



Name \_\_\_\_\_ Num \_\_\_\_\_

The exam must be answered without the help of any written materials (or the colleague in the next seat...). Don't forget to **fill in your number in every page**. The last page can be used for drafts. We will be separating the sheets to grade the exam, so ***nothing in the drafts page will be graded***. You have **1h30** to finish the exam. You will be able to leave the room after **45min** have elapsed. *Good luck!*

**1. [3.0]** You decided to visualize videogames. Your dataset has the following attributes:

Hours of gameplay	
Name	
Difficulty Rating ("hard", "easy", etc.)	
Price	

**a) [1.0]** Complete the table above, in the rightmost column, indicating each attribute's type.

**b) [0.5]** Which attribute (beyond the table, but related to the ones in it, perhaps?) do you need to visualize which games gave you the cheapest hours of entertainment?

**c) [1.0]** You have a hypothesis: easier games are cheaper! Draw a sketch of a visualization (make up some data) that would allow you to verify this. What is its name?

**d) [0.5]** Which of the attributes from the table above do you think might be displayed using a logarithmic scale? Why?

**2. [2.0]** Consider the following dataset:

<b>Pages</b>	<b>Author</b>	<b>Font Size</b>	<b>Amazon Rating</b>
343	John Smith	12	4
516	Adam Stevens	11	5
287	Jack Jacobson	12	3
700	Peter Peterson	10	5

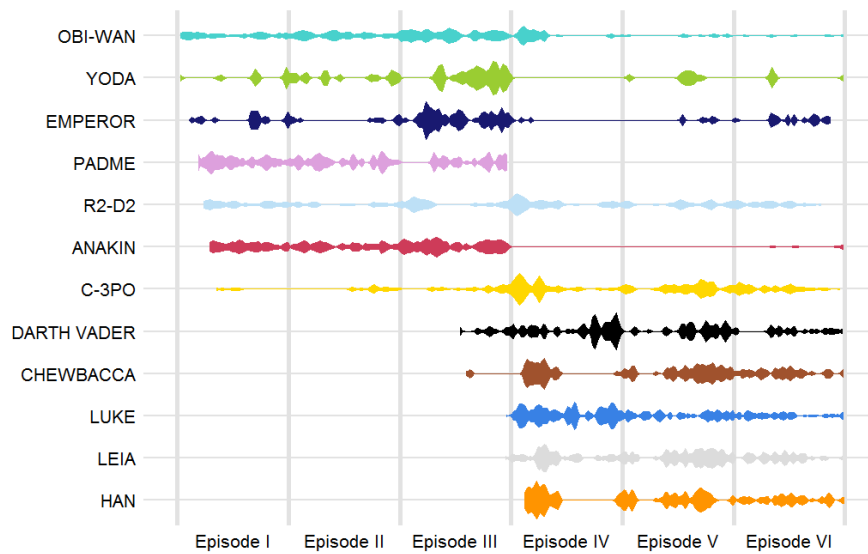
**a) [1.0]** Draw a parallel coordinates plot for the following dataset, about books

**b) [1.0]** Draw a slopegraph (any data). How does it differ from a parallel coordinates viz?

**3. [1.0]** What is a geodetic datum? Which datum is the most commonly used in geo applications throughout the world?

**4. [1.0]** Draw a visualization for the book dataset (Question 2) that lies, by making us believe the book by Adam Stevens is by far the biggest book ever! What techniques did you use to lie?

**5. [2.5]** Consider the following graphic, that shows where and how often the individual characters are mentioned in the Star Wars film series scripts over time.

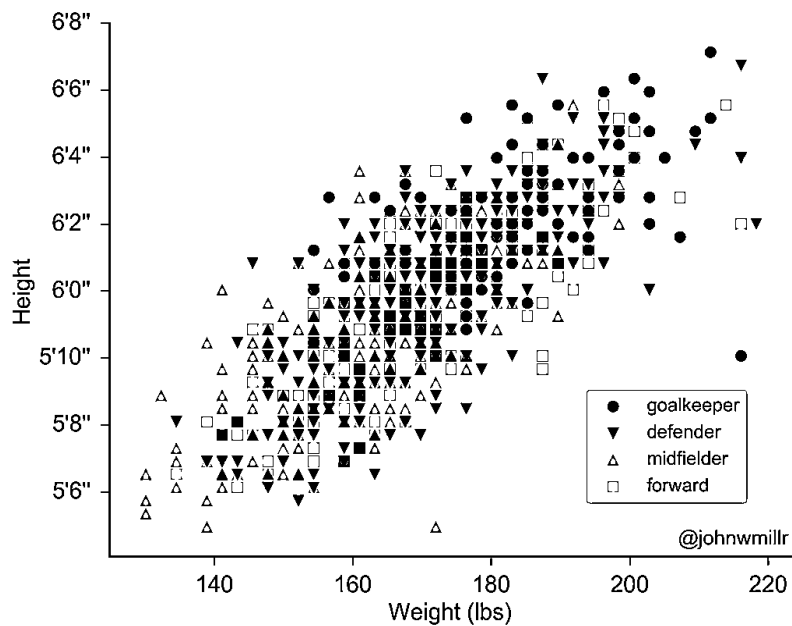


**a) [1.0]** Name two tasks the visualization above could support.

**b) [1.5]** Explain the difference between linear and cyclic arrangements on the visualization of time-oriented data?

**6. [1.5]** Present the three techniques commonly used to guarantee proper responsiveness of a visualization. Add a short description of each.

**7. [1.5]** Consider the following visualization, illustrating the height vs. weight by player position on a football tournament.



**a) [1.0]** Explain what is encoded on each channel used in this visualization.

**b) [0.5]** The dimensionality of the marks is:

- a. 0D
- b. 1D
- c. 2D
- d. 3D
- e. None of the above

**8. [1.5]** Many software packages offer the ability to generate 3D Pie Charts, so its appearance is quite common. However, they have several known drawbacks. Which?

**9. [1.5]** If we are to represent topography on a map, discuss the use of a double-ended (diverging), multiple hue scale.

**10. [1.5]** Imagine that you must represent the 100 most used words in a language over the last 200 years to assess their relative frequencies in that period. Describe which technique is adequate for representing such data.

**11. [1.5]** Describe a scenario where it is adequate to use the small multiples' technique for representing information.

**12. [1.5]** Discuss the advantages and disadvantages of using a matrix rather than a node-link diagram for representing relationships between data items.

**DRAFTS / NOTES**