1 Introduction [5 points]

- Group members:
- Colab link:
- Piazza link:
- Division of labor:
- Packages used:

2 Basic Visualizations [20 points]

Discussion

Visualization description goes here. You can reference figures with Figure 1.

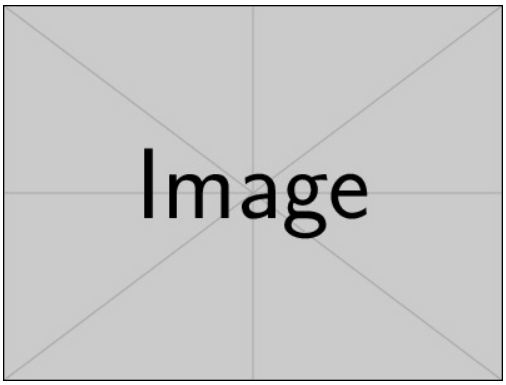

Figure 1: All ratings in the MovieLens Dataset

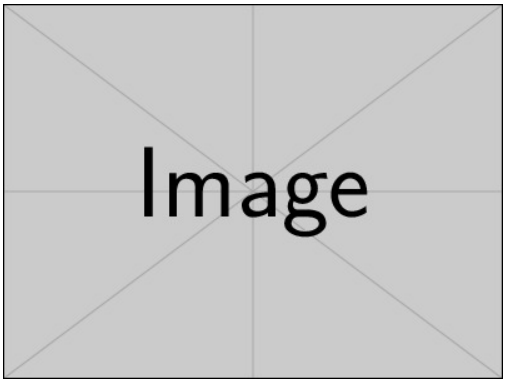

Figure 2: All ratings of the ten most popular movies (movies which have received the most ratings).

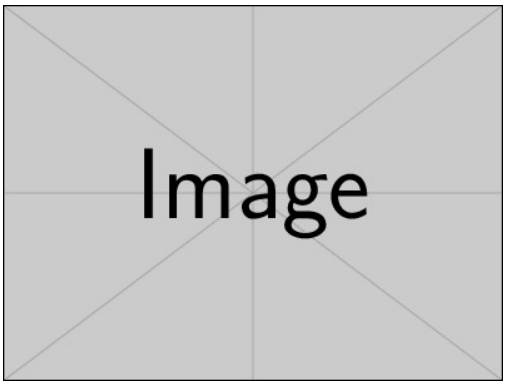

Figure 3: All ratings of the ten best movies (movies with the highest average ratings).

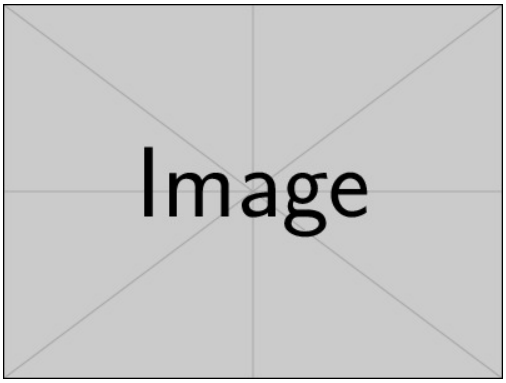

Figure 4: All ratings of movies from the genre [insert].

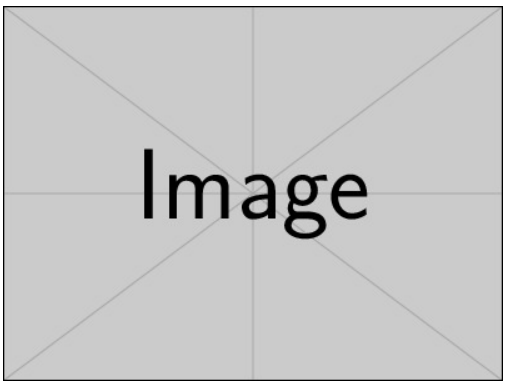

Figure 5: All ratings of movies from the genre [insert].

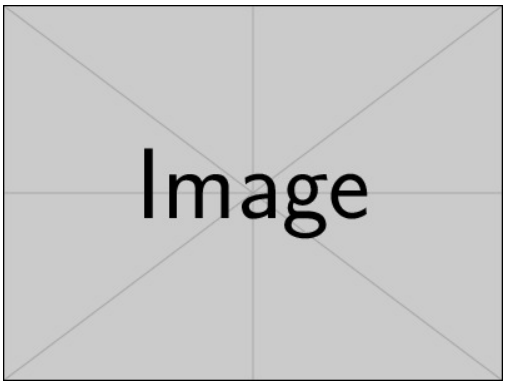

Figure 6: All ratings of movies from the genre [insert].

