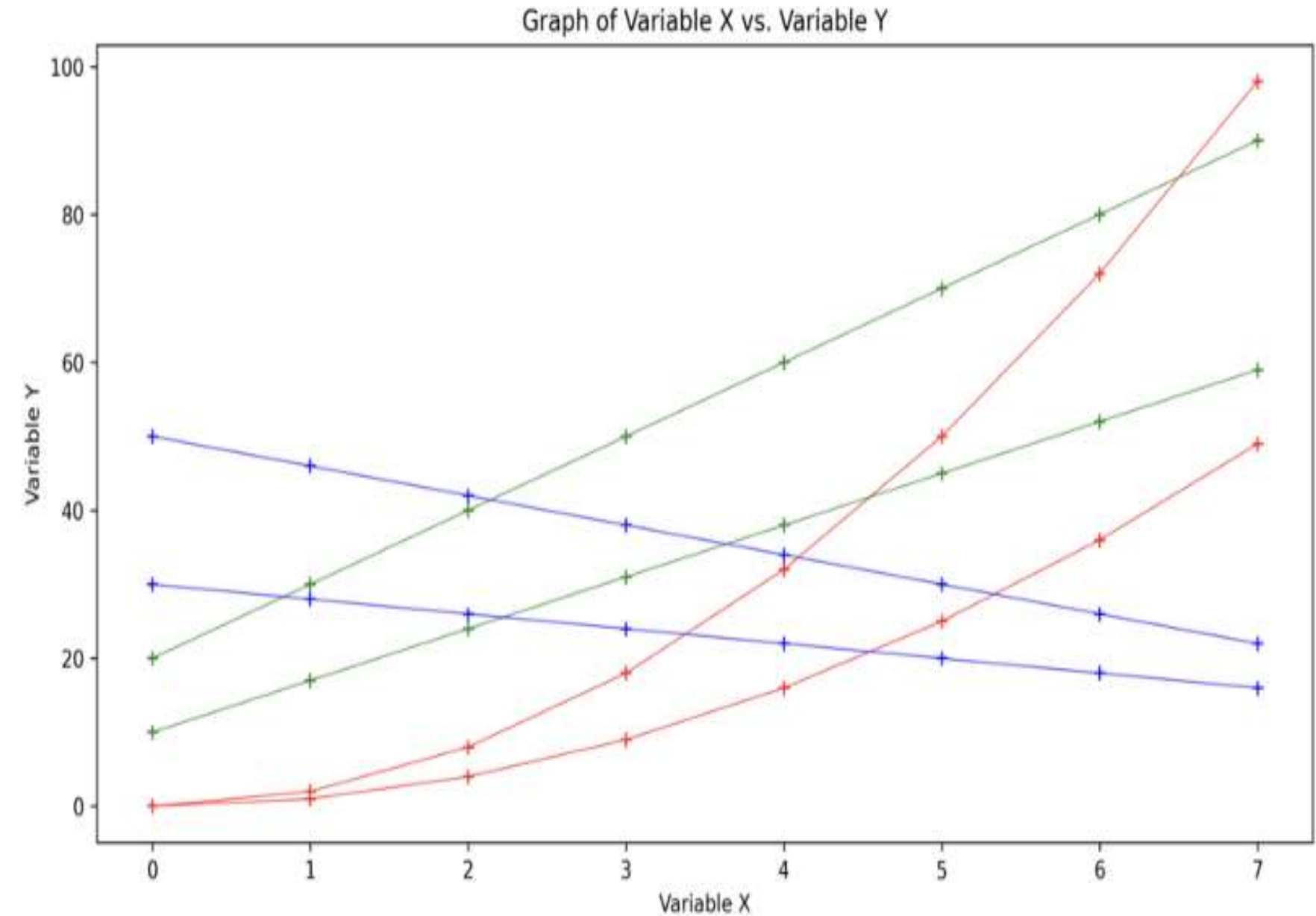
