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 (5 /5)**

(a) A sentence that defines the Broad Galaxy Evolution topic 1/1  
(b) A sentence that says why the Galaxy Evolution topic is important 1/1

(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 1/1

1. **Keywords (8/10)**
   1. 5 keywords listed and defined in the text (2 per word)

elliptical galaxy defn missing kinematics – dispersion dominated -1

Local Group is not a cluster - that is a specific term in astronomy involving several hundred/thousands of gravitationally bound galaxies. -1

1. **Introduction (8.5 / 10)**
   1. Define the Proposed Topic in Galaxy Evolution (par 1) 1/1
   2. State why this topic matters to our understanding of galaxy evolution 1/1
   3. Define “Galaxy” according to (cite) Willman & Strader and “Galaxy Evolution” 0.5/1

incorrect defn. not all galaxies have gas

* 1. Overview our current understanding of the topic (par 3) 2/2
  2. What are the open questions in the field? With citations (par 4) 2/2
  3. Cite at least 3 journal papers (not including willman & strader). Use BibTex for formatting citations 1/1
  4. 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) 1/2

but how does this figure relate to your project? e.g. visual classification rather than a sersic profile.

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) 1/1
   2. Defined N-body 1/1
   3. Paragraph 2 : Overview approach. 1/2

what is the smallest and largest radius you are considering? how do you decide this?

Missing description of how you compute Re.

* 1. Include a figure to describe methods with caption 1/2

figure is not discussed in the main text. What are these sersic profiles of?

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

1. **CODE: (8/10)**
   1. Code header that explains the goal 0/2
   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 ( 18/20)**
3. Paragraph 1: Describes Plot 1 2/4

The smallest radius need to be a few times the smoothening length. Your lowest radius is too small. the results you get in figure 3 at low radius are not physical because of resolution issues. You also shouldn’t be using this sersic profile (with effective radius) to describe a disk - that is a different profile (see Lecture notes).

1. Plot 1 included with caption + punchline 4/4
2. Paragraph 2: Describes Plot 2 4/4
3. Plot 2 included with caption, independent code+ punchline and quantitative 8/8
4. **Section 5: Discussion (12/15)**
5. Par 1: Result 1.
   1. Does the result agree or disagree with hypothesis? 2/3

not explicitly stated

1. Par 2:
   1. How does this result relate to existing work ? 5/5
   2. What is the importance/meaning of this result for our understanding of galaxy evolution? 2/4

not explicitly answered

* 1. What are the uncertainties 3/3

1. Repeat for subsequent results
2. **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 2/2
   3. Last Paragraph: Future directions, how could you improve the analysis/code? 6/6

11. Total 87.5 /100