3 Matrix Factorization Visualizations [60 points]

Matrix Factorization Methods

Your report should contain a section dedicated to matrix factorization methods. How do each of these methods work? Please be specific and include equations. How do they differ? How did they perform in comparison to one another on the test set? Can these methods' differences explain why they perform differently on the test set?

Visualizations

Visualization Discussion

Your report should also contain a section dedicated to matrix factorization visualizations. What, in general, did you observe? Did the results match what you would expect to see? How does the visualization of the most popular movies compare to the visualization of the best movies? How do the visualizations of the three genres you chose compare to one another? How do the visualizations produced by the different matrix factorization methods compare to one another? Be sure to include some plots to indicate which phenomena you're referring to with respect to your observations. You can refer to specific figures with Figure 7

Visualization Plots

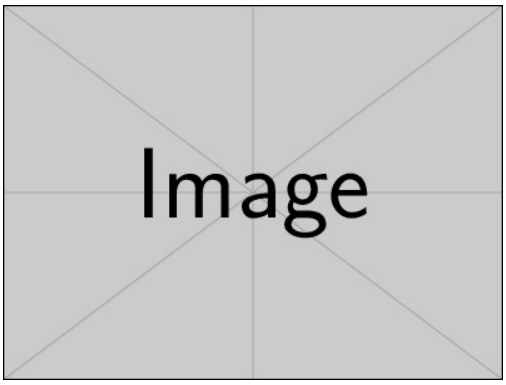

Figure 7: **HW5 A:** Any ten movies of your choice from the MovieLens dataset.

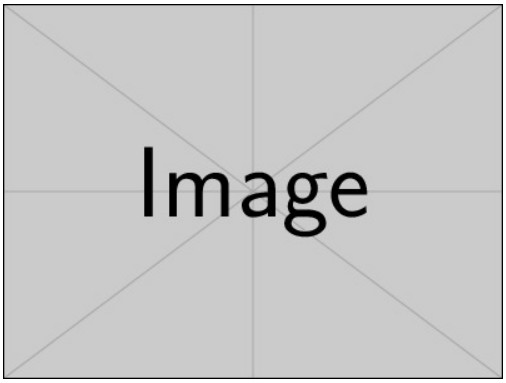

Figure 8: **HW5 B:** The ten most popular movies (movies which have received the most ratings).

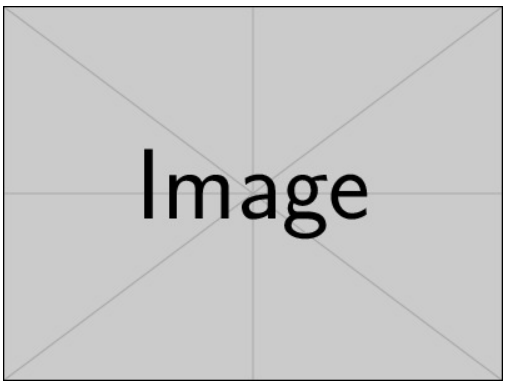

Figure 9: **HW5 C:** The ten best movies (movies with the highest average ratings).

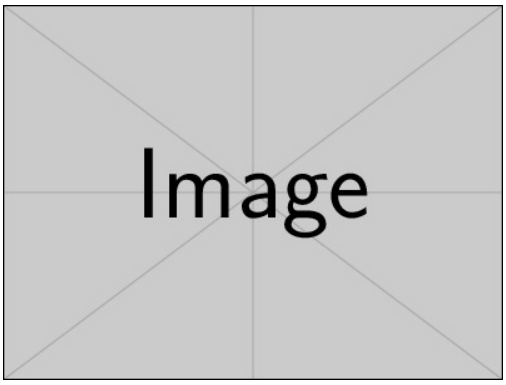

Figure 10: **HW5 D1:** Ten movies from the genre [insert].

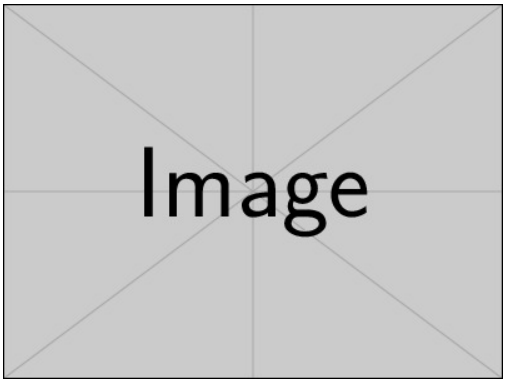

Figure 11: **HW5 D2:** Ten movies from the genre [insert].