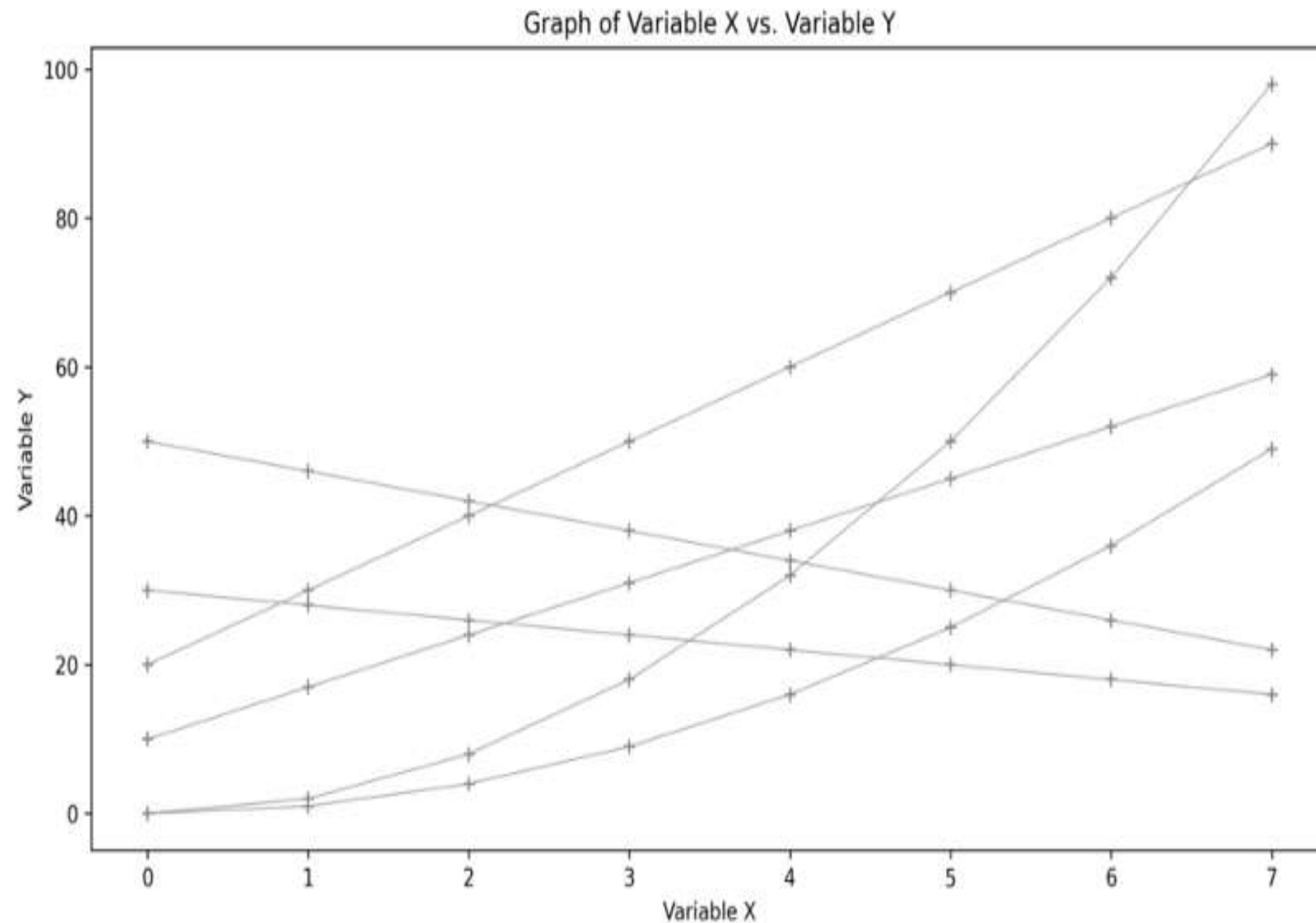
## Preattentive Attribute #2: Color

