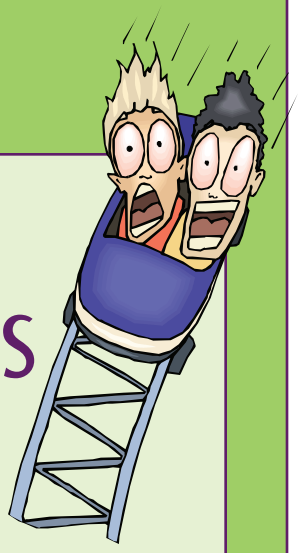
MATH MATTERS

Apply It.

The math behind... Analytics in Theme Parks



Some technical terms used:

Analytics, Data Mining, Customer Relationship Management, Queuing Theory, Simulation

Uses and applications:

Tourism is an important factor in many countries' economies. Researchers in theme park application use math to plan different tasks in theme parks to make them operate more efficiently.

How it works:

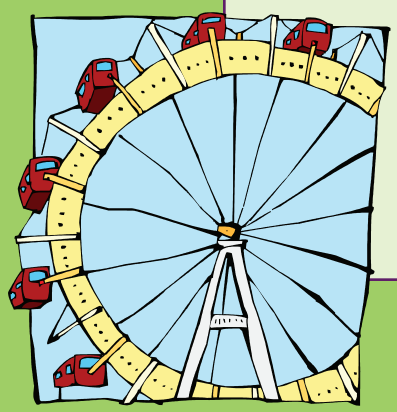
Mathematics enhances the experiences of theme park visitors in many ways. Queuing theory, which is used to estimate the amount of time a person will spend in line at a theme park, helps ensure the satisfaction of visitors by assessing expected wait times in the lines throughout a park. Data mining methods in theme parks can also classify visitors based on their behavioral and demographic data patterns. It is helpful to detect these frameworks and predict the patterns of movement within the theme park. Various pricing strategies used for ticket sales in theme parks are based on the season, holidays, and on the types of facilities and features provided to customers. Simulator rides provide an example of one way in which to experience simulation in theme parks. These rides feel as though they move realistically while they actually move according to prerecorded motion scripts. Star Tours was one of the first simulator rides programmed by a joystick, and additional examples include Mission Space and The Simpsons Ride. There are also many additional simulation rides at theme parks like Disney and Universal.

Interesting fact:

With the tourism industry quickly expanding, it is crucial to detect ways to build enhanced customer-relationship management systems and classify customers into frameworks that will help predict future patterns in high-frequency tourist destinations, like hotels or theme parks. By utilizing data mining techniques along with behavioral and demographic data patterns in theme parks, the detection of these frameworks is worthwhile since it helps to predict the patterns of movement within the theme park, thus achieving an improved park flow to keep customers happy, and reduce the risk of over/under supply to maintain balance over loss versus profit.

References:

1. Mielke, R., Zahralddin, A., Padam, D., & Mastaglio, T. (1998, December). Simulation applied to theme park management. In Simulation Conference Proceedings, 1998. Winter (Vol. 2, pp. 1199-1203). IEEE.
2. Leask, A. (2010). Progress in visitor attraction research: Towards more effective management. Tourism Management, 31(2), 155-166.
3. Braun, B. M., & Soskin, M. D. Theme park pricing in a new century: the central Florida market revisited. Managing visitor attractions.



Submitted by Talayeh Razzaghi and Andrea Otero, University of Central Florida, USA *Math Matters, Apply It!* contest, January 2013

Society for Industrial and Applied Mathematics
www.siam.org
www.siam.org/careers/matters.php