COMPUTATIONAL THINKING
UNIT FINAL

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Messy Problem

Two years ago, Weird Al played a concert at CMAC. He did not sell out. Approximately two-thirds of the covered venue was filled. Keith Urban performed one year too and he sold out (including lawn seats). What is the ratio of the total body weight of the attendees at Weird Al to the total body weight of the attendees at Keith Urban (in kilograms)?

To solve this problem I first had to figure out the seating capacity of CMAC, this would give me some of the most important information that I needed to solve my problem. I then would calculate the amount of people at each concert. Finally I would find the average American body mass for both males and females, and calculate the totals and make the ratio.

To find the seating capacity of CMAC I looked at a few different sources[1,2], both stated that there is seating for 15,000 attendees (5,000 are covers, and 10,000 are on the lawn). Considering this, we are able to assume that there were ~10,000 people at Weird Al's concert, and ~15,000 at Keith Urbans. Following that, I found a source[3] that gave me the average American body mass. Now I have my important data:

- Seating for CMAC: **15,000**
- Average American male body mass: **90.63 kg**
- Average American female body mass: **77.47 kg**

I then had to calculate how many people were at each concert. These calculations are based on the assumption that the amount of males to females is was one to one:

- Weird Al's concert: **5,000 females, 5,000 males**
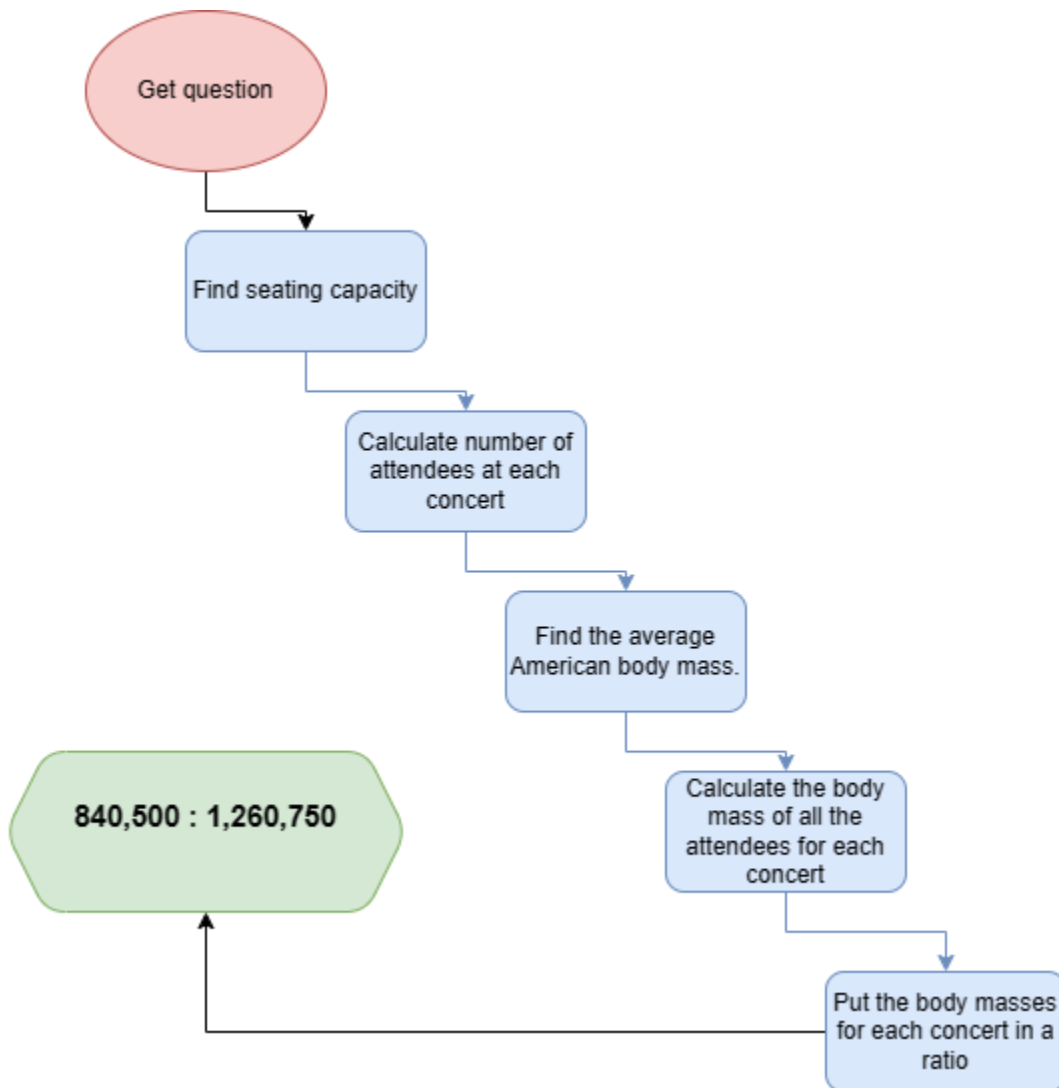- Keith Urbans concert: **7,500 females, 7,500 males**

Now that I had all my data, I could now calculate the bodymass for each concert.

Weird Al's: **5,000(90.63) + 5,000(77.47) = 840,500 kg**
Keith Urbans: **7,500(90.63) + 7,500(77.47) = 1,260,750 kg**

Finally, I can craft the ratio of the total body mass of the attendees at Weird Al's concert to Keith Urbans:

840,500 : 1,260,750

> According to my calculations the ratio of the total body mass of the attendees at Weird Al's concert to Keith Urbans is **840,500 kg : 1,260,750 kg**.

Get question

Find seating capacity

Calculate number of attendees at each concert

Find the average American body mass.

Calculate the body mass of all the attendees for each concert

840,500 : 1,260,750

Put the body masses for each concert in a ratio

Sources:

1. https://en.wikipedia.org/wiki/Constellation_Brands_%E2%80%93_Marvin_Sands_Performing_Arts_Center#:~:text=Capacity-,15%2C000,-Construction

2. https://www.visitfingerlakes.com/listing/cmac/4906/#:~:text=Better%20known%20as%20CMAC%2C%20this%20summertime%20performing%20arts%20center%20holds%205%2C000%20covered%20seats%20and%20has%20a%20capacity%20for%2010%2C000%20more%20for%20lawn%20seating.

3. https://www.cdc.gov/nchs/fastats/body-measurements.htm#:~:text=Height%20in%20inches,in%20inches%3A%2038.7