1. What is your project idea about?

The project aims to simulate and analyze the distribution of M&M colors in a bag and calculate the p-value for a given number of each color using a chi-square test.

1. If you use any datasets, describe the dataset and provide how one can access and download it.

The project does not utilize external datasets but generates simulated data based on the expected proportions of M&M colors.

2. Describe your design for main packages, classes, methods, functions, and iterations between them.

Classes: There is one class Linked List for storing simulated distributions.
Methods/Functions:

insert_last: Inserts a link at the end of the linked list.
is_empty: Checks if the linked list is empty.
size: Returns the number of elements in the queue.
sort: Placeholder for sorting method.
binary_search: Performs a binary search on sorted data.
find_p_value: Calculates the p-value based on the distribution and a test statistic.
create_sim: Creates a simulation based on user-defined total and expected proportions.
get_user_counts: Takes user input for the number of each M&M color.
calc_chisq_single: Calculates the chi-squared statistic for a single observation.
calc_chisq_data: Calculates the chi-squared statistics for the entire simulated data.

3. Describe any libraries that you use.

'Numpy' is utilized for array operations and random number generation.

4. Design some Test cases that can test the correctness of your software.

5. What are your current expectations of your software? For example, do you expect that it works well? What are the expected weaknesses?

The software is expected to work correctly, given appropriate input. An expected weakness might be limited error handling, such as incorrect user inputs.