

# Project #1 – Medieval Park Simulation

## Story:

The purpose of this project is to create a simulation of a medieval attraction park. This simulation will exhibit the behavior of groups of people visiting the park with the purpose of analysis and optimization. Thus the project is divided into two main compartments: People and park.

The people visiting the park get assigned a ranking number relative to their social class: peasants (<5), servants (5-12), warriors (13-18), knights (19-22), and royals (22>). They also come in different sets: individuals, peer groups of same rank, or families (2 Royals + servants). Every combination of groups have a certain probability to show up to the park with a set a range size and type.

As for the park, it has a predefined space and is constituted of different rides. Each ride will have specific parameters stored in a configuration file which are its name, the space it takes in the park, its length to complete, its capacity, its queue capacity, and the social group it appeals to. The special thing about this park is that it can cause the people to get injured. Each ride has a specific chance of getting the riders injured.

Every person can try each ride 0 or 1 times. People with higher social ranking can go on rides for lower ranks but not vice versa. However, they cannot go on any rides designed for people that have less social ranking than members of the group. For example: if a family consists of 2 royals and 2 warriors they cannot go on a ride that is designed for servants groups leave the park when either they have exhausted the rides they want, or there is no space for them to join the queue for a ride (*“CS150 Project 1 Description”*).

The simulation runs for 1000 ticks and in every tick (each step of the simulation):

- A number of groups will come to the park.
- The rides will progress, will load, or will unload passengers.
- Passengers will go from one ride to another.
- Group leave when leaving condition met.

Our aim is to find out what makes the medieval park efficient. The questions we are going to answer with the help of the simulation are:

- Which configuration will generate the max number of injured people?
- Which configuration will generate the longest wait time.