Challenge

Utilize Arrays to Model Aggregate Data

Challenge

- Compute a percentile array

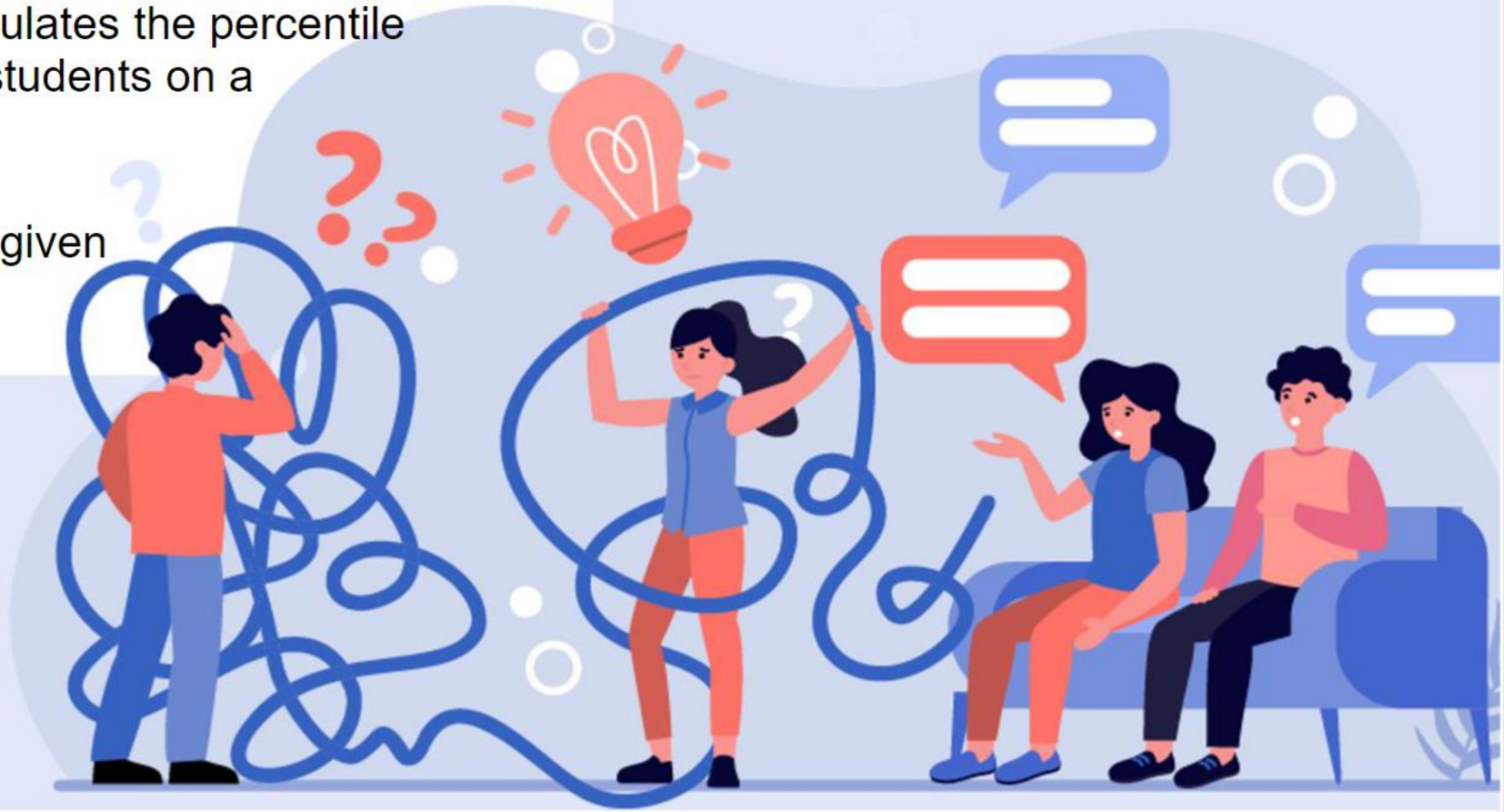
Compute a Percentile Chart

When marks of a subject are given to the students, they are not enough to relate with one another. A student might get 75/100 in a subject, but that only tells his/her marks and not the marks relative to his/her peers. This is where percentiles will help.

Write a JavaScript program that calculates the percentile chart for the marks obtained by the students on a recently conducted exam.

Note: More details on percentile are given in the upcoming slide.

CHALLENGE



Percentile Definition

- Percentile is a number where a certain percentage of scores falls below that number.
- Examples:
  - Stella is the fourth tallest person in a group of 20. 80% of people are shorter than Stella and that means Stella is at the 80th percentile.
  - John is studying in a class has 30 students and has secured 58/100 in a subject. 60% of the students have secured lesser marks than him. That mean John's marks is at 60th percentile.
- Refer to this link for a better understanding of percentile.
- Refer to this link for percentile calculation.

Tasks

- The solution to this challenge can be performed in 3 steps.
  - Step 1: Sort the array passed as parameter using JavaScript function to get the sorted mark values.
  - Step 2: Compute and generate the percentile array using JS function.

Note: Step 2 details are provided in the upcoming slide.

Tasks (Cont'd)

- **Step 2:** Compute and generate the percentile array using JS function.
  - Call the function to sort the array of marks passed and store the result in a variable.
  - Declare an empty array to store the percentile values.
  - Use nested loops to calculate percentile for each student by iterating the sorted array.
    - In the outer loop, iterate through each student to calculate percentile.
    - In the inner loop, find the number(count) of students who have scored less than each iterated student by comparing their marks.
    - Use the count for calculating the percentile for the iterated student.

```
percentile[i] = (count / arraySize) * 100;
```

  - Return the computed percentile array.
    - The computed percentile marks must be rounded to 2 digits using the `Math.round()` predefined method.