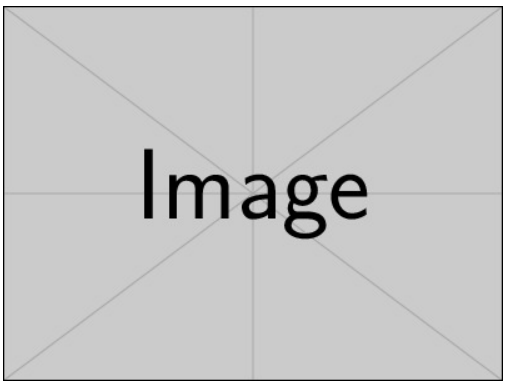

Figure 12: **HW5 D3:** Ten movies from the genre [insert].

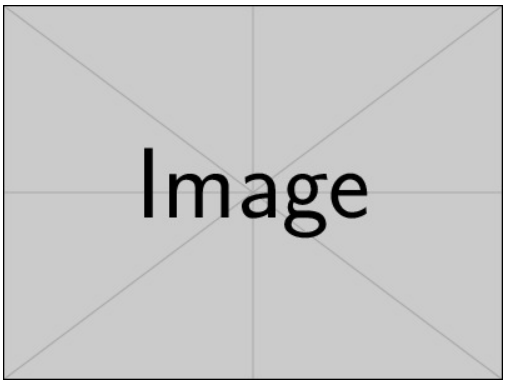

Figure 13: **Bias A:** Any ten movies of your choice from the MovieLens dataset.

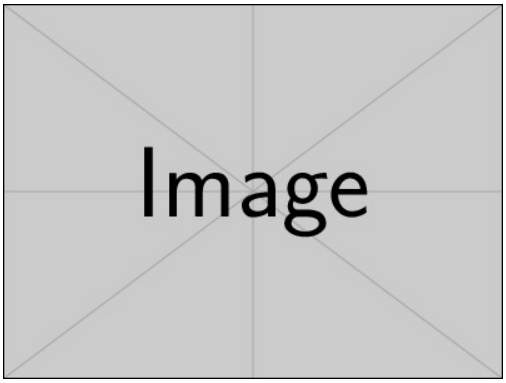

Figure 14: **Bias B:** The ten most popular movies (movies which have received the most ratings).

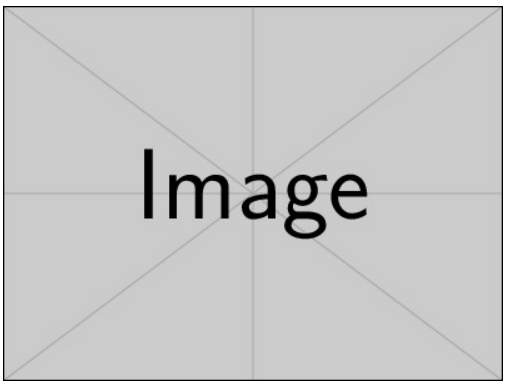

Figure 15: **Bias C:** The ten best movies (movies with the highest average ratings).

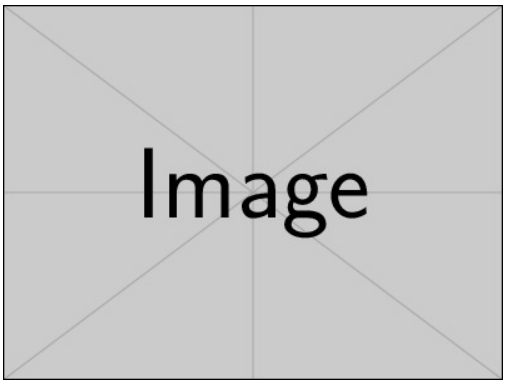

Figure 16: **Bias D1:** Ten movies from the genre [insert].

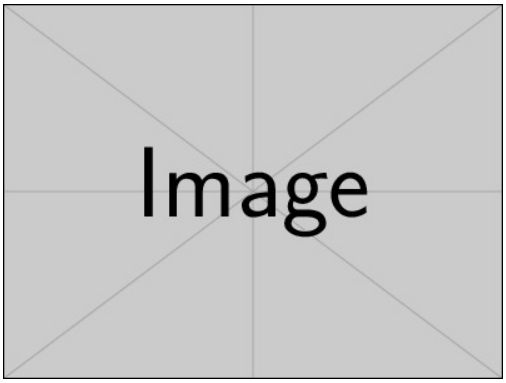

Figure 17: **Bias D2:** Ten movies from the genre [insert].

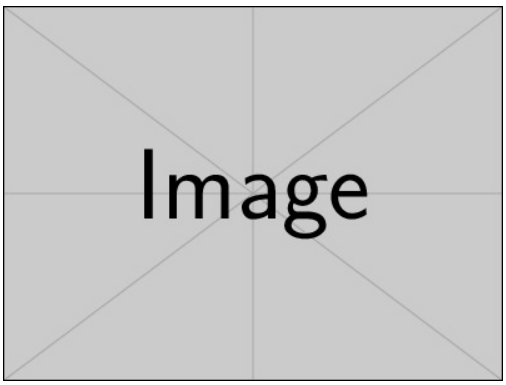

Figure 18: **Bias D3:** Ten movies from the genre [insert].