The category of color includes the hue and intensity of the colors in your data visualization.

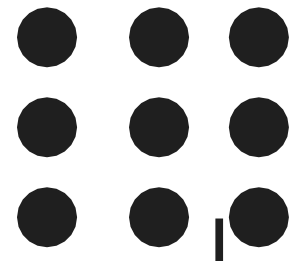


Using different hues can draw contrast between different parts of your data. Similarly, if you want one part of your visualization to stand out, the intensity of the colors in that section can be increased.

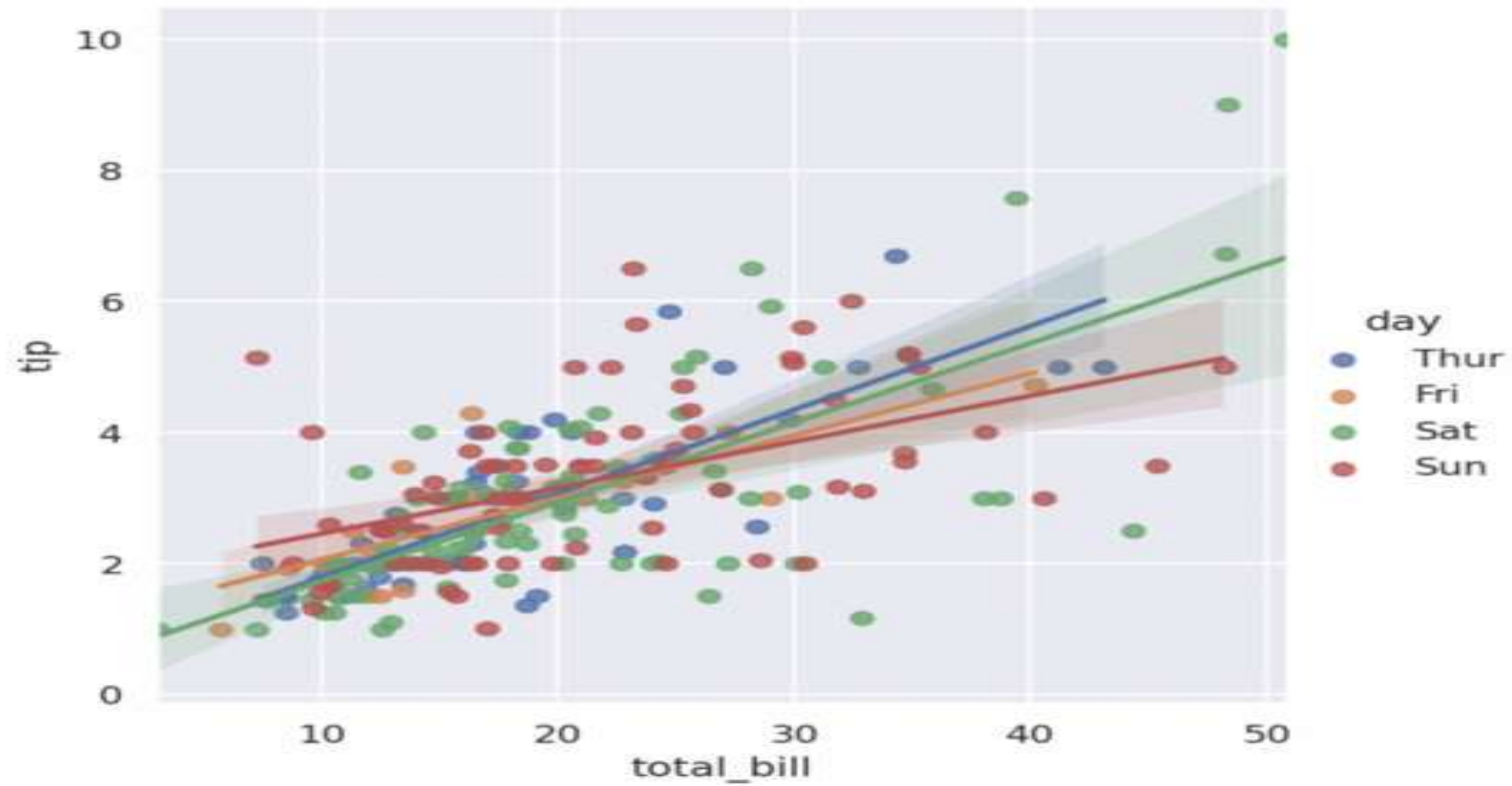
# Preattentive Attribute #2: Color



The three distinct groups are easier to pick up on in this graph because they have been mapped to the visual representation of hue (red, blue, and green).



# Preattentive Attribute #3: Position



The category of position includes both the two-dimensional position of the data in your visualization, and the spacial grouping of your data points.



## Preattentive Attribute #4: Motion

The last category of preattentive visual attributes is motion, which consists of flicker and direction of motion.

Think of how quickly you notice a flickering traffic light, or the flicker of the turn signal of a driver in front of you.

Motion can also be brought into the two-dimensional realm—if the direction of the motion of an object is distinct from the direction of the objects around it, it will tend to draw our attention. Think of a crowd of people walking in the same direction, but one person walking the opposite way. That person will stand out amongst the crowd.

# Preattentive Attribute #4: Motion



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**THANK YOU**