Grading Rubric : Research Assignment 7 FINAL REPORT

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1. **Miscellany (5/5)** 
   1. The report must be written in LaTeX using the emulateApJ or MNRAS formatting. ( 1/1)
   2. Informative Title, Name (1/1)
   3. Proper Grammar ( 1/1)
   4. All references properly cited ( 1/1)
   5. Acknowledgements with code citations (1/1)
2. **Abstract ( 4/5)**

(a) A sentence that defines the Broad Galaxy Evolution topic 0.5/1

what is intensity of a galaxy? you mean surface brightness  
(b) A sentence that says why the Galaxy Evolution topic is important 0/1

(c) A sentence that introduces the simulations 0.5/0.5

(c) A sentence that says what specific simulation question you are exploring 0.5/0.5

(e) A sentence(s) that states what you found 1/1  
(f) A conclusion about importance of finding(s) for the Galaxy Evolution Topic 0.5/1

missing significance of the specific finding

1. **Keywords (8.5/10)**
   1. 5 keywords listed and defined in the text (2 per word)

Local Group is not a cluster -0.5

stellar disk - missing rotation as part of the definition -1

1. **Introduction ( 7/ 10)**
   1. Define the Proposed Topic in Galaxy Evolution (par 1) 0/1

needed to introduce the concept of surface density profiles and what those mean

* 1. State why this topic matters to our understanding of galaxy evolution 0/1

the topic is surface density profiles - that specifically is not discussed (how concentrated the disk is related to structural changes and impacts on star formation)

* 1. Define “Galaxy” according to (cite) Willman & Strader and “Galaxy Evolution” 1/1
  2. Overview our current understanding of the topic (par 3) 1/2

your project is not actually the merger remnant - so need to discuss what we understand about how disks evolve through interactions before the remnant and why that matters – e.g. redistribution of material, impact on star formation, beginnings of transformation to an elliptical (increased disk scale height etc)

* 1. What are the open questions in the field? With citations (par 4) 2/2
  2. Cite at least 3 journal papers (not including willman & strader). Use BibTex for formatting citations 1/1
  3. Include at least one figure from those papers to motivate your work – the figured must be discussed in the text. Caption must have citation, not plagiarized + punchline (what is the takeaway message) 2/2

1. **Section 2: This Project: ( 5/5)**

(a) State what question(s) you are exploring (Paragraph 1) 1/1

(b) Which of the open questions does this project address? (Paragraph 2) 1/1

(b) Why is the open question interesting/important? How will your study address the question? (Paragraph 3) 3/3

1. **Section 3: Methods ( 8/10)** 
   1. Paragraph 1: describes the simulation you are using and what code was used to create it (citations) 0.5/1

did not describe how the galaxies are modeled, that the simulation follows the future fate of the MW/M31/M33 systems using current positions and velocities

* 1. Defined N-body 1/1
  2. Paragraph 2 : Overview approach. 2/2
  3. Include a figure to describe methods with caption 1/2

the figure doesn’t help understand the method - it would have been more helpful if you had marked on here the snapshots you are using and used this figure to justify why you had picked them (e.g. before/during/after a close encounter to see maximal changes).

* 1. Paragraph 3: Describe calculations with terms defined 2/2
  2. Paragraph 4: Describe the plots you need 1/1
  3. Paragraph 5: Hypothesis   0.5/1

in what way do you expect the values to change? and why?

1. **CODE: (10/10)**
   1. Code header that explains the goal 2/2
   2. Code is documented 2/2
   3. Significant work done in extension of code from class work. 4/4
   4. Code Github Repository is well organized and Code for Final Project is well documented. 2/2
   5. Code check-ins attended **if 2/3 are not attended/rescheduled this entire section is graded as 0.**
2. **Section 4: Results ( 16/20)**
3. Paragraph 1: Describes Plot 1 4/4
4. Plot 1 included with caption + punchline 3/4

missing punchline - what do we learn about the fit you found (scale length and n )?

1. Paragraph 2: Describes Plot 2 4/4
2. Plot 2 included with caption, independent code+ punchline and quantitative 5/8

missing punchline - what do we learn about the fit you found (scale length and n )?

missing quantitative values - e.g. how good is the fit. you could have created a ratio or difference plot of the model vs the fit to quantify the maximal deviation .

1. **Section 5: Discussion (6/15)**
2. Par 1: Result 1.
   1. Does the result agree or disagree with hypothesis? 3/3
3. Par 2:
   1. How does this result relate to existing work ? 0/5
   2. What is the importance/meaning of this result for our understanding of galaxy evolution? 0/4
   3. What are the uncertainties 3/3
4. Repeat for subsequent results

missing what the results mean in the context of galaxy evolution in general.

1. **Section 6: Conclusion ( 10/10)**
   1. Paragraph 1, Summarize 1-4 in abstract 2/2
   2. Paragraph 2: highlight one key finding, what it means and whether it agrees/disagrees with hypothesis 1/2
   3. Last Paragraph: Future directions, how could you improve the analysis/code? 6/6

11. Total 79.5 /100