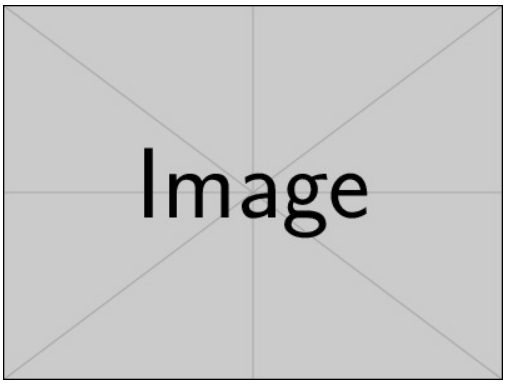

Figure 19: **COTS A:** Any ten movies of your choice from the MovieLens dataset.

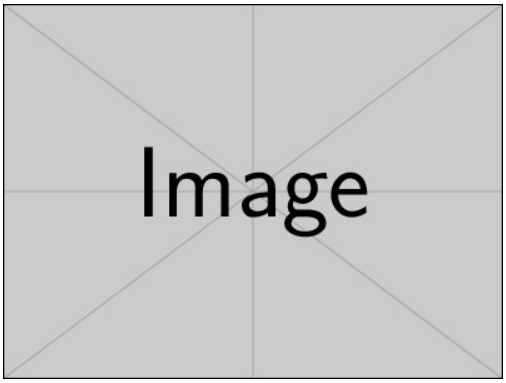

Figure 20: **COTS B:** The ten most popular movies (movies which have received the most ratings).

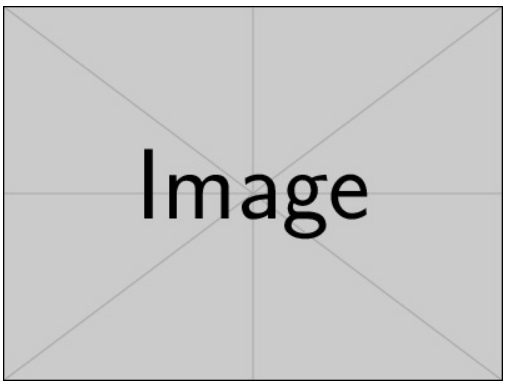

Figure 21: **COTS C:** The ten best movies (movies with the highest average ratings).

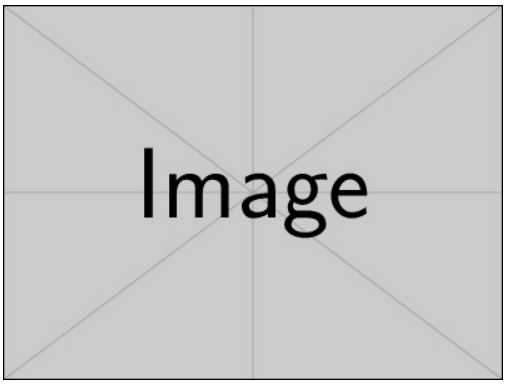

Figure 22: **COTS D1:** Ten movies from the genre [insert].

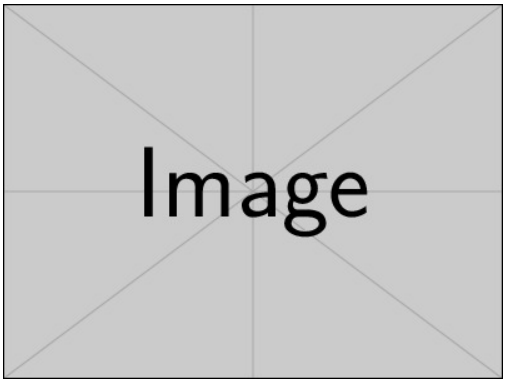

Figure 23: **COTS D2:** Ten movies from the genre [insert].

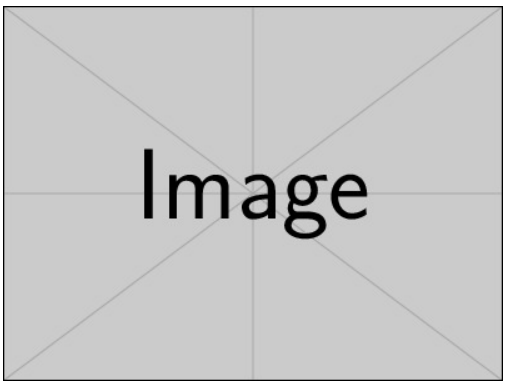

Figure 24: **COTS D3:** Ten movies from the genre [insert].