**Team 10 Abstract and Motivation**

Abstract:

This theme park simulation project aims to maximize profit while maintaining high customer satisfaction. The project will utilize agent-based modelling to simulate the behavior of individual visitors within the theme park and their interactions with the attractions. The project will explore different combinations and configurations of attractions to determine how they affect profit and visitor satisfaction. Metrics such as average queue length, average waiting time per customer, and average profits per customer will be computed to evaluate the performance of the theme park simulation. Welch's method will be used to eliminate initialization bias and we will construct paired-t confidence intervals for differences in the performance of different theme park configurations to analyze whether a two-ride-type theme park or a three-ride theme park has better performance.

Motivation:

When this project was launched, we decided to do a theme-park-related simulation when we thought of Uncle Ringo. Uncle Ringo has been a well-known and trusted name in Singapore since 1984, offering a wide range of carnival and family entertainment services. With a long-standing history of organizing events such as carnivals, fun fairs, theme parties, product launches, fundraising charities, and school events, Uncle Ringo is recognised as one of Singapore's leading providers of these services. Because of Uncle Ringo, we thought it would be interesting to analyse the operations of a theme park and their implications on customer satisfaction.